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## foreword



The global financial and economic crisis of recent years has shown quite clearly that Austria must continuously improve its system of education, science and research if it is to be successful as a small economy with strong international links in a global competitive environment. This requires a pragmatic and long-term policy that treats education, science, research and innovation as one. To ensure results-driven management of these policy areas, the Austrian government has drawn up an RTI strategy; the Austrian Council is called upon to contribute to implementing this strategy by making well-founded recommendations to the government.

On the whole, Austria is on the right track. Thanks to the long-standing growth trajectory for research and development and additional funding from the economic stimulus package, the percentage of GDP spent on research actually rose during the global economic crisis. The government has thus created a solid basis for positioning Austria among the leading European innovation nations in the medium to long term. As an independent strategic advisory body established by law in 2002, the Austrian Council for Research and Technology Development has made an important contribution to this success.

In September 2010 the Austrian Council for Research and Technology Development commenced its third term of office. The eight new members, under the chairmanship of Dr. Hannes Androsch and deputy chairmanship of Prof. Peter Skalicky, Rector of the Vienna University of Technology, all have many years of experience in diverse areas of Austrian science and research. It is especially pleasing that the new council members boast enormous economic and scientific expertise and that five of the eight new council members are women.

We would like to take this opportunity to thank the retiring members of the Austrian Council for Research and Technology Development under the chairmanship of Dr. Knut Consemüller and the deputy chairmanship of Prof. Günther Bonn. With their commitment and expertise reflected in a host of strategy documents and recommendations, they helped the Austrian government take research and technology policy forward over the past ten years.

The government is now gladly looking ahead to working with the Council for Research and Technology Development toward the shared goal of safeguarding and increasing our country's prosperity. ■

Dr. Beatrix Karl  
Minister of Science  
and Research

Doris Bures  
Minister of Transport, Innovation  
and Technology

Dr. Reinhold Mitterlehner  
Minister of Economic Affairs,  
Family and Youth

DI Josef Pröll  
Vice Chancellor and Minister  
of Finance

### The New Austrian Council

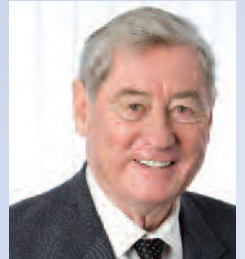
At the start of the Austrian Council's third term of office in September 2010, ministers Doris Bures (BMVIT) and Beatrix Karl (BMWF) appointed new members to the Council. The eight appointed council members represent the scientific and business communities in equal measure and will support the government in taking measures that are necessary and important for the further development of our country. The Austrian Council's work is focused on positioning Austria among the leading countries of the European Union in the fields of research, technology and innovation. The challenges are manifold. The priorities for the Austrian Council in the coming months and years will be monitoring, human resources, infrastructure, international activities, awareness, and last but not least, funding. The Austrian Council will also identify the areas in which reforms have been gridlocked for many years, blocking resources that are urgently needed in education, science and research. This requires review and reflection in a national and international environment that has been shaken

by the financial and economic crisis. The pace of innovation must be increased in order to ensure competitiveness.

The dynamic development of Austrian research in the last decade faltered in 2008, and this momentum now has to be reignited. Money will not be the only factor in this process, especially as it will always be limited. Instead, the money that is available needs to be used efficiently. This means there must be no parallel structures and no fragmentation, as these lead to inefficiency. We must also increasingly look beyond our own borders in search of international cooperation, for research is a global challenge.

### No Research Without Qualified Personnel

Optimising the framework conditions for research and development is vital for moving Austria forward and safeguarding its international competitiveness. Mobilising the reserves of talent in our country is another important task. Correcting the gap between the skills available and those which are in demand is one of the central >



**Hannes Androsch**  
Chairman  
of the Austrian Council



**The new members  
of the new Austrian  
Council (from left  
to right): Markus  
Hengstschläger,  
Karin Schaupp,  
Gi Eun Kim,  
Renée Schroeder,  
Marianne Hilf,  
Peter Skalicky,  
Gabriele Ambros,  
Hannes Androsch**

## editorial



**Peter Skalicky**  
Deputy Chairman  
of the Austrian Council

challenges facing our country today, and encompasses all levels of education – from pre-school through schools and universities to lifelong learning. It is people who support the research and development system and who fill it with life. It therefore follows that the areas of education and research, which decide whether we win or throw away our future, must receive significantly more funding than is presently the case. Germany and Switzerland can serve as role models in this respect, having massively increased their efforts and funding in the areas of education and research in recent years. However, other countries have also completely reformed and modernised their educational and research systems – in some cases, e.g. Finland and Sweden, twenty years ago.

### **The Future Cannot be Won by Managing Shortages**

This is why we must overcome the obvious shortcomings and seize new opportunities and tasks. Unfortunately, it is very often the opposite that happens in Austria. Necessary structural reforms, for example of public administration, the pension system or the health service, are repeatedly postponed or carried out in piecemeal fashion. This locks up resources which are then unavailable for use in areas which are essential for our competitiveness, in particular education and research.

This situation poses a threat to our national development. Other countries recognised the growing importance of education, research and development earlier. Investments in these areas are rising across the world, countries are trying to strengthen their innovation systems and com-

panies are launching innovative products that will enable them to withstand global competitive pressure. For a small and open economy like Austria, “being there” will simply not be enough. Quite the contrary, the question is what specific measures can Austria deploy to join the most successful innovation nations, successfully leverage existing strengths and fill niches which can then be safeguarded and expanded through excellence?

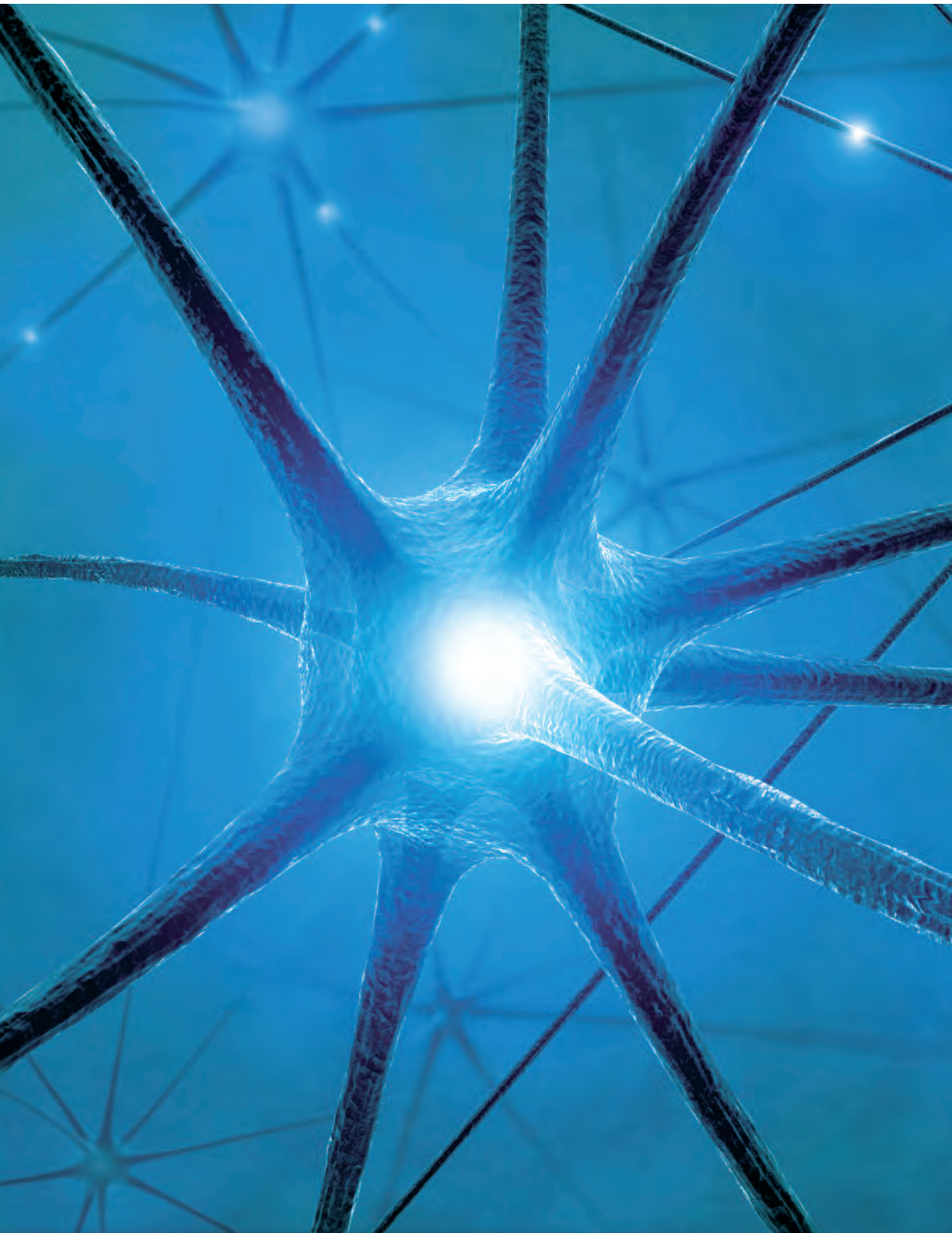
The Austrian Council for Research and Technology Development wants to make a major contribution to getting Austria fit for the future. The main challenges we face on the way to becoming an internationally well-connected and innovative knowledge society must be identified and proposals put forward that will enable us to overcome these challenges successfully.

We would like to thank all those who supported our work in the first few months of the new Austrian Council’s term of office. However, we would like to extend our special thanks to those members of the Austrian Council who shaped the Council’s work in the years 2000 to 2010, and who thus made an important contribution to the dynamic progress of research and development in Austria.

The new Austrian Council regards itself as a team, which in accordance with its legal mandate will make recommendations to the Austrian government for strategic action in RTI policy. However, implementing these recommendations is subject to the necessary funding being made available and a will to carry out genuine reforms.

In this spirit, we invite you all to work with us and create an innovative Austria. ■

To open up new perspectives it is essential to look at the big picture.



## outlook



### **The New Mission Statement of the Austrian Council for Research and Technology Development**

On 15 December 2010 the Austrian Council published its new Mission Statement, which is presented here in a slightly abbreviated form:

#### **Advice**

The Austrian Council for Research and Technology Development is the strategic advisory body to the Austrian government on all matters regarding research, technology and innovation policy. In close dialogue with the key political players, the Council draws up recommendations for the medium and long-term strategic orientation of research, technology and innovation policy. As a central node of national RTI policy the Austrian Council strengthens Austria as a location for RTI with its expertise and by providing independent and systematic advice.

#### **Implementation**

The Austrian Council carries out strategic moni-

toring with regard to implementing measures, topics and areas of action covered by the government's RTI strategy. As international competition in all fields of research is the benchmark for the Austrian Council's strategic decisions, this is increasingly having an impact on the preparation and implementation of evaluations of the RTI system.

#### **Focus on the Future**

If Austria is to catch up with the most innovative research nations a concerted effort by all RTI players is required to accelerate the pace of innovation which has stalled in the last two years. Bearing in mind that resources are limited, this necessitates greater investments in the RTI system, highly qualified human resources and more flexible structures. The Austrian Council supports the Austrian government in its endeavours to lay the strategic foundations for Austria to catch up with the innovation leaders.

### **Foundations and Framework for the Mission Statement of the Austrian Council**

#### **Introduction**

In a global context, research will play an increasingly important role in resolving the serious problems resulting from the large and rapidly growing world population, but also in helping to achieve the UN Millennium Development Goals. Science and research are necessary to generate new knowledge which can form the basis for innovations and to find new technologies for products and manufacturing processes. In turn, innovations are vital for the prosperity and economic growth which are necessary to safeguard welfare, i.e. the welfare state, especially in light of the demographic change which is becoming increasingly apparent. Economic growth, however, is also essential to consolidate and correct the structural imbalance in public finances that developed some time ago. This imbalance has become especially evident due to the financial

and economic crisis which has yet to be overcome, and has indeed aggravated it.

More than ever before, successful product and process innovations are crucial for the competitiveness of our economy on the global market and for ensuring the attractiveness of our country as a business location – especially for industry. The quality of the research location is an important element, as is the quality of the educational system, for without more education – especially in the tertiary education sector – there cannot be an adequate supply of suitably qualified human resources.

This is the background against which the Austrian Council for Research and Technology Development defines its duties and functions in the Austrian innovation system. In addition to the legal basis, the Council is also guided by its

mission statement, which is based upon the following pillars:

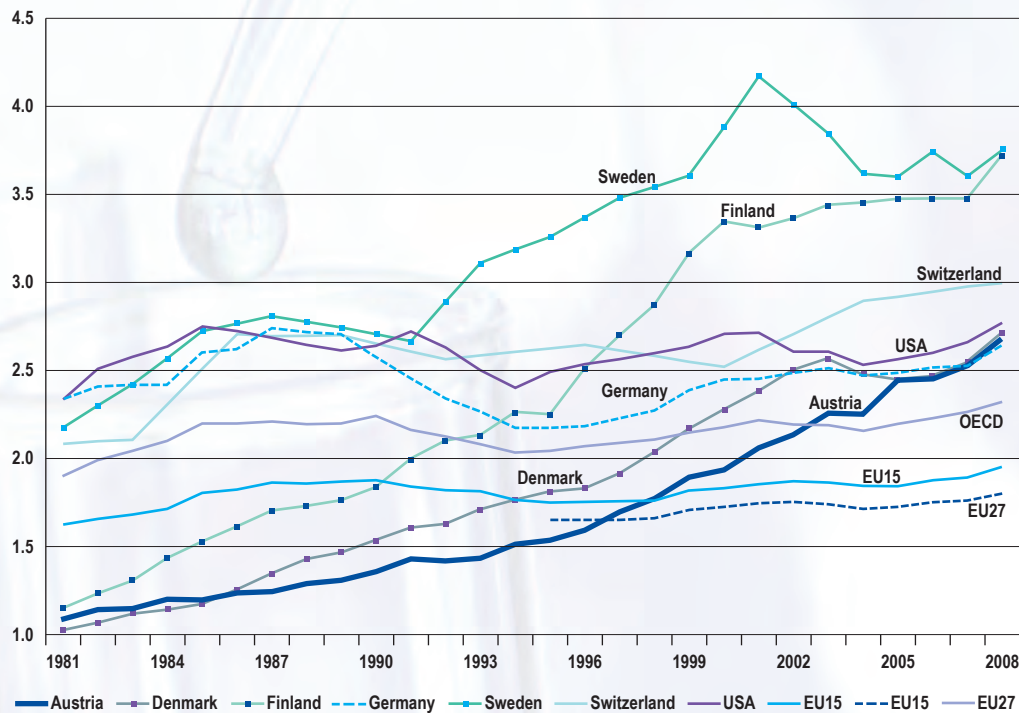
- Focus on the Future
- Advice
- Implementation

### Focus on the Future – The Dynamics of Innovation Development in Austria

In the last two decades Austria has been catching up fast in the fields of research, technology and

innovation (RTI), a trend characterised by a sharp rise in the intensity of research throughout the innovation system. Within the last decade, the percentage of GDP spent on research has risen from 1.94 to 2.76 percent, making Austria a European leader in terms of innovation intensity.

In the rankings of the European Innovation Scoreboard which quantifies the performance of various countries based on a set of specified indices, Austria has climbed to sixth place and



Source: OECD, Main Science and Technology Indicators, 1/2010

now heads up the group of innovation followers. The group of innovation leaders comprising Sweden, Finland, Denmark, the United Kingdom and Germany is coming into sight.

The positive development of research activities in Austria during the last decade has basically been achieved by the progressive use of research funding from the public and above all the private sector.

Fig 1:  
Growth of the R&D  
quota in a European  
Comparison  
(percentage of GDP)

## outlook

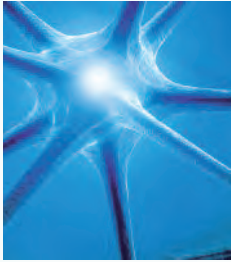
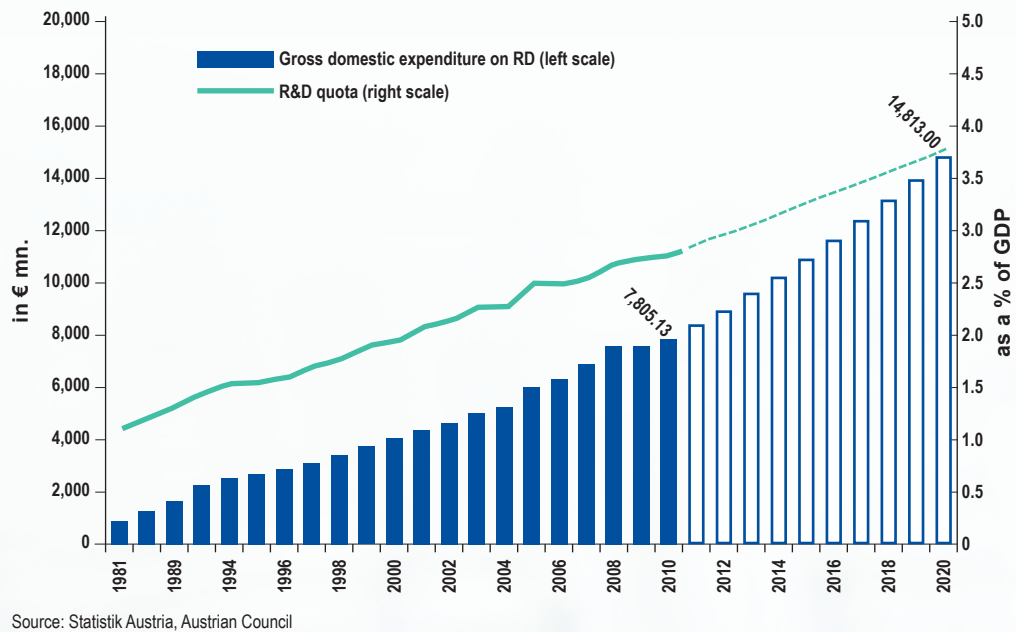


**Fig. 2:**  
Development of  
gross domestic  
expenditure on R&D  
1981 to 2010  
according to the  
global estimate of  
Statistik Austria



*Goal: R&D quota of 3.76 percent by 2020 based on a linear projection from 2011 to 2020. Assuming linear, nominal growth in GDP of 3.4 percent, spending on R&D will have to rise by 3.4 percent in the years 2011 to 2020 if the goal is to be achieved.*

### Strengths of the Austrian RTI System:

- Higher than average state spending on R&D by international comparison
- High level of direct and indirect research funding
- High levels of corporate spending on R&D
- Higher than average number of innovators with strong product, process and organisational innovations
- Higher than average scores in connection with protecting intellectual property rights
- High level of in-house innovation potential at SMEs
- Cooperation between science and industry

### Challenges for the Future

In order to become one of the European leaders, Austria will first have to eliminate structural deficits in the field of human resources. In particular, the number of science and engineering graduates

needs to be boosted. The Austrian Council therefore concurs with the view that the process of safeguarding balanced and sustainable growth starts at kindergarten and in primary school classrooms. In particular, increased efforts must be made to communicate more knowledge, to awaken an interest in mathematics, the sciences and technology and to promote their general acceptance, obviously with the involvement of teachers.

It should also be pointed out that excellent conditions for research are crucial to prevent expensively educated talent from emigrating, i.e. the brain-drain of 5,000 young, motivated and talented people who have now left the country due to inadequate employment opportunities and prospects in Austria.

There are also structural deficits in terms of research institutions, research infrastructure, the dialogue between science and society (science communication) and economic structures (in

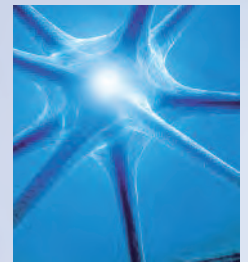
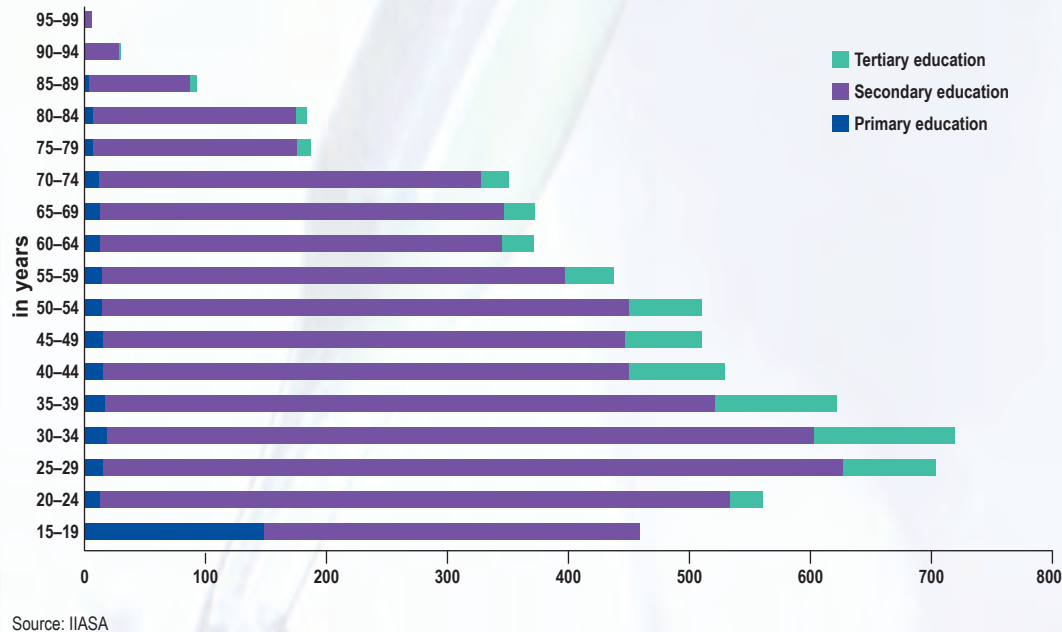


**Fig. 3:**  
Population of Austria  
according to educa-  
tional attainment

particular, competition, technology transfer). In addition to these structural deficits, the budgetary situation poses a key challenge too. If instead of relying on chance we wish to adopt a systematic approach, adequate monetary resources are required. In this regard, the research sector has developed more positively in the past than the educational sector and in particular universities, the latter alone requiring an additional EUR 1.5 billion. With regard to the percentage of GDP spent on research, the figure for Austria in 1995 was 1.55 percent rising to 2.76 percent in 2010, far less than in comparable countries such as Switzerland with 3.01 percent or Sweden with 3.75 percent, let alone the amount spent on research in the USA, Japan or Singapore. Nor should the immense efforts of China or India to expand their research sectors be underestimated. At any rate, Austria is still a long way from meeting the target research quota set by the government of four percent in 2020, or the 3.76 percent last reported to Brussels.

Achieving these R&D input targets by 2020 must therefore be a fixture of any forward-looking research strategy. This is confirmed by taking a look at other countries, which, like Austria, are moving forward in the R&D catch-up process and making ambitious investments to develop new technologies. Our economic competitiveness on the global market and our attractiveness as a business and research location must therefore be safeguarded by a dynamic RTI strategy.

If Austria is to catch up with the most innovative research nations, a concerted effort by all RTI players is required to accelerate the pace of innovation which has stalled in the last two years. Bearing in mind that resources are limited, this necessitates greater investments in the RTI system, highly qualified human resources and more flexible structures. The Austrian Council supports the Austrian government in its endeavours to lay the strategic foundations for Austria to catch the “innovation leaders”.

&gt;

## outlook



### Starting Points for Discussion with the Government

■ 1. Basic research and collaborative research need greater support (e.g. Academy of Sciences, Christian Doppler Research Association, Ludwig Boltzmann Gesellschaft, etc.).

■ 2. Institutions engaged in applied research, which obtain significant levels of funding through contract research and participating in projects, require core funding commensurate with their tasks (e.g. AIT – Austrian Institute of Technology, Joanneum Research, the institutes belonging to Research Austria, University of Applied Sciences Hagenberg etc.).

■ 3. The competence centres have proved hugely successful. There are currently five K2-centres and 16 K1-centres operating within the framework of the Comet programme. These should not be phased out but instead – applying the same stringent criteria as when they were established – could be meaningfully expanded.

■ 4. Research in the business sector, especially in industry, is a strategically important element of the Austrian research landscape.

Industry is a crucial pillar of our economic output and thus our added value and high level of employment. The promised increase in the research premium to ten percent and its unbureaucratic administration make an important contribution to supporting our industrial companies in global competition.

■ 5. It appears that the architecture of Austrian research is certainly useful but – just like everything else that is man-made – it can be improved. Finite resources require the definition of priorities and a focus; parallel structures and fragmentation are to be avoided.

■ 6. The research architecture should therefore ensure that the research domain is organised in a form that guarantees the best possible, most efficient and most effective use of resources whilst preserving the freedom of research, i.e. affording participants the maximum in self-governance.

■ 7. What is needed of course is an Austrian research strategy comprising focal points and principles, but also one that constitutes the

basis for the targeted provision of limited funding and their coordinated use.

To this end, the government intends to lay down a strategy with guidelines. This strategy should enable research institutes to make the best possible operational use of the funding and achieve the desired aims.

A research strategy must therefore also have a long-term focus and planning certainty.

■ 8. It will only be possible to position Austria as a forward-facing science location if all political forces make a joint commitment to more education, more science and more research. Only if these goals are successfully achieved will our country be able to look forward to a prosperous future.

### Advice – The Role of the RTI Advisory Body in an International Context

According to ERAWATCH, organisations that advise policymakers on research, technology and innovation have been playing an increasingly important role in almost all EU member states in recent years. The leading innovation nations in particular, the so-called “innovation leaders”, have strong RTI advisory bodies. These bodies are distinguished by their overarching and integrated perspective of the respective RTI system, which makes it possible to assess strengths and weaknesses objectively. Without being integrated into daily administrative processes, such assessments can form the basis for independent proposals targeting further developments and improvements.

### The Austrian Council in the RTI System

The Austrian Council for Research and Technology Development is the strategic advisory body to the Austrian government on all issues relating to research, technology and innovation policy (RTI). The statutory duties of the Austrian Council for Research and Technology Development are:

■ To advise the federal government (and the provincial governments) on all matters pertaining to research, technology and innovation

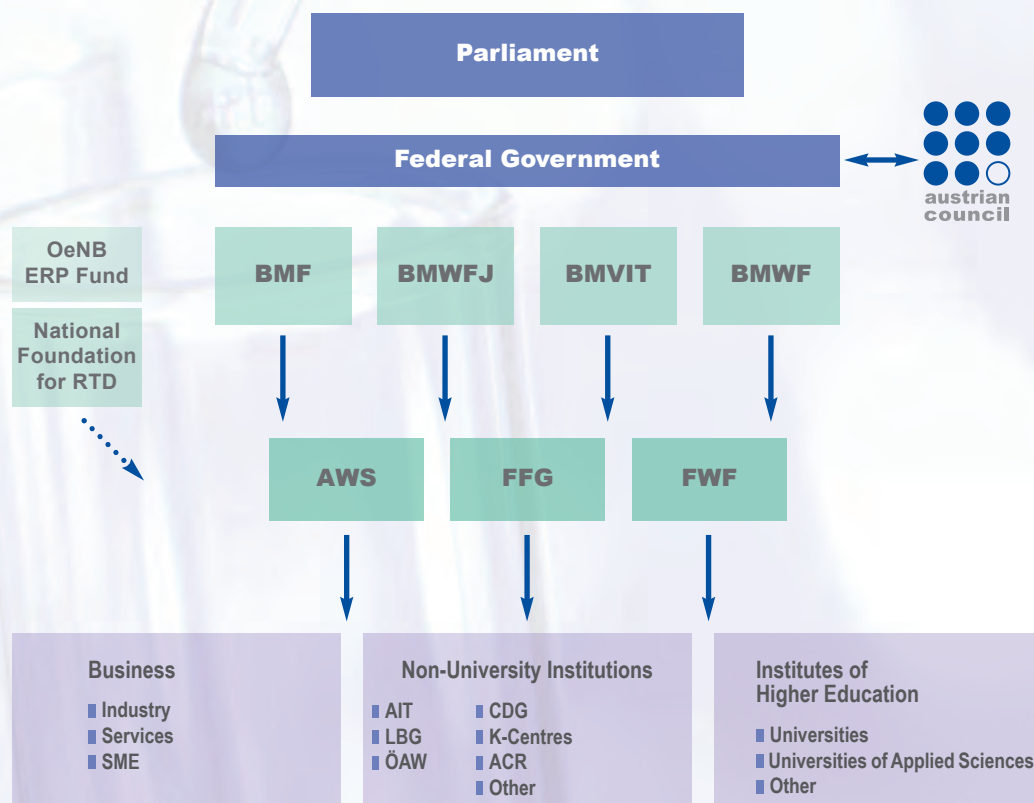
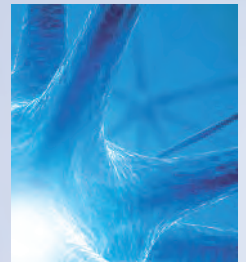
■ To draw up long-term strategies for RTI in Austria and to monitor their gradual implementation

- Formulation of priorities for the funding policy
  - To monitor all research, innovation and technology-oriented institutions in which the federal government is involved in accordance with international standards
  - To draw up detailed thematic recommendations
- In close consultation with the key RTI policy players – above all the relevant ministries – the Austrian Council draws up recommendations for the medium and long-term strategic direction of this policy area. As a central node of national RTI policy the Austrian Council strengthens

Austria as a location for RTI with its expertise and by providing independent and systematic advice.

### Benefits of the Austrian Council for the National RTI System

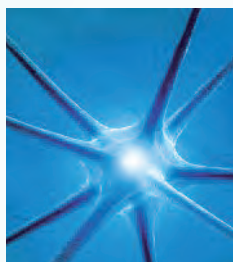
- Formulation of RTI strategies, independently of the ministries' everyday business
- Adds objectivity to RTI policy decisions
- Flexible pool of resources for short-term (objective) strategy analyses
- Partnership for the external communication of RTI policy strategies
- Focus on the efficient use of resources taking account of the entire RTI system



Source: Austrian Council

Fig. 4:  
Organigram of the  
Austrian RTI System

## outlook



### **Interaction Between the Task Force and the Austrian Council – Proposal for Implementation**

The federal RTI strategy envisages the establishment of a Task Force for Research, Technology and Innovation to include all the ministries which are involved in the process of developing the federal RTI strategy (BKA, BMF, BMVIT, BMWF, BMWFJ, BMUKK). The Task Force will strategically coordinate the activities of the individual government departments and provide an institutional framework for the regular exchange of information at high levels.

The Task Force will meet once or twice per year and will be chaired alternately by the participating ministries. The ministries will regularly present their activities to ensure a reciprocal exchange of information and as broad a consultation process as possible. They will also provide reports on the current implementation status of the RTI strategy in their respective areas of responsibility. The Austrian Council will also have a seat in the Task Force and each year will present the results of monitoring the implementation of the RTI strategy, the results of its evaluations and trend analyses as well as the results of its advisory activities. The preparatory and follow-up work for this will be carried out by the Austrian Council's secretariat.

### **Implementation**

The Austrian Council will carry out the strategic monitoring with regard to implementing the measures, topics and fields of action set out in the federal RTI strategy. As international competition in all fields of research is the benchmark for the Austrian Council's strategic decisions, this is

increasingly having an impact on the preparation and implementation of evaluations of the RTI system.

### **Working Programme**

The Austrian Council will specify its tasks in greater detail on the basis of its legally defined advisory tasks and the presentation to the Council of Ministers given on 9 September 2010. The next step will be to develop and formulate a concrete working programme for its current period of office. This working programme will reflect the federal RTI strategy which has yet to be adopted and will be approved by the members of the Austrian Council as soon as possible in early 2011. The presentation to the Council of Ministers and the legally defined advisory tasks will comprise the following:

- Implementation of a strategic monitoring system for the implementation of the federal RTI strategy
- Evaluation of measures that have been taken
- Assessment of goal focus
- Further development of the strategy
- Evaluation of Austria's scientific and technological performance (RTI Monitor)
- Preparation of a contribution to the government's Research and Technology Report
- Monitoring and analysis of international trends and developments
- Drawing up of recommendations concerning the budget path
- Development of detailed strategies for key areas of research on the basis of foresight activities and technology forecasts
- Carrying out impact analyses ■

## recommendations

Successful innovation policy strikes a balance between bolstering existing strengths and reforming inadequate structures. As the advisory body to the Austrian government the Austrian Council has a duty to put measures forward in both directions in order to safeguard and enhance Austria's competitiveness. Its recommendations are therefore based solely on international benchmarks, taking specific Austrian needs into account.



## recommendations



### Recommendations 2010

#### Statement Regarding the 8th EU Framework Programme Under the National Consultation Process – 30 March 2010

In the first quarter of 2010 a stakeholder dialogue process was launched to survey positions within the Austrian research landscape. Based on the results of this dialogue, the Austrian Council compiled a statement which draws on the recommendations made in Strategy 2020 and reflects the specific needs of Austrian research institutes. At the end of March the following text was uploaded to the era.gv.at website.

The Austrian Council for Research and Technology Development acts as an observer and advisor in shaping the EU Framework Programme and takes a strong interest in ensuring optimal organisation and effective further development of excellent research in the 8th EU Framework Programme.

The Austrian Council for Research and Technology Development is therefore taking the opportunity to comment on the development of the 8th Framework Programme and the European Research Area as part of the online consultation process and will continue to participate regularly in the ongoing development process. In this statement concerning the development of the concept for the 8th Framework Programme, the Austrian Council for Research and Technology Development proposes the following points for the European research programme:

- 1. *Expansion of the Cooperation programme*
- 2. *Promotion of international mobility*
- 3. *Incentives for Austrian scientists to take part in international projects*
- 4. *Expansion of European frontier research*
- 5. *Increased budget for the 8th Framework Programme*
- 6. *Coordination of national and international initiatives*
- 7. *Consolidation of initiatives such as Joint Programming, EIT, JTI, etc.*

#### ■ 1. *Expansion of the Cooperation Programme*

The Cooperation programme to establish new collaborative research projects and strengthen existing ones represents the core of the European Framework Programme. The programme stands out with its focus on the transnational networking of researchers from academia and the private sector, which should contribute to improving and expanding the generation of knowledge and scientific excellence between Austrian universities and other research institutes.

A new concept for future structures in the 8th FP should not result in a radical change of the tried-and-tested structures of the 7th FP, but should instead offer a clear concept based on the experiences gained in the current Framework Programme. However, the present development process should make reference to evolving social challenges. The planned structuring into Grand Challenges with distinct thematic fields to address new societal needs should be welcomed in this context. In addition to calls for proposals based on a top-down approach, consideration should also be given to bottom-up approaches which are often needed to give greater support to the development of additional innovative approaches. It will be up to the Commission to formulate clear descriptions of the expected results and to incorporate feedback from national delegates into the working papers. In the interest of domestic researchers, the Austrian Council calls for a strong mandate to be given to Austria's representatives that will enable them to participate actively in influencing developments within the Commission. All necessary support and backing by Austrian stakeholders is to be welcomed.

#### ■ 2. *Promotion of International Mobility*

Encouraging international mobility is a particularly important element of the European Framework Programme efforts to develop human resources. In the 7th Framework Programme such activities were covered in the "People" pro-

## recommendations

gramme and should be given even greater emphasis in the 8th Framework Programme. In addition to the Grand Challenges, the Great Ideas block would include the key area of Human Resources.

The Austrian Council considers that Austria still has great potential to improve the mobility of its scientists and researchers. More should be done to acquaint specific target groups with this programme with the aim of increasing participation in Marie Curie measures for example.

### ■ 3. *Incentives for Austrian Scientists to Participate in International Projects*

By providing comprehensive and in-depth advice to Austrian applicants seeking to participate in EU projects, the FFG makes an important contribution to increasing their chances of success, and in many respects also ensures the quality of the applications.

Refunding the sometimes considerable expense incurred during the application phase from funds set aside for procurement financing constitutes a further incentive. Just like the advisory services, this support helps maintain the success of domestic project participants and should therefore continue to be offered. In accordance with the recommendations made in Strategy 2020 the Austrian Council proposes that adequate budgets must be made available for preparing and participating in Framework Programmes as well as for specific calls within the framework of ERA-NET (Plus). This should also make it possible to support cooperation with third states as part of the Framework Programme.

### ■ 4. *Expansion of European Frontier Research*

The European Research Council (ERC) supports frontier research in all fields of research and all sectors within the framework of the Ideas programme. The successful participation of Austrian researchers in this programme should be supported by secure financing for basic research in Austria. The Austrian Council therefore believes that structures and subsidies which increase Austria's integration in the

European Research Area should be developed further and expanded so that Austrian researchers can continue to achieve excellence among European competition.

### ■ 5. *Increased Budget for the 8th Framework Programme*

As the overall EU budget framework is fixed, and agriculture and structural funds along with the Framework Programme are the largest items in the budget, the Austrian Council recommends shifting funds away from other areas to research and development in order to ensure a sustainable future for the EU. At the same time, it must be clearly specified which amounts are explicitly intended for the innovation process. However, the Austrian Council points out that an increase in the European research budget must under no circumstances be allowed to lead to a reduction in the level of domestic funding – on the contrary, strong domestic research funding programmes form the basis for the successful participation of Austrian scientists in international research. As the available funds should be accessible to a wider research community, all groups which are engaged in research such as SMEs, universities, etc. must be taken into account when formulating guidelines and programmes. This also applies with regard to the harmonisation and simplification of bureaucratic processes, as they deter less experienced applicants and also divert resources away from research and into administration due to the expense involved.

### ■ 6. *Coordination of National and International Initiatives*

Austrian participation in ERA-NET+ programmes should be monitored in a continuing participation strategy and coordinated on an inter-ministerial basis. A selective choice of projects should ensure optimal funding and facilitate the networking of national programmes with European partners. In accordance with the recommendations made in Strategy 2020 the Austrian Council proposes that the ministries should draw up and coordinate a strong joint >



## recommendations



strategy for Austrian participation in intra-European internationalisation schemes (ERA-NET, ERA-NET+, INCO-NET, JTI and Art. 169, etc). Strategic measures – in the sense of parallel, national programmes – must continue to be implemented to ensure strong and successful participation in the Framework Programmes.

### ■ 7. Consolidation of Initiatives such as Joint Programming, EIT, JTI, etc.

The emergence and establishment of initiatives such as Joint Programming, EIT, JTI, PPP, etc. in the 7th Framework Programme following the expansion of successful ERA-NET initiatives intensified the integration of national thematic priorities with European key research areas. The continuation and expansion of these instruments – especially by further developing transnational research infrastructures – should be given unreserved support. In particular this will promote Austrian economic, social, cultural, environmental policy and scientific positions, etc. at the international level by means of strategic scientific-technical partnerships with other countries. However, in order to simplify structures and programme design, care should

be taken to develop an overarching concept for these instruments before new initiatives are implemented.

In addition to participating in the online consultation process, the positions formulated by the Austrian Council were personally presented to the Minister of Science, Beatrix Karl, by members of the secretariat.

### Additional Funding for the National Foundation in 2010 – 8 June 2010

#### Background

Following a promise of additional funding from the Austrian National Bank (OeNB) for the National Foundation, the Foundation Board decided in 2010 to approve funding of between ten and twelve million euros for suitable projects, whereby the OeNB has an endowment of up to 25 million euros. In principle, funding should be awarded to applications which were submitted during the award procedures for 2010 but which could not be funded, or only in part. In accordance with § 11 section 1.1. of the RTD National Foundation Act, the Austrian Council for Research and Technology Development was asked to make a recommendation to this effect.

| Institution | Released for 2010<br>(Status: Dec. 2009)<br>in € mn. | Project, programme<br>or initiative                                            | Released in 2010<br>in € mn. | Credit 2011<br>in € mn. | Total<br>in € mn. |
|-------------|------------------------------------------------------|--------------------------------------------------------------------------------|------------------------------|-------------------------|-------------------|
| FFG         | 17.9                                                 | ■ FFG Headquarters<br>■ Bridging<br>programme (Bridge)                         | 5.0                          | 4.0                     | 9.0               |
| FWF         | 14.0                                                 | Priority research<br>programmes:<br>■ SFB<br>■ NFN<br>■ Translational Research | 3.5                          | 2.9                     | 6.4               |
| CDG         | 2.5                                                  | ■ CD Laboratory PMU                                                            | 1.0                          | 1.1                     | 2.1               |
| LBG         | 3.5                                                  | ■ LBI Health Promotion<br>Research                                             | 1.0                          | 3.5                     | 4.5               |
| ÖAW         | 8.8                                                  | ■ "New Worlds"<br>programmes                                                   | 1.5                          | 1.5                     | 3.0               |
| Total       |                                                      |                                                                                | 12.0                         | 13.0                    | 25.0              |

## recommendations

### Recommendation

Following in-depth consultations, the Austrian Council for RTD recommends that the additional funds be distributed as follows (amounts in million euros):

### Statement of Reasons

The Austrian Council notes that all relevant applications are consistent with both the key thematic areas defined in Strategy 2020 and with the Council Recommendation of 5 June 2009 regarding the priorities of the National Foundation and are therefore eligible for funding. In this context, attention is drawn to the recommendation for the use of funds dated 1 December 2009, which contains more detailed explanations regarding the individual projects. Furthermore, the Austrian Council also emphasises that in light of the difficult financial situation at present, it is essential to use the full 25 million euros in additional funds and to make corresponding financial commitments in the given year. The applications from the Austrian Academy of Sciences (ÖAW) and Ludwig Boltzmann Gesellschaft (LBG) have not been changed since the recommendation made on 1 December 2009. In the case of the ÖAW, the Austrian Council supports the award of funding to the “New Worlds” project.

Within the framework of the LBG the Austrian Council also advocates funding the Ludwig Boltzmann Institute for Health Promotion Research. With regard to the application from the Christian Doppler Research Association (CDG) for 2010, the Austrian Council recommends that the special request for funding for a CD laboratory at a private university (PMU) be evaluated accordingly. The Austrian Council considers that funding by the National Foundation will have a positive impact provided that the additional comments from the statement made by Department C1/9 of the Ministry of Economic Affairs, Family and Youth (BMWFJ) and the Accreditation Council are taken into consideration.

Due to the limited volume of the additional funding and the increased requirement from the FWF and FFG, it will not be possible to

provide all projects with full funding. If the CD laboratory PMU project is not realised, the promised sum of 1.5 million euros should be used to finance a CD laboratory. The remaining 0.6 million euros should be divided up between applications from the FFG and FWF.

The Austrian Council points out that in the interests of a focused strategic approach the FWF programme of Translational Research (2.4 million euros) may be given appropriate funding in combination with the FFG Bridge programme. This programme has already received funding from the National Foundation in the past.

It should also be pointed out that allocations of additional funding from the National Foundation must not be neutralised by proportionate cuts to the budgets of the FWF (and if relevant, the budgets of the Ludwig-Boltzmann Gesellschaft and the Austrian Academy of Sciences too) by the Ministry of Science and Research (BMWF).

If the promise of funding from the National Foundation merely leads to funds from the ministries being squeezed, and not to a budget increase, the funds which are freed up are to be allocated to the remaining beneficiaries on a pro rata basis.

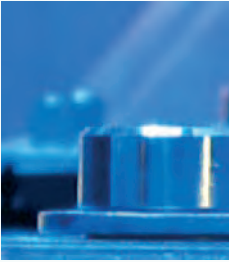
Although this additional funding should on the whole be viewed as a positive sign, it will have to be ensured that in future an adequate volume of funding is provided, in the region of 125 million euros as set out in the recommendation of 1 December 2009. In this regard, particular attention should be given to the proportion of funding from the ERP fund. It is absolutely essential to prevent a decline in the volume of funding as occurred in 2008.

### Energy Research Strategy: Reduce Dependency, Be Innovative – 24 July 2010

Climate change, a growing scarcity of fossil resources and a rising demand for energy are just some of the catchwords indicating the urgent need for structural change in the energy supply. A slew of different climate models confirm rising global temperatures and the enormous >



## recommendations



impact this has on our planet's fauna and flora. A steadily burgeoning world population resulting in a rising demand for energy and the consequences of exploiting sources of fossil fuels require rigorous changes in the energy supply and our patterns of energy consumption. High expectations are therefore placed in the research and development of new energy technologies. The success of a secure and sustainable energy supply will depend to a large degree on socio-economic, ecological and, last but not least, political factors. Our society has an obligation to bring about and support the necessary changes. The way we use energy, new ideas for producing energy and the utilisation of renewable energy sources will significantly impact how future generations manage to pull out of fossil energies. The Austrian Council for Research and Technology Development therefore calls for a massive effort instead of half-hearted solutions. To overcome these challenges, Austria's energy researchers must be put in a position to carry out world-class research. In the opinion of the

Austrian Council, what is needed – to borrow a phrase from the International Energy Agency – is an energy research revolution.

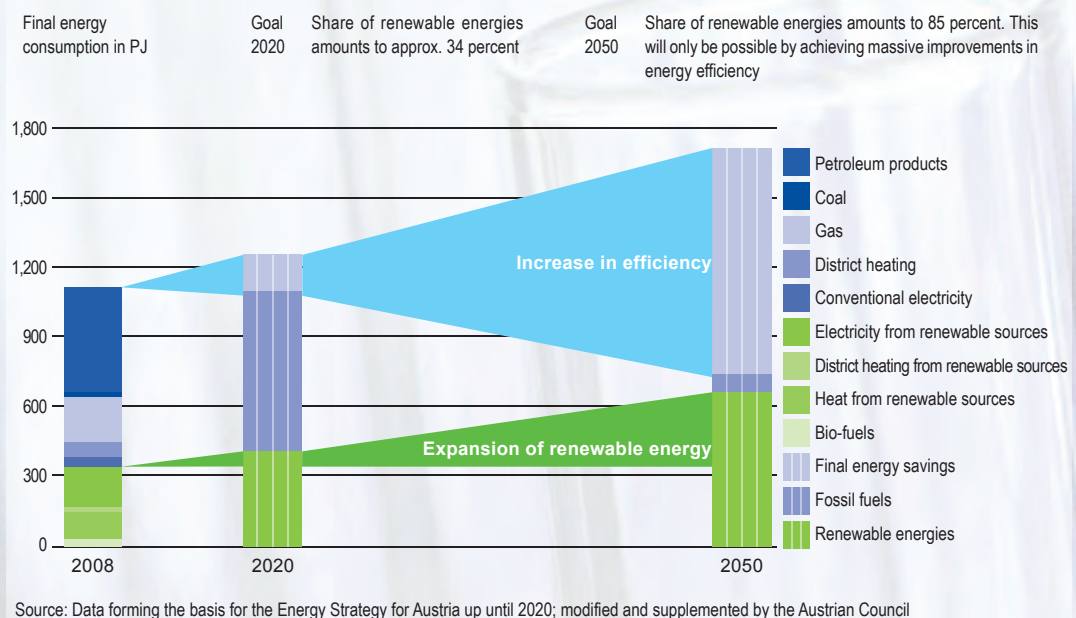
With the Energy Research Strategy presented in August 2010 the Austrian Council has laid down the first strategic foundations.

### Making the Zero Carbon Society Possible

The motto of the energy research strategy is "Making the Zero Carbon Society Possible", reflecting the fact that energy research is crucial for achieving classic energy policy objectives. The strategy therefore focuses as much on supply security, climate protection, environmental compatibility and affordability as on research and technology policy goals such as strengthening the business location by means of enhancing technological competence and market leadership in specialised areas.

It is thus consistent with existing strategies for the environment, climate and energy, in particular the Austrian Energy Strategy of the Ministry of Life and the Ministry of Economic

**Fig. 5:**  
Model showing  
the development  
of energy consumption  
patterns  
up to 2050



## recommendations

Affairs, Family and Youth. The Austrian Council regards energy research as a tool for achieving a long-term and sustainable energy supply. A series of different measures in the area of energy-relevant research, technological development and innovation have therefore been brought together and these recommendations drawn up for the key area of energy research.

The thrust of the strategy is based on an innovation-based restructuring of the energy system. As shown in Fig. 5 the main focus must be upon improving energy efficiency with a view to cutting total energy consumption by some 30 percent. This will open up the possibility that we can in future meet most of our energy requirement with a significantly higher proportion of renewable energy. However, this requires a conscious shift in the way we use and produce energy. Six priority areas of action have been defined and recommendations drawn up to optimise them.

- National research funding system
- Human resources
- Research infrastructure
- International cooperation
- Framework conditions conducive to innovation
- Strategic steering processes and monitoring

### National Research Funding System

The research funding system is at the heart of research, technology and innovation. The establishment of efficient governance structures as demanded by the Austrian Council for Research and Technology Development in its Strategy 2020 document is of outstanding significance in this regard. The instruments employed must therefore be continuously evaluated and, where necessary, modified in order to optimise the overall efficiency and performance of the funding system in line with new framework conditions. The effective use of public funds requires thematic priorities and foci which will enable adequate funding at every stage from basic research to implementation in industrial applications.

### Human Resources

The concept of sustainable energy research requires an interdisciplinary approach that combines technical, socio-economic and ecological developments. To address these tasks successfully it is essential to support innovative researchers and developers in an environment that is open to technological and social innovations and change. In its Strategy 2020 the Austrian Council therefore recommended raising the profile of science as a career to motivate more people to work in research, technology and innovation.

### Research Infrastructure

Excellent RTI infrastructure is vital for the long-term success of energy research and innovation policies. In future, research infrastructures must therefore be expanded in accordance with demand and closer networks formed to leverage synergies more effectively. Making Austrian energy research more visible in the international arena should bring about a scientific and economic condensation point for innovative research.

### International Cooperation

Sustainability, the environment and energy were defined in the Austrian Council's Strategy 2020 as thematic priorities and emerging topics. These are particularly influenced by close international cooperation. The interests of Austrian energy research and policy can be boosted significantly by coordinating national and international programmes with one another. As well as joint programme planning, international partnerships enable participants to measure themselves against the best and obtain additional funding.

### Framework Conditions that are Conducive to Research

The strategic management of the multi-disciplinary energy research system in Austria is a task which requires flexible, yet structured and transparent mechanisms if it is to be handled successfully. Increased transparency through task-optimised monitoring makes it possible to verify the qualitative and quantitative achievements of goals, thereby identifying negative trends early on and being able to launch optimised goal development processes. >



## recommendations



### **Strategic Steering Processes and Monitoring**

A host of political instruments can facilitate the market launch and commercial breakthrough of new energy technologies, and this requires a number of policy areas. Potential conflicts of interest can be minimised by structured dialogue in the various policy areas and sectors of the economy. The Austrian Energy Strategy, which was drawn up under an open communication framework, outlines the general conditions which are needed in a number of important areas to promote innovation. It is essential that these are implemented rapidly and that continuous efforts are made to eliminate obstacles to implementation.

### **“Bridging the Gap” – 20 August 2010**

The “Bridging the Gap” document was drawn up by the Austrian Council as a transitional document and thus as a bridge between the Council terms of office. As well as providing a comprehensive review of the two previous periods, it also suggests possible areas of work for the next Austrian Council. These topics

maintain continuity with current activities and reflect urgent, but not exhausting questions concerning the Austrian RTI landscape.

An abridged version of the document is provided below.

### **The Challenge**

Globalised markets are characterised by growing competition from nations that are able to produce in the medium technology segment at substantially lower cost. Although Austria has made astonishing progress in research and technology development and generates the most dynamic development in the EU, we nevertheless remain innovation followers. A political decision has been taken that Austria should become an innovation leader and close the gap on the three leading countries in the EU. It is important that an integrated approach is adopted for the measures to be taken.

### ***Education, Research and Innovation Influence One Another!***

If decisions in these areas are made in isolation from one another, as was usually the case in the



The President of the European Research Council, Prof. Helga Nowotny, is a guest at a meeting of the Austrian Council (from left to right):  
Ludovit Garzik,  
Gabriele Zuna-Kratky,  
Jürgen Stockmar,  
Helga Nowotny,  
Knut Consemüller,  
Reinhard Petschacher,  
Hans Schönegger

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past, it will not be possible to exploit the full potential that is available. This is why education, research and innovation must be considered and planned together to a greater extent in the future, and concerted action taken to implement appropriate measures.

■ To a greater extent than in the past, Austria's strategic response of leaving the group of **innovation followers** behind and moving into the fast lane to join the **innovation leaders** and front runners with cutting-edge production structures will depend upon the following positions, which are now explained in greater detail on the basis of the Austrian Council's current activities:

■ Orientation toward the best countries (best practice instead of quantitative input targets such as share of GDP attributable to R&D, etc.)

■ Annual increases in spending at the funding institutions FWF, FFG, CDG, LBG, ÖAW ... by eight to ten percent accompanied by improvements in excellence and effectiveness in order to guarantee mid-term planning certainty (three to five years).

■ Education and research form a unit. Measures in these areas, from kindergartens through primary schools, middle and secondary schools and higher education (university and universities of applied sciences) to occupations, must therefore meet the demands of our modern, competitive knowledge-based society.

■ Austria's only "commodity" is its people. All areas

- from the idea
- through basic research
- applied research and experimental development
- and pilot projects to production and marketing

must be strengthened and further developed in an innovation system that sets international standards.

■ As an internationally attractive centre of R&D, Austria needs both direct (programme and project funding) and indirect research funding (premiums, tax allowances). The economic structure in Austria, which is predominantly based on

SMEs, has specialised development potential and requires differentiated approaches.

■ Austria should return to a situation where less than 20 percent of R&D is funded from abroad by being especially attractive to foreign companies, scientists (immigrants) and investors.

■ Successful cooperation between science and industry within the framework of collaborative programmes and projects is the key to Austria's past and future success. As in the past, this will necessitate preferential funding treatment for the cooperative sector. The following points can be cited as examples:

■ Strengthen basic research: Diversion of one percent of General University Funds (GUF) each year, with this funding to be awarded by the FWF.

■ Strengthening of the universities: As the task of rectorates (excellent campus) and the business model of the BIG (maximum return) are incompatible, real estate should be transferred to the universities or a UNI-BIG should be founded as a BIG subsidiary to represent identical interests.

■ Strengthening of the universities of applied sciences by means of federal core funding and expansion of R&D infrastructure at all universities of applied sciences offering masters degrees

■ Strengthening of the education system: By means of pre-school courses, inter-disciplinary tuition, pupil segregation no earlier than the age of 14 instead of at 10, transparent and open degree programmes

■ Increased mobility at schools and in higher education

As outlined in the relevant recommendations in Strategy 2020, this is a medium (2013) to long-term (2020) task. It may therefore be useful over time to make modifications within the framework of the entire topic and also to deal with more specialised questions in greater depth.

### Statement Regarding Cuts at Non-University Research Institutions – 19 November 2010

On 19 November 2010 the Austrian Council for Research and Technology Development issued a statement on the discussion concerning >



## recommendations



the abolition of core funding for non-university institutes which in the past had been supported by the Ministry of Science (BMWF). The elimination of basic subsidies without replacement – where a negative response (also in the international media) could harm Austria as a knowledge location – should be replaced by a solution which preserves the efficient areas of non-university research. It should also be emphasised that this includes institutions which are subsidised by the BMWF.

Non-university research is an important pillar of the Austrian research system. Historic developments have produced a host of institutes which carry out a wide range of activities within a differentiated structural and thematic framework. However, until now there have been almost no thorough empirical surveys of their role and impact in the Austrian innovation system. Although a certain degree of diversity promotes creativity and competition, it also leads to a largely compartmentalised structure with high fixed costs and sometimes inefficient parallel structures. Basic subsidies help consolidate these structures. It thus follows that institutes are maintained which could not survive in international scientific competition or if they had to compete for funding. The Austrian Council recognises the need to consolidate the budget – however, sweeping, undifferentiated cuts in this area would do more harm than good. The problem goes beyond the 74 institutions which will no longer receive core funding. In the humanities, social and cultural sciences alone, 306 institutions were identified (as of 2008) which are financed largely with regional funds and which will have to be incorporated into this process.

### **The Austrian Council notes:**

- A sweeping budget reduction in the non-university sector would not be consistent with the government's declared ambition of joining the ranks of innovation leaders.
- The sector should be subjected to a thematic and structural analysis before budgetary conclusions can be drawn.
- The Austrian Council gives its unreserved

support to the BMWF initiative to evaluate the work and reorganisation of the non-university sector.

- Shared interests are to be clarified through personal contact with the institutions concerned. In those cases where solutions are already emerging (for example through mergers with the relevant institutions at universities), these should be implemented as quickly as possible.
- The provinces should subsequently be involved in the discussion process, as otherwise federal funding will be replaced by a regional funding approach, which will merely shift the problem instead of solving it.
- The Austrian Council suggests that an overall evaluation of the non-university research sector should be carried out under the auspices of the Austrian Council in order to evaluate the institutions concerned and their contribution to both the Austrian research system and Austria as a business location. This goal was also formulated in the as yet unpublished federal RTI Strategy.
- In the wake of this evaluation, a concept can be developed for improving efficiency and making meaningful savings. Clearer roles and specific objectives can then be defined on this basis.

### **National Foundation: Use of Funds for 2011 – 6 December 2010**

Pursuant to § 11 section 1.1. of the RTD National Foundation Act, the Chairman of the National Foundation on 14 October 2010 invited the Austrian Council for Research and Technology Development to issue a statement and a recommendation by 7 December 2010 concerning the use of the Foundation's resources based on the applications received from beneficiaries.

At a time when public budgets are tight, the National Foundation (NSFTE) plays an especially important role, which manifests itself in the support given to interdisciplinary research measures with a long-term impact (see § 2 of the RTD National Foundation Act). The focus of funding awards should be determined by

## recommendations

strategic and also social policy relevance. The Austrian Council once again draws attention to the need for financial resources of 125 million euros as was originally intended when the Foundation was established.

### Recommendation

The Austrian Council for Research and Technology Development has discussed the applications submitted in detail and recommends the allocation of funding in 2011 as follows:

| Institution  | Amount in € mn. | Programme or initiative                                   |
|--------------|-----------------|-----------------------------------------------------------|
| <b>FFG</b>   | 27.5            | Headquarter Strategy and BRIDGE                           |
| <b>FWF</b>   | 19.4            | Priority Programmes (SFB, NFN) and Translational Research |
| <b>CDG</b>   | 4.5             | CD Laboratory                                             |
| <b>LBG</b>   | 4.8             | LB Institute                                              |
| <b>ÖAW</b>   | 13.8            | ÖAW Initiatives                                           |
| <b>AWS</b>   | 0.0             | VC Initiative                                             |
| <b>Total</b> | <b>70.0</b>     |                                                           |

The Austrian Council considers it essential that research, development and innovation are used to secure Austria's position as a business location. The **FFG** programme lines of Headquarter Strategy and the BRIDGE programme should therefore be supported, with the Headquarter Strategy given priority. Depending on the volume of BRIDGE projects which receive positive evaluations the FFG bridging programme should also be covered. The application concerning the doctoral college for business and its specific form and organisation should be pursued for the future, and the Austrian Council will explore this matter. However, it must be established which need is to be covered by this programme line. The creation of parallel structures must be avoided and potential synergies must be generated with projects which have similar objectives.

Furthermore, the Austrian Council recommends that the cooperation between science and industry established at the COMET centres be continued as a funding measure. To this end, the Austrian Council will set up a working

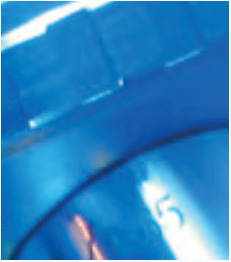
group with the institutions concerned in the first half of 2011.

Given the Foundation's current endowment, full funding for the **FWF** priority research programmes does not appear realistic at present. However, the Austrian Council considers that FWF priority research programmes are consistent with the focus defined by the Foundation Board – excellence in basic research – and therefore recommends appropriate funding in accordance with the submissions that are positively evaluated. The Austrian Council attaches great importance to initiatives and programmes that strengthen links between universities, non-university research and companies. For this reason, the four CD laboratories belonging to the **Christian Doppler Gesellschaft** should be fully funded with 4.5 million euros.

The Austrian Council also acknowledges that the life sciences have an important role to play (see, for example, the key areas and areas of emerging research set out in Strategy 2020). The Austrian Council therefore recommends supporting the Ludwig Boltzmann Research >



## recommendations

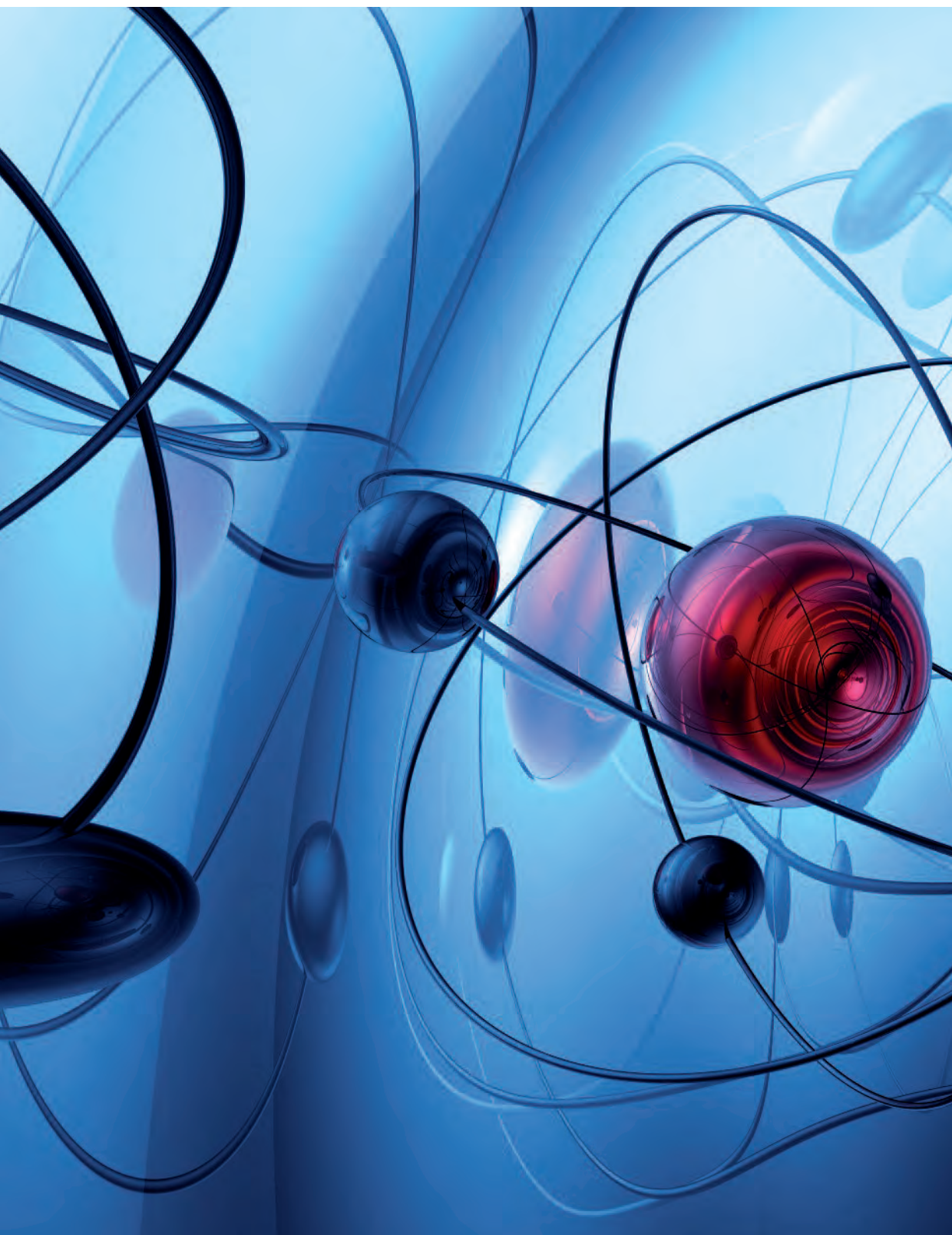


Association with 4.8 million euros in order to support the LB Institute for Pulmonary Research for four of the seven years for which funding was originally sought. If the institute receives a positive evaluation, an effort will subsequently be made to provide full funding for the remaining period. The Austrian Council is committed to expanding scientific knowledge through basic research and the scientific and social opportunities this creates, and progress can be achieved here by supporting the **Austrian Academy of Sciences** with 13.8 million euros. Due to the limited financial resources of the National Foundation for RTD it is not possible to support all projects. The Austrian Council therefore recommends that priority be given to setting up the Austrian Center for Disease Modeling and the New Worlds project.

In the past the Austrian Council has advocated strengthening national venture capital (VC) structures and last year therefore lent its support to the VC initiative (see the recommendation from December 2009). Before this AWS initiative can move into the second phase and the next instalment is provided, the Austrian Council would like to wait for the first reports and the results of the start-up phase. The Council therefore recommends that no funding be provided for the VC initiative for the time being. Owing to Austria's well-known structural weaknesses in this area it should be made clear that even greater support must be given to this initiative in future. The Austrian Council therefore calls upon the **AWS** to resubmit its application for the financing phase in 2012. ■

creating knowledge

The Austrian Council's work is based on the principle of facilitating and talking about innovation. Intensive work continued in the strategic fields in 2010.



## creating knowledge



### What has been Accomplished

#### Energy Research Strategy: Online Participation

The Energy Research Strategy of the Austrian Council for Research and Technology Development was developed in a multi-stage participatory process. The strategy was based on an expert paper on energy research published in August 2009, which had been developed during several full-day workshops in close cooperation with the Ministry of Transport, Innovation and Technology, the Austrian Energy Agency and the Austrian Society for Environment and Technology.

Entitled “Energy Research Strategy for Austria” this expert paper was then made available for

public discussion in an online consultation process in February and March 2010. At [www.energieforschungsstrategie.at](http://www.energieforschungsstrategie.at), interested parties were able to comment on the recommendations and levels of action, cast votes on the relevance of recommendations and submit responses.

More than 350 participants contributed to the discussion casting over 5,000 votes and submitting observations and criticisms of the proposals and recommendations in more than 800 comments. In addition, a number of institutions prepared statements that were offered for download on the discussion platform.

The Austrian Council analysed all the comments, statements and voting results in detail



and then drew up a summary. The results of this analysis were then discussed at length with experts from the ministries, funding agencies and the scientific community at a closing workshop. Finally, the Austrian Council's Energy Research Strategy was drawn up on the basis of the input from the entire discussion process and published in July 2010.

### **RTI Platform Austria**

In 2010 the RTI Platform comprising representatives of the provinces and the funding agencies Austrian Science Fund (FWF), the Austrian Research Promotion Agency (FFG), the Austria Economy Service (aws) and the Austrian Council continued its activities at two meetings. At the first meeting in Langenlois in Lower Austria on 21 and 22 January 2010, the group focused on deepening the seven areas for action previously defined, and identifying measures in the areas of awareness and technology transfer. These two issues were then the main focus of work at the second meeting which took place on 8 and 9 July 2010 in Graz (Styria).

The most important result of this second meeting was the finalisation of the working report, which based on the current situation formulates a vision for 2015+ in the seven areas for action. In the period after 2015, measures should be taken to achieve this vision. A distinction was made between measures which can be implemented by the members of the RTI Platform and those which address third parties. The topics defined by the RTI Platform cover all key areas of the domestic research landscape and include human resources, research infrastructure, priorities agreed between the provinces, raising awareness for research, radical innovations, technology transfer and governance. Final revisions to the report were carried out by a small group of editors consisting of representatives from the FWF, Lower Austria and the Austrian Council, after which it was passed on to a graphic design company for typesetting.

The official presentation of the report took place at the first working-group meeting in

January 2011 in Vienna. The Austrian Council and the Vienna Science and Technology Fund (WWTF) started preparing for this meeting in the fourth quarter of 2010 and also defined a further priority with regard to the EU structural funds. In early 2011 current developments in this respect were discussed in detail with representatives of the European Commission and Austrian experts.

### **Human Resources:**

#### **Which Skills are in Demand?**

As human resources is a key issue for R&D policy, attention in recent years has increasingly focused upon the close link between people's education, knowledge and skills and a country's innovative capabilities. The conclusion is that Austria needs more and better educated workers, whereby the importance of tertiary education rises disproportionately as Austria moves closer to the group of innovation leaders. Against this background, the Austrian Council took the data regarding the qualifications and skills companies expect from young workers in the R&D sector, which had been collected by GP/K Event- und Kommunikationsmanagement GmbH for the Career Monitor 2011, and supplemented it with additional data of its own regarding sought-after skills. An analysis of this data revealed significant differences between the skills needed by employees who work in an R&D department and those required by all employees at an R&D company.

Unsurprisingly, creativity/innovative ability is almost twice as important for R&D staff (83 percent) as for the other members of staff at an R&D company. The difference is even greater when it comes to "analytical thinking" (73 percent as opposed to 33 percent) and "methodological knowledge" (61 percent compared to 10 percent). Interestingly, R&D staff are required to have far greater knowledge of the market and industry (56 percent to 34 percent). In contrast, communication skills and entrepreneurial attitudes are of comparatively minor importance, as are conflict resolution skills and decisiveness. >



## creating knowledge



### **Output and Impact Orientation**

The topics and projects examined in the 2009 impact and output analysis were continued and explored in greater depth in the year under review. As part of these efforts, the study on RTI indicators (see Schibany et al., Study in the “Reports and Studies” section, page 37) was drawn up and the RTI International Monitor and the dissertation on the impact analysis of R&D spending were developed further.

### **Cluster Platform: Coordination and Meeting**

The National Cluster Platform, of which the Austrian Council is also a member, organised a number of meetings in 2010 where regional and national coordination played an important role. The Austrian Council had already issued a recommendation regarding the Cluster Initiative in 2009 and will continue to follow the process. The working-group meetings were held in Vienna and Linz; another highlight was the third



Austrian Cluster Conference in Vienna in early May, which was attended by more than 140 experts. The purpose of the cluster conference and the Cluster Platform is to highlight the activities of clusters in research and development and to discuss the framework conditions at regional, national and European levels. At the Alpbach Technology Forum the Cluster Platform invited participants to a cluster community meeting dedicated to industrial competitiveness.

### **University Partnership Dialogue**

The University Partnership Dialogue opened with a kick-off event in the main hall of the Academy of Sciences on 24 and 25 November 2009. More than 40 university partners took part in the Dialogue, which was the brainchild of the Ministry of Science and Research.

The Austrian Council for Research and Technology Development participated by sending members of the secretariat staff to take part in the five working forums (WF).

The participation of key stakeholders in the working forums on The Social Remit of the Tertiary Education Sector (1), Coordinated Development of the Tertiary Education Sector (2), Bologna & The Structure of Degree Programmes & Teaching (3), Choosing Degree Programmes and University Access (4) and Resources and the Financing of Teaching and Research (5) enabled a broad dialogue about the challenges facing Austrian higher education policy. The entire process was scheduled to last six months and included three to five meetings at which the issues were defined and discussed, and challenges and areas of action debated.

In particular, the way in which society shares in the various forms of knowledge that are developed by the tertiary sector was highlighted. Access to the knowledge developed by the tertiary sector and social permeability have top priority here (WF 1). The tasks of the various types of higher-education institutions were dealt with by WF 2.

Coordinated development of the tertiary sector requires favourable framework conditions that permit a cooperative and goal-focused expansion

of higher-education institutions. Overlapping with this, permeability within the individual types of institutions in the tertiary education sector were addressed in WF 3. Measures to develop a comprehensive curriculum should lead to greater mobility and promote continuous further education.

The possibilities for steering access to higher education were among the issues discussed in WF 4, with measures such as restrictions on student numbers, introductory phases for courses and improved course guidance generating heated discussion. There were also intensive discussions at the meetings of WF 5 which dealt with resources and financing for teaching and research. Forms of public and private financing as well as the management of student places in the form of place financing were dealt with in depth.

Staff from the Austrian Council for Research and Technology Development also took part in a number of input and editorial groups, which developed and formulated recommendations on the individual topics. Even if the high expectations that the participating organisations had of the process were not always met, a host of recommendations were nevertheless developed that are backed by broad consensus. In addition, awareness for the institutes of universities, education and research was raised and a reform process initiated.

### **Steering Committee for the National Security Research Strategy**

The operational implementation of the security research programme KIRAS is supported by a steering committee made up of stakeholders from government ministries, funding agencies and a representative of the Austrian Council. In addition to the regular meetings of the steering committee, the drafts for the national security research strategy were discussed at a workshop and important input obtained for the revision of the first draft. The activities to draw up a national security research strategy will continue in the first quarter of 2011 with symposia and further workshops. >





### Reports and Studies 2010

#### **Dialogue Between Science and Society: How Can it Succeed?**

The Austrian Council has fervently called for improved dialogue between science and society for several years now – most recently in Strategy 2020, where it demanded “new forms of dialogue” and the creation of “sustainable space and opportunities for social participation.”

Against this backdrop the study “Grundlegende Charakteristika und Prinzipien für den Dialog Wissenschaft und Gesellschaft [Basic Characteristics and Principles for Dialogue Between Science and Society]” carried out by the Center Netzwerk on behalf of the Austrian Council, focused on those conditions and factors which have a positive influence upon or are conducive to dialogue. The focus is placed on so-called “low threshold” dialogue formats, which are characterised by their degree of inclusion, openness for different target and age groups and the fact that while it is possible to discuss the topic irrespective of the level of one’s prior knowledge, all target groups are nevertheless challenged. The results of the study show that it is the following areas that are crucially important:

■ **The Input:** Dialogue formats require (scientific) input, a tool so to speak for the participants. Effort should be made not to concentrate on transmitting knowledge so as not to deter participants from taking part in the dialogue.

■ **The Moderation:** This is crucial for the quality of all dialogue formats.

Moderators should initiate the dialogue, head off hierarchical constructions and ease conflicts.

■ **The Setting:** It is important that a sufficient amount of time is planned, the venue is suitable (acoustics, temperature, the “connotation of the rooms” in terms of inclusion/exclusion, etc.) and that social barriers are taken into account. In addition to these results regarding the principles for successful dialogue between science and society, the study also highlighted the potential of evaluations. Although evaluations of dialogue formats are frequently commissioned, their political weight means they often end up

as a review of pre-determined content. Yet according to the authors of the study, much can be learned from evaluations, both for the planning and development of dialogue-based science communication and for its further development. This would, however, also mean publishing the results of evaluations, exploring problems and permitting dialogue about the evaluations themselves.

#### **Science Communication: The Role of Television**

What we know about reality, we often (only) know from the media. Television in particular is for many people the most important source of information and guidance. The public therefore has a right to expect that television programmes should not just provide entertainment, but also information about important topics, including advances in science and technology.

Never in the past have science and technology played such an important role in people’s everyday lives as they do today. At the same time, however, people tend to have a rather ambivalent attitude towards them – especially in Austria, where according to international surveys more than half the respondents said that they are unfamiliar with new scientific discoveries and technological developments. This means there are very good reasons for examining the conditions under which information about such issues is communicated, i.e. more specifically, the extent to which Austrian television stations cover science, research and technology, and environmental and climate protection issues.

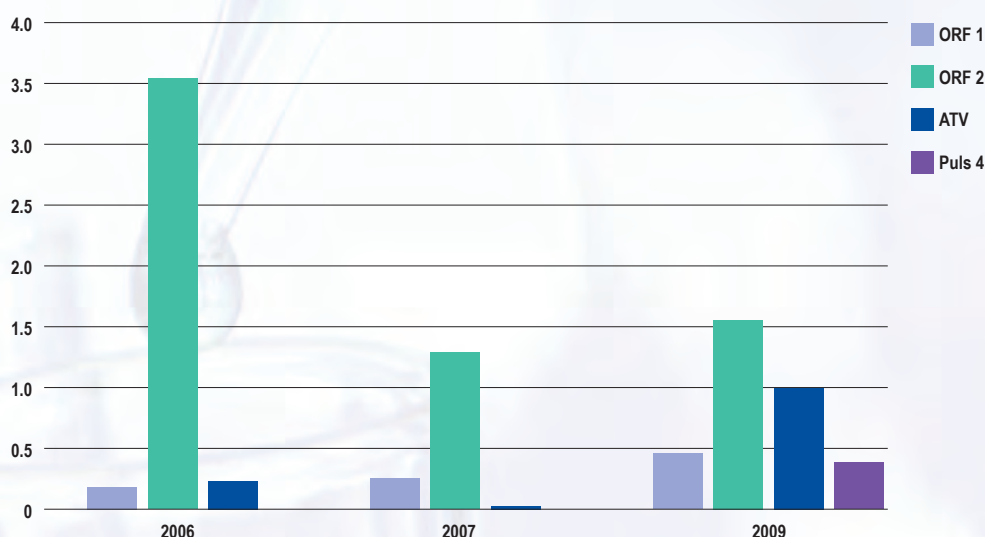
The Austrian Council therefore commissioned Dr. Jens Woelke from the Institute for Communications Studies of the University of Münster to analyse the science, research and technology coverage of Austrian television stations (ORF 1, ORF 2, ATV and PULS 4). The study showed that although ORF still offers the broadest coverage of science, programming specific to target groups means it is almost completely

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restricted to ORF 2. After 2006 ORF 1 and ORF 2 lost almost half their airtime for science coverage, while ATV and PULS 4 together quadrupled their share of science reporting during the same period.

On the whole, Jens Woelke concluded that the opportunities for audiences in Austria to learn about science, research and technology from

television programmes were essentially no less favourable than in Switzerland or Germany. On the contrary: Austria benefits from being a German-speaking country, as foreign German-language broadcasters transmit their programmes into Austria. However, the clear segmentation of the target groups by age is problematic, as programmes dealing with science,



Source: Jens Woelke; Berichterstattung über Wissenschaft, Technologie, Forschung und Entwicklung in österreichischen Fernsehvollprogrammen, 2010.

\*) Basis for percentage calculation: 24 hours per day (3.00–3.00), random sample: one calendar week each in spring 2006/2007/2009

research and technology in ORF 2 do not reach younger Austrians who tend to watch ORF 1. The domestic commercial stations ATV and PULS 4, which target young audiences in particular, do not compensate for this difference. Apart from the fact that programme analyses like this study cannot explain the link between the supply of information and knowledge – such would call for reception and impact research – the role played by television in the Austrian media and the scope and form in

which science, research and technology topics are communicated in other media, such as the print media, still has to be clarified.

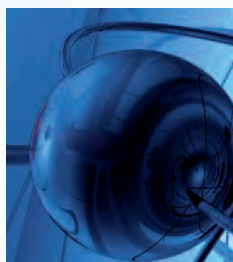
### Survey of Austrian Research Infrastructure

World-class research infrastructure is the basis for the concentration of excellent scientists, increased cooperation between science and business, excellent scientific training and the emergence of an attractive research environment. Only with first-class infrastructure can re->



**Fig. 6:**  
Science reporting  
in Austria 2006 to  
2009 / full broad-  
cast day\*

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searchers at institutions of higher education and in industry build bridges between their sectors. This is why it is a crucial factor for quality basic research and for excellent research at our universities and companies. However, until now there has been a lack of key figures on this area, which is of such essential importance for Austria's research and innovation. The Austrian Council for Research and Technology Development therefore commissioned AUSTIN, Pock & Partners to examine the topic of research infrastructure from a variety of different perspectives. In the first survey carried out in 2008/2009 the focus was placed on

- a review of existing research infrastructure and large-scale planning/needs and
- upon identifying strategic areas of action.

Building upon this data, a second study was carried out in 2009/2010 which obtained the previously missing data and examined the planned investments in the period up to 2014 in greater detail.

For this purpose, universities, universities of applied sciences, private universities and companies with a high level of research activity were surveyed. The infrastructure surveyed was categorised according to several different criteria.

■ **Large equipment/large-scale facilities** – unique items of large equipment/large-scale facilities with an investment volume in excess of 500,000 euros, e. g. high-performance lasers, particle accelerators, testing equipment, computer tomographs, etc.

■ **Core facilities (specialist centres or integrated systems of dispersed facilities)** – unique combinations/networks of individual pieces of central or dislocated infrastructure in Austria, e.g. material technology centres, micro-electronic centres, radio telescope group, etc.

■ **Collections and habitats including electronic databases** – biological collections, genome structure database, databases regarding natural hazards, social science archives, etc.

■ **Other Types of Infrastructure** – recent building infrastructure projects that are used solely for research and development activities were

also included in the survey as a separate category, as it can be assumed that these will support the creation of centres and services. Key thematic priorities were defined in the following areas as part of the review of the universities, public sector, the private non-profit and collaborative sector and industry:

- Life Sciences
- Information and Communications Technology
- Nano and Material Sciences
- Mobility and Transport
- The Environment, Energy and Sustainability
- Services (research in the services sector)
- Agricultural Sciences/Agri-Food Research
- Manufacturing, Production and Process Management
- Complexity and Systemics (Modelling and Simulation)
- Humanities, Social and Cultural Sciences
- Physics and Astronomy
- Chemistry
- Other

A total of 1,204 instances of research infrastructure were surveyed (of which 206 were infrastructure buildings), 309 external (inter)national research infrastructures which are already in use and 364 items of infrastructure which are planned or needed.

**Current Situation in Austria** – While Austria has a perfectly acceptable quantity of research infrastructure, it is so far underrepresented compared to other research-intensive countries in the European Union in terms of large-scale research infrastructure, i.e. infrastructure with a certain international importance.

Inter-organisational partnerships are only rarely formed with a view to acquiring and operating research infrastructure facilities. As a result, it is not always possible to utilise the full scientific and economic potential that could be generated by larger research infrastructures. All too often, scientific organisations fail to use research infrastructure as a strategic instrument for either thematic or strategic positioning. Moreover, discussions about providing the necessary basic infrastructure frequently over-

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shadow the opportunities that could arise from the professional establishment and operation of larger research infrastructure (with an international profile).

**On the basis of the data that was collected, the following characteristics can be highlighted:**

- More than half the research infrastructure that was surveyed belongs to universities.
- The focal areas of “life sciences”, “nano and materials sciences” as well as “environment, energy and sustainability” account for more

than half the research infrastructure and infrastructure requirements listed in the study.

- The regional distribution of the research infrastructure reflects demographic conditions, and points to university and industrial locations (with a particular concentration in Vienna, Graz and Innsbruck, as well as Salzburg, Linz and Leoben).
- 54 percent of the aforementioned existing research infrastructure was acquired or put into operation within the last five years.
- More than half the aforementioned existing research infrastructure had acquisition costs of less than 500,000 euros.

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■ Slightly more than half the research infrastructure surveyed is predominantly (80 to 100 percent) publicly funded. The operating costs of almost 43 percent of the research infrastructure surveyed are funded solely by the public purse.

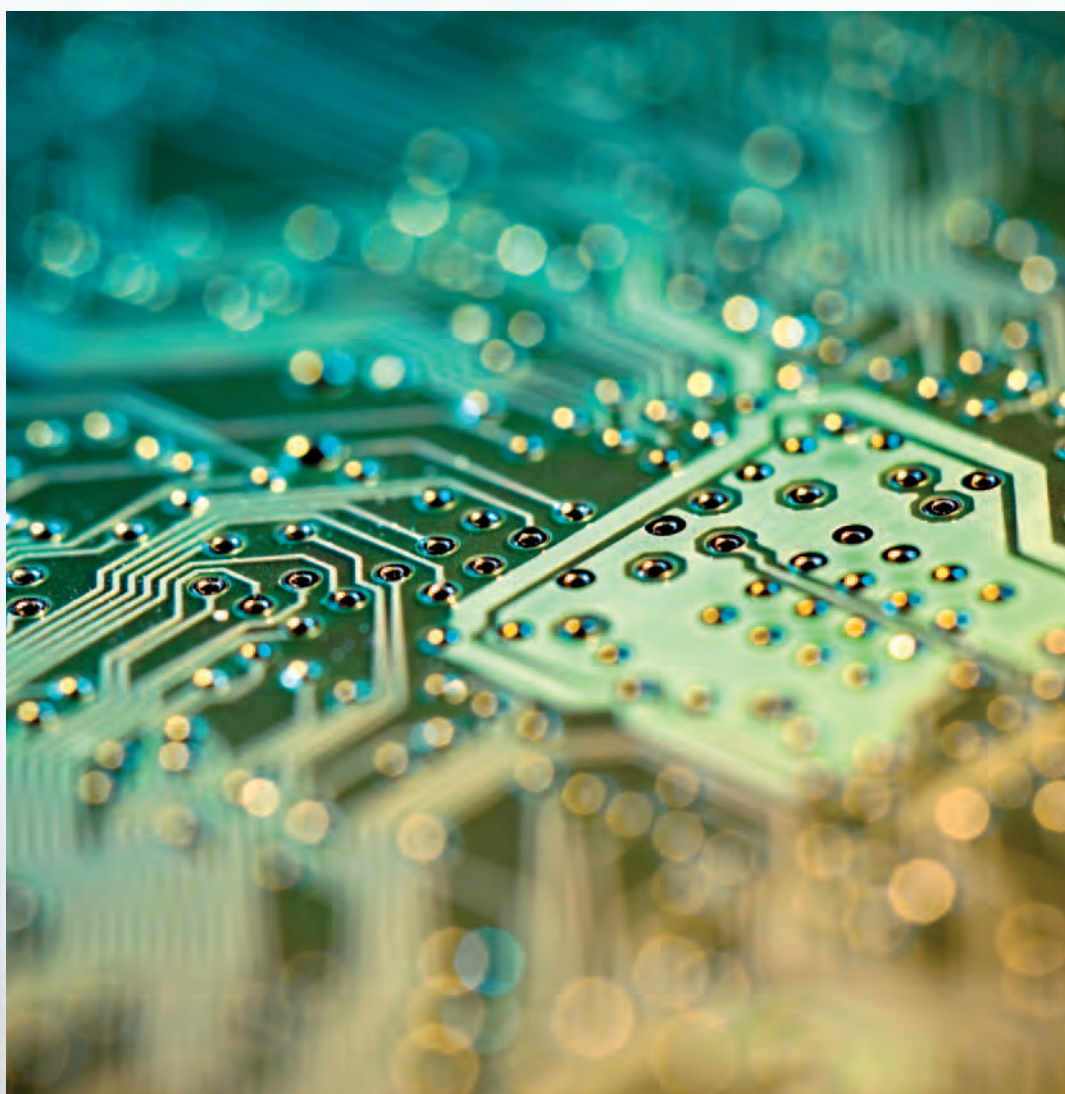
■ The majority of the scientists who use research infrastructure belong to the organisation that operates the infrastructure. More than half the existing research infrastructure

surveyed is used almost exclusively (75 to 100 percent) by academics.

■ 47 percent of those surveyed said there are initiatives to establish research infrastructure centres within their institutions.

### **Financial Requirements of Academic Institutions 2010–2014**

Academic institutions in particular need additional support from the public purse to finance



research infrastructure. To lay down some key figures for the period 2010–2014 academic institutions were also asked about their estimated financial requirements for research infrastructure. Based on the results of this survey, the following statements can be made:

- With a response rate of 49 percent (in the case of private universities and universities of applied sciences 74 percent, state universities 95 percent), a total financing requirement of 1.187 billion euros for the period 2010–2014 was determined for research infrastructure.
- Institutions from the university sector account for approximately 63 percent of this amount.
- Approximately 88 percent of this sum (1.043 billion euros) is needed in public funding.

### Strategic Variables and Areas of Action

Further scope for action available to those in positions of political and strategic responsibility can vary between the following poles:

- Offensive vs. defensive strategy
- Bottom-up strategy vs. top-down approach
- International participations vs. research infrastructure located in Austria
- Equipping with basic infrastructure vs. support for collaborative world-class infrastructure
- Activities in broad thematic areas vs. niche strategy
- Conscious effort to develop a thematic profile vs. diversification
- Sustained development vs. focus on short-term projects

In the years to come, activities to strengthen research infrastructure must be intensified in the following areas:

**Awareness:** Greater efforts to raise awareness for the relevance of research infrastructure as the basis for cutting-edge research in Austria.

**Strategic Planning:** Establishment of a platform for strategic planning and long-term budgeting/financing of research infrastructure (both for participations in international research infrastructure and the realisation of large-scale research infrastructure in Austria).

**Profile Raising:** Creation of selected large-scale

infrastructure in thematic niches in Austria.

**Cooperation:** Encouraging the joint acquisition and shared use of large-scale research infrastructure by academic organisations, and if possible then also with greater business involvement.

**Support:** Support for the strategic objectives in the area of research infrastructure by means of targeted support measures (e.g. use of research infrastructure to promote thematic profiles, creation of thematic hubs, incentives for cooperative acquisition and use), possible development of a special programme line similar to the COMET line to focus on research infrastructure.

**Operating Models:** Promotion of new operating models in the form of central core facilities with appropriate services for external users, clear (budgetary and financial) separation of the infrastructure and project levels.

**Information Management:** Publication of an interactive Austrian map of research infrastructure designed to facilitate more effective and targeted networking of research infrastructure and its users.

**Internationalisation:** Greater “substantial” participation in international projects with the aim of increasingly assuming a leadership role – integration of international partners in Austrian research infrastructures.

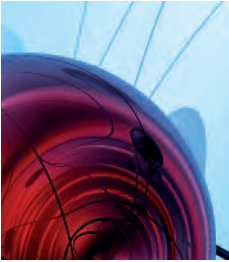
Effectively implementing the aforementioned measures can make a substantial contribution to achieving the three-percent research target and safeguarding it in the long term.

### Universities of Applied Sciences in Comparison

Ever since they were established, Austrian FH have had a general mandate to engage in R&D activities. Compared to the universities the FH sector is based much more on application knowledge, which is why research and development should focus on regional needs and in particular upon those of SMEs. Studies of the profile of R&D activities at Austrian universities of applied sciences show that the development of the knowledge base is significantly influenced by the >



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personnel resources and activities of the teaching staff and contacts with nearby companies (e.g. work experience, regional focus).

The Austrian Council for Research and Technology Development commissioned a study to compare the development of important Austrian universities of applied sciences with a number of representative FH in Germany and Denmark. The study focused on cooperation between the FH and the business community in the field of R&D and on their links with the university systems.

The authors of the study from Hill-AMC Management GmbH first provided a brief overview of the FH structure in Austria, Germany and Denmark and a short description of the universities of applied sciences in Karlsruhe, Jena, Aachen and Kiel in Germany, the University College of Northern Denmark (UCN) and the VIA University Colleges in Denmark. The focus of teaching and research at the respective FH and their capacities were then examined in greater detail.

Based on student numbers the FH sector of the reference countries is roughly twice the size as that of Austria. This striking difference is attributable on the one hand to Austria's late entry into this area of tertiary education. On the other hand, especially in the case of Denmark, it has to be remembered that the university colleges, which also belong to the FH sector, offer far more training courses in healthcare and social services (the equivalent of Austrian nursing diplomas) and are thus comparable with upper secondary or post-secondary educational establishments in Austria.

Furthermore, these institutions are also widely dispersed geographically. Austria therefore probably has an even higher percentage of technology-based FH courses. In Denmark, however, – as in Finland – the government is implementing a programme to streamline and consolidate the regional and thematic focus of the FH, so structural changes are to be expected. Given the constraints of the study it was not possible to analyse the conditions and structures of funding, but it can be assumed that they differ fundamentally from Austria with its high pro-

portion of federally funded student places. Comparative data on external funding, however, shows that the leading Austrian FH, such as the FH Joanneum or University of Applied Sciences Upper Austria actually equal or even outstrip the strongest German research FH (such as Aachen, Karlsruhe or Jena) in terms of externally-funded research, whilst having fewer students.

### **Technology Transfer and Intellectual Property in Austria**

As a society makes the transition from an economy-based on the production of agricultural and industrial goods to a knowledge society, prosperity is increasingly based on the possession of knowledge and using it creatively. Intangible assets and the rights of disposal over them are a crucial competitive factor in a modern, knowledge-based society. Nevertheless, there is a widespread absence of new framework conditions that do justice to this development – and not just in Austria. There is, for example, an almost complete lack of awareness about the potential economic value of intellectual property. The Austrian Council for Research and Technology Development has therefore set itself the aim of raising the status and importance of intellectual property.

As a first step, the Council commissioned Royce Ghafele (University of Oxford) to carry out a study on Technology Transfer and Intellectual Property in Austria. The study is to form the basis for a policy paper setting out fundamental questions in relation to intellectual property (IP) and universities.

The 2002 Universities Act redefines the ownership of intellectual property to allow universities to market knowledge generated by their research work instead of limiting the transfer of knowledge to the job market and the training of experts. In theory at least this provides the framework that is necessary to close the gap between input and output. This was one of the major objectives of the Austrian Council's Strategy 2020, as Austria currently invests a higher than average proportion of resources in the RTI system and in return generates a comparatively lower than average output

The prime goal of transferring intellectual property is not to turn universities into practice-oriented profit centres. On the contrary, in areas where it appears sensible and necessary the interfaces between academia and the real world must be optimised.

A functioning transfer of knowledge at key places in the RTI system could become a national competitive advantage, which is necessary to play an innovative pioneering role.

### From Input to Output.

#### The Function of RTI Indicators

In view of current trends, the importance of measuring R&D activities and the innovative capabilities of national economies is becoming increasingly important. This development is being driven not least of all by the demands of new public management and the stronger focus on impact as a consequence of a shift in emphasis from the input to the output side.

In Europe and thus in Austria too, this process is heavily driven by European Union measures and initiatives. One of the aims of the study was to draw attention to the possibilities and limitations of indicators in this environment. On the basis of their investigations, the authors concluded that a great deal of caution is called for when using synthetic or compositional indicators (indicators that are calculated by weighting a large number of sub-indicators) and that it is essential to look at the underlying data. In this context, the EIS came in for particular criticism. To illustrate the problem involved with the weighting of indicators, the authors drew up their own synthetic indicator to show how easily Austria can be styled as an “innovation leader.” In the final analysis, this exercise demonstrates the importance of a scrupulous and scientifically sound approach – something that leading international experts in the field have been emphasising for some time now.

To gain more in-depth knowledge, Schibany et al. analysed frequently-used indicators in greater detail and concluded that their informative value is not always clear or even evident. What does a specific value say? Is the doctrine of

“more = better” always sustainable and where are the problems with quotas/ratios?

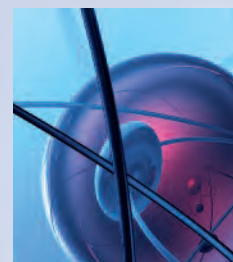
The study analysed the technological balance of payments, the number of patents and the ratio of high-tech exports as a percentage of total exports.

**Innovation Models** – The modelling of RTI activities and the generation of RTI indicators are subject to a bi-directional reciprocal effect: Surveying RTI indicators requires a theoretical basis; this theoretical basis and model in turn require data with which the hypothesis and theory can be verified, thereby closing the circle.

Building on the work done by Martin and Tang, and Salter and Martin, Schibany et al. showed that a host of innovation models have developed since the end of World War II. In the past and even to the present day, input-driven RTI policy was based on the linear innovation model, which follows a deterministic path from input (generally monetary in nature) to the outcome/impact (socio-economic effects). In the 1980s this approach was supplemented by an emphasis on feedback loops between the individual stages to form the chain link model. In reality, what both models have in common is that the innovation process is frequently shaped by external influences. Apart from the systemic risk inherent in research, other factors that have nothing to do with research and innovation per se (e.g. changes to legal frameworks, cyclical fluctuations) also play a role.

Modern research has always been characterised by international cooperation, but also by competition and globalisation, and the resulting economic integration has intensified this process. In many cases, innovation processes are geographically fragmented. Research work in different countries (e.g. countries A, B and C) can lead to a technological advance in country A, which subsequently becomes an innovation in country B, albeit owing to additions produced by work carried out in country C. In turn this triggers socio-economic effects in all three countries. This fact presents particular hurdles in relation to national RTI policies.

The innovation process is frequently subject to >



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significant time delays. Research work carried out at a point in time known as  $t_0$  may already lead to innovations and far-reaching effects in the following period  $t_1$ . However, it is easily conceivable that this will only happen at  $t_2$  or even later. This aspect is especially significant in the case of basic research.

**Transmission Mechanisms in the Area of Innovation** – If one considers the possible transitions from academic research to economic returns and impacts, as Schibany et al. have done, it becomes apparent that this process can take place through a variety of channels. According to Salter and Martin, there are six different paths: New scientific knowledge, networks and international cooperation, human resources, business start-ups, problem-solving capacities and new methods and instruments. In the context of the discussion about indicators it

becomes apparent that this must have a direct impact on the indicators chosen to measure innovation performance. As a rule, this implies a relatively comprehensive set of indicators to depict the diversity.

**Austria in the Context of European Structural Indicators** – The European Structural Indicators were laid down as an instrument for the objective assessment of progress made toward achieving the Lisbon goals. They are also understood as part of the OMC (Open Method of Coordination) and consist of 14 key indicators which were designed to monitor the progress achieved in the period up to 2010. The importance of these 14 selected indicators is based not least of all in their ties to the development goals of the European Union (see table).

### Listing of the guidance indicators

| Field                       | Indicator                                         |
|-----------------------------|---------------------------------------------------|
| General economic background | 1. GDP per capita in PPP                          |
|                             | 2. Labour productivity (GDP per working hour)     |
| Employment                  | 3. Employment rate                                |
|                             | 4. Employment rate rate of older workers          |
| Innovation and research     | 5. Youth education attainment level               |
|                             | 6. Gross domestic expenditure on R&D              |
| Economic reform             | 7. Comparative price levels                       |
|                             | 8. Business investment                            |
| Social cohesion             | 9. At risk-of-poverty rate after social transfers |
|                             | 10. Dispersion of regional employment rates       |
|                             | 11. Long-term unemployment rate                   |
| Environment                 | 12. Greenhouse gas emissions                      |
|                             | 13. Energy intensity of the economy               |
|                             | 14. Volume of freight transport relative to GDP   |

Source: Schibany et al. (2010): 63

On the basis of the key indicators above, Schibany et. al. show that Austria is fairly well positioned on the whole. In particular, they cite the high rate of per capita GDP, the relatively high research quota and healthy labour market figures. (The analysed data goes back to 2008 and does not therefore show developments during and

after the financial crisis). The authors identify a particular need for improvement in the areas of the environment and education. Finally, the authors of the study warn against an overly superficial RTI policy that is guided by indicators and against ignoring the complexity of the innovation process. ■

## International Activities

### Fact-Finding Mission to Copenhagen/ Denmark – 17 to 19 February 2010

To intensify international exchange the secretariat organised a number of bilateral discussions in Denmark in February which were attended by the Chairman of the Austrian Council, representatives of the Ministry of Science and the Austrian Research Promotion Agency (FFG).

#### The Institutions

After travelling to Denmark together, the Austrian delegation commenced its two-day fact-finding mission on 18 February with an early-morning visit to the Danish National Research Foundation, which provided an overview of the Danish funding system as well as more detailed insight into its efforts to promote excellence at Centres of Excellence. At first sight, the Danish funding landscape is highly complex, as shown by

the diagram. A closely intertwined system of different bodies, some strategic and/or funding, interacts under the strategic umbrella of the Danish Council for Research Policy. While the Danish National Research Foundation is located at the end of the exclusively operative spectrum that focuses on basic research, the Danish National Advanced Technology Foundation concentrates more on applied research, which it presented before the delegation moved to the Agency for Science, Technology and Innovation (DASTI). DASTI houses and provides administrative support to the Research Councils for Independent Research, the Strategic Research Council and the Council for Technology and Innovation. All three institutions advise the competent political decision-makers and are involved in the awarding of funding. After gaining this insight into the funding >



Fact-finding mission  
to Denmark (from  
left to right):

Ludovit Garzik  
(Austrian Council),  
Emmanuel Glenck  
(FFG), Helle Elgaard  
(Scion-DTU), Sören  
Hellener (DTU),  
Jan Eiersted Molzen  
(DTU), Peter Seitz  
(BMWf), Knut  
Consemüller  
(Austrian Council)

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system, the Austria delegation then saw examples of practical implementation on the ground. The first stop on 19 February was therefore the Technical University of Denmark (DTU), where deputy director Søren Hellener introduced the DTU and its innovation measures for technology transfer and intellectual property. The head of the Innovation Centre, Helle Elgaard, then introduced Scion, the DTU's research park, before the delegation took a guided tour of the park which included a visit to three spin-off companies based there.

The trip ended with a visit to the GTS – Advanced Technology Group in Taastrup not far from Copenhagen. GTS is a network of nine independent Danish research and technology institutes of differing sizes with different research and technical foci and historical backgrounds. Its main task is to disseminate new knowledge and

transfer technology to private enterprises and public institutions. The GTS also provides important technological infrastructure such as test facilities and equipment, besides carrying out certification and licensing activities.

### Lessons Learned

Despite the seemingly complex structure of the Danish funding and innovation system, political responsibilities are relatively straightforward in comparison to Austria.

In Denmark only one government ministry is responsible for core research agendas, namely the Ministry of Science, Technology and Innovation. Its responsibilities encompass research and innovation, information technology and telecommunications, university education and the internationalisation of education and further education in Denmark. Denmark is a pioneer in tertiary education.



On the whole the system is characterised by greater autonomy for players (e.g. in terms of funding decisions and thematic focus) and greater independence from the political sphere.

In terms of funding policy no strict distinction is drawn between basic research and applied research. Instead, a distinction is drawn between “independent”, “curiosity-driven” and “strategic” problem-focused research, with a strong emphasis on “independent” research. Driven by a desire to improve strategic planning for independent research funding, long-term budgets are being targeted; to this end the Danish National Research Foundation, as the organisation responsible for funding, will be given its “own” capital to use at its discretion over a period of several years. In principle, funding policy focuses primarily on supporting large projects defined as projects with substantial volumes – under the heading ‘critical dimensions instead of critical masses’.

Research infrastructure can be funded separately within the framework of a discrete programme. A strong incubator system is available to support applied research and development.

Innovation incubators are private companies that support scientists and others with commercialising high-tech and knowledge-based ideas during the very early phases of the process.

Importance is also attached to market-based financing of research projects.

The Vækstfonden is a state investment fund with a capital base of approximately 300 million euros. The fund invests in early-phase ventures with a focus on the life sciences / medical technology and high-tech, and also provides mezzanine capital for a wide range of industries. Most of the financing is provided in cooperation with private-sector investors in accordance with market principles. (Pre) seed financing is carried out at the universities. In Denmark there are six pre-seed funds which are attached to universities and offer management support in addition to financing.

Private foundations represent a third major source of funding for research projects. The Danish law governing private foundations that pursue a public benefit is very liberal and provides tax breaks for investments that generate

added value for society. Research falls into this category.

### **International Meeting of National Research Councils in Bruges (Belgium) –**

**10 to 11 June 2010**

The Austrian Council plays an active role in the international group of research, technology and innovation advisory bodies. The annual meeting of the organisation took place in June 2010 in Bruges and was dedicated to the topic of infrastructure. Professor Yvan Bruynseraede from the Catholic University of Leuven introduced ESFRI, the European Strategy Forum on Research Infrastructures, a European platform for the strategic planning and coordination of investments in research infrastructure. Austria is currently participating in four projects, namely CESSDA (Council of European Social Science Data Archives), FAIR (Facility for Antiproton and Ion Research), BBMRI (Biobanking and Biomolecular Resources Research Infrastructure) and CLARIN (Common Language Resources and Technology Infrastructure), which are to be realised in the next few years. It was agreed that the expansion of infrastructure projects which have not yet received funding is a challenge facing all European research councils, as most European governments are planning to reduce their investments in research owing to budgetary constraints. Based on the results of the discussion at the European level, the secretariat organised a national workshop which in January 2011 brought together the regional representatives of the RTI Platform Austria with the relevant officials of the EU Commission to discuss the possibilities for financing infrastructure from the Structural Funds.

### **The Eighth EU Research Framework Programme: Stakeholder Dialogue and Bodies**

In the first quarter of 2010 a stakeholder dialogue process was launched to discuss the national requirements and needs in relation to the EU 8th Framework Programme. Statements were obtained from the Ministry of Science and Research (BMWF), first on a website and then in a personal dialogue. This input and information from >



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other sources were used to compile the Austrian Reflection Paper on the 8th Framework Programme. The Austrian Council was involved in this process from the very outset, formulating positions in the form of statements and in direct consultation with the Minister of Science Beatrix Karl. The BMWF strengthens the Austrian network of actors in European research by engaging in a regular exchange of information. The Austrian Council is represented on these bodies by members of its staff and can therefore exchange ideas and information with other stakeholders. In particular, attention should be drawn to the bodies which deal with the Joint Programming Initiative (JPI), the Europaforum Forschung (the Austrian Forum on European Research – EFF) and the Europatagung. In the run-up to the Europatagung in December an informal meeting was held at which the new Austrian Council was introduced to the Austrians who work in Brussels

at the European Commission and questions regarding the international focus were discussed.

### **Technology Transfer Initiatives at the AustriaTech Week in China –**

**10 to 15 October 2010**

The first Austrian Tec Week took place during EXPO 2010 in Shanghai from 11 to 15 October. The first aim of the week was to promote a reciprocal understanding of Austrian and Chinese technology and research competence in the selected areas, and secondly to initiate the sharing of experiences in the planning and implementation of sustainable cities as well as technology and innovation policy initiatives. And last but not least, to instigate partnerships between Austrian and Chinese companies, universities and non-university research institutes in the relevant areas. The Austria Tec Week was held under the patronage of the Ministry of Transport, Innovation and

**Ludovit Garzik  
at Austria  
Tec Week**



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Technology (BMVIT) and the Chinese Ministry of Science and Technology (MOST), the Austrian Institute of Technology (AIT) together with the foreign trade office of the Austrian Chamber of Commerce (AWO), the Austrian EXPO Office in Shanghai and the Shanghai Science and Technology Commission.

- 1. Energy for Sustainable Cities
- 2. Mobility for Sustainable Cities
- 3. High Tech Incubation in Austria
- 4. Science-Industry Relations
- 5. Austria Showcase Sustainable Cities

The two-day workshop, Energy for Sustainable Cities (11–12 October 2010), was primarily devoted to linking Austrian competences and technologies with Chinese know-how. Activities included the presentation of best-practice examples in the area of sustainable cities and energy supply in Europe as well as presentations of Austrian competences and technologies which can be used

to overcome these challenges. A proposal was also put forward to initiate Austro-Chinese dialogue to promote “Low Carbon Green Growth”. The “Mobility for Sustainable Cities” workshop (13 October 2010) included a lively discussion about Austrian and Chinese research and implementation strategies for sustainable mobility, with particular emphasis on electro-mobility and potential possibilities for cooperation. Finally, at the “High Tech Incubation in Austria” workshop the Austrians presented technology locations and opportunities for cooperation.

The following organisations gave presentations:

- Association of Austrian Technology Centres – VTÖ
- AplusB centres
- Vienna Business Agency
- Austrian Business Agency (ABA)

The Austria Tec Week was rounded off by the Science-Industry Relations symposium (14 Octo ->



**Austrian Pavilion  
at EXPO 2010  
in Shanghai/China**

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ber 2010) at which selected technology policy initiatives in China and Austria which promote partnerships between companies, universities and non-university research institutions were discussed and specific organisational models for cooperation were presented.

Finally, at an “Austria Showcase” on “Sustainable Cities” (15 October 2010) the Austrian companies attending the EXPO had the opportunity to present themselves to a select Chinese audience. The Chairman of the Austrian Council, Dr. Hannes Androsch, gave the keynote speeches at a number of events in his capacity as the Austrian government’s EXPO commissioner. The Austrian Council was also able to contribute its expertise at the events and benefited from the networking opportunities. The head of the secretariat, Dr. Garzik, for example, provided Austrian expertise at the International Technology Transfer Conference organised within the framework of a partnership with Chinese institutions.

### **Visit by a Delegation from Nanchang –**

**8 November 2010**

The delegation from Nanchang was particularly interested in sharing research and development, especially in cooperation related to technical developments in the area of energy supply and energy research. Dr. Reinhard Schütz from the Austrian Institute of Technology and Mr. Roland Dietrich, managing director of AustriaTech, also accepted invitations to present the interests and

activities of their organisations in this area. The delegation from Nanchang comprised representatives of the Nanchang Town and Country Construction Commission, Deputy Director Wang Xiangyang, Nanchang Civil Defence, Director Ju Jin Zhang, and the Nanchang Municipal People’s Government, Deputy Secretary-General Li Furu.

### **Visit by a Delegation from Jiangsu –**

**10 December 2010**

The visit by the Chinese delegation from Jiangsu focused on the presentation and debate about knowledge transfer and the dissemination of scientific findings. During the discussion the Austrian Council’s strategies and recommendations on this subject were presented, and successful formats such as The Long Night of Research introduced. The Deputy Director and Scientific Director of the Technical Museum in Vienna, Dr. Helmut Lackner, presented the museum’s tasks and successes in this area to the delegates. The delegation comprised representatives of the Jiangsu Association for Science and Technology (Vice Chairman Zhao Yongjin and Mr. Liu Fuzai), the Jiangsu Science Advising Centre (Director Li Zheng), the Fangyuan Group Co., Ltd. (Deputy General Manager Sha Junliang), the Nanjing Science Popularization Centre (Director Ruan Lijun) and the Jiangsu Disease Prevention and Control Center (Ass. Director Zhu Fengcai). ■

Communication is at the heart of every knowledge-based society, which is why the Austrian Council regularly invites experts to exchange information.



## events



### **FameLab 2010 – 8 May 2010**

As in previous years, the Austrian Council once again supported the FameLab talent competition for young scientists and researchers in 2010. Candidates have just a few minutes to present their research topic to a panel of experts and a non-specialist audience in a way that is both exciting and original. The ten candidates who had qualified in the regional heats in Innsbruck, Graz and Vienna gave impressive and entertaining performances at the grand final held at the Technical Museum in Vienna on 8 May 2010. The jury prize was awarded to Wolfram Steurer, a post-doctoral student at the Institute of Physics at the University of Graz. With his presentation “Battle for Nothing” he demonstrated the importance of the vacuum in surface physics, impressing the jury both

with his scientific knowledge and ability to explain complex scientific issues using the simplest of means – in this case, a piece of bread with honey – in a way that was easy to understand and inspiring. The audience prize went to Nora Lawo from the University of Natural Resources and Life Sciences with her presentation “Is our Wine Deceived?”, while Ruth Greussing from the Institute for Biomedical Aging Research of the Austrian Academy of Sciences won the Ö1 Audio Prize.

FameLab is a competition launched by the Cheltenham Science Festival (GB) in 2005 with the aim of identifying talents in science and research communication. The British Council established the format internationally and since 2007 it has taken place simultaneously in a number of European countries, including Austria.



### Expert Workshop on the Energy Research Strategy – 11 May 2010

To conclude the internet discussion process and as a final coordination stage for the recommendations in the energy research strategy, the Austrian Council, the Austrian Society for Environment and Technology (ÖGUT) and the Ministry of Transport, Innovation and Technology (BMVIT) held a workshop on 11 May 2010. The full-day event at the Europahaus was devoted to four topics: “Good Governance, Better Regulation and Monitoring”, “Innovation-Friendly Climate”, “International Cooperation” and “Basic Research” in relation to energy research.

Following a brief presentation of the most important aspects of the energy research strategy, the 30 participating experts from industry, re-

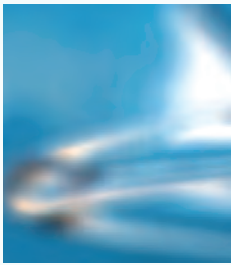
search, funding agencies and ministries were then invited to discuss the recommendations proposed by the Austrian Council in a number of working groups. Together with the results of the internet discussion, the most important inputs and statements were incorporated into the final version of the Austrian Council’s energy research strategy, which was approved in July 2010.

### Long Night of Research 2010 – 5 November 2010

Although at the beginning of the year it briefly looked as if the Long Night of Research might have to be cancelled, the big science event did in the end take place on 5 November 2010 thanks to an initiative by a number of provinces which set up a regional coordination process moderated nationwide. For a variety of reasons, >



## events



the ministries represented on the steering committee of the Long Night of Research had decided not to hold the event in 2010. In the end, the provinces of Burgenland, Carinthia, Lower Austria, Upper Austria and Vorarlberg offered an extremely wide range of topics at 430 stations in 9 towns, which at the individual sites attracted at least the same number of visitors than in previous years, if not significantly more. The Austrian Council welcomed the

activities to raise awareness in the form of a Long Night of Research and assisted with the coordination.

The success and high level of acceptance among the target group prove that there is strong interest in popular science communication formats, which reassures the participating provinces that it is definitely worth continuing the Long Night of Research despite the expense and effort involved. ■

## the austrian council

The Austrian Council has been entrusted with the task of defining road-marks for Austrian RTI policy. Its expertise is rooted in the many years of experience its members have in science, research and industry.

## the austrian council



**Ludovit Garzik**  
Head of the Secretariat

### Review 2010

Internally, the year 2010 was dominated by the changes in the membership of the Austrian Council. Together with the members of the second Austrian Council, the secretariat successfully completed all of the projects by the summer. To ensure continuity in the content and structure of the Council's work, special documents were drawn up for the transitional period. Much of the secretariat's work concerns activities in bodies which do not depend on the Austrian Council's terms of office, such as committees to monitor funding measures. To enable the new Austrian Council to prioritise their areas of work quickly, the secretariat held internal workshops in spring 2010 to put together a list of topics. The result was a list of activity fields that could be assigned to the members of the new Austrian Council for the third period of work and which will carry the RTI system in Austria forward. In terms of content, the energy

research strategy was the most comprehensive recommendation issued by the Austrian Council last year. It also enabled the successful continuation of community involvement via a wiki-process started with Strategy 2020. The discussion of key issues for the future with the community is an important input factor for the Austrian Council's work.

The Austrian Council has also done its utmost to support the strategy development activities of the ministries. Johannes Gadner's secondment to the Federal Chancellery ended in summer 2010 following the substantive completion of the government's RTI strategy. The finalisation of the political discussions and subsequent publication of the strategy in March 2011 marked the beginning of the implementation and monitoring to which the Austrian Council will contribute in an appropriate form. ■

### Outlook 2012

Education and research will play a central role in the political discussions in 2011. The focus of public budgets must be consistently shifted away from consumption areas toward investments in forward-looking areas, whereby care must be taken to ensure the efficient use of these funds. In recent years, a positive evaluation culture has developed in the research sector

which must also serve as an example for the use of public funds in other areas.

In these areas, the Austrian Council can play a supporting and advisory role for the political discussions. A concerted effort on the part of all participants is the only way to take Austria forward in global competition. ■

## The New Austrian Council

### Constitution

The Austrian Council for Research and Technology Development (Austrian Council) became a legal entity under public law on 1 September 2004 following an amendment of the Research and Technology Funding Act. It consists of eight members with voting rights who are appointed for a five-year term of office and who may be reappointed once. Four members of the Government serve on the Council in an advisory capacity.

### Start of Third Term of Office

On 21 October 2010 the Austrian Council for Research and Technology Development commenced its third term of office with a constitutive meeting and eight new members. Four of the Council members were appointed by Minister Doris Bures (BMVIT) and four by Minister Beatrix Karl (BMWF). The members appointed by Minister Bures were **Gabriele Ambros**, owner of the Bohmann Verlag publishing house and President of Forschung Austria, **Hannes Androsch**, industrialist, head of the supervisory board of the AIT Austrian Institute of Technology and Chairman of the University Coun-

cil of the University of Leoben, **Gi Eun Kim**, biotechnologist and professor at Seokyeong University in Seoul (South Korea), and **Karin Schaupp**, business consultant at International Innovation and Business Consulting.

Minister Karl appointed **Markus Hengstschläger**, a human geneticist at the Medical University of Vienna, **Marianne Hilf**, professor of law at the University of St. Gallen, **Renée Schroeder**, a molecular biologist at the Max Perutz Laboratories, and **Peter Skalicky**, Rector of the Vienna University of Technology to the Austrian Council. For the first time, more than half the Austrian Council's members are women.

At the start of the new Council's term of office, the new Chairman of the Austrian Council and his deputy were elected at the constitutive meeting. Hannes Androsch was unanimously elected and will now head the advisory body until September 2015. Peter Skalicky, Rector of the Vienna University of Technology was elected – also unanimously – as deputy chairman.

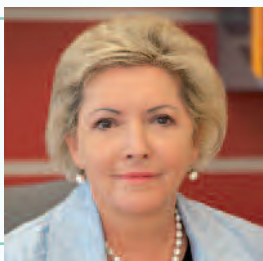
The new members of the Austrian Council are listed on the following pages in alphabetical order. ■



Constitutive meeting  
(from left to right):  
**Marianne Hilf**,  
**Renée Schroeder**,  
**Karin Schaupp**,  
**Hannes Androsch**,  
**Ludovit Garzik**,  
**Minister Doris Bures**,  
**Barbara Weitgruber**,  
**Peter Skalicky**,  
**Gabriele Ambros**,  
**Gi Eun Kim**

## the austrian council

### The New Members of the Austrian Council for Research and Technology Development



**Gabriele Ambros**, who was born in Vienna in 1957, studied economics at the University of Economics and Business in Vienna and in 1993 joined the Bohmann-Verlag, becoming the manager one year later. In 2000 she became the managing director of the publishing house and subsequently devoted herself to reorganising and structuring the company's international subsidiaries in Hungary, Poland, the Czech Republic, Romania and Bulgaria, and also expanding cross-border publishing and event partnerships in the areas of city technologies and environmental technology. In 2004 she and her fellow director Gerhard Milletich purchased all of the shares in the company, including all foreign subsidiaries, and is thus now the owner of the Bohmann Verlag. The acquisition of the Holzhausen publishing house in 2009 resulted in an increase in the number of scientific publications. Gabriele Ambros is most notably linked to science and research by virtue of her functions as a member of the Supervisory Board of the FFG (since 2009) and as President of Forschung Austria (also since 2009).



**Hannes Androsch** was born in Vienna in 1938. He studied in Vienna at what was then the Hochschule für Welthandel, where he obtained his degree in business administration in 1959 and doctorate in economics in 1968. From 1963 to 1967 Androsch was first a secretary then consultant on economic issues for the Social Democratic parliamentary party, and then from 1967 onward a member of parliament. In 1970 he became Minister of Finance and in 1976 Vice-Chancellor, positions he held until 1981. In addition to his functions at the OECD and International Monetary Fund, Androsch served as General Manager of the then state-owned Creditanstalt Bankverein from 1981 to 1988, and in 1988 and 1989 was a consultant to the World Bank. Since 1989 Hannes Androsch has been the managing partner of AIC Androsch International Consulting, and since 1997 the co-owner of Salinen Beteiligungs GmbH and Chairman of the Supervisory Board of Österreichische Salinen AG. Since 1994 he has also been co-owner and Chairman of the Supervisory Board at AT & S, Europe's largest circuit board manufacturer, and also at bwin. Hannes Androsch has demonstrated his commitment to science and research with the establishment of the non-profit Hannes Androsch Foundation at the Austrian Academy of Sciences, his work as Chairman of the University Council of the University of Leoben, his membership of the Senate of the Austrian Academy of Sciences (ÖAW) and his work as head of the Supervisory Board of the AIT Austrian Institute of Technology.



**Markus Hengstschläger** was born in 1968 in Linz and studied genetics at the University of Vienna, receiving his doctorate at the age of 24 while working as an assistant at the Vienna Biology Centre. After research work at Yale University in the USA he was appointed head of the Prenatal Medical Genetics Laboratory at the University Women's Clinic in Vienna. In 2003 Hengstschläger became the youngest university professor for medical genetics at the Medical University of Vienna. Hengstschläger has also trained as a human geneticist. Today Hengstschläger is head of the Institute of Medical Genetics at the Medical University in Vienna and also heads the Department of Medical Genetics at the Wunschbaby Centre at the ums, Institut für Kinderwunsch in Vienna. The current focus of his research work is basic research and routine diagnostics in the field of medical genetics. For some time he acted as an advisor for the Papal Academy for Life in the Vatican and is also familiar to listeners as the presenter of the medicine and science programme "Radiodoctor" on the radio channel Ö1. In October 2009 Hengstschläger became the Vice Chairman of the Bioethics Commission at the Federal Chancellery.



**Marianne Johanna Hilf** Born in 1966 in Graz and studied law at the Karl-Franzens University in Graz, where she obtained her doctorate in 1995 with a thesis on "The Concept of Compensation in Austrian Criminal Justice – the Path to a New Criminal Law?" Following a compulsory court internship at the Court of Appeal (OLG) in Vienna and at the Ministry of Justice she received the *venia docendi* for criminal law, law of criminal procedure and criminology at the faculty of law at Karl-Franzens University in Graz. From 2004 to 2009 Hilf was associate professor for criminal law, law of criminal procedure and criminology at Karl-Franzens University in Graz; she is also Co-director of the Post Graduate Course of Victimology, Victim Assistance and Criminal Justice, Inter University Centre Dubrovnik/Croatia and Johannesburg/South Africa. Since 2009 Hilf has held the chair of the faculty of criminal law, law of criminal procedure and criminology at the University of St. Gallen, focusing on business criminal law. She is also active in the field of victim assistance (Weisser Ring, World Society of Victimology), restorative justice, criminal liability of enterprises and corporate responsibility.



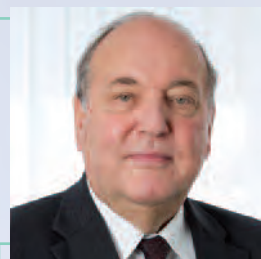
**Gi Eun Kim** was born in 1958 in South Korea and studied biotechnology at the Korea University in Seoul and the Technische Universität Berlin. After receiving a grant from the Konrad Adenauer Foundation she became a research assistant at the Max Planck Institute and then the TU Berlin. Kim is the Secretary General for Biotechnology in the Committee for Industrial Cooperation between Korea and Germany and also acts as a consultant for technology transfer and industrial cooperation between Korean and Austrian as well as German companies. In 1998 she became a Professor at the Department for Biotechnology at Seokyeong University in Seoul.



**Karin Schaupp** was born in 1950 in Fohnsdorf and studied pharmaceutical science at the University of Graz, where she also obtained her doctorate in 1978. She then served as Assistant Professor at the Institute of Pharmaceutical Science at the University of Graz before becoming director of R&D at the pharmaceutical company Leopold Pharma. After holding a variety of positions in international research, development and product management, she moved into management and held senior executive positions at a number of pharmaceutical companies, most recently as a member of the management board of Fresenius Kabi AG in Germany. Since 2003 Schaupp has worked as an independent management consultant (International Innovation and Business Consulting) with a focus on innovation transfer and strategic corporate development. She is also the Deputy Chair of the University Council of the University of Leoben.



**Renée Schroeder**, born in 1953 in João Monlevade/Brazil, studied biochemistry and is professor at the Department for Biochemistry of the Max F. Perutz Laboratories, a joint venture of the University of Vienna and the Medical University of Vienna. Renée Schroeder works in the field of biochemistry, focusing above all on ribonucleic acid (RNA). She has held positions both in Austria and abroad and is extremely well integrated in the international network of scientists. From June 2001 to November 2005 Schroeder was a member of the Bioethics Commission of the Federal Chancellery established by the Austrian government. From 2005 to 2010 she served as Vice President of the Austrian Science Fund (FWF). On more than one occasion Schroeder has criticised the discrimination of women within university structures and therefore actively supports the promotion of women in science. This long-standing commitment was honoured in 2001 with the L'Oréal UNESCO Special Award for Women in Science. In 2007 she was awarded the Wiener Frauenpreis. In 2003 she received the premium award for Austrian scientists, the Austrian Science Fund's Wittgenstein Prize, and became one of the first women to become a Full Member of the Section for Mathematics and the Natural Sciences of the Austrian Academy of Sciences (ÖAW).



**Peter Skalicky** was born in 1941 in Berlin and grew up in Vienna, where he went on to study engineering physics at the University of Technology in Vienna. In 1964 he graduated as an engineer and in 1965 obtained his doctorate in engineering physics. In 1973 he obtained his habilitation in the field of crystal physics. After a professorship in Paris, Skalicky became a Professor for Applied Physics at the Vienna University of Technology and head of the institute of the same name. Following a visiting professorship in China he served as Dean of the Faculty of Science at the Vienna University of Technology from 1986 to 1991, and in 1991 was elected as Rector for the first time, a position he holds to this day. Within the framework of the TU-Austria initiative (with Vienna, Graz and Leoben) he works to strengthen technical sciences and engineering in Austria (e.g. joint activities in DACH, coordination of curricula and research topics, provision of infrastructure and use of synergies in the services sector). Skalicky advocates giving universities a high level of autonomy and criticises the underfunding of technical and scientific universities in Austria.

## **Advisory Members**

### **Doris Bures**

Minister of Transport,  
Innovation and Technology

### **Beatrix Karl**

Minister of Science  
and Research

### **Reinhold Mitterlehner**

Minister of Economic Affairs,  
Family and Youth

### **Josef Pröll**

Vice Chancellor and  
Minister of Finance

## the austrian council

### The Members of the Austrian Council until September 2010



#### **Knut Consemüller**

Chairman of the Austrian Council

Knut Consemüller was born in Dortmund, Germany, and studied ferrous metallurgy and economics. In 1991 he was appointed to the management board of the Böhler-Uddeholm group with responsibility for research and development. From 1976 to 1984 he was a member of the German technology advisory board.



#### **Günther Bonn**

Deputy Chairman of the Austrian Council

Günther Bonn studied chemistry at the University of Innsbruck. Following several research fellowships in the USA, including one at Yale, he was appointed to a full professorship at the University of Linz. Since 1995 he has held the chair for Analytical Chemistry and Radiochemistry at the University of Innsbruck. Until 2003 Bonn was a member of the FWF where he worked as a department head. He is currently a member of the University Council at the Medical University of Innsbruck.



#### **Dervilla Donnelly**

Dervilla Donnelly was born in Dublin and studied chemistry at the University of Ireland.

In the mid-1980s she was appointed professor of photochemistry. Donnelly was a member and vice president of the executive council of the European Science Foundation and the European Science and Technology Association (ESTA). She is also the chairperson of the Dublin Institute for Advanced Studies.



#### **Albert Hochleitner**

The former CEO of Siemens AG Austria studied physics at the Vienna University of Technology.

In 1965 he joined Wiener Schwachstromwerke where he soon took over the software development department. In 1992 he was appointed to the Management Board of the Group and became its Chairman in 1994. Albert Hochleitner has served as an expert on the industry-related aspects of research and technology policy for several years now.



#### **Reinhard Petschacher**

After studying communications engineering at the Vienna University of Technology, Reinhard Petschacher worked on optical systems for Daimler-Benz in Ulm before moving to the Siemens' micro-electronic development centre in Villach in 1980. He subsequently took over the management of telecommunications components development at the plants in Villach and Munich. Reinhard Petschacher is head of development at the Automotive, Industrial and Multimarket division of Infineon Technologies AG.



#### **Hans Schönegger**

studied business administration and business education at the University of Innsbruck. In 1995 he joined the Carinthian Economic Promotion Fund (KWF) as head of the funding department, and was appointed to the management board in 1998. Hans Schönegger has been managing director of Kärntner Betriebsansiedlungs- und BeteiligungsgmbH since 1998 and been responsible for the Lakeside Park Project since 2002.



#### **Jürgen Stockmar**

Jürgen Stockmar was born in Germany and after obtaining his degree in mechanical engineering worked for Audi and then Steyr-Daimler-Puch, where he was appointed to the management board with responsibility for research and development in 1985. After serving on the management board of Audi AG, he returned to Steyr-Daimler-Puch in 1990. In 1998 he assumed responsibility for global development and technology activities at Magna. He also teaches at the Vienna University of Technology.



#### **Gabriele Zuna-Kratky**

In the late 1980s Gabriele Zuna-Kratky worked at the media department of the Ministry for Education and Art. In October 1997 she was appointed director of the Österreichische Phonothek. On 1 January 2000 she became the first female director of a technical museum, the Technical Museum in Vienna. She is also a member of the University Council of the Vienna University of Technology, and a trustee of the Deutsches Museum Munich and of the Berlin Museum of Technology.



**Ludovit Garzik**

Head of the secretariat, responsible for the management and coordination of the secretariat's activities and external representation.

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**Constanze Stockhammer**

Deputy head of the secretariat, business-orientated research, indirect research promotion, start-up and growth financing, SME and innovation funding, cooperation between federal government and the provinces, research infrastructure, nanotechnologies, information and communication technologies, mobility and transport. Currently on maternity leave.

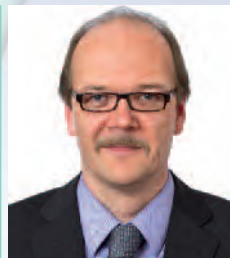
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**Johannes Gadner**

Monitoring and support for the development of strategic processes with a long-term focus (e.g. RTI Strategy of the Federal Government, Strategy 2020, Strategy for Excellence), pre-competitive and business-related research, cooperation between science and industry, non-university research, energy research and sustainable development.

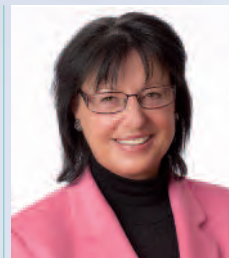
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**Anton Grashopf**

Covers for Dr. Gadner and for Dr. Stockhammer who is on maternity leave, universities, research infrastructure, life sciences, basic research, energy research and international issues.

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## Secretariat

The secretariat supports the Austrian Council both in terms of organisation and content, in particular with regard to preparing and organising the meetings of the Austrian Council and working groups, and in respect of communication both within the Council and externally. Day-to-day operations of the Austrian Council are financed by the Ministry for Transport, Innovation and Technology. The head of the secretariat, deputy head of the secretariat and members of staff (in alphabetical order):

In 2010 **Dr. Fredy Jäger** stepped down from the secretariat to enjoy his well-deserved retirement. We wish him all the best.



**Ákos Kászoni**

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**Bettina Ruttensteiner-Poller**

Science/RTI and society, human resources, humanities, social and cultural sciences, advancement of women and gender mainstreaming, ethics in research, public relations work and administrative support.

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**Walter Schneider**

Basic and pre-competitive research, agricultural sciences, security research, international research cooperation, EU research and innovation policy, especially EU Framework Programmes for RTD, ERA-NET.

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