

annual report
2011





printing information

Publisher and Media Owner | © **austrian council**

Rat für Forschung und Technologieentwicklung | 1010 Vienna | Pestalozzigasse 4

Design | Grafikatelier Heuberger | Vienna

Photo Credits | Pinter | RFTE | ZFE Graz | Karin Schachinger | Christian Mikes

Walter Schneider | EIPA-EPISA 2011 | fotolia.com | Sebastian Kaulitzki snez_4eva |

Lemonade | Paylessimages | dusk | istock.com

Printed by | gugler cross media | Melk

greenprint  The new standard for environmental
friendly print production

 Printed according to criteria documents of the austrian Eco-label low-polluted
printed products: gugler cross media, melk, austria; UVVZ 608; www.gugler.at

contents

4 __ foreword

5 __ editorial

7 __ outlook

Tomorrow's Global Challenges in an Age
Obsessed with the Present – and What that
has to do with Education and Research _____ 8

17 __ the austrian council recommends

Recommendations 2011 _____ 18

35 __ creating knowledge

What has been Accomplished _____ 36

Reports and Studies 2011 _____ 43

International Activities _____ 47

57 __ events

67 __ the austrian council

Cooperation Agreement with Lower Austria _____ 68

The Austrian Council for Research and

Technology Development Awarded

EPSA 2011 Best Practice Certificate _____ 68

Review and Outlook: 2011 and 2012 _____ 69

Members of the Austrian Council _____ 70

Members of the Secretariat _____ 71

72 __ contactt

foreword

2011 was a turbulent and challenging year in a number of respects. The hope that the effects of the financial and economic crisis that erupted in 2008 could swiftly be brought under control, has since been replaced by the conviction that Europe and the USA will both need considerably longer to overcome the financial turmoil.

This difficult international environment has also made the situation for Austria more complex. As a result of the steps taken by the Federal Government during the immediate financial crisis, Austria is now much better placed than other members of the European Union in many indicators. Nevertheless, we too have to make far-reaching cuts in order to consolidate and stabilise the budget.

At the same time, however, the undisputed need to consolidate the budget makes it all the more imperative to adopt a course that will safeguard the future of our country and that of future generations. As Austria's quality as a business loca-

tion and thus its international competitiveness will more than ever be determined by the strength of our research and innovation system, there is no alternative to continued investments in the future-oriented areas education, research and development. The Federal Government's RTI Strategy can provide a basis for taking appropriate measures and initiatives to set the right priorities and find the investments for the future.

This latest report on the activities of the Austrian Council for Research and Technology Development shows that the Austrian Council and the responsible government ministries have together taken important steps to strengthen Austria as a centre of RTI and to push ahead with the process of structural change that has been successfully initiated.

We wish the Austrian Council for Research and Technology Development every success in the coming year as it carries out the tasks that are so important for the future of the Austrian research and innovation system.



Doris Bures
Minister of Transport,
Innovation and Technology



Dr. Maria Fekter
Minister
of Finance



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



Dr. Karlheinz Töchterle
Minister of Science
and Research

We will all have to work very hard!

Education, research and innovation are increasingly becoming crucial factors in economic competition. The future of a country is already largely determined by its innovative power and ability to use its talent potential. Austria, too, cannot escape this development if it wishes to preserve its high standard of living and prosperity in the medium and long term.

With a GERD-to-GDP ratio of 2.79 percent in 2011 and a strong culture of cooperation between science and industry, Austria has successfully positioned itself as a good place for innovation, especially in the years 2000 to 2007. While it is understandable that the outbreak of the international financial and economic crisis in 2008 slowed down this positive development, the trend must now be reversed as quickly as possible to allow Austria to retain its position among the front-runners.

In other words: We must now quickly overcome the current stagnation and regain or even strengthen the dynamism that characterised the early years of this millennium in the area of research and development. While this does require more money, it is above all a matter of using the resources properly. The duplication and fragmentation that exist in many areas must therefore be eliminated, as must abuses so that the money that is freed up is available for sensible investments in education, science, research and innovation that will safeguard our future. This is also an essential prerequisite for generating the economic growth that is necessary to safeguard jobs and our prosperity.

Understanding the crisis as an opportunity

The current European debt crisis is a challenge, but it also presents an opportunity to implement long overdue structural reforms, also and particularly in Austria. Comparable countries such as Switzerland, Finland and Sweden have already taken crucial steps in this direction and as a result have been able to significantly improve their positioning in the recent past. If we

succeed in making structures in Austria more efficient – e.g. by abolishing the Hacklerregelung (which allows long-term contributors to the state pension system to retire much earlier than the statutory age) and the like – and investing the resources in education, research and innovation, our country can establish itself as a highly innovative location with the best possible conditions for excellent science and research and catch up with the group of innovation leaders. The Strategy for Research, Technology and Innovation of the Austrian Federal Government presented in March 2011 is a first and important step in this regard. While the analyses and findings of the Strategy are very convincing, greater courage now needs to be shown in developing suitable measures – and above all, a secure financing commitment – if it is to be implemented successfully. To ensure planning certainty both for investments from business, and for the various research institutions, a solid development of the financing inputs must be guaranteed. This should be done by drafting and adopting the law on research financing announced by the Government.

Austria faces important decisions that will determine the future

The mistakes of the past that led both to structural weaknesses and to our budget difficulties are now forcing us to make the necessary corrections so that the next decade does not become a lost one. This firstly requires the ability – and also the willingness – to think in the long term. It then subsequently requires the courage to act.

In view of this fact, the most urgent task of the Austrian Council for Research and Technology Development is to identify and demand from those in positions of responsibility the implementation of measures that are necessary to im-

editorial



Hannes Androsch
Chairman of the
Austrian Council



Peter Skalicky
Deputy Chairman of the
Austrian Council

editorial

prove and further develop the Austrian research system. The aforementioned research financing law is just one point here, but a particularly important one.

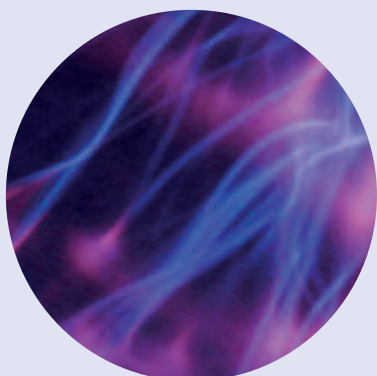
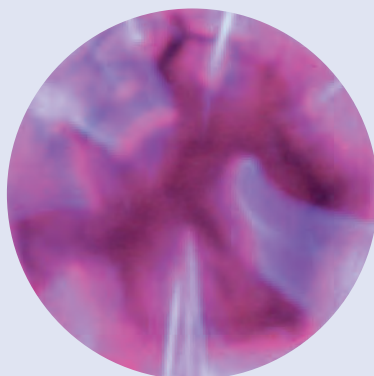
On the whole, the structure of the research system should – like all other areas – be governed by the principle: as much state intervention as needed and as much freedom – in the sense of individual responsibility and initiative – as possible. This requires a strong state, but not in the sense of an all regulating and all determi-

ning state, but in terms of the quality of the framework conditions that it provides.

One thing is certain. Without highly educated people, without an excellent research performance and broad-ranging innovation activities, without courage and a willingness to take risks, we will not be able to meet the challenges that face us at present - nor those that arise in the future. Austria will have to work hard if it is to keep up with global changes and not fall back into mediocrity.

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







outlook

On the challenges presented by tomorrow's world in an age that is obsessed with the present – and what this has to do with education and research.

The best way to predict the future is to create it! Willy Brandt

The true art of politics is the art of winning people's support for a good cause even when the pursuit of that cause may interfere with their particular momentary interests. Václav Havel

Current state of affairs

Infant mortality is falling all over the world, while life expectancy is increasing. At the same time malnutrition among children in Africa and Asia is rising, and industrialised nations are facing massive problems in financing their healthcare and pension systems. Although we have been spared the nuclear war between world powers that was so feared in the era of the Cold War, the number of terror attacks and other violent crimes is growing. And while we are becoming ever more mobile, the resulting CO₂ emissions are increasingly having an adverse impact upon the climate.

Overall, it seems that the world is caught up in a mad dash. On the one hand there are more and more opportunities for improving our quality of life and generating prosperity, while on the other, the number of global problems are constantly increasing, as are their extent and complexity. "2010 State of the Future" puts it succinctly: "If current trends in population growth, resource depletion, climate change, terrorism, organised crime, and disease continue and converge over the next 50 to 100 years, it is easy to imagine an unstable world with catastrophic results. If current trends in self-orga-

nisation via future Internets, transnational co-operation, materials science, alternative energy, cognitive science, inter-religious dialogues, synthetic biology, and nanotechnology continue and converge over the next 50 to 100 years, it is easy to imagine a world that works for all."¹ So how can we manage to confront these challenges successfully?

A brief look back

Just over twenty years ago, right after the collapse of the Soviet Union, the fall of Communism in Europe and the reunification of Germany, some people were already talking about the "end of history"², and the idea of a united world dominated solely by the USA – in both economic and military terms – became widespread. But things subsequently took a different turn. The terror attacks of 11 September 2001, followed by war in Afghanistan and Iraq, the economic crisis persisting since 2008, the Arab Spring of 2011 with its currently unforeseeable consequences in terms of geostrategy and security policy and lastly, the nuclear disaster at Japan's Fukushima reactor: these are just a few of the events that have surprised and frequently overwhelmed us. Nowadays intellectuals and

¹ Millennium Project: 2010 State of the Future; published by the German Node of the Millennium Project, Berlin 2010, p. 2

² Fukuyama, Francis: The End of History? In: The National Interest. Summer 1989



politicians no longer debate the hegemony of the USA, but its supposed decline as a military and, above all, economic power, the meteoric rise of certain Asian countries, spearheaded by China, and the more than uncertain economic development of Europe in the face of the debt crisis gripping many member states of the European Union. And the earlier boast, “We have a future” has nowadays turned into the fearful question, “Do we still have a future?”.

Alan M. Webber, the former editorial director of the Harvard Business Review, made the following comment during the 2010 Albach Reform Symposium: “Our world is VUCA: Volatile, Uncertain, Complex and Ambivalent”. With this he was trying to express the sometimes widely diverging, but inextricably linked global, regional, national and social tensions of this day and age. As regards the constant emergence of new crises, Nassim Taleb spoke of “black swans”. Here he is referring to events that come about through a change in a single system variable and result in unforeseen and above all dramatic consequences for the system as a whole. Donald Rumsfeld, former US defence secretary, called them “unknown unknowns”, speaking of things we do not know we don’t know, but which might at some time be important and catch us unawares.

But however we choose to describe the world of today, it is a fact that in recent years a feeling of uncertainty has been growing among many people where the future is concerned. This gives rise to the question whether we should not abandon our current rational and objective understanding of risk to give greater consideration to the fact of such uncertainty.

The world no longer boils down to one common denominator!

This constant feeling of insecurity and uncertainty does not just result from “the unplanned

becoming the rule, and the unexpected a recurring event”³. It is above all also due to the fact that those very challenges we have identified as shaping the future can hardly be mastered autonomously, i.e. by individual nations or at a European level, but only on a global scale – or not at all, for to date we have in fact lacked the institutional framework necessary in this regard.

Climate change can be arguably cited as the best-known example of global challenges. Despite the unambiguous words of the Intergovernmental Panel on Climate Change of the United Nations in its Fourth Assessment Report, stating that there is no doubt about the phenomenon of global warming and that intensification of the natural greenhouse effect can in all likelihood be attributed to anthropogenic causes, all efforts to bring about comprehensive solutions have to date failed due to the presumed supremacy of the interests of nation states. Yet the very issue of climate change entails a whole series of risks, in particular including those relating to security policy. A shortage of water or food or weather-related natural disasters such as flooding or drought may overwhelm instable regimes as regards their capacity to act, result in migration or massively harm the economic basis of individual countries. Competition for resources or a flow of refugees from one region to another are just two of the most obvious consequences that may occur here and make it imperative to seek adequate policy approaches.

Only with cooperation between the major players on the world stage – the USA, China, India, the EU and Russia – will it be possible to find solutions to these problems and many other global issues, for example the question of future energy supplies, the consumption of raw materials or the production of food in the face of

outlook

³ Schlie, Ulrich: Wohin entwickelt sich die Welt im Jahr 2012? In: Europäische Rundschau, 2012/1, p. 3



outlook

an expected increase in the world population to an estimated nine billion by 2050⁴. Every state is nevertheless asked to do its utmost to help here.

Given the need for action it is all the more worrying that, since 2008, a general feeling of stagnation has become widespread in many European countries and the USA. This phenomenon has already been observed in the past: in the states subject to communist rule in the years directly preceding their implosion. It is thus high time for us to tackle the many challenges facing us here, as we do not have boundless time to act. And how quickly things (can) change is demonstrated for example by the staggering economic rise of the Peoples' Republic of China in the last 25 or so years.

China – from the workbench to a world laboratory?

For over two decades the only way for China's economy has been up, frequently characterised by growth rates of more than ten percent and in a dimension that Europe and the USA could then only dream of. At the same time China has built up dollar reserves to the tune of an unbelievable USD 3,181,100 million and has meanwhile become America's biggest creditor, so potentially enabling it to exert massive pressure on the USA. China has consequently become a major driver behind the global economy, also exercising significant influence on developments in Europe.

This dynamic growth however comes hand in hand with increasing social, political and geographical disparity, something that now harbours great potential for conflict, above all in conjunction with the growing inequality in terms of income and wealth.

The Chinese leadership is well aware of these challenges and will try to steer the necessary changes in the right direction. At the same time most of the key political figures in the Peoples' Republic of China are set to change in autumn 2012. 70 percent of the leadership, i.e. some 200 members of the Central Committee of the Communist Party, are being replaced by a new generation of politicians. For the first time we are being confronted with a leadership that has not been handpicked by Deng Xiaoping. One scenario that might result here: In contrast to previous years, the formation of different factions along regional, functional and ideological lines might well bring political unrest to the country. This is however not all that could change. In the case of the two new state leaders who seem most likely to be appointed – Xi Jinping as President and Party Leader and LiKeqiang as Premier – the state may be governed for the first time by Chinese politicians who – unlike their predecessors – can speak English and are well acquainted with the ideas and attitudes of the West.

Unrest may also make itself felt in the Peoples' Republic of China in economic terms. Rising wages are now afflicting China, which is already seeing production relocate to other countries where costs are even lower. Growth rates might slow down significantly in coming years. In addition, the country could be overtaken by inflation, as well as its rapidly ageing population, not lastly due to China's one-child policy. The fact that both the USA and Europe will be consolidating their budgets by cutting back in the near future will also impact on China, whose business model has until now revolved around exports to Europe and the USA.

Nevertheless, the global economy is set to be-

⁴ United Nations / Department of Economic and Social Affairs – Population Division: World Population Prospects. The 2010 Revision. New York: United Nations 2011

come 'more Chinese', as Uwe Jean Heuser put it in the weekly magazine "Die Zeit".⁵ In addition, China is increasingly banking on stepping up science and research and in recent years has thus already massively increased its spend on both research and investment in education. According to the OECD, China's national expenditure on R&D rose from eleven to some 154 billion US dollars between 1995 and 2009, corresponding to an annual increase of 21 percent. In its outline research plan entitled "*The National Medium and Long-Term Program for Science and Technology (2006–2020)*" the State Council of China emphasised that one key factor that would allow the country to catch up in the field of science and technology was well-trained staff. And by 2020 the plan is for investment in "social research" (i.e. not including military research) to exceed 2.5 percent of China's GDP, with the aim of ensuring that advanced technology accounts for over 60 percent of this figure.

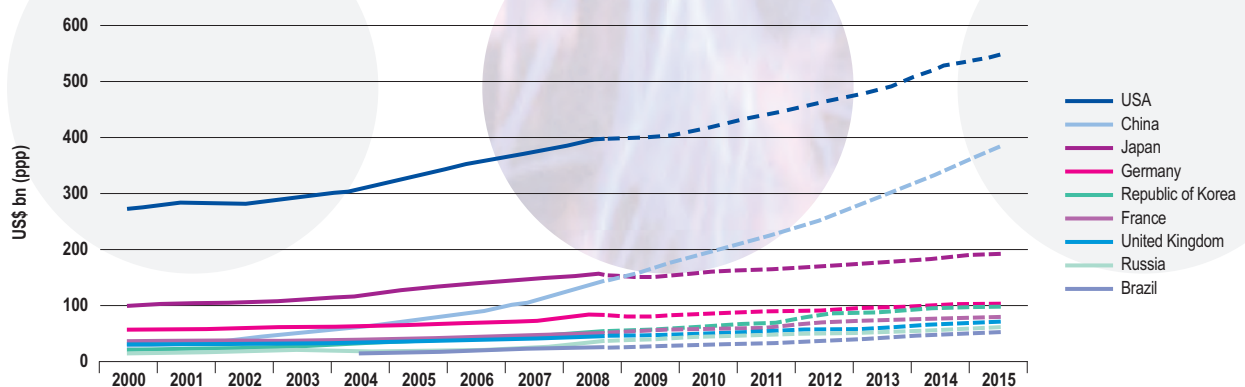
Besides occupying a leading position in industrial production, China is thus preparing to play a leading role in science and research in the future. Britain's Royal Society has predicted that in 2013, the Peoples' Republic of China might publish more scientific articles than the USA, and UNESCO likewise came to the conclusion that China will soon have more researchers than any other country. And even if these figures say nothing about the quality of such research, it is nonetheless apparent here that the political leaders of this state are pursuing a specific objective doggedly and with a passion.

A new world order as the result of the financial crisis

The emergence of the financial crisis unmistakably marked the start of a global process of economic rebalancing. Ultimately, the debt crisis currently affecting the USA and many European countries will beget a "new world order"

outlook

Forecast R&D Spending of Selected Countries 2000–2015



Source: The Royal Society; Knowledge, networks and nations. Global scientific collaboration in the 21st century. London: The Royal Society, 2011, Seite 42

⁵ Heuser, Uwe Jean: China begegnen: Glückwunsch, Peking! Aber noch geben wir uns nicht geschlagen. In: Die Zeit No. 8/2011, 17 February 2011



outlook

(Philip Coggan), whose final contours are not yet really foreseeable, even if we can no longer deny certain developments such as China's rise to become an economic power and consequently, a political force to be reckoned with.

Nor can we deny that Europe is currently groaning under the weight of a sovereign debt crisis that has taken a firm hold in many of its member states. These countries allowed excessive levels of debt to build up for too long, paying insufficient attention to this situation in years of continuing economic growth and rising tax revenues. But confidence has been massively eroded in recent years, and – what is even more important – it is becoming increasingly obvious that levels of debt should not only not be allowed to rise any further, but also that existing liabilities can probably only be repaid with difficulty. Demographic changes, in other words, our ageing society, result in ever fewer workers being obliged to pay for an ever increasing number of pensioners, and for ever longer periods due to the rise in average life expectancy. Shrinking tax revenues caused by the fall in the number of people in work accompanied by the rising cost of pension and healthcare systems – a calculation that is bound to result in a shortfall! This realisation will inevitably (have to) lead to drastic changes in many European countries.

Changes which may well not be accomplished without trouble. The riots staged by young people in England in 2011 might be a foretaste of further outbreaks of violence as levels of youth unemployment are also worryingly high in other countries. Social tensions have intensified, and it is not just as a consequence of the financial crisis that many people, in particular the

youth of today, see themselves as losing out from globalisation.

Dani Rodrik, a Harvard professor specialising in economic development, thus also believes that boundless globalisation (“hyper-globalisation”) – in the sense of totally free world trade and unlimited mobility of labour and capital – is incompatible with our traditional concepts of democracy and the nation state⁶. The starting point for this hypothesis is two observations made by Rodrik: firstly, that the state and market are not opposing forces, but rather, markets depend on a strong state to ensure they can function properly. And secondly, that there is not just ONE or THE model of capitalism, but various forms which are based on different cultural and historical traditions.

The central problem is as follows: We have increasingly globalised markets that depend on a global set of rules if they are to function properly in the long term or if they are to function at all. We however lack a world government to formulate and enforce such rules, not lastly because most people would be extremely reluctant to endow such a government with the necessary powers of democratically organised nation states. And any transfer of such powers by a national government against the will of its citizens would violate the principles of democracy.

We are caught – as Rodrik described it – in a “political trilemma”: “We cannot simultaneously pursue democracy, national determination and economic globalisation. If we want to push globalisation further, we have to give up either the nation state or democratic politics. If we want to maintain and deepen democracy, we have to choose between the nation state and international economic integration. And if we want to keep the nation state and self-determi-

⁶ Rodrik, Dani: Das Globalisierungsparadox. Die Demokratie und die Zukunft der Weltwirtschaft. München: C.H.Beck Verlag, 2011



nation, we have to choose between deepening democracy and deepening globalisation.”⁷ The switch from a bipolar (USA – Soviet Union) to a unipolar (USA) and then to a polycentric world has become reality. If we are to develop a viable system for the future from this, it is thus not maximum, but smart globalisation that we need here.

We will have to learn how to live with crisis-ridden upheavals

If there has been a realisation in recent years, it must be this: The crisis that is manifesting itself as a succession of shockwaves with varying effects and on differing scales has now become a permanent state and will probably remain with us for some time. The extent to which things once taken for granted have now fallen apart is demonstrated by the upheavals seen in the Middle East and the Maghreb, where an age of insecurity has only just begun, in addition to the sometimes harsh criticism of capitalism that was recently heard at the World Economic Forum in Davos.

And even one of the most successful political undertakings, the European Union, is beset with serious problems. Although the EU managed to ward off imminent collapse in 2011, it does not resemble a stable community. What is particularly alarming in this context is the circumstance that the debt crisis of many member states not only threatens the continued economic existence of this unprecedented venture, but also the very concepts that underpin it.

One important insight from these developments is as follows: In the face of persistent crises advanced societies will only manage to sur-

vive if they learn to adapt while simultaneously becoming more robust. In this context we are increasingly hearing the keyword ‘resilience’, an expression from cybernetics, which describes how a system copes with external interference. Such resilience, which is understood here as strength in a crisis or a system’s power of resistance – be it ecological or social in nature – depends on the balance between its inner efficiency and its innovative potential. Systems in which a phase of growth is followed by a protection and maintenance phase run the risk of becoming increasingly mired in stagnation if they resist internal regeneration. In such a state the system merely defends the achieved standards, with protection from change prevailing over innovative behaviour. An attempt to gain breathing space is made by applying strategies such as “More of the Same”, but any external shock may bring the entire system crashing down, with the shock waves rippling out unhindered. The events which for example led to the fall of the Soviet Union or the collapse of Lehman Brothers were comparatively unspectacular. They however struck at systems that were already decrepit, over-engineered, bloated and thus extremely vulnerable.⁸

The most important conclusion from these experiences is thus: If the resilience of a system is to be increased, this calls for a combination of optimism, a solution-oriented approach, willingness to accept responsibility and planning for the future. This means that resilience is first and foremost the task of governance, and it is up to governments and managers to intervene, steering growth to marry it with innovation.⁹

outlook

⁷ Ibid., p. 20

⁸ Lukesch, Robert / Payer, Harald / Winkler-Rieder, Waltraud (2010): Wie gehen Regionen mit Krisen um? Eine explorative Studie über die Resilienz von Regionen. Study carried out on behalf of the Federal Chancellery, published by ÖAR Regionalberatung, Fehring

⁹ Ibid.



outlook

And this is where the significance of science, research and innovation comes into play, along with education, the essential basis for all three, as in the context of the challenges of today outlined above.

Education as a “knowledge-based power of judgment” is set to become even more important than it already is

Numerous reports and studies have described various, mostly dramatic scenarios which might result should we fail to master challenges such as putting smart globalisation into practice, getting demographic change under control, curbing global warming or safeguarding a supply of food and water for everyone. However, in all cases the prerequisites for overcoming current and future challenges are EDUCATION, RESEARCH and INNOVATION, even though they may prove to be insufficient.

The demographer and social statistician Wolfgang Lutz has already demonstrated the social importance of education in numerous studies – i.e. the benefits of education that go beyond the specific individual concerned. Education, particularly where women are concerned, is not just a means of checking rocketing population growth in the developing world. Educated people are on average also healthier and have healthier children, while education strengthens the position of women in the family. In addition, the provision of education for broad sections of the population is a prerequisite for the functioning of democracy. Democracy is only possible where the majority of inhabitants are able to read, so inform themselves and express their views.

That education is also crucial to economic progress is only mentioned here for the sake of completeness. The Asian Tiger states of Singapore, South Korea and Taiwan, which 50 years ago were even poorer than many African coun-

tries, have demonstrated this to impressive effect. The first step was massive investment to ensure the literacy of the population. Only then, when the better-educated children reached the age of maturity, did rapid economic growth commence.¹⁰

This positive link between education and economic growth also applies to economically highly developed societies, as was recently again demonstrated by the Vienna Institute of Demography and the Institute of Mathematical Methods in Economics of Vienna University of Technology. Their studies illustrate that a fall in the birth rate will not necessarily have an adverse effect on the economic situation. If however such a fall is to have a positive impact on medium-term pro-capita economic growth, the prerequisite is major investment in educating subsequent generations.

Wilhelm von Humboldt, who is much-quoted in debates about education, defined education as “the stimulation of all human faculties so that through the appropriation of the world they can unfold ... and lead to a self-determined individuality and personality”. The issue here is thus “appropriation of the world” by individuals to subsequently develop their personality according to their talents and so lead a fulfilling life. Education is more than the acquisition of knowledge that allows a person to take up a profession. Restricting the term ‘education’ to “schooling” or “training” is short-sighted and ultimately even risky when it comes to mastering future challenges.

Today’s education system is however largely the result of the requirements once imposed on people by farming (the keyword being summer holidays here) and later on, the Industrial Age. It secondly called for people who “functioned” by being able to absorb a certain level of knowledge in a short time to then put it into practice.

¹⁰ Lutz, Wolfgang: Zukunft durch globale Bildung. In: Der Standard, 13 May 2011

There have meanwhile been massive changes in the challenges in dealing with life. The pace of life today is constantly accelerating, and our world is becoming increasingly interconnected, uncertain and contradictory. At the same time familiar structures are becoming less important and are giving way to new forms; one example here is the institution of the family. And so it is now skills such as self-motivation, self-organisation, networked, systemic thinking and other capabilities that are becoming ever more important.

Yet the realisation that our world and thus the living environment of every individual has in some respects undergone dramatic change over the last few decades has left one area virtually untouched: our schools. The classrooms of today have remained more or less exactly as they were over a century ago. The usual procedure is still

for teachers, generally equipped with little more than a textbook, blackboard and chalk, to stand before some 25 pupils, instructing them in a single form and at a pace that is the same for one and all. This not only shows a lack of imagination, in terms of the opportunities offered by modern technology alone, but is above all – as Rupert Murdoch put it – “an abdication of our responsibility to our children and grandchildren – and a limitation on our future”.¹¹

The reluctance to act as the consequence of the malaise of our time: an “obsession with the present”

Given the challenges outlined above, this lack of vision and planning, which is prevalent almost everywhere, is most alarming. In this day and age politics is generally limited to simply dealing

outlook



¹¹ Murdoch, Rupert: Bildung ist das letzte Reservat. In: Frankfurter Allgemeine Zeitung, 8 June 2011



outlook

with given circumstances and as such, does not help to improve the resilience of society. Here there is little to be seen in the way of specific objectives for the future or suitable positioning as a basis for giving it concrete shape; there is merely a flurry of activity in the face of disturbance or malfunction, with this however merely serving to swiftly restore the status quo.

In this context the disease of our time was diagnosed by the German philosopher Dieter Thomä as an “obsession with the present”¹². We remain stuck in the present without thinking about the consequences our action or failure to act will have for subsequent generations, who are after all our children and our children’s children. For Thomä such nonchalance in relation to future burdens and risks, due to the heedless attitudes seen today, results from the successful

development of the Western world and Japan since 1945. We are now saturated, want to maintain this – our – standard of living and so simply carry on in the same vein. At the same time we have stopped looking forward, merely glancing to one side or the other. In other words, we no longer measure ourselves by our dreams and goals, but just against our neighbours, already being satisfied with keeping “one step ahead”.

Our future is uncertain, and uncertainty is never a pleasant feeling. But our striving to keep hold of the present whatever the cost is doomed to failure. We must find answers to all the developments and challenges described above – and sooner today than tomorrow. For whatever our obsession with the present, there is one thing we cannot prevent: the future catching up with us at some time or other – with its full force!

Further literature:

Boeckelmann, Lukas / Mildner, Stormy-Annika: Unsicherheit, Ungewissheit, Risiko. Die aktuelle wissenschaftliche Diskussion über die Bestimmung von Risiken. SWP-Zeitschriftenschau, September 2011

Coggan, Philip: Paper Promises. Money, Debt and the New World Order. London: Allan Lane/Penguin Books, 2011

Sieren, Frank: Angst vor China. Wie die neue Weltmacht unsere Krise nutzt. Berlin: Econ Verlag, 2011

Taleb, Nassim Nicholas: The Black Swan. The Impact of the Highly Improbable. London: Penguin 2008

The Royal Society: Knowledge, networks and nations. Global scientific collaboration in the 21st century. London: The Royal Society, 2011

¹² Thomä, Dieter: Gegenwartsversessenheit. Versuch über eine folgenreiche Zeitkrankheit. In: Neue Zürcher Zeitung, 9 May 2011



Recommendations for 2011

Statement regarding “Amendment of the Austrian Universities Act 2002”

– Statement dated 16 December 2010

The Federal Government of Austria drew up a proposal for regulating access to higher education and submitted this for evaluation. The Austrian Council for Research and Technology Development issued a statement regarding the existing draft of the Federal Government in the framework of the evaluation procedure for Amendment of the Austrian Universities Act 2002. The final version was published by the Federal Government in the Austrian Federal Law Gazette I No. 13/2011 on 30.3.2011.

The Austrian Council for Research and Technology Development welcomes engaging with this issue at a fundamental level. The universities are vastly oversubscribed in certain subjects, and it is no longer possible to guarantee high quality in relation to the conditions for study, teaching and research, particularly on courses admitting huge numbers of students. The sometimes unsatisfactory conditions in higher education can be above all attributed to an insufficient staff-student ratio and inadequate infrastructure.

Excerpt from the statement dated 16.12.2010 in translation:

The draft of the Federal Act dated 6 December 2010 contains two additions to the version of the existing Austrian Universities Act 2002 last amended by the Austrian Federal Law Gazette I Nr. 18/2009.

- In § 63 para. 1 inclusion of subpara. “6. proof that the applicant has sought study counselling prior to the beginning of the studies in the case of initial admission to a bachelor’s or diploma degree programme”;

The Austrian Council for Research and Technology Development fundamentally supports this measure, which will help to ensure that prospective students are better informed. The Council would however like to point out that

this can only be realised if all potential degree applicants have adequate access to information and study counselling throughout Austria. The aim here is to ensure that the decision of each individual is not unduly influenced by such counselling.

- New regulation with a supplementary provision relating to capacity-oriented admission with unusually high demand included in § 124c.

The Austrian Council for Research and Technology Development considers that the Federal Government’s option of restricting Bachelor and diploma degree programmes without consulting the universities according to para. (1) restricts the right of autonomous governance enjoyed by the latter.

The Council recommends preceding the option defined in para. (2) of limiting the number of university places for first-year students with an objective estimate of capacity at the relevant university. The aim here should be the optimisation of infrastructure and staffing levels. By introducing a capacity-oriented admission it is hoped to improve conditions for students, although this must not conflict with the call for raising levels of education. An increase in capacity based on the requirements of society should be determined in the framework of performance agreements.

It must at all events be ensured that the introduction of restrictions on admissions still preserves the existence of equal opportunities and conditions for all potential students, whatever their social background.

It is in this context that the impact of the debated tuition fees should also be seen. The Council recommends that special attention is given to ensuring that socially disadvantaged groups are not excluded from the education system due to increased charges. This depends

on the introduction of an adequate system of student grants which target those in need. It is counterproductive for a country's economy to hinder access to higher education for certain sectors of the population on financial or social grounds.

Given the inadequate conditions for study and research at the universities, particularly in the case of courses admitting huge numbers of students, the Council calls for an increase in funding to improve unsatisfactory conditions by optimising student-teacher ratios and upgrading infrastructure.

The passage in para. (2) of the draft stating that "... *The minimum number of study places shall not be below the average number of students of this study programme in the five years prior to the determination of the number*" would constitute a conti-

nuation of the status quo and as such, is not expedient.

Suitable admission procedures in the introductory study phases should be defined by the universities. The selection procedures laid down in paras. (3) and (4) do not reflect the need for objective selection of the most suitable first-year students. Calling for specialist knowledge alone, particularly with the possibility of performing such selection prior to admission does not pick out the "best", but at most the "keenest" applicants. The main objective of the introductory study / orientation phase is to offer a guiding hand to first-year students. In the Council's view optimum organisation of the introductory phases is the best way of managing an "influx of students" in a manner that serves their interests.

recommendations

Recommendation regarding the setting up of an Office of Science and Technology (OST) for China and other Asian regions – Recommendation dated 4 February 2011

Background

The Asian countries such as China, India, Indonesia, Malaysia, South Korea, Taiwan etc. are becoming a promising science and technology market, with increasing importance as a major business and science partner for all member states of the EU. The levels of economic growth enjoyed by these countries go far beyond those of Europe, and ranged between five and over ten percent in 2009 and 2010. A rapidly increasing role in the economic growth of these newly industrialising countries is played here by various high-technology sectors. These developments have prompted European countries such as Denmark, Finland, Sweden and Switzerland to intensify their science and technology links with China, India and other states, particularly those in (Southeast) Asia. And in recent years Austrian institutions have also significantly stepped up scientific and economic cooperation with this part of the world where science and technology are concerned.

Agreements governing scientific and technical cooperation were concluded with China in 1985 and with India in 2008. Special mention here should also go to the Joint Declaration with Korea (extended in 2010), cooperation on infrastructure and low-carbon urban planning (China, 2010) and university and economic cooperation projects in the form of joint research centres, joint study programmes and international research programmes under the aegis of the OeAD/EPU (Eurasia-Pacific Uninet), the Austrian Science Fund (FWF), the Austrian Research Promotion Agency (FFG), at the initiative of the Austrian Economic Chamber (WKO), the Austrian Ministry for Science and Research (BMWF) and the Ministry for Transport, Innovation and Technology (BMVIT) and other ministerial departments engaged in R&D. A powerful statement about the links in science and technology existing between Austria and China was also made by Austria Tec Week China in the EXPO fair held in October 2010.

recommendations

As highlighted by the Austrian Government's RTI strategy awaiting adoption, it will in future be vital for Austria, in its role as a scientific and economic centre, to establish technological cooperation projects with Asian countries in order to market its technology and manage the transfer of technology. Above all, it is important to obtain access to technology and research institutes and to develop contact with leading researchers.

Recommendation

To consolidate the numerous national efforts and strengthen the country's presence in Asia the Austrian Council for Research and Technology Development recommends setting up an "Office of Science and Technology" (OST) for China and (Southeast) Asia similar to the institutions based in Brussels and Washington in order to represent Austria's scientific and economic interests. The development of such outposts can help to cultivate links involving scientific expertise and economic trade and encourage the exchange of researchers between different countries on a long-term basis. Implementation should make optimum usage of the structures and instruments already in existence here. The task of these outposts is to deal with cooperation projects relevant to science, research and technology between Austria, China and (Southeast) Asia, specifically:

- to initiate and support research collaboration between scientific institutions based in Austria and Asia, in particular cooperation on applied research with industry, both bilaterally and in the context of EU research and technology initiatives under the Framework Programme
 - to ensure the networking of researchers at university and non university-based top-level research institutions and centres of excellence from Austria with regions in Asia
 - to actively help Austria's university institutes and research centres to establish contact with China and countries in (Southeast) Asia
 - to preselect and supervise students who wish to continue their studies at an Austrian university and to undertake a PhD to so allow qualitative assessment to be made at the relevant universities and institutes
 - to cultivate lasting contact with persons representing research and technology policy.
- In addition, the OST supports the work carried out by the ministerial departments and Advantage Austria – WKO in relation to the following activities:
- to actively help Austrian companies in establishing contact with industry, submitting funding applications and conducting contract negotiations
 - to market Austria as a centre of R&D and to offer support with the task of initiating or handling attendance at trade fairs.

Recommendation of the Austrian Council for Research and Technology Development regarding the financing of university staff in the framework of projects funded by EFRE (European Regional Development Fund – Recommendation dated 24 March

With the subarea of EFRE the Structural Funds represent an important source of funding for regional research activities. The universities are an indispensable partner for such projects and make a key contribution to the country's innovation system through the expertise of their professors and non-professorial university staff. In its analysis the Austrian Council identified pro-

blems which lead to uncertainty in acknowledging the eligibility for funding of university staff. The recommendation of the Council contains clear-cut findings and advises swift clarification of the situation, in the interests of Austria as a centre of research, to make participation in research projects more attractive in relation to the Structural Funds for universities.

Following legal analysis the Austrian Council is of the opinion that the labour costs of university staff should be recognised as being fully eligible for funding. This recommendation prompted Austria's Federal Chancellery to examine these issues more closely in discussions with its Ministry for Finance and Ministry for Science and Research, and this has brought clarity here for the benefit of the staff concerned.

The recommendation in translation: *Recommendation of the Austrian Council for Research and Technology Development regarding the financing of university staff in the framework of EFRE-funded projects*

General

The Austrian Council for Research and Technology Development was invited in the course of the working session of the RTI-Platform Austria to submit a recommendation regarding the problems described below.

Status quo

The eligibility for funding of university staff on EFRE-cofinanced projects is not recognised by the auditing authority. Here the authority bases its decision on the national guidelines governing eligibility for funding, § 8 (6) and (7) in the version dated 14.9.2007). This states that public-sector employees – with university staff being specifically mentioned – shall only be recognised as eligible for aid where the duplicate charging of public budgets can be ruled out. Opinions are however divided on the legal interpretation of this issue. The main bodies responsible for questions of eligibility for funding are clearly defined in a statement (VIII/50958) summarised by the Finanzprokuratur, the statutory lawyer and legal advisor of Austria.

The legal nature of the universities has been redefined by the Austrian Universities Act 2002. § 4 states that the universities are legal entities under public law.

§ 12 (10): *The universities shall report their receipts*

from third-party funds and investment income. These shall remain at the disposal of the universities and shall not reduce state allocations.

In the budgeted expenses finance provided by the Austrian government for universities is designated as 'expenditure' and under budgetary law thus does not constitute funding.

§ 16 para. 2 of the general funding guidelines for the granting of funding from federal resources (ARR 2004) states that without funding from federal resources rendering of the service should not be possible or not possible to the required extent. Furthermore, §18 of the guidelines makes reference to funding for "the same activity", whereby the global funding cannot be seen as duplicate financing in two respects. Firstly, a funded research project is an additional activity, and secondly, the global funding does not constitute funding and cannot thus encompass the same activity. University staff with teaching and research as one of their defined core tasks are to be exempted from their normal duties on submission of the project application to the head of department and the rectorate and their release under §§ 26, 27 and 28 of the Austrian Universities Act 2002 in accordance with the attached project plan, schedule and scope of duties of permanent and new staff for carrying out the content of the project.

In its guideline for the handling of project costs in funding applications and reports for funded projects with EU co financing the Austrian Research Promotion Agency (FFG) makes reference to § 8 (6) of the national guidelines on eligibility for funding and states in a separate para.: "University staff shall not be deemed to be public-sector employees."

Recommendation

In view of the available information the Austrian Council for Research and Technology Development does not share the opinion of the auditing authority and sees no reason for deducting university staff from the reimbursable costs.

recommendations



recommendations

The Austrian Council recommends recognising the cost of university staff as fully eligible for funding and to also apply this to projects for the ongoing programme planning period (2007–2013).

To clarify both the current situation and future guidelines the Austrian Council for Research and Technology Development recommends deleting the specific designation of “university staff” (UniversitätsmitarbeiterInnen) from the underlying national regulations and guidelines. The Austrian Council for Research and Technology Development furthermore recommends

improving quality where it is a question of documenting billed services in the university sector. This can be achieved with the successive introduction of a cost accounting procedure similar to those used in industry, in particular the use of all-inclusive timesheets for staff engaged on a project.

The Austrian Council for Research and Technology Development considers it advisable for all players in the process, first and foremost the administrative, certification and auditing authorities to come together to agree how to proceed in future and to submit the result in writing to the funding applicants concerned.

Further development of the COMET Programme – Recommendation dated 15 September 2011

Background

The Austrian Council for Research and Technology Development defined the COMET Programme as a key element of a strategy for excellence from the outset.¹ With successful development of the programme by Austria's Ministry for Transport, Innovation and Technology (BMVIT) and the Ministry for Economic Affairs, Family and Youth (BMWFF) and financing of the initial rounds of calls an important step has now been taken toward the funding of excellence in the field of cooperative research. A certain amount of experience is now available since the programme started in 2006 and the successful establishment of several K-centres.² Further development of the COMET Programme is already under discussion within the framework of the interdepartmental working group used by the RTI Task Force to implement the measures under Chapter 4 of the RTI strategy.

The Council took this as an opportunity to likewise consider further development of the COMET Programme and has now drawn up the present recommendation.

Recommendation

- **Greater flexibility for structures between the programme lines**

The programme document provides for the bundling of national and international expertise of scientific institutions and companies on a long-term basis. Here the K2-centres are clearly committed to institutionalisation and the long-term development of skills. This is an important objective, which is also supported by the Austrian Council.

However, this may at the same time also make the centres of excellence in Austria more rigid as, for the time being, the five K2-centres in existence are fixed institutions. Since the programme

¹ In Strategy 2010 the Austrian Council recommended the establishment of new, optimised types of competence centres in continuation of the competence centre programmes Kplus, K_ind, K_net.

² The FFG has carried out an impact analysis; interim results are already available. The responsible ministries have commissioned an evaluation of the COMET predecessor programme, the results of which are expected for the end of 2012.

document states there cannot be any more K2-centres, K1-centres with the potential of developing into K2-centres have no possibility whatsoever of doing so in the foreseeable future.

The Council thus recommends making the structures more flexible between the programme lines and realigning the system with the aim of increasing the possible number of K2-centres for K1-centres categorised as excellent. This would in principle allow individual K1-centres to develop into K2-centres. The prerequisite here is that on evaluation and interim evaluation of the K2-centres special attention is paid to also linking negative results to the consequence of closing centres down.

In the Council's view the working group set up to implement the RTI strategy should consider whether it could be made possible for K2-centres without an extension to continue working as a K1-centre. This would also allow it to consider abolishing the link between the size and life of these centres.

For the Council the key issue here is to further develop the aspect of competition which, following establishment of the available structures, has to date tended to focus on competition between existing K1-centres and new initiatives.

Any additional costs incurred by the state through greater flexibility will be financed by the necessary increases in GERD as a percentage of GDP, which are required to maintain the budget path adopted here and to achieve the 3.76 percent target.

• Contribution to be made by universities via performance agreements

The programme document states that scientific partners enjoying maximum funding are to contribute at least five percent to funding of the K-centre. To make such contribution by the universities more attractive, the necessary budgetary charges should already be laid down in the framework of the performance agreements.

The Council thus recommends also encouraging the universities to contribute to K-centres – and so to research cooperation projects categorised as excellent – via the performance agreements and acknowledging this accordingly. At the very least the contribution made by the universities should not only be reported as operating expenditure under Self-Funding but also as external funding from partners in the universities' intellectual capital reports. As this option is not currently available, the Council recommends adapting the framework conditions as required in this regard.

It should moreover be considered how contributions to COMET-centres can be basically made more attractive for universities. In particular, the universities should be allowed to disclose their output performance in the framework of a COMET contribution (e.g. publications, service inventions, patents) in a transparent manner. In this context it is also important for the provisions governing intellectual property rights (IPR) to give equal consideration to the interests of the universities, industry and the centres themselves.

recommendations

Recommendation regarding the use of funding from the National Foundation for Research, Technology and Development (NSFTE) for 2012 – Recommendation dated 24 November 2011

Background

Based on the resolution adopted by the Board of Trustees on 27 September 2011, the Austrian Council for Research and Technology Development has once again been invited by the head of the National Foundation for RTD (in accor-

dance with § 11 para. 1 subpara. 1 of the Austrian act governing the National Foundation for Research, Technology and Development) to put forward a recommendation regarding the use of foundation funding for the year 2012 based on the applications submitted by the beneficiaries.

recommendations

In times of tight public-sector budgets the National Foundation acquires special significance, which finds expression in the provision of support for long-term, interdisciplinary research (cf. § 2 National Foundation for Research, Technology and Development Act). The Council has thus reiterated the need for a funding volume of EUR 125 million, the sum that was originally intended when the foundation was set up. The allocation of funding was carried out according to the strategic significance and socio-political relevance of the projects submitted and their categorisation in the global context of Austrian research promotion. The following key areas were additionally laid down for 2012:

- strengthening of the national human potential basis

- support for cooperative high-risk/high-gain initiatives between basic research, applied research and experimental development
- strengthening of the research infrastructure by focusing on initiatives with relevant critical mass and risk potential
- strengthening of venture capital
- excellence in basic research
- strengthening of Austria as a site for companies actively engaged in research.

Given the considerable disparity between the total funding volume applied for and the foundation resources likely to be available the beneficiaries were asked to prioritise the projects and programmes submitted. Further details of the recommendation made by the Austrian Council are given below, whereby it should be noted that the key areas additional-

Recommendation of the National Foundation for Research and Technology Development 2012

Following detailed examination of the applications, the Austrian Council for Research and Technology Development recommends allocating funding for 2012 as follows:

Institution	Amount in EUR mn.	Programme or Initiative
FFG	19.1	BRIDGE and Competence Headquarters
FWF	14.1	Priority Programmes (SFB, DK)
CDG	4.5	CD Laboratories
LBG	4.1	LB Institute for Cancer Research
ÖAW	8	Impulse Programme PI Plus and Junior Groups
aws	5.2	Venture Capital Initiative
Total	55.0	

ly laid down for 2012 and the order of priority provided by the beneficiaries have been taken into account in the discussion.

In the Council's view one central, long-term strategic concern of Austrian research policy is to improve the interface between science and industry in order to translate research results into marketable products with an economic and socio-political significance. For this reason it recommends offering aid totalling EUR 10 mil-

lion to the **FFG**'s BRIDGE programme. To safeguard Austria's future through research, development and innovation the programme line 'Competence Headquarters' should receive funding amounting to EUR 9.1 million.

Given the foundation's current endowment levels in 2012 full funding of the **FWF** key area programmes by the foundation does not seem very realistic. With the aim of supporting the development of areas of excellence for research

and teaching at Austrian universities and non university-based research institutes, they are making a special contribution to ensuring excellence in the field of basic research. To safeguard this key function the Council thus recommends endowing the FWF with EUR 14.1 million.

The Council attaches great importance to initiatives and programmes which reinforce the link between higher education, non university-based research and private enterprise. For this reason the prioritised funding requirement for eight Christian Doppler Laboratories is set to receive funding of EUR 4.5 million in the framework of the Christian Doppler Research Association (CDG).

Life Sciences is a field of research with great social significance and major potential for development. The Council therefore recommends allocating EUR 4.1 million to LBG to fund the LB Institute for cancer research for four of the seven years of the contractual term originally applied for. If the evaluation is positive, the objective will be to provide full funding for the remaining period.

Qualitative and quantitative expansion of the human capital base is an essential prerequisite for ensuring excellence in research and innovation in Austria on a long-term basis. The development and availability of well-trained research staff has thus always been a concern of the Council, for instance as demonstrated in the key areas prioritised in the Strategy 2020 position paper and the current work programme 2011+. The initiatives applied for by the Austri-

an Academy of Sciences (ÖAW) are particularly aimed at ensuring long-term funding for junior researchers in Austria. Given the restricted financial resources of the NSFTE it is only possible to fund part of the projects. The Council therefore recommends providing financing of EUR 8 million to two PI-Plus Groups for a period of five years. Depending on the availability of further funding, finance for one or two Junior Groups should also be envisaged.

Compared with other countries, Austria's below-average availability of venture capital for new, innovative companies is one of the main reasons that Austria remains in the position of an innovation follower. The Council has therefore already spoken out several times in the past for the national venture capital (VC) structures to be strengthened and supported the VC initiative of aws for 2010 in its recommendation of 2009. In view of Austria's known structural weakness in this regard, it should be made clear that in future even greater support must be given to this initiative. Given the constraints on funding, the Council therefore recommends financing a smaller VC fund of EUR 5.2 million. Should resources exceed the current availability, a larger fund of EUR 10.4 million could be provided. In addition, the establishment of a seed fund at aws, specifically aimed at technology-based and academic start-ups, should be analysed for further National Foundation tranches for venture capital and to top up or round out existing VC initiatives.

recommendations

Recommendation regarding the efficient translation of research results into innovations –

Recommendation dated 24 November 2011

Background

As a country with a very high standard of living but also very high wage and business location costs Austria is compelled to constantly come up with innovations and launch them onto the

market. Austria will only be able to keep up with other countries by engaging in intensive R&D activities and applying the results to the market. Translating innovative know-how and technology into commercial products and ser-



recommendations

vices is a complex matter, and promoting this presents political decision-makers with a challenge. The process starts by encouraging an interest in natural science, technology and enterprise in children. It then leads through the necessity for proof-of-concept support for researchers and extends to issues of corporate taxation.

The Austrian economy is dominated by small businesses. 96.6 percent of firms are small and medium-sized enterprises with less than 250 employees, and together they account for 56.7 percent of gross value added. In other words, such firms are a driving force behind the economy and also make a significant contribution to the innovation process. This sector is complemented by an outstanding scientific structure at universities and non university-based research institutes with an international reputation. Innovative ideas in the form of scientific results and findings that are rendered marketable are then output by industry as innovative products and services – in Austria generally by small and medium-sized businesses. If we now consider those indicators as representing the level of innovation among Austrian SMEs and so the results of knowledge transfer, our ratings rank slightly above the EU average according to the Innovation Union Scoreboard. However, there has been a dramatic fall in recent years. Overall sales generated in Austria with market innovations are below the average in the European Union.

The above-mentioned transfer of knowledge into commercial results in this field also comes up against barriers where implementation is concerned. This should be addressed systematically to ensure that the impetus of innovation in Austria is maintained, along with its ability to compete at an international level. For this reason the Austrian Council for Research and Technology Development has commissioned an external study to identify drivers and obstacles for the transfer of know-how and technology into marketable products in an Austrian

context. Very interesting opportunities have been developed to support this process with the help of international examples of best practice and interviews with researchers, experts and industry. The results of this analysis have been used to draw up recommendations for measures to be taken in the following four fields of action.

- 1. Education
- 2. Communication
- 3. Organisational framework conditions
- 4. Funding system

• 1. Education

Where the implementation of innovative ideas is concerned, there is a general lack of staff with sound interdisciplinary training and a background in industry. Such a background is one of the key prerequisites for operating successfully at the interface between technology and the market. In the sector of research such interfaces are generally located at universities or non university-based institutes and are therefore governed not only by the culture of the relevant institute but also by its pay scales, which often act as a deterrent to people who come from industry. This makes it very difficult to find suitable staff for technology transfer and business development in areas closely linked to research. The situation is little different as regards the conditions at start-up centres and business incubators. There is a need for people with a good education (generally a university degree), combined with interdisciplinary know-how (e.g. qualification in technology with business courses) and experience in industry.

The Council therefore recommends:

- encouraging interdisciplinary education at schools and universities
- giving greater emphasis to **entrepreneurial thinking** and aspects of realising ideas in the syllabuses of both secondary and tertiary education
- improving the crossover between education systems in the sense of 'dual' education to make it easier to switch between industry and the

academic world. This concerns the crediting of vocational skills at universities including the necessary legal and material prerequisites and conversely, the crediting of qualifications acquired at university to vocational courses, the organisation of access to higher education and the development of courses of study for persons with vocational qualifications oriented to their needs.

- *2. Communication*

Communication, exchange and the ability to speak a common language are a key factor for transferring innovations to the market. The involvement of customers and consumers and regular communication with them are essential if the results of research are to be commercialised successfully. Projects will generally come to fruition and work results put into practice if customers have a true need for the product, which is already taken into account during the project planning stage and remains actively present throughout the project.

The exchange between researchers and industry is however frequently problematic. One key obstacle is the different corporate and institutional cultures, languages, objectives and time frames. There are often mental barriers to seeking contact on both sides. Good cooperation is already taken for granted at many institutes of technology and business management. In other areas contact is frequently not even sought. Important factors here are conviction and willingness on the part of the institute director to encourage staff to adopt such an attitude at their institute.

A number of programmes and initiatives (e.g. COMET, FFG general programmes) has helped to establish a culture of communication between the worlds of science and industry. The next step is to ensure its further improvement and institutionalisation on a long-term basis – including when not part of concrete funding programmes.

The Council therefore recommends:

- the setting-up of an **Industrial PhD program-**

me based on the Danish model to ensure that cooperation between science and industry is anchored in education. This would give doctoral students a detailed insight into how industry sees, thinks and works and cultivate strong personal links between the two worlds.

- stronger anchoring of **endowed chairs** to speed up the transfer of scientific results to private enterprise. Industrial partners should be selectively targeted with offers of endowed chairs.

- *3. Organisational framework conditions*

The implementation of research results and the transfer of know-how and technology is not generally a priority at research institutes and as such, is not included for example in the performance agreements of universities or publicly financed science institutes. Proximity to the world of business is not a criterion at many universities/research centres or for a career as a researcher. In addition, companies generally lack a clear-cut research and innovation strategy in the case of research partners. The absence of such strategies makes it difficult for research institutes to agree topics of research with industry. The Council therefore recommends:

- incorporating the **transfer of technology** in the **performance agreements** of the universities. The commercialisation of research results should, where appropriate, form part of the performance agreements concluded with university staff. If necessary, the statutory framework conditions should also be amended here.
- providing for a **return to the universities** should a start-up fail so as to reduce the barriers to creating spin-offs, as in the case of young researchers this generally takes place in a phase of life that tends to be less certain (family / career planning).

- *4. Funding system*

The funding landscape in Austria is essentially considered to be adequate. In particular, the general programmes of the FFG are seen as a

recommendations



recommendations

suitable instrument for driving forward promising research results. But the COMET programme or the Christian Doppler Laboratories are also very well regarded at both a national and international level. The Pre-Seed and Seed programmes of the FFG sometimes help to make up for any lack of venture capital. However, when it comes to the commercialisation of research results, greater momentum is still required.

The guidelines laid down by many funding programmes often present an obstacle to the transfer of technology and know-how to the market: It is not permitted to finance developments that are ready for the market. Near-market developments in turn have very low funding rates, which frequently represent an obstacle, particularly for the scientific project partners. Something that Austria clearly lacks when compared with other countries is a form of proof-of-concept or proof-of-prototype funding. One successful example here is the “Proof of Concept Programme” found in Denmark.

Another problem is the reluctance of public funding bodies to take risk. An insufficient share of the funding budgets goes to highly innovative, i.e. high-risk projects, whose level of success on the market is not easy to estimate. The financial crisis has now also made institutional investors such as banks, who were already averse to risk, even more reluctant to finance innovative projects. This is something that particularly affects applied research in Austria. Funding for small, innovative businesses by the banks has all but dried up, and the private venture risk capital market with venture capital or business angel financing is largely non-existent.

The securing of exploitation rights, for example by means of patents, is a very laborious process that is also very costly. There is a need for a suitable central contact point for patenting issues. The Austrian Patent Office is currently characterised by a lack of services, particularly where scientific inventors are concerned.

The Austrian Council therefore recommends:

- the development and introduction of a **proof-of-concept programme** based on an international model, which would enable researchers to evaluate the commercialisation potential of scientific results
- the funding of **high-risk projects**. This would make it more likely that major, extremely innovative ideas could be launched with major impact on the market. In this context the introduction of a risk fund should be analysed, so offering funding for very risky projects with a high probability of failure.
- the availability of **tax breaks** for capital that is used as venture capital or for business angel activities or start-ups in order to interest a wider section of the public in this market and to make funding for new, innovative companies more readily available
- increase and **differentiation** of the **research premium**, whereby small innovative companies can claim a greater percentage than large, established companies
- extension and **improvement** in the services offered by the Austrian **Patent Office** in relation to patent searches, applications and advice. The Patent Office should be modernised according to the international model, with comprehensive patent analyses and strategies being drawn up for this purpose.

Creation of Suitable Framework Conditions for Private Equity in Austria –

Recommendation dated 24 November 2011

Background

In a European comparison private equity and venture capital still play a subordinate role in

Austria, especially where financing for medium-sized companies is concerned. Yet the macro-economic value of risk capital for product in-

novations and promising growth markets is undisputed.

In 2010 Austrian private equity and venture capital funds invested a total of EUR 127 million in small and medium-sized enterprises. While the share of early phase investments in business (seed, start-up and later stage venture) that is so important for innovation dynamism has remained stable, it still accounts for no more than just under 23 percent of all investments. Moreover, within early phase business investments there has been an increased focus on later stage ventures. However, it is the seed and start-up that is required, especially when it comes to financing young, innovative companies. This is where Austria has the biggest funding gap. In addition, SMEs are expected to show a heightened demand for capital as the increasingly strict regulatory requirements for banks are making it harder for small and medium-sized companies to obtain financing from this source. This increases pressure on alternative sources of money such as equity financing. However, Austria still lags far behind other countries in this regard.

Due to the absence of internationally competitive framework conditions in Austria it is difficult to attract international institutional investors for Austria as a business location. It is not possible to present investors with an "Austria package" by means of which the investment can be standardised and legally secured. Sector representatives have thus long been calling for an internationally competitive private equity law which would provide the framework for the flexible and speedy acquisition and repayment of capital. In its Recommendation Concerning Private Equity (PE) / Venture Capital (VC) from 17 March 2008 the Austrian Council for Research and Technology Development also called for the swift implementation of a private equity law. Unfortunately, this recommendation has not been followed.

The current SME Financing Companies Act (MiFiG) is of only limited use as an instrument

in this regard. It was not until an Investment Companies Act (IGG) was drafted in 2008 that the first intention was shown to adopt a genuine private equity law for Austria. Unfortunately, the IGG, which was sent for review by the Ministry for Finance only reflects the practical needs of the Austrian private equity industry to a limited degree. In contrast, the IGG light developed by the Austrian Venture Capital Organisation (AVCO) and its experts in response to the IGG offers a good basis for further reflection. However, it must be examined in detail for any excessive demands and above all for its consistency with the new Alternative Investment Fund Managers (AIFMD) regulation.

At the EU level, at the end of last year the Alternative Investment Fund Managers Directive (AIFMD) was adopted with the objective of controlling systemic financial market risks, protecting the interests of investors and ensuring greater transparency. While the Directive's usefulness is undisputed there are a number of pitfalls that have to be avoided when transposing it in national legislation. Thus the AIFMD will entail a considerable increase in administrative costs, which are largely unrelated to the respective volume of managed funds. This means that the Directive systematically disadvantages small private equity funds and probably makes those funds whose total assets are less than EUR 50 million completely impossible. For this reason, an opt-out is planned for non-leveraged funds with total assets of less than EUR 500 million and for leveraged funds with less than EUR 100 million. Austria has just under two years to transpose the Directive into national law. As the Austrian PE/VC industry is characterised by very small structures and few funds achieve a volume of EUR 50 million or more, the way in which AIFMD is transposed into national law is of crucial importance. There is still considerable scope for optimisation in this regard. What are needed are swift licencing, short administrative procedures and exceptions for

recommendations

recommendations

smaller funds. It is important that the Austrian regulator does not regulate too tightly in this regard.

In the case of opt-outs, the Directive foresees minimum regimes for PE/VC managers that must be included in national legislation. However, they do not restrict the regulator's power to develop a separate body of regulations that go beyond the minimum rules. In the Austria's case, this raises the risk of unsuitable and excessive provisions to the detriment of the PE/VC industry. Yet at the same time, it also offers the opportunity for a comprehensive and sensible regulation of the statutory framework for the PE/VC business.

The discussion concerning the introduction of a separate private equity law took place already in 2008 when the draft IGG was formulated. Since then little more has been heard of the matter. The forthcoming implementation of the AIFMD offers a good opportunity to revive the issue as a new PE law will anyway have to be passed when the AIFMD is introduced.

Demands

The Austrian Council therefore recommends:

- the introduction of a private equity law based on the preparatory work carried out for the IGG light and the AVCO Good Governance

Code with appropriate information and disclosure obligations and demands on the management of investment companies. In addition, there is no "supervisory agency" which will verify compliance and violations of these conditions.

- implementation of the AIFM Directive in a way that is appropriate for the Austrian PE/VC industry with its small structures. Although the EU Directive will not leave a great deal of latitude once it is implemented in national law, it should nevertheless and as far as possible be aligned to the needs of PE/VC funds, which just about reach the volume to be able to bear the administrative burdens.

- improving the legal framework in addition to introducing a separate PE law by repealing the MiFiG and creating transitional periods

- exempting the management fee from VAT in order to make Austria more attractive for fund investors. Internationally, this exemption is largely assured

- the formulation of a position paper to support the Austrian regulator with clear substantive positions concerning the optimal transposition of the AIFMD in national law in accordance with the needs of the Austrian PE/VC business.

Recommendation Concerning an Investment Allowance – Recommendation dated 24 November 2011

Background

In light of the current economic situation and the new capital regulations for banks (Basel III) it will become increasingly difficult for young, innovative companies to obtain funding from these sources. As a result, equity capital will play an increasingly significant role, above all for financing young, growing companies.

Progress has already been made in recent years toward promoting investments in SMEs: for example equity capital guarantees, double equity guarantee funds, guarantees for employee

stock ownership by the aws (austria wirtschaftsservice). However, further measures to promote investments in SMEs are urgently required. The Austrian Council therefore backs the Austrian chambers of commerce in their call for the introduction of an investment allowance of up to EUR 10,000 per year for so-called business angels and other private capital contributions to give private-sector investors an incentive to support young, innovative businesses. According to a study carried out by the Austrian Institute for SME Research on behalf of the WKO some

50,000 companies would be eligible. Approximately 70,000 Austrians were viewed as potential investors. The investment allowance could improve the equity ratio of micro-sized companies by five percentage points and of small enterprises by two percentage points.

The introduction of the investment allowance could lead to a win-win-win-situation. Micro-sized and small companies could tap additional sources of equity capital and in this way improve their own equity capital situation. Moreover, this could provide important stimulus for the private equity segment, which in an international comparison is underrepresented in Austria. The more dynamic development toward companies with a strong equity base that this will encourage will in turn produce a higher return in additional taxes through higher profits and higher investments and if the investment is sold, due to capital gains tax.

Recommendation

The Austrian Council for Research and Technology Development recommends the introduction of an investment allowance for private investors as called for by the chambers of commerce. This should total EUR 50,000 and should be deductible at a rate of EUR 10,000 per annum within five years.

Specifically this is to support investments by private individuals in Austrian SMEs. The Austrian Council recommends an investment allowance of EUR 50,000, which should be deductible within five years at a rate of EUR 10,000 per year. The target segment for this tax allowance should be small businesses (as defined by the EU), which are either liable to keep books of account or voluntarily use double book-keeping.

recommendations

Creation of a National Database of Public-Sector Research Funding –

Recommendation dated 24 November 2011

Background

In view of the considerable size of the public sector contribution to total R&D spending – according to the latest figures from the Statistik Austria global estimate 2011 it is 38 percent – greater transparency is required with regard to public-sector R&D spending. As approximately 30 percent of direct federal funding for research is awarded through the funding agencies, it would be sensible to collect the relevant data in a comprehensive electronic database at the programme and project level. To some extent this can be done by merging existing databases such as the Federal Research Database and the project databases of the aws, FFG and FWF.

The National Audit Office already drew attention in 2005 to the need for a database containing information on all research funding provided by the Federal Government and the provinces. The Austrian Council picked up this suggestion in

its recommendation concerning the amendment to the Federal Statistics Act issued on 19 September 2009. The 2008 CREST report and the system evaluation in 2009 also support providing access to micro-data. The RTI Strategy of the Federal Government also recommends developing a suitable legal framework for using statistical data.

Establishing this kind of interactive tool should make it easier to verify the use of public funds and at the same time provide a basis for analyses which in turn form the basis for policy recommendations.

Recommendation

The Austrian Council recommends that research-relevant data be collected in a national database with the aim of documenting all research funding provided by the Federal Government and the provinces in a homogenous and transparent da-

recommendations

tabase. This would form the basis for complying with reporting obligations under special legislation (e.g. Report on Austria's Scientific and Technological Capability, The Research and Technology Report, facts documentation, reporting obligations for Europe 2020 etc.) and evaluations.

The data should be collected by the respective funding agencies as part of their standard collection of data from all funding recipients according to uniform principles and survey logics. In particular, the following information should be collected (in German and English):

- Recipients (institutions and individuals) of receive research funding and contractors in the case of contract research
- the responsible project manager
- brief description of the research project and the funding
- thematic key words and categorisation by discipline
- sources of financing (funding programmes, direct funding by the public sector, research assignments etc.)

- terms /durations
- equipment that is to be or was purchased with the funding or as part of the research contract
- place where the final report will be available
- project results (publications, patents etc.)

In the opinion of the Austrian Council the database should be kept at Statistik Austria. This would have the advantage of facilitating linkage with existing data sets from statistical surveys (R&D, turnover, employees, labour market, foreign trade, etc.), and would minimise the additional effort and expense of investigating RTI-relevant questions.

If necessary, the statutory framework should be adapted accordingly.

The Austrian Council recommends that a project team comprising representatives of the relevant ministries, the National Audit Office, the funding agencies, Statistik Austria, the provinces and the Austrian Council be appointed to hammer out the details of the recommendation and implement it.

Recommendation of the Austrian Council for Research and Development Regarding the Award of Overhead Costs to Subsidised Research Projects – Recommendation dated 16 December 2011

General

At its meeting on 9 June 2011 the Austrian Council for Research and Technology Development decided to set up a working group on general costs with participants from the ministries represented on the Austrian Council and the funding agencies. The task of this working group is to jointly ascertain the current state of affairs

Status quo

First of all, a distinction needs to be made between overheads and general costs which are often used synonymously in relation to subsidised research projects. It has been agreed that the Austrian Council recommendation being dis-

cussed here concerns general costs and that this term should be used consistently.

General costs undoubtedly constitute an important part of research financing, as they have a direct impact on research projects. It should be possible to obtain full-cost funding for research projects under the terms of a system of competition and formal entitlements to support. General costs constitute necessary structures and reflect the individual profile of research institutions. Having said that, general costs do not adequately compensate for fully-funded research institutions. In an ideal financial structure, for tertiary institutions and extra-university research institutions, they would generate over-financing and thus become obsolete.

In terms of funding applicants, a number of large groups can be identified, whose situation can be described as follows:

Under current funding guidelines tertiary institutions (in particular universities and Fachhochschulen) receive lump sums, which generally amount to 20 percent of the direct project costs (FWF) or personnel costs (FFG). A more detailed analysis and differentiation will follow later in the text.

Non-university research institutions are sometimes able to claim general costs under a full economic costing model and must subsequently document the actual costs incurred.

Funding applicants from trade and industry are treated similarly to non-university research institutions; while they frequently receive research funding they are also able to document their full economic costs

All other funding applicants who are unable to document their full economic costs or who do not complete the analyses that this would require, are, like institutions of higher education, awarded lump sums (as a rule 20 percent of the direct project costs or personnel costs).

At the time of the current Austrian Council recommendation, the funding agencies, FWF, FFG and aws for example, all have different approaches.

The FWF believes that reimbursing general costs is one of the most important and structurally effective research policy measures in connection with FWF-financed projects.

Research institutions that have projects in the programme categories “individual projects” and “PEEK” approved from 2011 onward, will in future receive payments to cover their general costs. Under the arrangement that came into force in 2011, 20 percent of the direct project costs will be paid to the research institutions. The prerequisite is that the research institution carrying out the relevant project is a legal entity. No payment of general costs is planned for projects that were approved before 2011.

The FWF very much welcomes the lump-sum

reimbursement of indirect project costs as of 2011, but points out that this is only a first step, as limiting payments to just some of the FWF programmes is problematic. The wish is now to have this extended to all programmes. The FFG only recognises a standard rate of 20 percent for applications made by institutions of higher education after 1 August 2010. FFG programmes currently allow non-university institutions and companies to either receive a standard 20 percent of general costs or, if they wish to claim a higher percentage, then evidence must be provided to substantiate the claim.

The prime consideration for funding applicants must be improved legal security.

In the aws sphere general costs play almost no role in the vast majority of funding instruments. A small number of instruments provide for general costs payments and in these cases the conditions and modalities are based on those of the FFG. Usually a standard rate of 20 percent is applied.

Increased general costs lead to a reduction in the total research output that can be achieved. Flat-rate payments of 20 percent without proof having to be furnished are therefore to be considered an upper limit. In the eyes of the Ministry for Finance, higher rates are only permissible with verifiable documentary evidence.

With regard to the strategy of the Federal Government, it is noted that general costs are regarded as an instrument for providing targeted and unbureaucratic support for research work and serve to sustain researchers at universities and institutions.

In parts of the Austrian research scene there are a number of unresolved questions regarding the award of general costs. The different treatment of admissible annual staff time as reflected in the hourly calculation of personnel costs depends on the institution's basic financing. The number of hours that enter the calculation generally take into account non-project-related hours and thus activities which should ultima-

recommendations



recommendations

tely be seen as part of the overall financing. Those hours are necessary to enable the research institution to carry out the activities and should thus be regarded as allowable general costs.

Transferring equipment costs from general costs into equipment hours which have to be documented and explicitly calculated as separate machine hours does not constitute an improvement, but merely a reallocation into different cost categories. Yet this implies considerable effort in terms of documentation and in furnishing proof.

In a departure from the common practice of the full-costing model, some programme lines, such as Bridge or Research Studios Austria have a general lump-sum payment for all subsidised projects in their funding guidelines. Other cooperation programmes that are based on collaboration between business and the tertiary sector (e.g. CD Labs) do receive additional support via the funding of infrastructure, yet funding for general costs as such is not envisaged. The actual use of general cost expenditure at different research institutions is to be regulated in those institutions themselves. As the additional funding creates an incentive to researchers, a significant portion should be granted to the organisational units directly involved in the research project

Recommendation

Based on the findings of the working group, the Austrian Council for Research and Technology Development makes the following recommendations:

- The issue of full-cost financing of research institutions is one of the central problems of the

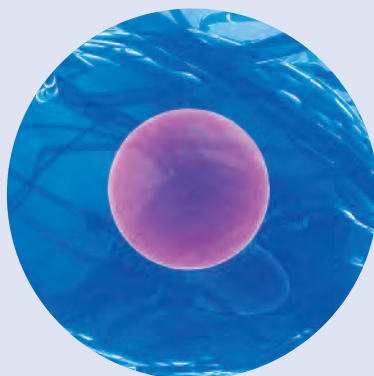
Austrian innovation system. General costs compensate for structural capacities that are necessary for the research institution to carry out the research project. A holistic view of the innovation system financing is indispensable and this must be reflected accordingly in the strategic documents and strategies, for example in the Universities Plan.

- General costs must be admissible and allowance must be made for non-productive activities at the research institutions. Due to the time and expense involved with keeping records, the Austrian Council recommends that an evaluated general cost rate be established on the basis of full costs for a longer period (three to a maximum period of five years). In large research institutions, especially in the field of applied research, the calculation should be made at the level of the smallest meaningfully distinguishable organisational unit.

- In connection with the evaluated general cost rate, the Austrian Council believes that it is essential to guarantee to funding applicants that the expected general costs are legally secured at the beginning of research projects.

- In the opinion of the Austrian Council the medium-term goals should be that comparable research funding instruments are subject to the same rules in respect of general costs. The extension of general costs will in the long term result in greater overall budgets. The Austrian Council recommends that appropriate financing models be given consideration in budget plans and strategy papers.

- The Austrian Council considers the current legal framework to be adequate with regard to the basic award of general costs and merely recommends that the necessary adjustments be made.





creating knowledge

Update: What has been accomplished

Research Infrastructure

State-of-the-art research infrastructure is of outstanding scientific and economic importance for Austria. The excellence achieved by scientists in research and development (R&D) is only possible if the expansion and renewal of research facilities is also guaranteed in future. Research infrastructure, however, is not just technical equipment for research, buildings and equipment, but a hub for communication and as such is essential for the training up of young scientists. World-class research infrastructure forms a basis for this and encourages a concentration of excellent scientists, greater cooperation between science and industry, and leads to excellent scientific training and to the development of an attractive environment in which to conduct research. Without state-of-the-art research infrastructure it is impossible to preserve knowledge and generate new knowledge.

The Austrian Council for Research and Technology Development has been monitoring the development of research infrastructure in Austria for several years and on the basis of study results, workshops and discussions regularly draws up recommendations that should promote the development of research infrastructure.

An initial assessment of Austrian research infrastructure at universities, Fachhochschulen, private universities and research-intensive companies was presented in the “Survey of Austrian Research Infrastructure” studies between 2008 and 2010¹.

Based on the results of the studies a workshop was held on 10 May 2011 that dealt with the topics (1) costs and financing, (2) locations and development of research profiles and (3) colla-

borations. More than 50 experts from science and industry gathered to discuss these issues in three working groups and key questions and initial recommendations were formulated, in particular underlining the importance of state-of-the-art research infrastructure for science and business.

The results were presented at a press conference on research infrastructure at the Alpbach Technology Forum 2011 and an online discussion was opened. For this purpose, the results were prepared for the online process and were for several weeks made available to a wide community for discussion.

The results that were obtained from this multi-stage process formed the basis for the recommendation regarding research infrastructure in Austria². The recommendation in particular stressed the coordination of research infrastructure projects, the development of suitable operator models and the setting up and maintenance of a research infrastructure database for all areas of research. The latter could be achieved by setting up a central coordination office. Finding new sources of funding and increasing participation in international research infrastructure projects, for example within the framework of ESFRI, are prerequisites for developing first-class research infrastructure in Austria.

State-of-the-art infrastructure is hugely important for research and development success. However, the development cycles of modern equipment are becoming ever shorter and more expensive. Flexible framework conditions will therefore have to be created which allow the goal-

¹ Austin, Pock & Partners (2008/2009): Survey of Austrian Research Infrastructure; (2009/2010): Supplementary Survey of Austrian Research Infrastructure

² [http://www.rat-fte.at/tl_files/uploads/Empfehlungen/111124_Recommendation_Research Infrastructure.pdf](http://www.rat-fte.at/tl_files/uploads/Empfehlungen/111124_Recommendation_Research%20Infrastructure.pdf)

oriented optimisation of research infrastructure. Increased cooperation and the formulation of joint national goals are thus essential to ensure the healthy growth of research in Austria. The Austrian Council for Research and Technology

Development will therefore in future continue its efforts to lead an active and broad-based discussion process regarding the expansion and modernisation of research infrastructure in Austria.

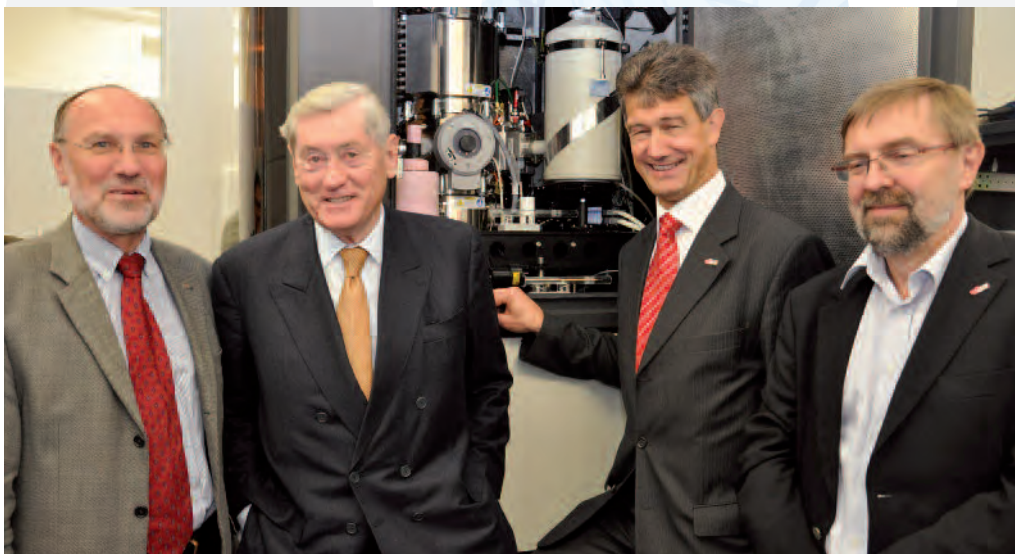
creating knowledge

Research Infrastructure: The Chairman of the Austrian Council Hannes Androsch Visits the Graz Centre for Electron Microscopy (ZFE Graz) – Graz on 7 October 2011

In June 2011 one of the very few scanning transmission electron microscopes in the world was taken into operation at the ZFE Graz, which is part of the Austrian Cooperative Research organisation. The ASTEM (Austrian Scanning Transmission Electron Microscope) makes it possible to analyse the details of materials even at the atomic level. On 7 October, the Chairman of the Austrian Council Dr. Hannes Androsch viewed this high-tech microscope, which at a total cost of EUR 4 million is one the biggest Central European investments in scientific infrastructure.

The Austrian Council, which is currently working on measures for an Austria-wide coordinated expansion of research infrastructure, welcomes the ASTEM's usage model. As well as being

used for basic research at the ZFE Graz and at the Graz University of Technology, the microscope also benefits Austrian industry in the form of partnerships with the semi-conductor industry, companies from the automotive and medical sectors and the plastics industry. Other Austrian universities will also be able to use the microscope in order to generate synergy effects. One quarter of the financing for ASTEM was provided by the Austrian Research Promotion Agency's COIN programme but most of the costs were borne by the ZFE Graz itself. The Graz University of Technology, the province of Styria, the Styrian Business Promotion Agency SFG and the Austrian Chamber of Commerce also contributed to the costs.



Johann Jäger (ACR),
Hannes Androsch,
Harald Kainz (TU Graz),
Ferdinand Hofer
(ZFE Graz)

creating knowledge

RTI Platform Austria: Meeting in Vienna on 13/14 January 2011 and in Linz on 14/15 July 2011

The RTI Platform Austria has established a core group comprising representatives of the federal provinces and the federal research and technology development agencies.

At the ninth meeting of the RTI Platform in Vienna, this group presented its working report containing seven areas for action and measures to achieve the vision for 2015. Based on these areas, a catalogue of targeted measures has been drawn up aimed at exploiting the potential of Austria's RTI actors more effectively and increasing the efficiency of the instruments. The presentation was attended by numerous representatives of provincial governments. The meeting also provided a setting for discussions with experts from the European Commission and Austria about the EU Structural Funds, which are so important for regional RTI activities.

After nine successful meetings throughout Au-

stria, the tenth working meeting in Linz became the first in a new round of meetings to be held in all host provinces. In this second round, the focus of the meetings will shift from the operational management of measures to access to information, opinion-making and awareness-raising, and there will be a greater emphasis on the exchange of ideas and experiences between participants. At a dinner on 14 July a host of current regional RTI policy issues were discussed in detail in an open and relaxed atmosphere with Doris Hummer, a member of the Upper Austrian provincial government. Specific measures were then developed in the working meetings that followed.

The Austrian Council considers that the working meetings of the RTI Platform Austria reflect the most urgent needs of the regional innovation scene and provide important input for the Council's recommendations and partnerships.

**Dinner with
Doris Hummer, a
member of the Upper
Austrian provincial
government, at a
meeting of the
RTI Platform in Linz**



Life Sciences, Environmental and Agricultural Sciences

The extremely wide-ranging field of life, environmental and agricultural sciences in Austria is fragmented both in terms of competencies and national programmes. In 2009 the Austrian Council therefore commissioned a potential analysis. This field of research, which is very prominently represented in the next EU framework programme Horizon 2020, will continue to be highly relevant. A number of measures and events in this field with the participation of the Austrian Council secretariat have brought together different interests and raised awareness for this sector.

In April 2011 a workshop with stakeholders, agencies and the thematically responsible government ministries took place under the aegis of the plat-

form Forestry-Timber-Paper (FHP) and with the support of the Austrian Council secretariat. Actors in this field gained a thorough insight into research promotion programmes at both the national and European levels, while the economic significance of the sector in the innovation system was explained to representatives of the agencies and ministries.

The Austrian Council secretariat also provided support for the ongoing process of developing a vision for agricultural science, which is taking place in particular at the University of Natural Resources and Life Sciences (BOKU), by actively participating in the process and drafting documents.

creating knowledge

Non-University Research – Factors for Success

Approximately one third of public spending on R&D in Austria flows into the varied and differentiated community of non-university research institutions, which has established itself alongside the university sector. These institutions are a key pillar of Austrian research and provide important impulses especially for research in the service of social development and innovations in the corporate sector.

Consequently, and for a variety of reasons, a whole host of structures has evolved, each with different responsibilities, forms of financing, missions, management and scientific quality. Yet to date there have been almost no fundamental empirical surveys of their role and their impact in the innovation system. The diversity and regional distribution of these research institutions promise flexibility, creativity and competition but also result in predominantly piecemeal structures with high fixed costs and inefficient parallel structures. Often there are insufficient funds to build up competencies in the long term. As a result, many non-university research institutions have no clear concept of their role.

In its working programme 2011+ the Austrian Council therefore committed itself to analysing cooperation between universities and non-university research institutions and to defining the factors for the successful sustainable development of structures, know-how and impact of non-university research institutions. This is being done within the framework of a partnership with FAS.research, which focuses on the following fundamental questions regarding the future of non-university research in Austria:

- In which direction should non-university research develop?
- What are the success factors for the individual institutions and the RTI system (beyond the monetary factor)?
- What role does the mix of funding for projects, programmes and institutions play in the development of critical masses?
- Which strategies/measures are needed for this?
- Which stakeholders play which role?
- What role is played by the Austrian Council?

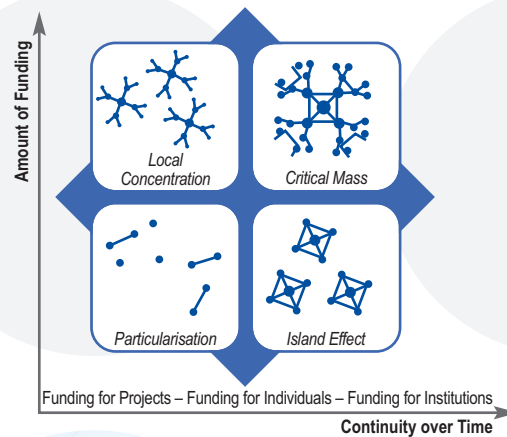
The purpose of the project is to draw up recommendations to identify factors behind the suc-

creating knowledge

cess of non-university research institutions within the framework of a participatory impact analysis. This is to be carried out in cooperation with experts from the major stakeholders in non-university research institutions (research, ad-

ministration, politics and evaluators). Furthermore, proposals should be drawn up for the establishment of a sustainable structure for the non-university research landscape and for improved cooperation with universities and businesses.

Hypothetic Link Between Financial Resources and Instrument



Source: FAS.research 2010

Monitoring RTI Strategy

In § 17b (1) subpara. 7 and (7) subpara. 2 of the Research and Technology Funding Act (FTFG), which provided the statutory basis for the establishment of the Austrian Council and defined its remit, the Austrian Council is charged with developing strategic recommendations and long-term RTI strategies and also given responsibility for verifying their gradual implementation. In a cabinet presentation on 9 September 2010, these specific tasks were specified in greater detail and their importance stressed to a greater extent than in the past:

- In future, the Austrian Council is to strategically monitor the implementation of the Federal Government's RTI Strategy and shall evaluate the measures that have been put in place, as well as their goal orientation.
- In addition, the Austrian Council should also

monitor the implementation of its recommendations to a greater degree than in the past.

Based on the results of this monitoring, a yearly report on Austria's scientific and technological capability will be drawn up, which in future is to be submitted to Parliament together with the Research and Technology Report.

The Austrian Council will therefore keep under continuous review the challenges that have to be overcome if Austria is to achieve the goal set by the Government of rising to join the ranks of the leading innovation nations. The Austrian Council sees its task as being to monitor developments in these areas and to assess their importance for the RTI system.

At the constituent meeting of the RTI Task Force on 22 June 2011 it was agreed that the responsible ministries would draw up an implementation

plan with a list of all measures contained in the RTI Strategy. The plan should spell out which ministry is responsible for implementing which measures. At the meeting of the RTI Task Force on 6 December 2011, a joint course of action was agreed between the task force and the Austrian Council which will enable the Council to carry out its monitoring work as planned.

The following was agreed: Each year the extent to which the measures set out in the Strategy and the recommendations made by the Austrian Council have been implemented will be documented with-

in the framework of a bilateral exchange between the individual ministries and the Austrian Council. On the basis of this information and other analyses and study results, the Austrian Council will draw up a draft report that will be discussed at a joint meeting with the task force. The results of the discussion and the feedback from the meeting will be used to adapt the report accordingly. The report will then be approved by the Austrian Council and published together with the Research and Technology Report.

creating knowledge

Awareness: Long Night of Research 2012 (Planning Process)

The Long Night of Research is currently the only nationwide research event to make the achievements of domestic institutions – from basic research to industry – accessible to a broader public. The first three events (2005, 2008 and 2009) were supported by the government ministries responsible for research and organised with the help of an agency. The Austrian Council was a permanent member of the steering committee.

Since 2010 the Long Night of Research has been an umbrella brand of the participating provinces, which carry out the event volunta-

rily and at their own financial risk. The Austrian Council welcomes the continuation of the successful format and supports the event by moderating and coordinating nationwide measures.

The Long Night of Research is taking place for the fifth time on 27 April 2012. The planning process began in the second quarter of 2011 and work on the event will end with the post-event review in May 2012. Up to now the Austrian Council has provided support for participation by eight provinces – for example, by steering concept development and



Website of the Long Night of Research 2012



creating knowledge

the acquisition of the financing model or the joint PR campaign including the necessary administrative structures.

The Long Night of Research was introduced to an international audience in a presentation at the Swiss Science Conference SciComm11 in Biel.

Programme Evaluations

In the cabinet presentation of 9 September 2010 the Austrian Council was instructed to carry out an annual evaluation of Austria's scientific and technological capability. This will be based both on the evaluations of the RTI system as a whole and on evaluations of individual programmes. As early as 2007 the National Audit Office proposed that the Austrian Council should commission evaluations of existing funding instruments and then on this basis formulate recommendations for the future shape of the RTI system and the instruments that will be used.

Current Context

The Austrian Research and Technology Report 2010 points out that Austria has a higher than average quantity of evaluations, which is above all attributable to the large number of direct funding programmes. At the same time, however, it also notes that key issues such as input and output additionalities and also the quality of outputs are considered in only about a quarter of the evaluations and thus significantly less often than in comparable countries.³

Yet despite the large number of evaluations and the extremely well developed evaluation culture, appropriate consequences are still not always drawn from the results. Evaluations are sometimes used to legitimate the continuation of existing projects and there is still no established culture of terminating programmes.⁴

A further problem is that there are only a relatively small number of evaluations and impact

analyses that have a summative (summarising, conclusively evaluating) character and provide information concerning the quality of research results, medium-term economic impacts and long-term socio-economic impacts. This is in particular due to the fact that programmes are evaluated during the programme period; however, normally too little time has passed since the introduction of the programmes to carry out quantitative impact analyses as well. In addition, the funding cases are often limited by the large number of existing programmes. Quantitative analytic methods (bibliometric analyses, patent analyses, input-output models etc.) are often unrewarding; impact analyses can only be carried out as examples using qualitative analyses of case studies and focus groups. Another problematic aspect of the Austrian status quo is that unlike the reference countries in which evaluations are for the most part contracted via public invitations to tender (15 percent in Austria vs. 53 percent in the reference countries), closed tendering procedures in the form of a "non-public procedure without prior announcement" are preferred in Austria (58 percent in Austria as opposed to eight percent in the reference countries).⁵

Status and Further Steps

The commissioning of programme evaluations was discussed at the meeting of the Research and Technology Evaluation Platform (fteval) on 26 May 2011. The topic was also subse-

³ Forschungs- und Technologiebericht 2010, p. 182 ff.

⁴ Compare European Innovation Progress Report 2009, p. 26, p. 103

⁵ Forschungs- und Technologiebericht 2010, p. 184

quently discussed at a meeting of the Austrian Council on 15 September 2011 and a joint approach agreed. In future the Austrian Council is to be involved in developing calls and drawing up the terms of reference. Relevant information will be shared bilaterally between the ministries and the Austrian Council and will also be placed on the agenda of the fteval platform. The Austrian Council welcomes this proposal and suggests that an agreement to this effect be concluded with the ministries. The agreement

should also define the specific form this cooperation should take. Above all the Austrian Council wishes to help improve the culture of evaluation and highlight comparability deficits in terms of carrying out and implementing evaluations. The arrangement discussed at the Council meeting which provides for the involvement of the Austrian Council at an early stage should be viewed as a positive compromise.

creating knowledge

Basic Expertise: Reports and Studies 2011

Study: Analysis of Typical Barriers to the Efficient Implementation of Research Results in Innovation (Brimatech)

Transforming research results into marketable innovations that benefit the economy and society, i.e. the transfer of knowledge, is the key to growth and prosperity. Austria will only be able to keep up internationally by engaging in intensive research and development activities and bringing the results to market. The transfer of innovative know-how and technology into commercial products and services is a complex process characterised by a large number of barriers and information asymmetries.

Promoting the transfer of knowledge is a challenge for political decision makers. It starts early on with raising awareness among children for scientific and technical topics and business issues and extends to the need for proof-of-concept support for researchers to the question of corporate taxation.

The aim of the study conducted by Brimatech Services GmbH on behalf of the Austrian Council was to identify drivers and barriers in the transfer of knowledge for an Austrian context. The study highlighted particularly interesting means of supporting this process illustrated by examples of international best practice. Specific

recommendations were then developed on this basis for Austrian innovation policy.

Education

According to the study team the most strongly perceived barriers are those in the area of education. Individuals who work in knowledge and technology transfer – be it in declared transfer offices, in incubators, company founders themselves but also researchers – need expertise to successfully launch products on the market. A university degree (usually in a technical or scientific discipline), combined with business know-how and experience in industry – is what many of those surveyed considered to be the ideal education. However, instilling small children with an enthusiasm for technical, scientific and business issues also appears important. The most important recommendations made by the authors of the study for this area concern promoting interdisciplinary training at universities and strengthening entrepreneurial thinking in technical and scientific subjects. Examples of best practice could help present a realistic picture of career paths and career options and arouse curiosity for certain professions.

creating knowledge

Communication

Communication, exchange, and the ability to speak a common language are a key factor for implementing innovations on the market. There is a great need for communication between science, users and industry. Programmes and initiatives like COMET, the Christian Doppler Research Association (CDG) or the general programmes of the Austrian Research Promotion Agency (FFG) are perceived as good instruments both nationally and internationally. The study team therefore recommends intensifying communication during education, for example by introducing an “Industrial PhD Programme” based on the Danish model, as well as a greater number of endowed chairs, as is the case in Germany. Contracts of employment at universities also offer possible starting points. One interesting example is to be found in Denmark, where university staff receive 80 percent of their salary for four working days and on the fifth day can top up their wages by collaborating with industry or by obtaining funding from third parties.

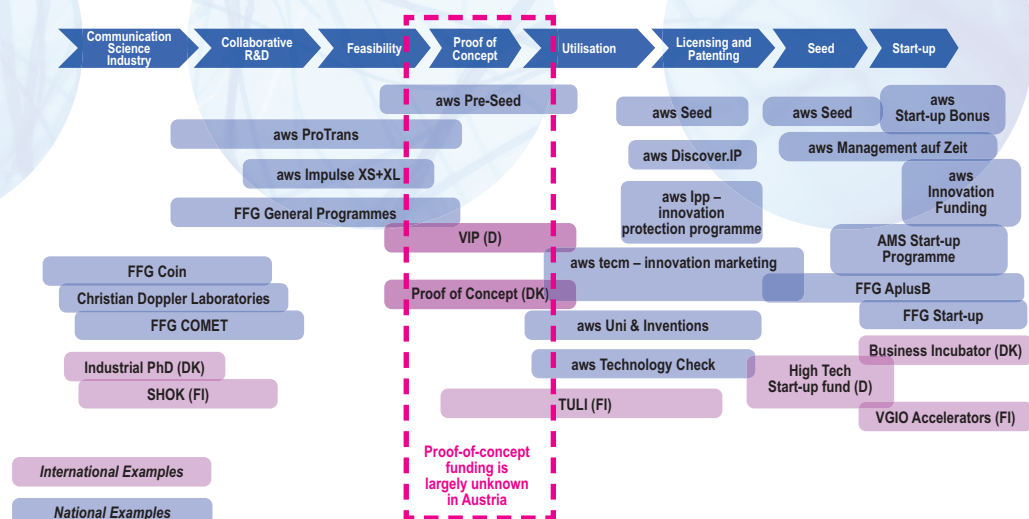
Framework Conditions

Neither research institutes nor industrial companies view the implementation of research results as a priority. In many cases, there are insufficient resources and suitable personnel to actively shape the transfer of knowledge and technology. There is thus room to improve framework conditions within organisations in this respect. Those surveyed said they would like to see the idea of knowledge and technology transfer – where practical – transported to universities to a greater degree via performance agreements. The absence of clear strategies and road maps was also identified as a deficit. Greater encouragement should be given to leading firms and sector representatives to formulate and publish research and innovation strategies. The appointment of dedicated transfer officers at research institutes could stimulate the transfer.

Funding System

The direct and indirect funding system in Austria is perceived as highly developed and efficient by both Austrian and international experts. Only a small number of funding gaps

Funding within the Technology Transfer Process in Austria



Source: Brimatech; Analyse typischer Barrieren bei der effizienten Umsetzung von Forschungsergebnissen in Innovationen. Wien 2011, S. 52

can be identified. However, an international comparison shows that a proof-of-concept programme would also constitute a valuable funding instrument. Furthermore, evaluation criteria which place greater emphasis on the commercialisation path should also be taken into account when awarding projects. In this connection, a call was made for greater support for projects with a high market risk. Incubators should also make greater use of the expertise of failed and serial entrepreneurs.

Measures in the area of indirect funding include tax concessions for venture capital and business angel capital, higher limits for contract research as part of the research premium and making allowance for research and development in foundation endowments.

Public funding such as the seed programme of *austria wirtschaftsservice* (aws) does at least make up in part for the almost complete absence of the private risk capital market in the form of venture capital or business angels. International experts are very positive about the high level of

funding provided for use as seed capital and thus its use in fields such as the life sciences. Development potential can also be unlocked by extending the pre-seed and seed programme to a wider circle with less of a technological focus. Patenting and licencing costs are another barrier. What is missing in Austria are regional or central patent exploitation agencies.

Summary

The study team considers the following recommendations to be particularly worthy of consideration:

- promote interdisciplinary training at schools and universities
- incorporate entrepreneurial thinking and commercialisation in curricula
- introduce industrial PhD funding for companies
- advertise endowed chairs more aggressively
- establish a proof-of-concept programme
- provision of support also for projects that have a high (market) risk

creating knowledge

Study: Technology Flow Analysis (IWI)

The Austrian economy is well placed in the area of research, technology and innovation (RTI). This position now has to be reinforced so that Austria does not fall behind comparable countries. This study by the Institute for Industrial Research (IWI) supplies the necessary database for this, provides a comprehensive picture of the national innovation system (NIS) and outlines the effective implementation of technology impulses in the Austrian economy.

A comparison with European countries with a similar economic structure to Austria shows the strengths of the domestic innovation system and makes reference to best practice examples. The reference countries are Germany, the Netherlands, Denmark, Finland and Sweden. With an RTI performance comparable to that of Austria and socio-economic similarities, these na-

tions are particularly suitable for a comparative analysis.

Core industries in the national innovation system (NIS) in Austria are communications engineering, power generation and distribution equipment, machine building, metal production, the chemicals industry, medical technology and optics. The industries that are most visible and intensively networked within the NIS are the chemicals industry and power generation and distribution equipment. These two industries provide significant impetus for R&D. Three domestic sectors of the manufacturing industry boast a favourable combination of high R&D intensity, high value creation and structural integration in the economy. As such they have strong potential to create momentum within the Austrian NIS. When rubber and pla-

creating knowledge

stics, machine building, medical technology and optics receive significant R&D impulses, the benefit to the NIS is disproportionately high. Yet focusing exclusively on certain technology levels is

not a productive approach. Due to the intensity of their value creation, companies from the medium-tech sector are just as deserving of funding as high-tech companies with their technologically spectacular products.

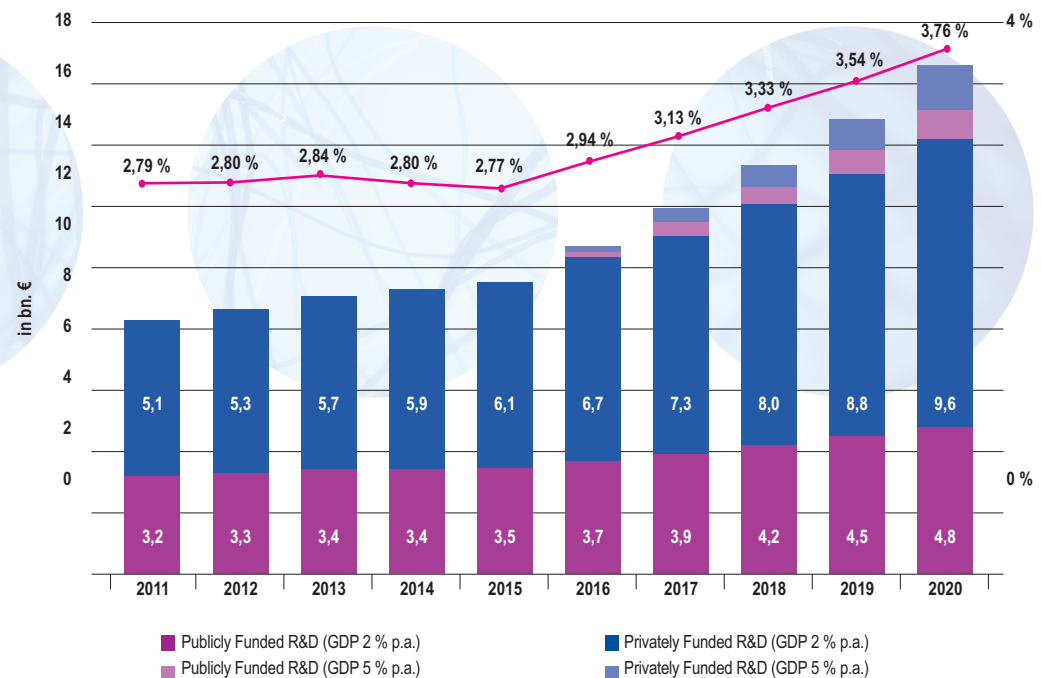
Study into GERD-to-GDP in 2020 (WIFO)

The study carried out by the Austrian Institute of Economic Research (WIFO) calculates different scenarios required to achieve the RTI strategy goal of spending 3.76 percent of gross domestic product on research and development. If this calculation is made on the basis of the current figures, nominal GDP growth of two percent should result in public R&D resources increasing from EUR 3.2 billion at present to

at least EUR 4.8 billion by 2020, and private-sector R&D funding rising from its current level of EUR 5.1 billion to at least EUR 9.6 billion. If GDP growth were higher, these resources would also be greater.

If the research funding earmarked in Austria's 2012–2015 Federal Budgetary Framework Act (BFRG) is set against the direct federal resources needed to achieve the GERD-to-GDP tar-

Trajectory of GERD as a Percentage of GDP under the Federal Budgetary Framework Act 2012-2015



Source: WIFO: Forschungspotenziale 2020. Vienna 2010, p. 14

gets, this results in a shortfall of EUR 84 million for 2012, with this rising to EUR 416 million by 2015. Based on the figures specified in the BFRG for 2012–2015, GERD-to-GDP would only rise slightly to 2.84 percent by 2013 and then fall back to 2.77 percent in 2015. This is lower than the current level (2011: 2.79 percent).

To ensure that the GERD-to-GDP target of 3.76 percent can still be achieved in 2020, both private and public spending on R&D would have to be stepped up accordingly. The adjustment path that needs to be taken here from 2015 would then be significantly steeper. The WIFO is very doubtful that paths this steep are realistic from 2015. If there were such a sharp increase in public research funding, it is questionable whether this could be absorbed in the short term: Are there sufficient R&D projects in the pipeline that are ready for immediate implementation? Are sufficient human resources available in the form of highly qualified researchers?

In the study the WIFO also calculates how GERD-to-GDP targets are likely to develop if public research funding is neither substantially stepped up, nor significantly restructured.

The following is apparent here: If private R&D expenditure grows at the same rate as GDP from 2012 onward and an increase in the public research budget also leads to an equivalent rise in private research finance, GERD-to-GDP could reach between 2.74 and 2.84 percent by 2020. In other words: should the research resources promised in the BFRG currently in force be upheld, this would be just sufficient to maintain GERD-to-GDP at its current level. Only if slightly higher values are assumed would this figure approach 3.76. In this case GERD-to-GDP would lie between 3.2 and 3.3 percent in 2020. The WIFO however has doubts about the latter scenario, and it therefore seems most realistic to assume a GERD-to-GDP that is in the region of the current figure (2.84 percent), or at most three percent.

creating knowledge

International affairs

EU consultation process – Research and development until 2020

In 2011 a number of important documents were published by the European Commission as preparation for the EU's next budget period. In this context the Austrian Council attended numerous events in the same year, aimed in particular at allowing it to exchange information and form opinions.

The Green Paper (COM (2011) 48) published in February 2011 has acted as a starting point for public debate about future EU funding of research and development. The outcome of this process, which included the submission of detailed inputs

to the European Commission from all over Europe, has been incorporated in the draft for the new Framework Programme entitled Horizon 2020. This was published by the Commission at the end of November 2011 and sets out far-reaching objectives for the funding of European research in terms of both content and structure. The Austrian Council contributed to the Austrian negotiating position coordinated by the Ministry for Science and Research (BMWF) by submitting a comment in this regard and will continue to act as an observer and advisor in this process.

creating knowledge

Green Paper “From Challenges to Opportunities: Towards a Common Strategic Framework for EU Research and Innovation Funding” COM (2011) 48

The statement of the Austrian Council regarding the Common Strategic Framework (CSF), which was formulated in English, was submitted to the European Commission as a contribution to the public debate in May 2011. Its content can be summarised as follows:

The Austrian Council welcomes the emphasis given by the CSF to the future societal challenges addressed in the Europe 2020 strategy and also simplification of the RTI system through the harmonisation of funding instruments. The long-term seven-year perspectives for finance and content should be used to above all incorporate small and medium-sized companies in the European research landscape, in addition to institutions which to date have only operated at a regional level.

Both the European, national and regional finance schemes and the resources from the structu-

ral funds should provide a basis for funding the overall innovation process that is readily understandable and simple to manage. Known problems in accessing funding for research need to be solved, the relevant processes simplified, and time-to-contract and accounting periods made shorter.

It is necessary to close the existing gap between applied research and the market while ensuring a crossover between regional and European programmes. All forms of participation and scientific dialogue with society should raise awareness of the innovation process, extending from society to policy-makers. The CSF must not only ensure that excellence of research is anchored in higher education but also facilitate mobility. These aspects should be emphasised in all funding instruments to make scientific careers more attractive.

Contribution of the Council for Research and Technology Development to the proposal of the European Commission regarding Horizon 2020 in the framework of the national consultation process

When it comes to the Framework Programmes of the EU, the role of the Austrian Council for Research and Technology Development is to observe and advise. Here it is keen to ensure optimum design as well as the effective development of first-class research. Based on its statement of 19.5.2011 (Green Paper COM (2011) 48), the stance of the Austrian Council regarding the proposal put forward by the European Commission (EC) in relation to Horizon 2020 is as follows:

The transparent and straightforward breakdown of Horizon 2020 into three key areas is in line with a major improvement requested by the Austrian Council in this regard. When seen in conjunction with the financial split within these areas, this gives a clear signal towards scientific excellence.

All associated measures to encourage mobility among researchers form an important basis for providing ideal work conditions for intellectual capital throughout Europe. Here equal treatment for female researchers must be ensured in every respect.

It is essential to give consideration to all groups involved in the innovation process: the Austrian Council calls for the incorporation of SMEs as well as the creation of a framework for risk capital financing. In its current formulation the identification of key technologies (Priority 2) and societal challenges (Priority 3) is still somewhat unclear and requires a more precise definition.

The measures contained in the EC proposal, which aim to greatly simplify accounting pro-



cedures for the research community, are very welcome. In conjunction with the Green Paper the Austrian Council has already asked for the improvements and harmonisation to be extended to include other funding instruments and programmes. The Austrian Council considers that the need for action is particularly urgent in the case of the Structural Funds – which, according to the EC, are now linked more closely with the Horizon 2020 programme and are provided with substantial budgets for innovation. Unlike Horizon 2020, the funding guidelines of the Structural Funds are drawn up at a national level. In the Council's view the institutions with national responsibility need to give consideration to the simplifications put forward in the EC proposal regarding Horizon 2020 when developing national guidelines in the interest of real harmonisation.

The emphasis on societal challenges in the EC proposal underlines the importance of this issue and is also in line with the thinking of the Austrian Council. The involvement of society is intended to open up a dialogue with researchers and raise awareness for their scientific achievements.

Highlighting this dialog in the strategy documents could give this key element of the research agenda added importance while helping to diminish the discrepancy existing between open (blue sky) research and solutions for specific problems (agenda-driven activities). The societal challenges

will not be solved through technical perspectives alone; it is only by taking into account social innovation and interdisciplinary solution processes that Europe will manage to achieve the goals set out in the Horizon 2020 programme and establish the results in a global market.

It is essential to coordinate the content of Horizon 2020 with national and regional research funding programmes and ensure that this is seen as part of the country's participation strategy. In particular, public-public partnerships (e.g. ERA-Nets, Art. 185) must be considered as part of Horizon 2020 and offered substantial national funding in the relevant member states – including Austria by means of appropriate budget planning.

The Austrian Council welcomes the strong consensus between the EC proposal regarding Horizon 2020 and the content of the Austrian government's reflection paper and the response of the Austrian Council to the Green Paper (COM (2011) 48). The Council also considers it important for further implementation measures to all take place swiftly so the preparations for introduction on 1.1.2014 can be undertaken to the necessary extent, not just by the EC, but also by the researchers. Where possible, acceptance of the EC proposal by the European Parliament and the Council of Europe should therefore take place in the first half of 2013.

creating knowledge

Fact-finding mission to the Netherlands and international meeting of the councils in The Hague – 18/19 May 2011

According to the 2009–2010 Global Competitiveness Report the Netherlands is among the ten most competitive and innovative nations worldwide. It has an outstanding education system (ranked 10th) and excellent research institutes (ranked 7th). However, when it comes to investing in R&D, the Netherlands only occupy a middle position within the EU: R&D merely accounted for

1.76 percent of GDP in 2008 and 1.84 percent in 2009. This prompted the Austrian Council to investigate the discrepancy by setting off on a fact-finding mission in conjunction with the international meeting of the councils in The Hague. What makes the Dutch innovation system so special? First of all, public funding accounts for a relatively large share of research and development.

creating knowledge

The reasons for this include the strong focus on the service sector of the country's economy, as well as the fact that R&D is concentrated in a small number of large organisations (e.g. Philips). To encourage mo-

re SMEs to become involved in the innovation process in future, the instrument of "Innovation Vouchers" was introduced by the Dutch government in 2006.

	Netherlands	Austria
Surface area	41,528 km ²	83,879 km ²
Population (2009)	16,485,787	8,355,260
Per capita GDP (in € PPS) (2009)	30,800	29,300
GERD as a Percentage of GDP (2009)	1.84	2.79
Rate of employment 20-64 year olds (as a % of the age cohort) (2009)	78.8	74.7
Spending on education (as a % of GDP) (2007)	5.32	5.4
Proportion of 30 to 34-year-olds who have completed higher education (as a % of the age cohort)	40.5	23.5

Secondly, science in the Netherlands is characterised by a high level of networking. Given the relatively narrow scientific basis (due to the small size of the country's population), networking is a key prerequisite for the success of Dutch research.

- In the course of a one-day fact-finding mission meetings were held with representatives from the following institutions:
- Dorette Corbey, Secretary to the *Dutch Advisory Council for Science and Technology Policy (AWT)*
- Jan Karel Koppen, Director Policy Development and Support at the *Netherlands Organisation for Scientific Research – Research Council (NWO)*
- Francien Heijs, Deputy Director Research and Science Policy at the *Ministry for Education, Culture and Science*
- Gé Linssen, Deputy Director Enterprise and Innovation at the *Ministry for Economic Affairs, Agriculture and Innovation*
- Jos Leijten, Senior Scientist at the *Netherlands Organisation for Applied Scientific Research (TNO)*

At the time of the visit the situation in the Netherlands was characterised by a change in RTI policy, being brought about by:

- the financial crisis and economic and the resulting need for budget consolidation
- political reconfiguration (minority government consisting of Liberals and Christian Democrats)

Despite the predictions for the immediate future being thus somewhat uncertain, a number of key points became clear from the discussions. The Dutch RTI sector is structured as a multi-level system. The two key players in the field of R&D are firstly, the Ministry for Education, Culture and Science (OCW), which is responsible for science and research policy, the universities, the research organisations, the Netherlands Organisation for Scientific Research (NWO) and the Academy of Arts and Sciences, and secondly, the Ministry for Economic Affairs, Agriculture and Innovation, in charge of innovation policy, pri-

vate R&D, the TNO, tax incentives and IPR. The two ministries bear joint responsibility for the EU Competitiveness Council, public-private partnerships (PPPs) and the interface between science and industry.

The two most important bodies providing advice to the Ministry for Education, Culture and Science are the AWT (Advisory Council for Science and Technology Policy) and the KNAW (Royal Netherlands Academy of Arts and Sciences), which themselves consult with other advisory bodies, and the NWO (Netherlands Organisation for Scientific Research), which additionally maintains its own research institutes. The AWT (Advisory Council for Science and Technology Policy) acts as an independent advisory body to the Dutch government and parliament in all issues of research policy, technological development and innovation. Consultancy is provided on request or at the AWT's own initiative.

The NWO (Netherlands Organisation for Scientific Research) operates as a project sponsor for the Ministry for Education, Culture and Science, which also supplies most of its budget. Funding largely focuses on basic research, with "societally inspired research" and "curiosity driven research" not standing in opposition to each other, but according to the philosophy of the NOW, belonging together.

The responsibilities of the NWO include:

- competitive research funding
- enabling scientific research to excel
- competition and selection via peer review
- funds more than 5,000 scientific researchers (at Dutch universities)
- knowledge utilisation (transfer of knowledge)

Funding is awarded on a competitive basis. The approval rate for the projects submitted is around 32 percent.

From the viewpoint of the Ministry for Education, Culture and Science the following structural trends have emerged in recent years:

- increase in structural complexity

- organisational changes at an institutional level (establishment of new institutions: research consortia, private-public partnerships, joint technology initiatives)

- transfer of responsibility for the institutes away from government to the NWO and KNAW
- greater complexity in the distribution of funding

The objectives of the Education Ministry are thus as follows in coming years:

- self-management in scientific disciplines
- a focus on excellence through the Talent Development Programme
- investment in three key scientific sectors in agreement with the agendas of government and industry

The Ministry for Economic Affairs, Agriculture and Innovation considers that, as regards R&D policy, there needs to be a change to so-called industrial policy, involving:

- changes to financial incentives: "away from funding to loans", with "greater emphasis being placed on tax incentives"
- changes in the R&D system: a focus on nine specific 'top sectors' (energy, food, water, cutting-edge technology, life sciences, chemistry, logistics, the creative industries and agriculture). Partners from the 'triumvirate' of government – industry – institutions are to draw up a detailed plan for each of these top sectors containing specific implementation stages in order to improve the climate for innovation in the context of industry.

The following objectives have been set here:

- ensuring deregulation
- boosting exports
- providing adequately qualified staff
- creating an outstanding basis for research
- strengthening cooperation between industry and the universities

In this context criticism has been heard from the Education Ministry, which complained that the nine top sectors were not chosen according

creating knowledge

creating knowledge

to scientific but economic criteria. As there is no additional (“new”) money available here, this would in future mean doing away with many other important areas of research.

The TNO (Netherlands Organisation for Applied Scientific Research) is ultimately the largest institution for the promotion of applied research. It is also responsible for exploring the innovative potential available to industry and the State. The TNO carries out research under contract and acts as a link between basic research and its application throughout the spectrum of techno-

logy. The output of the TNO research institutions is greater than that of the universities. The financial crisis has had a major impact on the TNO, as there has been a sharp fall in income from public funding. The organisation is now becoming increasingly active at a European level (Joint Institute for Innovation Policy). Two trends have been forecast by the TNO:

- the previous emphasis on innovation is now veering towards industrial policy (keyword: top sectors)
- a call for excellence from all quarters.

Fact-finding mission to the USA – 5 to 13 September 2011

From 5 to 13 September 2011 a delegation from the Austrian Council consisting of Hannes Androsch, Karin Schaupp and Ludovit Garzik, accompanied by Deputy Director-General Ingolf Schädler (BMVIT) set off on a fact-finding mission to the United States of America. Their task was to research the impact of the financial crisis on research and innovation in the USA.

The following institutions or their representatives were available as discussion partners:

- **Information Technology & Innovation Foundation (ITIF):** Robert Atkinson, President of the ITIF and member of the *National Innovation and Competitiveness Strategy Advisory Board of the Department of Commerce*, and Stephen Ezell, Senior Analyst at the ITIF
- **US Senate:** Tom Walls, Chief Counsel and Legislative Director, and Nathan Steinwald, Senior Economic Advisor to Senator Mark Warner, member of the *Senate Committee on Banking, Housing and Urban Affairs and the Senate Committee on Commerce, Science and Transportation*
- **American Bankers Association:** Wayne A. Abernathy, Executive Vice President, *Financial Institutions Policy & Regulatory Affairs of the American Bankers Association*
- **White House Office of Science and Technology Policy:** John P. Holdren, senior advisor to

the US President on science, research and technology, Director of the *White House Office of Science and Technology Policy (OSTP)*, and Co-Chair of the *President's Council of Advisors on Science and Technology (PCAST)*, and Kei Koizumi, Assistant Director for budget issues at the OSTP

- **International Monetary Fund:** Johann Prader, Alternate Executive Director of the *International Monetary Fund (IMF)*
- **American Association for the Advancement of Science:** Alan Leshner, Chief Executive Officer of the *American Association for the Advancement of Science (AAAS)* and Executive Publisher of “Science”, and Vaughan Turekian, Chief International Officer of the AAAS, and Tom Wang, Director of International Coordination at the AAAS
- **International Bank for Reconstruction and Development (IBRD):** Philippe Houerou, Vice President, *Eastern Europe and Central Asia Region* at the IBRD

The following picture of the current situation in the United States emerged from the talks:

The US administration is convinced of the importance of public spending on R&D: this was already made plain by the President in his speech to the National Academies in 2009. In addition, President Obama has always stressed the need for a new Sputnik moment, underpinning

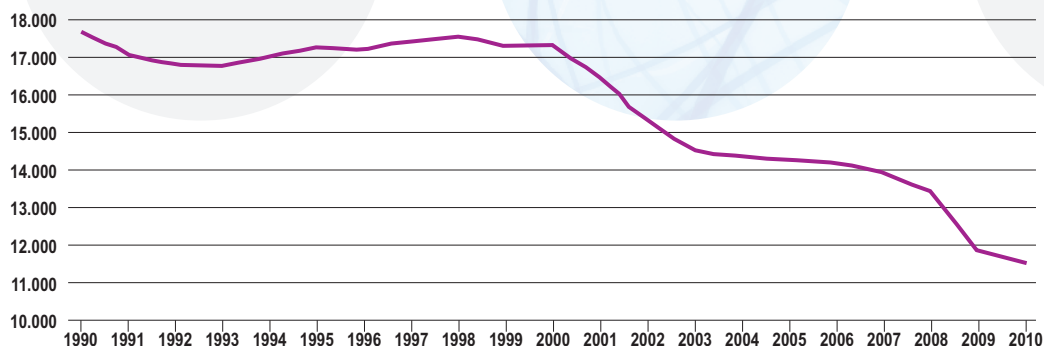
this in February 2011 with publication of the paper “A Strategy for American Innovation”. With regard to the question of “education/training” the delegation was told that this question has top priority for President Obama (“the single most important issue”). Here he also has the backing of industry, particularly in the framework of the “Educate to Innovate” initiative. Industry has realised that in future, there will not be sufficient qualified labour and appropriate action needs to be taken to counteract this. When asked about the current situation of R&D in the USA, the American discussion partners said that it is essential not to overlook the importance of the manufacturing sector here. Manufacturing plays a key role in the USA as an innovator and R&D actor (accounting for some 70 percent of industrial R&D although its contribution to the economy is only eleven percent). This sector is generally the most innovative player in America’s national economy. The current situation is thus worrying given the fact that this sector only grew by five percent between 2000 and 2009, while the US economy saw growth of 15 percent in the same period.⁶

Studies carried out by the ITIF indicate that the position of manufacturing in the USA is even worse than has frequently already been portrayed. Accordingly, the production growth rate is lower than generally stated, as output has been overestimated for electronics, computers and the oil industry – one only has to think of the rising oil prices here. The job losses seen in this sector are not primarily due to any increase in productivity but to a real fall in output (-10%), something that in turn is linked to the inability of the branch to compete at an international level.

Over the last 10 to 15 years no jobs have been created in the USA in the so-called traded sector (goods produced in export-oriented fields, e.g. automobiles, but also including software etc., as against the non-traded sector). As an exporter, the USA now lags behind Japan, China and Europe. The American discussion partners remarked that although the USA comes up with good ways of mastering challenges, there is a lack of funding or it is blocked by Congress. When asked about the current US budget situation, the discussion partners said that it was

creating knowledge

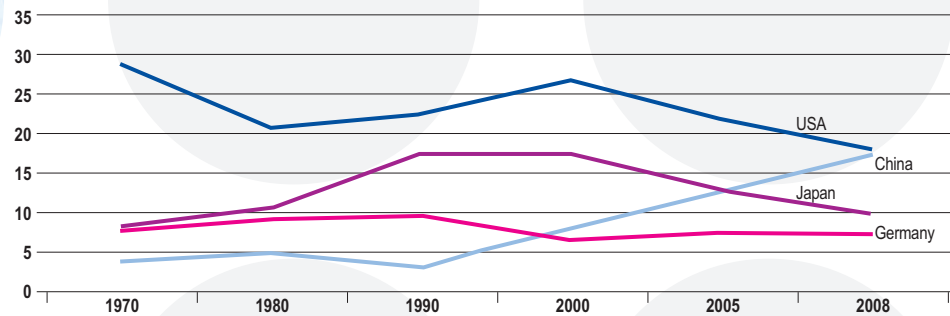
Decline in Manufacturing Employment in the USA (in 1,000)



Source: ITIF; Worse Than the Great Depression: What Experts Are Missing About American Manufacturing Decline. Washington 2012, p. 5

⁶ In comparison, the Austrian manufacturing sector recorded slight growth in the same period.

Select Country Share of World Manufacturing Output (in %), 1970–2008



Source: ITIF; Worse Than the Great Depression: What Experts Are Missing About American Manufacturing Decline. Washington 2012, p. 47

not possible to predict how the debate about the economy and budget would develop in the country. Previous debate had focused too strongly on the issue of deficit reduction and not enough on economic growth. The rate of growth is slow, making it difficult to come up with an all-encompassing solution. There is also the problem that the Tea Party is largely vetoing federal expenditure in Congress, so that compromise seems unlikely here. And without the right signals from Congress the Federal Reserve Bank (Fed) is also extremely reluctant to act. This state of paralysis in the USA is not dissimilar to the situation the EU finds itself in. According to the American discussion partners greater economic growth can only be achieved in the long term through investment in R&D and innovation. Providing the country's population with a good education is key here. In the greentech sector momentum has been lost not least with the failure of the US Senate to approve climate legislation in 2010.

When questioned about the situation of the US banks, the Americans said that it was not possible to stimulate economic growth in the USA, given the stagnation in the housing market and the equally stagnating banking sector. This meant that there would be no significant improvement on the labour market.

Nor does the situation for R&D budgets look bright in the US. In fact, a reduction in expen-

diture of up to ten percent compared with 2011 has been put forward for 2013. The previous year saw a small fall in the R&D budget (-3.5%) compared with 2010, so indicating a steady decline in the government budget for R&D.

This does not send out a positive signal, particularly where young scientists are concerned. The average age for award of the first independent National Institute of Health (NIH) research grant is already 42 years (National Science Foundation – NSF: 37 years), so making a career as a researcher unattractive. This trend calls into question the position of the USA as a centre of research on a long-term basis.

European developments in the R&D sector on the other hand are seen in a positive light. Experts in America perceive Europe as catching up with the USA, with the greater mobility of scientists being seen as an advantage here.

As regards the economic crisis in Europe the discussion partners said that they view this above all as a crisis of confidence, and Europe needs to be stronger if she is to overcome this. Education is seen as playing a crucial role here.

Discussions in the USA on the question of short to medium-term economic development in Europe, mainly envisage one of two scenarios:

- “muddling through”, a situation that is slow and difficult, or
- “a more catastrophic scenario, where Italy and Spain implode”.

Visit of the Chief Science Advisor to the Prime Minister of New Zealand – 25 October 2011

On 25.10.2011 Sir Peter Gluckman, the Chief Science Advisor of New Zealand's Prime Minister, paid a visit to the offices of the Austrian Council for Research and Technology Development. The focus of these talks was a comparison between the structures of the RTI system of Austria and New Zealand. Peter Gluckman was particularly interested in the procedure applied by Austria when drawing up the RTI strategy of the Federal Government and the measures undertaken

to raise awareness for science and research. The Long Night of Research was thus also a key issue of the discussions. The preparations for the meeting were made by the Embassy of New Zealand and the Secretariat of the Austrian Council. The New Zealand Ambassador Philip Griffiths, who accompanied Peter Gluckman during the talks, extended an official invitation to the Austrian Council to pay a return visit to New Zealand for in-depth discussions.

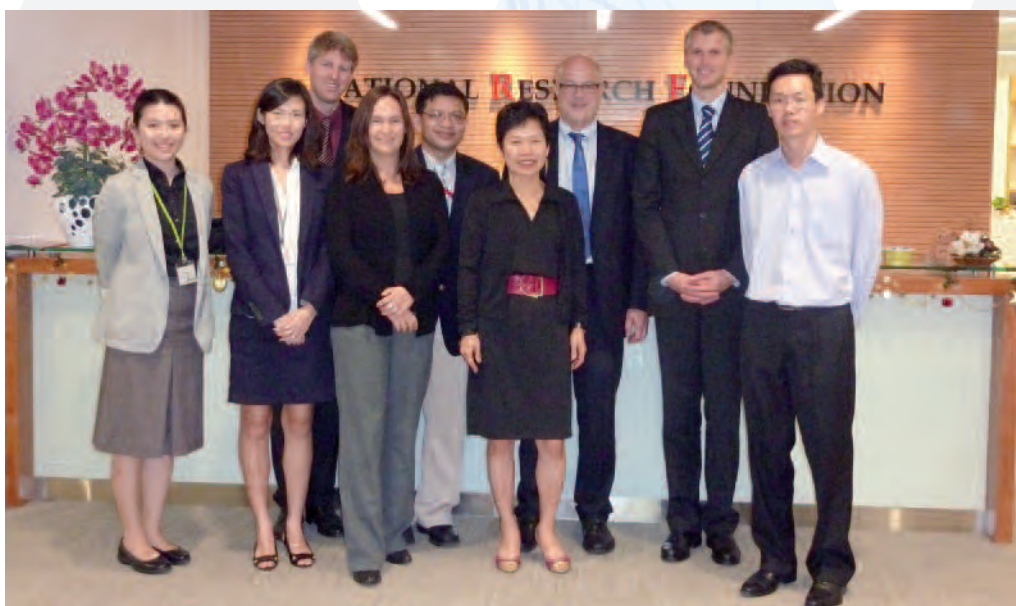
creating knowledge

Fact-Finding Mission to Singapore and Vietnam – 25–30 November 2011

From 25 to 30.11.2011 the Austrian Council sent a delegation on a visit to Hanoi and Singapore. In Hanoi the agenda for Saturday, 26 November, included visits to Austrian companies and meetings with members of Austria's external representation in Vietnam. On Monday, 28 November, this was followed by a workshop dealing with the issue "Development of RTI strategies and monitoring of implementation" held with the Vietnamese Ministry for Science and Technology and the National

Council for Science and Technology Policy (NCSTP).

It was the NCSTP who had invited the Austrian Council for Research and Technology Development to this workshop. The objective was to describe Austria's experiences in relation to developing RTI strategy and monitoring its implementation. The workshop was a result of two official visits to Vienna made by representatives of the National Council for Science and Technology Policy and



**Members of the
Austrian Council
and the Secretariat
at the National Research
Foundation in Singapore**



creating knowledge

the Ministry for Science and Technology in October 2009 and April 2011.

A two-day discussion programme was then held in Singapore on 29 and 30 November. The agenda included meetings with all key players of the national innovation system. Singapore is one of the countries that come out top in a number of international rankings such as the Global Competitiveness Report of the World Economic Forum, the Doing Business Report of the International Bank for Reconstruction and Development, the IMD's World Competitiveness Yearbook or the Global Innovation Index of INSEAD. For this reason – and in fulfil-

ment of its task of observing and evaluating international trends and developments according to the presentation before the Council of Ministers on 9 September 2010 – the Austrian Council was extremely interested in analysing Singapore as an RTI site more closely. The basis for this was talks with representatives from the Ministry for Trade and Industry (MTI) and the Economic Development Board (EDB), the National Research Foundation (NRF), the Agency for Science, Technology and Research (A*STAR) / Fusionopolis & Biopolis, in addition to Nanyang Technological University (NTU) and the National University of Singapore (NUS).

International meeting of the secretariats of the European research councils – Brussels, 7 December 2011

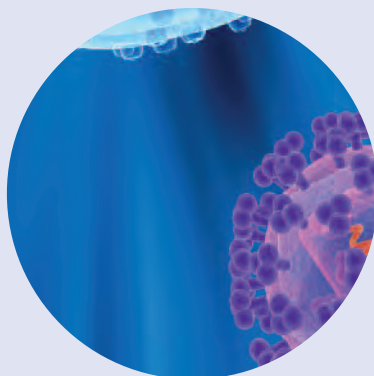
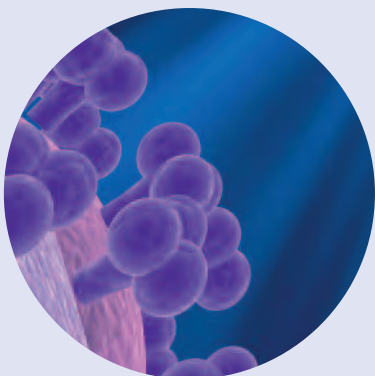
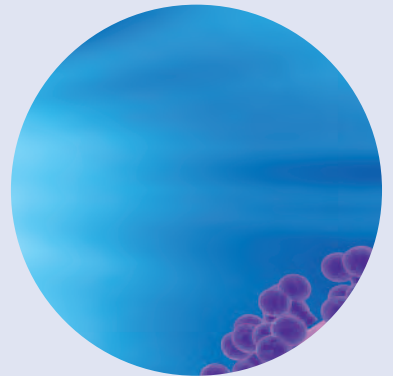
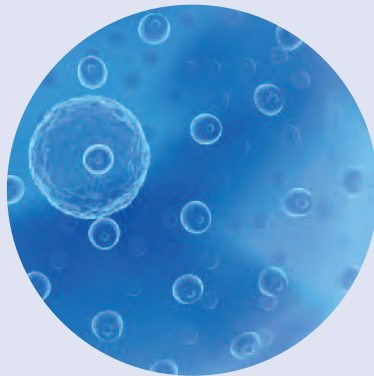
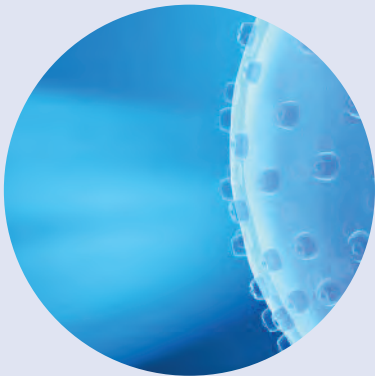
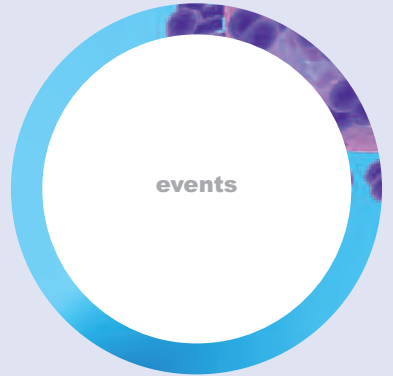
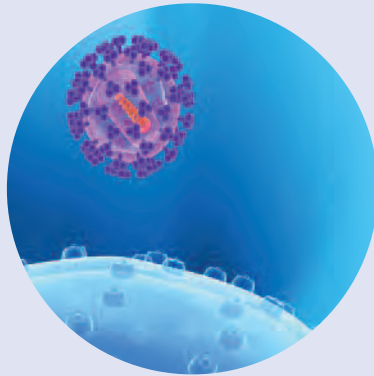
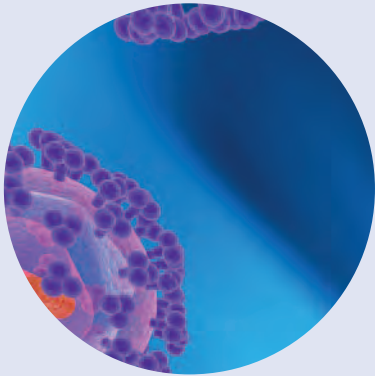
The secretariats came together in Brussels on 7 December to prepare for the next meeting of the European research councils. As is the case every year, the main item on the agenda was to select a topic for the next meeting of the councils in Copenhagen scheduled for May 2012. After some debate France's proposal was the topic that was finally chosen: *"The translation of research results into economic and social value"*. The keyword *"social value"* also took account of the Danish proposal of highlighting the issue of *"social scientific responsibility"*.

China as an emerging force in research and innovation

The research council in the Netherlands was asked by the Dutch government to submit a recommendation as to how cooperation could take place with China in the field of research, development and innovation. What form should such collaboration take? Where did the research council see opportunities and risks for science and industry? These questions have also been preoccupying most of the other councils. Finland for example is currently trying to coordinate its national activities vis-à-vis China. The EU is busy working on a new strategy for China, with one of the possibilities being

Scientific social responsibility can be interpreted as the responsibility incumbent on scientists to assess the perspectives and opportunities for dedicating their research and education to the needs of society and its benefit. The issue here is to optimise both the impact and benefits of science. This attitude embodies the three-pronged approach of value generation in science and in particular in higher education – namely, the publication of scientific results, the dissemination of knowledge and the teaching of students.

to open up EU programmes to China. Overall, coordination and agreement are required on the part of Europe. There are already a number of European initiatives in China that have neither been coordinated, nor are known to the other side. France meanwhile has extensive experience in cooperating with China and is a key player in this sector. It was thus decided to organise a top-level meeting about China for the European secretariats in the spring of 2012, under the direction of the French secretariat. The joint discussion was then followed by a presentation made by a representative of the OECD, Laudeline Auriol, regarding the career opportunities for PhDs in Europe.



events

New Year Reception – 17 January 2011

Monday, 17 January 2011, was the date chosen by the Austrian Council for its invitation to a New Year Reception to be held for the first time at the Ringturm building. Some 70 members of the research community, in addition to key figures from industry and politics, seized the opportunity to exchange views. The attendees included ministerial representatives such

as Doris Bures (Ministry for Transport, Innovation and Technology - BMVIT), Beatrix Karl (formerly Ministry for Science and Research - BMWF) and Reinhold Mitterlehner (Ministry for Economic Affairs, Family and Youth - BMWFJ), in addition to Erich Foglar (Austrian Trade Union Federation) and Veit Sorger (Federation of Austrian Industries).



From left to right:

President of the Austrian Trade Union Federation Erich Foglar, Deputy Chairman of the Austrian Council Peter Skalicky, Minister Beatrix Karl, President of the Federation of Austrian Industries Veit Sorger, Minister Doris Bures, Minister Reinhard Mitterlehner, Chairman of the Austrian Council Hannes Androsch

Closed-door meeting and round table – 19 January 2011

To kick off its first closed-door meeting since the reconstitution of the Austrian Council in September 2010, the Council held a round table at Langenlois to look at the issue of research, technology and innovation in Austria. The objective of this meeting was to discuss further development of Austria as a centre of science and research together with stakeholders and representatives from institutions of the RTI community. All invitees were able to take part in the debate in order to put forward the views of their organisation on RTI policy as well as ideas for the future working programme of the Austrian Council.

At a session attended by more than forty top-level representatives of the Austrian RTI sector em-

ployed at the country's ministries, agencies and research institutions, Prof. Dr. Karl Aiginger, head of the Austrian Institute of Economic Research, made a keynote speech on the subject of "Reform gridlocked for education and research in Austria". He emphasised that not only the competitive ability of the country, but also the life of every inhabitant depended on education and research. In times of tight budgets the necessary resources could only be made available by improvements in efficiency or reductions in the current scope of work.

The Chairman of the Austrian Council, Dr. Hannes Androsch, drew the resulting conclusions here and stressed that the Austrian Council planned



to systematically draw attention to duplicate structures and fragmentation as they resulted in inefficiency. He said that the Austrian Council would be increasingly looking beyond the borders of Austria and analysing international developments. He also reasserted the Council's declared commitment to greater investment in education and research.

The results of the round table were incorporated in the working programme of the Austrian Council at the subsequent closed-door meeting. The schemes and projects planned for 2011 and following years were subsequently published by the Austrian Council in a report entitled "Working Programme 2011+".

events

Famelab 2011 – 7 May 2012

Education, science and research are of prime importance when it comes to mastering existing and coming challenges and securing Austria's future as a centre of business. It is thus all the more worrying that the inhabitants of Austria have little interest in the dual concept of science/research. Public awareness of this issue is essential if they are to recognise the social relevance of science and research, yet the general public is ill-informed about the outstanding achievements of the country's researchers. Major importance therefore attaches to all communication formats which allow scientists, in particular junior researchers, to make their work known to wider sectors of the population.

The Austrian Council has been linked to the FameLab talent competition over many years of co-operation. And 2011 was no different. Heats held in some of Austria's provincial capitals once again selected candidates who were able to present their research subject in a scientifically correct and understandable manner that was nevertheless interesting and unusual. At the final held in Vienna on 7 May 2011, the winner was Philipp Ambichl from Vienna University of Technology with his paper "The stressed wave". This also meant that the physicist was the person chosen to represent Austria at the Cheltenham Science Festival held in Great Britain in June.

Workshop: Research Infrastructure – 10 May 2011

If research infrastructure is to be developed properly and used efficiently, better coordination will be required in future

According to a survey commissioned by the Austrian Council, Austria currently finds itself in the following situation when it comes to research infrastructure:

- 63 percent of all research infrastructures surveyed come under the category of Higher Education.
- The key areas of "Life Sciences", "Nano and Materials Science" and "Environment, Energy and Sustainability" account for 53 percent of all research infrastructures listed in the study.
- Research infrastructures are concentrated at the universities and industrial sites.
- 54 percent of the existing research infrastructures listed were set up / put into service in the past five years.
- More than half of all existing research infrastructures listed incurred procurement costs of over EUR 500,000.
- More than half of the research infrastructures were largely (80 to 100 percent) the subject of public funding.
- Three-quarters of research infrastructures are used within the organisation.
- Among the organisations surveyed the need



events

for new investment and expansion in the period 2010–2014 totals approx. EUR 250 million per year, with around 60 percent involving public funding.

These findings indicate that improved planning and efficient usage of the financial resources available for research infrastructure can only be achieved with proper coordination between the organisations responsible. However, making improvements to planning also calls for long-term commitments to investment, which include all cost factors over the entire “lifecycle”. The Austrian Council for Research and Technology Development took this as an opportunity to organise an RTI Infrastructure workshop on 10 May 2011. The event was attended by 55 participants from higher education, politics, development funds, industry and special interest groups and ensured high-level discussions about the future development of research infrastructures.

The results of the workshop, recommendations and key discussion points from the work groups are a further part of an active and flexible process ensuring strategic support for the coordinated development of Austria’s national research infrastructure.

Event organised by the Austrian Council with the Federation of Austrian Industries (IV) on the topic of “Austrian research and innovation policy in times of growing global dynamics” – 6 June 2011

6 June 2011 was the date chosen by the Austrian Council and the Federation of Austrian Industries for its invitation to an event entitled “Austrian research and innovation policy in times of growing global dynamics” to be held at the Haus der Industrie in Vienna. The speakers included Austria’s Minister of Finance, Maria Fekter, the President of the Fraunhofer Gesellschaft, Germany, Hans-Jörg Bullinger, and the Director of Competitiveness, Industry and Research Society of the European Council in Brussels, Jiří Buriánek.

Certainty of planning and adequate, long-term funding were adopted by the “Cost and Funding” work group as key requirements for the successful development of research infrastructure. Differentiated funding approaches are to be applied for basic, mid-size and large-scale research infrastructure and greater cooperation at a national level to ensure that investment, operating and maintenance costs are covered on a long-term basis.

The challenges in relation to supraregional prioritisation were pinpointed by the “Sites and Profile Building” work group. The relevant players at a national and regional level need to consult more closely to permit the formation of critical masses and increased visibility of flagship projects. It is hoped that the definition of national priorities will provide for thematic interlinking with international projects.

Debate within the “Cooperation” work group revolved around operator models for infrastructure facilities, incentive systems for industry and opportunities for marketing infrastructure services. An infrastructure platform to be set up in the future is to provide a better overview of planned projects and to define best-practice models.

“In recent years we have seen a significant intensification of global dynamics and the major challenges to society that this brings. Policy-makers are therefore expected to forge new solutions and create suitable framework conditions – including for research, technology and innovation”, commented Dr. Hannes Androsch, Chairman of the Austrian Council, in his introductory speech to the event.

He added that analysis has shown that over the last twenty years the social and economic framework conditions have developed faster in Au-

stria than the political debate and associated decision-making processes. This means there is a significant gulf between the results of Austria and comparable European states in terms of current rankings and statistics. The country has in particular postponed the necessary structural reforms to public administration and the pension and healthcare systems for years. As a result Austria is already feeling a lack of resources in key sectors of tomorrow.

Dr. Veit Sorger, President of the Federation of Austrian Industries, also spoke out in favour of

swift implementation of the Government's RTI strategy: "We should waste no time in pinpointing and realising the necessary measures so we can actually catch up with Europe's frontrunners by 2020." Sorger also cited the severe shortage of natural science and technology graduates as well as specialist technicians as another problem confronting Austria: "Some three-quarters of all large companies engaged in research are already actively seeking engineers. If this trend continues, economic development in Austria

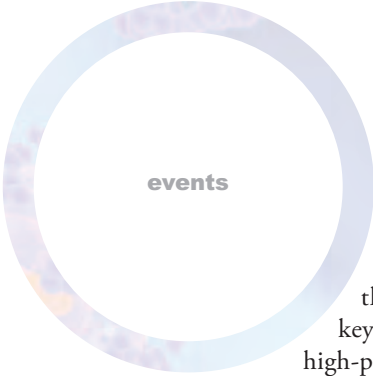
events

**From left to right:
Chairman of the
Austrian Council Hannes Androsch,
Minister Maria Fekter,
President of the Federation of
Austrian Industries Veit Sorger**



**On the Podium:
Hans-Jörg-Bullinger,
President of the Fraunhofer-Gesellschaft**





events

will soon be adversely affected. This issue must therefore be given high political priority.”

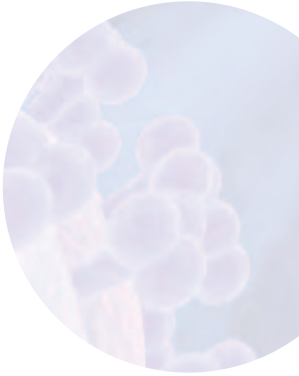
In the context of these findings there then followed a number of interesting keynotes, which were then debated by the high-profile discussion partners. The event was chaired by Gisela Hopfmüller-Hlavac. Overview of speakers and panellists (in alphabetical order):

- Karl Aiginger (head of the Austrian Institute of Economic Research)
- Hannes Androsch (Chairman of the Austrian Council for Research and Technology Development)
- Hans-Jörg Bullinger (President of the Fraunhofer Gesellschaft, Germany)
- Jiří Buriánek (Director Competitiveness, Industry, Research & Information Society; Euro-

pean Council, Brussels, Belgium)

- Peter Egger (Professor of Economics, Swiss Federal Institute of Technology Zurich (ETH Zurich, Switzerland)
- Maria Fekter (Minister of Finance, Austria)
- Caroline Fenwick (Assistant Director Research Base Directorate, Department of Business, Innovation and Skills, Great Britain)
- Ruperta Lichtenegger (Chair of the Parliamentary Committee for Research, Innovation and Technology, Austria)
- Gerhard Riemer (head of the Education, Innovation and Research Division, Federation of Austrian Industries, Austria)
- Peter Skalicky (Deputy Chairman of the Austrian Council for Research and Technology Development)
- Veit Sorger (President of the Federation of Austrian Industries, Austria)

Innovation strategies and impact monitoring with the example of renewable energy – 28 June 2011



In order to cope better with the major challenges we will be confronting in future, the member states of the International Energy Agency (IEA) are already being encouraged to document and analyse their energy and research policies and to develop appropriate measures from such analysis. This is why regular energy research surveys are carried out in Austria, in addition to the observation and interpretation of technological and economic trends in selected key areas. The Austrian Council's energy research strategy provides for the establishment of a comprehensive monitoring system and strategic control for energy research. The Federal Government has also noted in its RTI strategy that the monitoring of the impact of RTI measures and the development of strategic priorities are key elements for an active technology policy. For this reason the Ministry for Transport, Innovation and Technology joined forces with the Austrian Council for Research and Techno-

logy Development and the Climate and Energy Fund to organise an event “Innovation strategies and impact monitoring with the example of renewable energy” at the ceremonial hall of Vienna University of Technology. The aim was to describe developments observed during 2010 in relation to biomass, photovoltaics, solar thermal energy and heat pumps, report about value / job creation effects from the use of solid biomass, biogenic fuels and biogas in different energy price scenarios and demonstrate the technological perspectives and potential for growth and exports offered by renewable energy systems. This was then compared with fundamental considerations of innovation monitoring to illustrate the role they could play, particularly in the field of renewable energy. The event started with a welcome speech opening the meeting made by the Deputy Chairman of the Austrian Council Peter Skalicky and the Managing Director of Kli.En (Climate And



Energy Fund), Theresia Vogel. This was followed by an introduction by Michael Paula (BMVIT), in addition to papers presented by

various experts on the issue of strategy development and innovation monitoring in the energy research sector.

events

Press conference in Alpbach on the topic of research infrastructure – 25 August 2011

On 25 August the Austrian Council inaugurated its “Research Infrastructure Platform” at a press conference held within the framework of the Alpbach Technology Forum. The aim of this initiative, which ran until the end of October 2011, was to ensure not only more efficient usage, but also greater coordination for the development of research infrastructure throughout Austria. “The platform will offer a better overview of planned projects and encourage the start of cooperation at an early stage”, remarked Rector Dr. Skalicky, Deputy Chairman of the Austrian Council, explaining the background to this platform.

At the press conference Dr. Karin Schaupp emphasised that the new level of transparency will in future make it easier to define and present best-practice models that act as an example for the development and operation of large-scale research infrastructures.

To achieve these objectives, the results of a study commissioned by the Austrian Council (performed by Austin, Pock & Partners) and the conclusions from a workshop held in May 2011

(cf. page 36) were thrown open for discussion by a large community with the help of Web 2.0 technology.

The outcome of the consultation process staged in the framework of the “Research Infrastructure Platform” is to be incorporated in future planning and will also be reported in a publication to be issued by the Austrian Council.

In the long term the web platform could offer organisations active in this sector efficient planning support and encourage cooperation as regards usage of the available research infrastructures. In addition, it can serve as a basis when making decisions regarding the set-up and development of supraregional and national research infrastructures.

Peter Skalicky, the Deputy Chairman of the Austrian Council, summed up the situation by saying: “To maintain the international standard of our research, we do not just need new funding models, but above all greater willingness in terms of coordination and cooperation. The Research Infrastructure Platform will make a significant contribution here.”

Alpbach Working Committee – 26 August 2011

In the framework of the Alpbach Technology Forum 2011 a working committee was organised by the Austrian Council for Friday, 26 August to look at the issue “Efficiency of RTI Investment”.

Here the Council was addressing a highly topical issue. The increasing scarcity of national budget resources is acting to intensify the debate

regarding quantification of Austria’s R&D output and thus the efficiency of the investments made in this field.

There are ever-increasing calls for the award of resources for research and development to depend to a greater extent on their quantifiable effects and performance. In times when decisions about economic policy are being taken more



events

and more on the basis of international rankings (e.g. the European Innovation Union Scoreboard), the question arises as to how R&D output can be quantified in a meaningful manner.

These issues were debated by a high-profile panel which included the following persons: Christian Keuschnigg, the designated Director of the Institute for Advanced Studies and Professor for Economics at the University of St. Gallen (Switzerland), Wolfgang Burtscher, De-

puty Director-General for Research and Innovation at the European Commission, Julia Lane, Program Director of the National Science Foundation, and Ruperta Lichtenecker, a Member of the Austrian Parliament and Chair of the Parliamentary Committee for Research, Innovation and Technology. The working committee was chaired by Karin Schaupp, management consultant and a member of the Austrian Council.

Visit to Güssing – 4 September 2011

In cooperation with the Ministry for Transport, Innovation and Technology (BMVIT) the Austrian Council coordinated a fact-finding mission to the European Centre for Renewable Energy at Güssing on 14 September 2011. The agenda included an exchange of views about the issue of renewable energy and a presentation on

the “Güssing Model”. In addition, the visitors were informed about the ongoing research activities of the K1-centre “Bioenergy 2020+” and also undertook various tours of the complex. They were additionally shown round the research centre and learnt about its individual research projects.

Event “Education in Austria: the plaything of the policy-makers?” as part of the “Austria 2050” series of events – 2 November 2011

On 2 November the Austrian Council teamed up with its media partner “Die Presse” to stage a debate with a panel of experts at the Austrian Academy of Sciences to consider the issue “Education in Austria: the plaything of the policy-makers?”. With the assertion, “The Austrian education system is in urgent need of reform, and Finland can and should serve as an example to us in many regards,” the Chairman of the Austrian Council, Hannes Androsch, called for the ‘Finlandisation’ of Austria’s education policy. Why Finland offers a model here was illustrated by the presentation made by the Finnish education expert and National PISA Coordinator Jouni Välijärvi. He commenced his keynote speech about the issue “Challenges for Edu-

cation Policy in the 21st Century” with a detailed comparison of the most recent PISA results for Austrian and Finnish schoolchildren and then looked at the differences between the education systems of the two countries. “His most important comment was that education does not just revolve around reading literacy but does depend on it to an enormous extent. Special efforts therefore need to be made here.” This was followed by a panel discussion, which not only included Hannes Androsch and Jouni Välijärvi, but also Christiane Spiel from the University of Vienna and Edeltraud Stiftunger from Siemens AG Austria. There was consensus about the urgent need for fundamental reform of the Austrian education system. At the centre

of the discussion was the question of how Austria can ensure that access to education no longer depends on the social position of a child's parents but solely on ability, intelligence and a willingness to work hard. The following concepts kept cropping up in the debate: all-day school, unstreamed schooling to the age of 14 and autonomy of schools, combined with the best possible teaching training.

Participants of the panel discussion in alphabetical order:

- Hannes Androsch (industrialist, Chairman of the Austrian Council for Research and Tech-

nology Development and co-initiator of the education initiative petition)

- Christiane Spiel (Institute for Economic Psychology, Educational Psychology and Evaluation, University of Vienna)
- Edeltraud Stiftinger (head of the Corporate Innovation Center of Siemens AG Austria)
- Jouni Välijärvi (Director of the Finnish Institute for Educational Research of the University of Jyväskylä and national PISA expert)
- Discussion chair: Martin Kugler (Die Presse)

events

Jouni Välijärvi (University of Jyväskylä, Finland)



From left to right:
Martin Kugler
 (Die Presse),
Christiane Spiel
 (University of Vienna),
Jouni Välijärvi
 (University of Jyväskylä, Finland),
Edeltraud Stiftinger
 (Siemens AG Austria),
Hannes Androsch
 (Chairman of the Austrian Council)



events

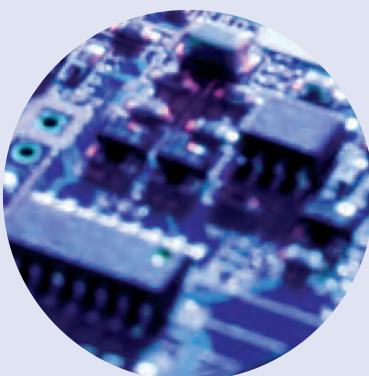
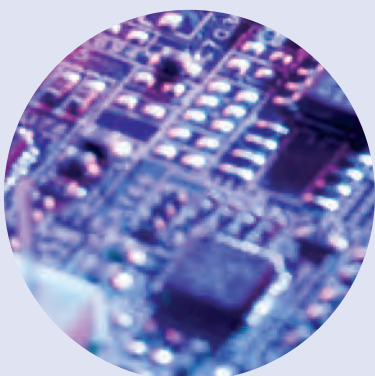
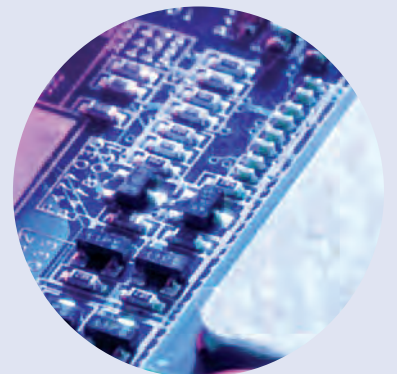
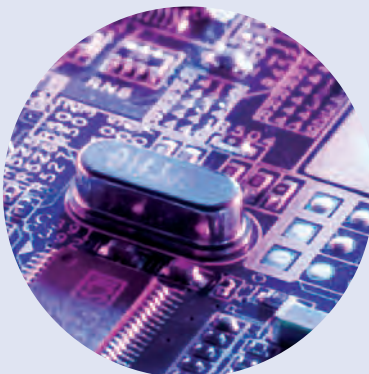
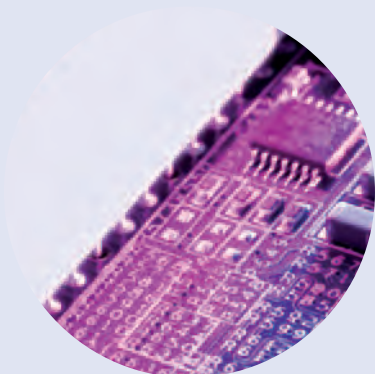
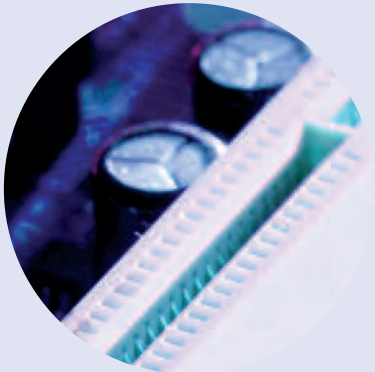
Meeting of the Austrian Science Council and the Austrian Council for Research and Technology Development – 9 November 2011

One of the tasks of the Austrian Science Council is to develop recommendations for a successful science and research policy in Austria with an emphasis on higher education. It performs this role on behalf of the Federal Ministry for Science and Research. Besides the sector of tertiary education, the Austrian Council for Research and Technology Development also deals with all aspects of the innovation system. Science and research are closely linked with education, industry and technological development, with the work of the two councils intersecting here.

A meeting of both councils was held in Vienna on 9 November 2011 in order to coordinate viewpoints and activities and encourage the personal exchange of information. The discussion included topical issues such as the reforms planned for medical schools and further joint courses of action. The regular exchange of information and consultation on council statements about urgent matters involving the tertiary sector will in future form a key part of their cooperation.



**Chairman of the Austrian Council,
Hannes Androsch, and
the Chairman of the Austrian Science Council
Jürgen Mittelstraß**



austrian council

Cooperation agreement with Lower Austria

In 2011 Austria's National Audit Office recommended that the provinces either set up their own research councils or take advantage of the expertise offered by the Austrian Council. Following this recommendation, future cooperation was then agreed at a meeting held between the provincial government of Lower Austria and the Austrian Council for Research

and Technology Development at the Alpbach Technology Forum. This cooperative relationship is to be cultivated by means of regular meetings for the exchange of information and accompanied by the implementation of recommendations. The plan is for the numerous measures already undertaken by Lower Austria, in particular in the field of applied research and human resources for R&D, to be additionally reflected in cooperation with the Austrian Council and coordinated in line with national objectives.

The first meeting was held in Vienna in the autumn of 2011 and considered European Regional Policy as well as focusing on the presentation of detailed working programmes to implement the areas in which cooperation is to take place, in particular topical issues occupying the research institutions based in Lower Austria.

Chairman of the Austrian Council Hannes Androsch
(3rd from l.)
and a member of the Lower Austrian provincial government **Petra Bohuslav**
(7th from l.).



Austrian Council for Research and Technology Development awarded EPSA 2011 Best Practice Certificate

The Austrian Council received a Best Practice Certificate in the framework of the 2011 European Public Sector Awards (EPSA 2011). These awards pay tribute to public institutions which come up with innovative approaches addressing administrative problems or creative solutions for

current issues involving public administration. With the project for the development of Strategy 2020 the Secretariat submitted an application entitled "Opening Up the Public Sector through Collaborative Governance". To back up the strategy process, the Austrian Council had set up a web-based discussion platform in May 2009. This has intensified and enlarged upon the process by means of virtual interaction with the RTI community and stakeholders.

A total of 274 applications from 25 EU countries were submitted for EPSA 2011. All submissions went before an independent panel of experts, with 43 finally being selected to receive Best Practice Certificates. The award ceremony took place at an event held at Maastricht's town hall on 15 November 2011. Managing Director Dr. Ludovit Garzik and Project Manager Dr. Johannes Gadner came to Maastricht to accept the Best Practice Certificate in person.

EPSA Prize Award Ceremony in Maastricht,

November 2011

(from l. to r.):

Marga Pröhl

(Director-General,

European Institute of Public Administration, Maastricht),

Johannes Gadner

(Austrian Council),

Ludovit Garzik

(Austrian Council),

Onno Hoes

(Mayor of Maastricht)



Review and outlook: 2011 and 2012

The first full year of the Austrian Council's third term of office has drawn to an end. 2011 started with a broad-based closed-door meeting to spell out its intention of ensuring a wide-ranging debate covering the entire research, technology and innovation system. The Austrian Council tackled controversial issues here, but always focused on areas of consensus in its discussions rather than on divisive issues.

The policymakers have for their part published the RTI Strategy "Becoming an Innovation Leader" and thus not only contributed to the debate but are also making, on behalf of the Federal Government, a clear commitment to focusing policy discussions on the question of securing Austria's future through education and research. This is a milestone that should not be underestimated: For the first time the policymakers are themselves committing to strategic positioning in this field and are additionally placing the supervision of implementation in the hands of an advisory body, the Austrian Council for Research and Technology Development. This task thus becomes part of the Council's agenda, with the individual strategic headings also being reflected in its "Working Programme 2011+".

The outlook for 2012 is therefore already predetermined. Realisation of the individual objectives and measures of the Austrian Government's Strategy 2020 is set to be upheld in a relationship of mutual respect and trust. There will undoubtedly be differences of opinion when it is a question of how implementation should

proceed and at what pace. What however is important here is to find a common path through discussion. For however much we may commit ourselves to our own institutions, the obligation of us all is first and foremost to ensuring the well-being of Austria's inhabitants.

It does not take a prophet to predict what will take centre stage in the debate: money. And the trend we have seen in recent years is set to intensify. Every organisation is forced to weigh up its priorities. In years when budgets enjoyed massive increases, this was not necessary. New ideas could always be put into practice without having to think about an exit strategy for outdated or obsolete issues. Sidestepping in budget planning is increasing the pressure on managers at all research institutions to set priorities in this field. This can also be described as bidding farewell to 'fair-weather' management. It must be clear: fresh money should only be invested where the transition from old to new can be managed successfully. Money is an incentive for speeding up this move. The driving forces of innovation in public administration are incidentally another of Europe's major advantages over the national economies of Asia with their orientation to state control.

2012 is set to be a challenging and exciting year. And the Austrian Council will be contributing to a critical, goal-oriented discussion to ensure Austria is equipped to face up to the future.

austrian council



Ludovít Garzik
Head of the Secretariat

The Austrian Council

Advisory Members

Doris Bures Minister of Transport, Innovation and Technology

Maria Fekter Minister of Finance

Reinhold Mitterlehner Minister of Economic Affairs, Family and Youth

Karlheinz Töchterle Minister of Science and Research



Hannes Androsch

Chairman of the Austrian Council is an industrialist and former minister of finance and vice chancellor who also served as a consultant to the World Bank. He is Chairman of the University Council of the University of Leoben, a member of the Senate of the Austrian Academy of Sciences (ÖAW) and head of the Supervisory Board of the Austrian Institute of Technology (AIT)



Peter Skalicky

Deputy Chairman of the Austrian Council
From 1991 to 2011 Rector of the Vienna University of Technology, Professor of Applied Physics and President of the Austrian Rectors' Conference (1995–1999)



Gabriele Ambros

Owner of the Bohmann and Holzhausen publishing houses, member of the Supervisory Board of the FFG (since 2009) and President of Forschung Austria (also since 2009)



Markus Hengstschläger

Head of the Institute of Medical Genetics at the Medical University in Vienna, Vice Chairman of the Bioethics Commission at the Federal Chancellery (since 2009)



Marianne Johanna Hilf

Professor for criminal law, law of criminal procedure and criminology with an emphasis on business criminal law at the University of St. Gallen / Switzerland



Gi-Eun Kim

Professor at the Department for Biotechnology at the Seokyeong University in Seoul and Secretary General for Biotechnology in the Committee for Industrial Cooperation between Korea and Germany



Karin Schaupp

Independent management consultant (international innovation and business consulting) with a focus on innovation transfer, Deputy Chair of the University Council of the University of Leoben



Renée Schroeder

Professor at the Department for Biochemistry of the Max. F. Perutz Laboratories, formerly a member of the Bioethics Commission of the Federal Chancellery (2001–2005) and Vice President of the Austrian Science Fund (FWF, 2005–2010), member of the Austrian Academy of Sciences

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):



Ludovit Garzik, MBA

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

l.garzik@rat-fte.at



Constanze Stockhammer

Deputy head of the secretariat, business-oriented research, indirect research promotion, start-up and growth financing, SME and innovation funding, cooperation between federal government and the provinces, nano-technologies, information and communication technologies, mobility and transport

c.stockhammer@rat-fte.at



Johannes Gadner, MSc

Project manager "Report on Austria's Scientific and Technological Capability", coordination of strategic processes (RTI Strategy of the Federal Government, Strategy 2020, Strategy for Excellence), cooperation between science and industry, Platform fteval, non-university research and energy research

j.gadner@rat-fte.at



Anton Graschopf

Universities, research infrastructure, life sciences, basic research, energy research and international issues

a.graschopf@rat-fte.at



Selina Morrison-Brandauer

Office Management

s.morrison@rat-fte.at



Gerhard Reitschuler

Collection and processing of R&D data, macro-economic development and trends, output/impact (indicators), modelling and simulation, technology flow analysis, innovative procurement

g.reitschuler@rat-fte.at



Margarete Rohrhofer

Accounting and Personnel

m.rohrhofer@rat-fte.at



Bettina Rutensteiner-Poller

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

b.rutensteiner@rat-fte.at



Walter Schneider

Agricultural sciences, security research, international research cooperation, coordination of the Long Night of Research, EU research and innovation policy, especially EU Framework programmes for RTD, ERA-NET

w.schneider@rat-fte.at

contact



**Ministry of Transport,
Innovation and Technology**
(Supervisory Responsibility for the Austrian Council)
A-1030 Vienna, Radetzkystraße 2
Tel.: +43/1/711 62-0
www.bmvit.gv.at



Ministry of Finance
A-1030 Vienna, Hintere Zollamtsstraße 2b
Tel.: +43/1/514 33-0
www.bmf.gv.at



**Ministry of Science
and Research**
A-1014 Vienna, Minoritenplatz 5
Tel.: +43/1/531 20-0
www.bmwf.gv.at



**Ministry of Economic Affairs,
Family and Youth**
A-1011 Vienna, Stubenring 1
Tel.: +43/1/711 00-0
www.bmwfj.gv.at

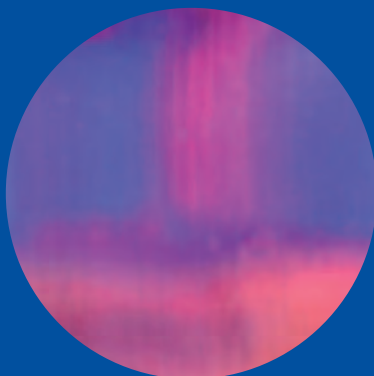
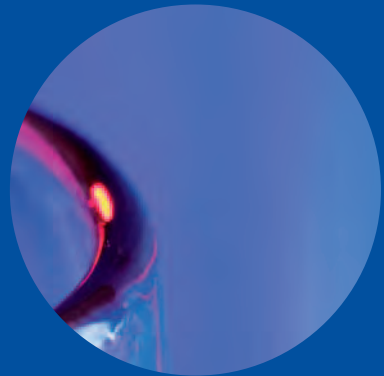
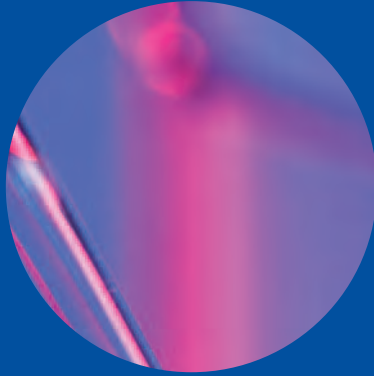


**Austrian Council for Research and
Technology Development**

Secretariat
A-1010 Vienna, Pestalozzigasse 4/D1
Tel.: +43/1/713 14 14-0
Fax: +43/1/713 14 14-99
office@rat-fte.at
www.rat-fte.at



www.rat-fte.at



www.rat-fte.at