Haniel Lecture

Elite Education, Advanced Research and Innovation – Europe and the US in the Face of Challenges from the “New World”
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Europe and the US in the Face of Challenges from the “New World”

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Welcome speech
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Honorable Professor Schwan, dear Professor Sachs, Professor Winnacker, ladies and gentlemen,

On behalf of the Haniel Foundation, please allow me to extend a warm welcome to all of you attending this year’s Haniel Lecture. Thank you for joining us; I am pleased that you made your way to the Ruhr Valley region to be here today.

In the Ruhr Valley region, you can experience on a micro-level the same thing that we will now discuss in the context of large economic regions: the concept of creative demolition truly works. People’s qualifications, creativity, and productivity are transformed into innovation and economic growth. 50 years ago, nearly 500,000 miners in the Ruhr Valley still mined coal, while there were no “productive researchers” here at all. There were more than 3,000 coal mines but there was not a single higher education institution.

Today, the coal mines are gone, but the Ruhr Valley region now has four universities, three universities of applied sciences, and a great many renowned research centres. The Universities of Dortmund, Bochum, and Duisburg-Essen have cooperated since 2007 in the so-called “Ruhr Metropolis University Alliance”: three independent higher education institutions – with nearly 90,000 students, 1,250 professors, a budget of 840 million euros – have linked their institutes, research projects, and administration with one clear principle in mind: together, these three higher education institutions can position themselves even better as a strong location in the national and international academic arena. The fact that education and research are the keys to growth, prosperity, and employment can be seen here as well: the Ruhr area’s growth rate recently surpassed those of the regions of Rhineland and Westphalia.

But let us now return from our excursion to the Ruhr Valley region back to the world, meaning our eighth Haniel Lecture.

This evening, we shall discuss academe and education, competition between academic and research regions, research and teaching, and this against the background of transatlantic relations which have become increasingly complex in recent years.

Our topic for the evening is the indisputable connection between education, research, and economic growth. We shall discuss how well the various economic regions are equipped for the global challenges of a knowledge society and how the relations between the US and Europe must be configured in order to succeed in the competition for high-tech locations.

We will also consider how to keep from missing out on new technology and thus ensure that techniques derived from it – which may be more labour-intensive – have a sufficient foundation.

Ladies and gentlemen, internationally leading macroeconomists are sounding the alarm:

If Europe does not invest considerably more money in its universities and does not better organise its higher education system within the next few years, growth and prosperity on the European continent will be endangered. In the era of knowledge-intensive growth, it is critical for Europe to aid in the creation of world-class universities. Cutting-edge research at universities is one of the key engines of economic growth, particularly in highly developed countries.

Yet the number of students graduating from engineering and computer science programmes is currently falling. Combined with the demographic changes, this poses a very real danger to Europe as a location for high-tech industries. And I do not believe that we will find a way to attract flocks of Indian software developers and Chinese engineers.

So what should be done to be able to keep up in the “educational race”, meaning the fierce global knowledge competition for talented minds and research results? Europe not only needs a broad base of higher education institutions that can perform well, but it also must have a few elite institutions that can be considered among the very best in the world.
The research carried out by universities and their level of attractiveness to star academics rise and fall with the amount of a university’s budget. Americans put 3.3 per cent of their gross domestic product into their universities, while the EU only spends 1.3 per cent of its GDP. In Germany, it is only 1.2 per cent. Even when looking at the spending per student, there is a huge gap between the US and Europe. In the OECD, Germany is fourth from last among 27 nations in terms of expenditure for education measured as a percentage of GDP, even behind Slovakia, Hungary, and the Czech Republic.

But more money for research and education is not enough! Major research institutions receive five billion euros each year from the federal budget and the German states. Yet when they want to spend the money, the Helmholtz Centres, Fraunhofer Institutes, and Max Planck Institutes face major bureaucratic obstacles: a so-called award procedure forces the scholars into a remuneration corset. The prohibition on putting one employee in a financially better position means that even the best researchers may earn no more than ministry officials.

And when an organisation wishes to procure new equipment or start up a business, the approval process with the ministries often fills bureaucrats’ files for years.

Such regulations fetter our academic system, and it is not enough to simply spend more money for research; rather, the overall conditions must be framed accordingly.

Researchers must be able to spend the money efficiently but especially more effectively. Free rein with the budget instead of award procedures, financial auditing by the General Accounting Office instead of minute control on the part of the ministry are just two essential changes among many. Politics must place trust and responsibility in scholars to carry out their own research as they see fit. This also requires the freedom to make independent decisions about forms of cooperation with private companies.

“In the era of knowledge-intensive growth, it is critical for Europe to aid in the creation of world-class universities. Cutting-edge research at universities is one of the key engines of economic growth, particularly in highly developed countries.”
Autonomy is as important as money for the ability of higher education institutions to effectuate good research outputs. The same principle applies in the global competition for the best minds and ideas: the quick ones always beat those who are slow.

The fact is that we in Europe have not kept up with the US in terms of elite education and advanced research. Evidence of this can be found in the worldwide university ranking by Shanghai Jiao Tong University: the four states in the US with the best universities – Massachusetts, California, New York, and Pennsylvania – beat all European nations in the top 100.

The best German higher education institution, the Ludwig Maximilian University of Munich, is in 53rd place. The other German universities in the ranking range between 300th and 500th place.

One core aspect of the Lisbon Strategy is the modernisation of the universities, including their responsibilities in the intertwined areas of education, research, and innovation.

Due to its slow progress, the European Union has therefore planned a comprehensive financial programme for the period from 2007 to 2013 with a total budget of seven billion euros. This measure should finally awaken the member states to reality.

Moreover, Federal Chancellor Angela Merkel has declared education a matter of the highest priority: “We must become the Education Republic of Germany.” A striking expression. In order to strengthen the credibility of her plan, Angela Merkel visited daycare centres and schools throughout Germany, and took tours of excellent higher education institutions and vocational training centres at renowned companies.

What does politics deduce from this? For approximately the past ten years, Germany has been called a “knowledge society”. In a knowledge society, the educational system – from daycare centres to universities – must be a key sector. De facto, however, money is saved in the field of education.

After years of reducing the number of teaching staff at schools in Germany, it seems to come as a shock that thousands of teachers will be needed within the next few years. While in the mid-1990s, 6.9 per cent of the gross domestic product flowed into education, the state only spent 6.2 per cent in this area in 2006. That includes funding for daycare centres and schools as well as for colleges and universities.

The development of the German tertiary education system has recently fallen far behind the OECD average. According to the 2007 OECD Report on Education, the number of students enrolled in higher education programmes in Germany has increased by five per cent since 1995, but the OECD median increased by 41 per cent over the same period.

“The European Union must therefore look not only to North America in the future; rather we must – and this may occupy us for decades to come – keep an eye on the entire world.”
We therefore apparently face a number of challenges, because the competition for knowledge and insight has long ceased to be a mere conflict between the university systems of North America and Europe. The People’s Republic of China as well as India, Singapore, and the Gulf States are investing heavily in education. They are building on great traditions – for many centuries, Islamic scholars were the greatest, and Chinese education is proverbial – leading them into modern times. The European Union must therefore look not only to North America in the future; rather we must – and this may occupy us for decades to come – keep an eye on the entire world. China’s and India’s examples will be followed by many others. In this context, the European Union must do its best, using its networks with knowledge centres in the rest of the world, and brace itself to face the competition. It is clear that progress is to be made in the development of a Europe-wide higher education system by way of exchange, dialogue, and cooperation.

In the 19th century, we had the Humboldtian university model, which quickly became popular in other countries as well. The higher education systems in Central, Eastern, and Northern Europe adapted this model to the systems emerging in their countries, as did the United States for their graduate education.

Today, however, we are the ones who need the transatlantic dialogue as well as transatlantic learning effects. Ideally, a transatlantic learning process should take place from which both sides could profit.

This evening should contribute to this very process. Three high-profile people will assist us with their extensive knowledge about higher education systems and the national and international contexts that play a role.

I would like to welcome Jeffrey Sachs, Gesine Schwan, and Ernst-Ludwig Winnacker as our speakers, discussion participants, and those who will inspire us this evening. I shall introduce them in the order of their speeches.

Jeffrey Sachs, you are first and foremost an excellent economist. You have made substantial contributions in various fields of economics. Today, many of your works are not only bestsellers, but also standard textbooks for students.

You are a member of the American Academy of Arts and Sciences, and the New York Times described you as “probably the most important economist in the world”. Using economic principles, you strive to create understanding for global problems that affect everyone.
For instance, you have worked as an economic adviser for governments in Latin America, Eastern Europe, the former Soviet Union, and Africa. Through your commitment to sustainable development, you unify the pursuit of economic effectiveness and morale. Yet it is not only in these areas that politics supplement your CV. You are also an adviser to UN Secretary-General Ban Ki-moon and were director of the Millennium Goal Project of the United Nations. At the same time, you are the founder and president of the Millennium Promise Alliance, a non-profit organisation with the goal of ending extreme hunger in the world.

But most of all: currently, Jeffrey Sachs, you are the director of the Earth Institute at Columbia University and served from 1995 to 2002 as director of the most important centre for economic development at Harvard, the Harvard Institute for International Development.

To what extent can universities provide solutions to global problems? Only at the university are different academic disciplines unified; only there does an objective and unbiased investigation of facts take place, upon which future strategies can be built; only there is the long-term change still pursued that politics has perhaps lost sight of. Jeffrey Sachs, your research on this topic leads the way. All this goes to show that you have earned the designation "educational statesman." Who better to speak on tonight’s topic than you?

Gesine Schwan, you are so well-known that a detailed introduction is unnecessary. You are not only the candidate for the office of the Federal President, but you also taught at Cambridge, among others, and were president of the Viadrina University in Frankfurt (Oder). You are more familiar with the German higher education system than anyone and combine political drive and academic knowledge into one being. Thank you for being with us tonight.

“Only at the university are different academic disciplines unified; only there does an objective and unbiased investigation of facts take place, upon which future strategies can be built.”
I would now like to welcome the third speaker at this year’s lecture, Ernst-Ludwig Winnacker. You represent this side of the Atlantic, if you will.

Mr Winnacker, you are a biochemist and earned your qualification to be a professor in the field of genetic engineering in 1974. You have held a professorship at the Chair of Biochemistry at the University of Munich since 1980.

You are one of the top scholars in Germany, a fact proven by numerous honours and awards. You also made the transition from an outstanding academic career to various political functions. In your offices as Vice President from 1987 to 1993 and then President from 1998 to 2006, you shaped the German Research Foundation more than others.

From January 2007 to June 2009, you are heading up the office of the Secretary-General of the newly created European Research Council (ERC). This places you right in the middle of the action in terms of the establishment and strategic orientation of the new European institutions.

Your work as President of the DFG and as Secretary-General of the ERC is characterised by your ambition to make the German as well as the European research area more attractive and competitive – and this against the background of the sluggishness of the German academic system. Why is Germany not able to achieve positive results in the competition for grants for young scholars despite its status as a research nation rich in tradition? How must the German higher education system change in response? And what must be done to change the European research landscape with the goal of improving its academic performance in global competition?

Mr Winnacker, we are glad you are here today!

Now, please allow me to introduce to you our moderators for the discussion this evening: both are very familiar with the European and American university systems, both were academically socialised in both worlds, and both are long-standing partners and friends of the Haniel Foundation.

Jim Cooney was for many years the “foreign minister” of the Kennedy School at Harvard. He developed the McCloy Scholarship Program, was the programme’s spiritus rector and extended the ideas behind this programme to other countries. He is a Professor of International Relations and studied in Austria, Germany, and the US. For several years now, he has been provost at Colorado State University.

Dietmar Herz was a McCloy Scholar at Harvard during the time when Jim Cooney led the programme. Previous to this, he studied in Germany and England. After professorships in Germany (at the Universities of Bonn and Erfurt) and guest professorships in Israel, the US, and Brazil, he is once again Director of the Erfurt School of Public Policy, which he founded as the first German school of public policy in 2001.
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Professor Jeffrey D. Sachs, Ph. D.
Leading research universities long have played a decisive role in economic development. James Watt launched the industrial revolution with a steam engine that he designed and constructed in a workshop at the University of Glasgow. The US will soon celebrate the 150th anniversary of the Morrill Act of 1862, which set aside public land in the US for the “endowment, support, and maintenance of at least one college ... to teach such branches of learning as are related to agriculture and the mechanic arts.” Those land-grant universities were never envisioned as ivory towers separate from society, but as motors of economic development of the regions in which they were located. Around the same time, Germany established the ‘Technische Hochschulen’ that thrust Germany into the forefront of industrial dyes and eventually the new discipline of chemical engineering. It was German technical schools that brought forth the inventions that changed the world, like the Haber-Bosch process for nitrogen fixation in fertiliser that has fed the planet for the last century.

In this sense, the vital role of the research university in practical problem solving, technological advance, and economic development is long-standing. I think that role is more important than ever, but I want to urge that we view the research university’s role not only in local development, and not only as part of the economic competition among regions, but also as part of global problem solving.

What is new today is the nature of our problems, the organisational imperatives that they imply, the uniqueness of the university to meet them, and the global scale at which the university must operate. I will illustrate this briefly with initiatives taken at my own university, in the form of the Earth Institute at Columbia University.

Our problems today are global and centre more than ever on the challenge of sustainable development. Sustainable development signifies the practical goal of combining economic advancement, the end of extreme poverty, and the sustainable management of the earth’s ecosystems. At this point, only the first of these global goals is being significantly advanced, especially through the rapid economic progress of Asia. Yet extreme poverty in many parts of the world – and notably sub-Saharan Africa, is expanding, not contracting. Extreme poverty creates devastation in the impoverished regions themselves, with millions of excess deaths each year, and crosses borders as well in the forms of mass migration, environmental destruction, disease transmission, conflict, and violence. Also, the global environmental impact of human activity has reached a point that threatens global progress, and perhaps even peace and stability.
The human impacts are profound, complex, and far-reaching: climate change, water pollution, species extinction, habitat destruction, massive nitrogen deposition, invasive species, and new and re-emerging zoonotic diseases, just to name a few of the environmental problems operating on a global scale.

The challenge of sustainable development is unprecedented because of the scale, intensity, nature of threats, interactions with basic human systems (for food, energy, and transport) and scientific complexity. Many of the key interactions and threats are only dimly perceived. That was true of the ozone depletion effect of CFCs until several scientists pieced together the atmospheric chemistry of CFCs. The complexity of the climate change challenge is second to none. The challenge is global; involves core economic systems of the world economy; is profoundly destabilising; and is quantitatively uncertain both in basic climatology and the future effects on human society and ecosystem performance.

It is incumbent – in my view – on this generation to take on the challenge of making a viable global community, one that enables the poor to escape from poverty, enables all parts of the world to enjoy prosperity and enables us to do it in a way which is ecologically sustainable. We have established important global objectives such as the Millennium Development Goals or the United Nations Framework Convention on Climate Change, yet we are not achieving those goals. There are approximately one to one-and-a-half billion people living in extreme poverty who struggle to survive every single day. At the same time, the economic system does not function properly on a global scale and our current financial crisis is yet another example of how financial contagion can spread. This also reflects our failure, I believe, to create global institutions that are up to the task of a truly globalised society. I think perhaps the biggest challenge that we face is the environmental one. If we overheat the planet with greenhouse gas emissions; destroy the remaining rainforests and biodiversity; acidify the oceans; deplete the ground water; render the soils unmanageable for food production; leave significant regions of the world bereft of the water that is needed to grow food because of changing precipitation, glacier disappearance and so on, we will create calamities that are far larger than the very serious economic crisis that we face today.

“The challenge of sustainable development is unprecedented because of the scale, intensity, nature of threats, interactions with basic human systems and scientific complexity.”

Jeffrey D. Sachs
The research university has a unique role in helping global society to face the challenges of sustainable development. There are at least five reasons.

First, long-term solutions will be based on science and technology from a mix of disciplines, and a great university is one of the only places in the world where a range of expertise can be mobilised. The collection of vital scientific disciplines must play a role in an integrated approach: climatology, seismology, conservation biology, ecology, civil engineering, hydrology, agronomy, public health, medicine, economics, political science, management, education, and law just to name some of the key fields.

Second, universities have the characteristic of being unbiased and intellectually bold, which enables them to take on the big challenges. This supports a considerable degree of social trust.

Third, universities have a long-term perspective. Universities are one of the longest lasting institutions in our world society. As they operate on the scale of decades and centuries, this is very important for solving long-term problems.

Fourth, the integration of research, teaching, and outreach in the work of the university allows for an especially rapid feedback from research to demonstration, and from demonstration to training.
The final point is that the multi-generational overlap of the university leads to powerful teamwork across generations, from wise and experienced emeritus professors and alumni to incoming energetic and committed students. This is a feature that is especially important given the strengths of the student generation in information and communication technology and in their abiding concerns for sustainable development.

Nonetheless, despite the evident ability of the university to contribute to the solutions to sustainable development, there are also risks and weaknesses which must be faced. There is a belief in some academic circles that “applied” work on sustainable development is not sufficiently scientific or research oriented. However, I view this as a mistake going back to the contributions of James Watt or our land-grant universities. We need applied work in our universities. There is also the practical difficulty of working across intellectual disciplines. This might be greater for German universities because they are vertical in orientation, whereas we need horizontal linkages across the disciplines. Another difficulty is that sustainable development is underfunded due to the very nature of it being cross-cutting. Although each individual discipline has perhaps its own stream of funding, the integrated knowledge of sustainable development often is not included in cross-cutting financing. Finally, there are difficulties for research universities (and other major non-business organisations) to work at a global scale, with partnerships or branches in other parts of the world.

I am privileged at Columbia University to head the Earth Institute. It is a cross-disciplinary institution engaging the entire university on the challenges of sustainable development, in partnership with other academic centres. We have – working together – earth scientists, engineers, biological scientists, health scientists, policy scientists, the law school, architecture school, and business school, and the teacher’s college, to name just some of those that are involved. I believe the Earth Institute has been making important and pioneering contributions to this kind of cross-disciplinary university organisation and real-world problem solving. We have launched many initiatives to help integration across the academic departments. There are also new degree programmes that span the physical, social, and policy sciences, at the undergraduate, masters and PhD level. We have launched a new Master of Development Practice, which will start in September 2009. Initially there will be perhaps 10 to 20 universities around the world as partners in a new cross-disciplinary venture to teach at the Master’s level. Many of these universities are already engaged in a weekly global classroom where students around the world come together for class via the Internet, in real time. It is extremely exciting for our students to be part of a world classroom, to appreciate the global challenges that we face, and to compare notes at a global scale. We at the Earth Institute have also started a PhD in sustainable development that is committed to the same principles.

“We need horizontal linkages across the disciplines. Although each individual discipline has its own stream of funding, the integrated knowledge of sustainable development often is not included in cross-cutting financing.”

I believe that there are four grand global challenges in which the university should lead. First, the university should lead on revamping the global food supply for environmental sustainability (including clarification of the potentially important roles and risks of technologies such as genetic modification). Second, the university should work on the issue of the world’s global energy systems to eliminate carbon emissions and to achieve resource sustainability. Germany has been a leader in renewable energy resources and I commend your leadership and hope you continue and that your universities play a leading role. Third, we need to revamp the global transport system from within our own cities to intercontinental transport, in a sustainable way. Finally, the university should take the lead in addressing and designing approaches to end extreme poverty, through practical and science-based solutions.

Finally, we are working on the ground in Africa at the epicentre of extreme global poverty on a project we call the Millennium Village Project (MVP), which works in villages covering 500,000 people. It is a university initiative, teamed with the United Nations and with NGOs and the corporate sector. It focuses on agriculture, hydrology, local climatology, education, on new methods of off-grid energy, safe water and sanitation systems, and on Internet as well as mobile telephones. It is a university initiative because it is science and technology based, but it is directed at partnering with the poorest people in the world, and it is an area where we look for a university consortium around the world to join us in this kind of challenge.
I want to thank you for the opportunity to speak with you this evening. I commend you for your leadership and for taking on this critically important question of the role of great universities in helping to solve global problems. I know that German universities can and will play a major global role in this undertaking, and I look forward to an ever-closer partnership of the Earth Institute with many academic centres of excellence in Germany. With all of us, and with all of us together as part of an expanding global network of science-based problem solving on behalf of sustainable development.

Thank you very much.

“I look forward to an ever-closer partnership of the Earth Institute with many academic centres of excellence in Germany.”
Mr Haniel, ladies and gentlemen,

In his remarks about the global significance of education, Jeffrey Sachs seems to me to have been right on target, because he – at least to my understanding – referred to the duties that education and upbringing have toward society as a whole and not to the debate on who is the best in the competition among educational systems. Jeffrey Sachs therefore put general contemplations ahead of individual competitiveness. His main question was: how can we best solve the urgent global tasks we currently face? Not: which is the best university and how can we defeat the others? On the contrary: he encouraged international cooperation between various universities. That is what I believe was key in the speech we just heard.

In particular, Jeffrey Sachs pointed out how essential it is for education to be sustainable: In the context of successful educational policy, it does not suffice to educate young people at universities in order to improve our economy. It will be at least as critical to systematically advance the fight against poverty and to contribute to environmental conservation through research and development. And what universities have done so far and what has been achieved in this area will not suffice either. The virtue of the classical university in the Humboldtian sense according to Sachs and perhaps the greatest opportunity the university has today is that research takes place there on a long-term basis, as objectively as possible, and without too many partial interests of investors, for example. This and only this guarantees the universities’ permanent orientation toward the common good. These were Sachs’ key points: the long-term nature, the cross-generation nature, and interdisciplinarity.

The deficits he noted at American universities apply even more to us. Among others, the reason is that we continue to be very subject-oriented. Interdisciplinarity is not viewed as strictly academic by many of my colleagues. Accordingly, less money is available for inter-disciplinary research. I believe that the views Jeffrey Sachs put forward and to which I would like to subscribe without reservation casts a particularly damning light on the situation of our German universities. I would like to summarise this as follows:

First. In our German context, we simply do not have this interdisciplinary approach. We do not ask, “What can we do together to solve the problems of the world?” Rather, we take the approach, “How can we create achievement through competition and which subject is the best?” Everyone takes it for granted that competition must exist, but the precedence of this “Who is first, second, third, fourth in the ranking?” – that is something that in my opinion does not help us to better complete the actual tasks at hand, but which instead jeopardises them.

Second. The very funding of our research and our universities, even where it is done with public funds, is not primarily geared for longevity, is not primarily geared for this disinterest. The focus is on findings and applications that can be quickly achieved. That is a problem. Especially for subjects that are more oriented toward long-term and continuous progress. Research funding for the humanities and social sciences constitutes only a fraction of all research funding in Europe. The rest goes to the natural sciences. And I see this as a major deficit, as we also need sciences of reflection that help us to determine the foundations of our coexistence. To make this very clear: I have nothing against cooperation agreements with private businesses. As President of Viadrina University, I always encouraged them. But the prime objective on the necessarily shorter horizon of commercial interests, the prime objective even on this horizon is a great danger, because in so doing, we exclude fundamental questions from our field of vision from the outset.
"The strength of universities also lies in the fact that they can—and should—research and teach long-term, oriented to public welfare and in a multidisciplinary way."

Third. I am not of the opinion that all problems of university education in our country can be solved by five elite universities. This results in the centralisation of elite education and to the obliteration of the breadth previously unfamiliar to our country. Problems everywhere are of a local nature and must therefore be solved in a local manner, be it in Germany or in Europe. We need good doctors, good engineers, and good historians in Oldenburg, Flensburg, Passau, and Cottbus as well. In addition, however, it is a matter of fundamental questions.

It is not some philosophy of envy or the absolutisation of equality that underlies my consideration, but rather the realization of the imperative of striving to widely foster all talents. “Elite” thus means to me: not better than others, but rather as good as possible in comparison to one’s potential. With regard to individuals and to societies. This view is held too little in our country. In my opinion, however, it is the view that is most in line with democracy. And that does not mean that we cannot or should not produce top-level achievements. But what Jeffrey Sachs says about the motivation to achieve something, and what I find to be fantastic, is achievement through the urgency of the task at hand. Achievement not because I have to be the best. This maps out a programme that we should all take to heart.
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Professor Dr Ernst-Ludwig Winnacker
When I consider the subject of elite education, advanced research and innovation in connection with Germany or Europe, I cannot help but think of Charles Dickens, who at the beginning of his Tale of Two Cities wrote: "It was the best of times, it was the worst of times."

For many of us, the "best of times" would certainly include the three Nobel prizes awarded to European scholars this year. Yet another thought occurs to me in this context: the competition for where the administration of the new European Institute of Technology (EIT) shall be based. Five cities and regions applied for this distinction: Vienna/Bratislava, Jena, Wrocław (formerly 'Breslau' in German), Budapest, and Sant Cugat des Valles, a small but up-and-coming suburb of Barcelona. All five were invited to Brussels to give a presentation. The best presentation was without a doubt Jena's. The governor of Thuringia, the rector of the university, the CEO of Jenoptik, the mayor of Jena, and even the Federal Minister of Education and Research, Dr Annette Schavan, all came to Brussels for this event. In their presentation, they showed examples of the entire innovation process in a manner that could not have been any more professional. Hats off to them! The people of Jena have apparently realised how important close networking of a region's institutions for conducting and applying research can be to its academic and commercial success. The fact that Jena has the perfect pair of historical role models, Carl Zeiss and Ernst Abbé, gave the presentation added impetus. And the fact that Budapest won in the end had little to do with their presentation and much to do with political goals, which in this case clearly gave preference to the new member states. Jena's phenomenal performance remains unforgettable.

Among the "worst times" is the latest ranking in the Times Higher Education Supplement in which German universities have again placed very poorly, even worse than before, and that English, Dutch, and Swiss universities remain at the top of the list. One can ponder the sense and senselessness of these rankings as one will. Ultimately, the results for Germany point to a lack of international awareness.

Incidentally, we have made similar observations concerning the European Research Council. The ERC is a new funding instrument of the European Commission that supports researchers in all fields of pure research. The key factor is academic quality, with no attention to regions, nationalities, or particular topical focuses. To guarantee and monitor this, an academic council was set up that is comprised of 22 high-ranking scholars. Even the number 22 is an agenda, because it is not 27, which could be misinterpreted as entitling each member state to one member of the council.

This academic council developed two funding instruments: so-called "starting grants" for scholars who completed their Ph.D.s no fewer than three and no more than eight years ago, and so-called "advanced grants" for researchers in the later phases of their careers. Now that we have completed two rounds of requests for proposals, in which approximately one billion euros were distributed to about 600 of nearly 11,000 applicants, we have learned a great deal – especially the fact that there are always winners and losers. Hardly anyone wanted to work in the new member states, referring to Poland, the Baltic States, the Czech Republic, or Slovakia. Many more applications were submitted for Great Britain, the Netherlands, Switzerland, and Israel. Germany and France, the two most central member states, were somewhere in between.

To give you a better impression of what I mean: Of the advanced grants, 26 went to Switzerland and only 25 to its much larger neighbor Germany. As a result, this is not much different to that of the international rankings.

Even – or perhaps precisely – as someone who is responsible for Europe, I wonder why it is that the largest member state does so poorly in this area, especially because it only recently completed its "Excellence Initiative" in the field of education. On the one hand, a great deal of blood, sweat, and tears went into the Excellence Initiative. The scientific community truly worked hard for 1.9 billion euros: it left no stone unturned and found new constellations for cooperation that hardly anyone found possible before. On the other hand, such a large pot of money also has the same effects as a drug. There are the symptoms of withdrawal, such as that many people do not wish to see another application form for quite some time. And then there is the popular misconception that simply because a special committee of the Academic Council labelled an institution as excellent, it must already be excellent. Hubert Markl spoke in this context of "excellence rhetoric" or even "excellence ebriety" that has afflicted some people in the nation and holds them in its grip.

Yet how should we in Germany and of course in Europe proceed? How can we achieve greater visibility on an international level? Do we truly want to reach the highest ranks as is the ambition of those in politics, and if so, how? Have we perhaps already attained our goal and not even realised it? Does the right answer to these questions then also determine whether or not the Excellence Initiative will be repeated or perhaps modified in the future?
Excellence in education, also including tertiary education, requires two things: it requires money, and it requires appropriate structures. Let us begin with money. No question: German universities are and will continue to be underfinanced – some more, some less. The Technical University of Munich spends approximately 15,000 euros per student per year, the ETH Zurich 45,000. The Free State of Bavaria’s budget for the TU Munich, which totalled 390 million euros in 2006, would thus have to be tripled to about 1.2 billion euros per year. Such huge sums immediately pose the question how many such institutions a country like Germany can afford to finance with public funds. The excellence rhetoric that currently prevails here suggests that all of them could receive such funding. The Excellence Initiative alone identified nine excellent universities. Yet things are different in reality. In order to create excellent universities, one needs excellent scholars. This resource is not unlimited, and it most certainly cannot be created with money alone. Alternative methods, such as the Nuremberg Funnel, have not been able to change considerably the share of people with high or genius-level IQs either – neither in the past, nor today.

Moreover, we must not forget that Germany decided to transfer substantial resources for research to non-university research. If the Max Planck Society, with whose predecessor this all began, were to be counted as a university, meaning as a kind of university displaced from space, it would have long since been among the top institutions in international rankings.

But not only that: of the three Nobel prize winners in the past two years, two were from institutes of the Helmholtz Society. Does the Jülich Research Centre, the workplace of last year’s Nobel prize winner in physics, Dr Peter Grünberg, not resemble a graduate studies university with its 360 million euros budget (close to that of the TU Munich) and its nearly 1,300 scholars, of whom around 400 are Ph.D. candidates? It is not considered to be one in international rankings, however. This conscious decision for non-university research must not be forgotten when we speak of the quality of research in Germany.

“Excellence in education, also including tertiary education, requires two things: it requires money, and it requires appropriate structures.”
Interestingly, France is a similar case, where the CNRS plays a similar role in research as the Max Planck Society does in Germany. In terms of “advanced grants” from the ERC, for example, the EPUL (or ETH) Lausanne is in first place with ten successful applicants, but immediately following it is the CNRS with nine candidates.

Essentially, the coexistence of non-university and university research is not harmful, as long as cooperation between the two is as close as possible. The German Research Foundation has very successfully aided in this for many decades by way of its special research areas. The institutes of the CNRS are for the most part located at and integrated in French university institutions. The fact that this form of cooperation between those involved is often seen as insufficient leads to my second point: higher education and research structures. Why these are better or more successful outside of Germany and France has to do with a lack of competition, in my opinion.

By this, I mean competition for people or talent, competition for the optimal integration of a research institution into an entire region, and competition for internal structures that are adapted to the needs of modern academe. Universities produce talented people and attract talented people. Europe has recognised this fact and created model, not to say wonderful, programmes that allow people to study wherever they see fit. The area of mobility of professors, unfortunately, has seen much less success. The social security funds in so many different countries allow for the transfer of accrued pension benefits only in the rarest of cases. Therefore, nothing is more difficult than for higher education instructors to go back and forth between Germany and France or other countries. It is thus no wonder that the percentage of foreign instructors at German universities is barely three per cent. The Max Planck Society, on the other hand, shows that things can be done differently: of their 260 or so directors, 30 per cent are from abroad — of course, they also have much more money at their disposal with which to recruit them.

German universities even face obstacles to mobility within Germany. On the one hand, many reforms to federalism have taken place to increase the level of competition between the German Länder. At the same time, however, universities have little wiggle room to pay lecturers different amounts. It is of course understandable that states such as Brandenburg and Schleswig-Holstein are concerned whether they would still be able to attract any lecturers in an all-out play of forces. Wouldn’t more prosperous states like North Rhine-Westphalia, Baden-Württemberg, and Bavaria be able to lure the lecturers they wanted with higher salaries? That is certainly true. For one thing, however, the discussion of envy that effused from the resentment of the elite in the 1968 era should by now have finally become obsolete, as we can observe much greater differences in pay in sports and the fine arts than could ever exist in tertiary education. For another, this lack of competition impedes the poorer German states — or perhaps the system itself — from thinking creatively and creating other incentives besides the mammon of unrighteousness.
Universities belong at the centre of society. From historical tradition, we know that they are at their best when they become the boiling or freezing points of society.

Lifelong learning is something universities should provide as well – they should not simply leave it up to others because they feel they are too good for such tasks.

Universities belong at the centre of society. From historical tradition, we know that they are at their best when they become the boiling or freezing points of society. One of many things the American sociologist and economist Richard Florida showed is how such developments can contribute to the education of a whole creative class that includes not only scholars and engineers but also artists, musicians, poets, and many other people involved in culture and the arts. One thing leads to another in this context. Examples can be found in the US in the regions surrounding Boston, Seattle, and other university towns.

Ultimately, a university must not only be oriented toward the outside world, but it must also be set up internally in the proper way. The question is: what are the right structures for facing the challenges of modern academic research? Modern academic research deals with so-called complex systems, systems that represent more than the sum of their parts. Such systems are emergent, meaning they exhibit features that cannot be predicted based on the nature of their individual components. Let us take the human brain as an example. Today, we are familiar with the properties of individual nerve cells in great detail. Yet no one truly understands how it is possible for a highly interwoven system of 100 billion nerve cells to develop consciousness, memory, or language, which we consider to be the highest cognitive capacities of the human brain.

The human genome is similarly complex, as is the ever-expanding universe, the system of the earth with its earthquakes and volcanic eruptions, and even financial markets. The past few weeks in particular have shown us more plainly than ever just how emergent such systems truly are. I do not know whether the new domain of neuroeconomics could have helped us better answer these questions. Yet there is no doubt that complexity must be taught, and that it requires new structures that go far beyond classic departmental structures. It is clear that students must receive a very fundamental education – more so now than ever. But the basics of thermodynamics can be explained just as well examining the folding of a protein molecule as they can using a steam engine, which has served as the primary example in this lesson for the past two hundred years. To do so, however, would require a professor of physical chemistry to incorporate biochemical material into his or her lesson, and vice versa. There are universities in Germany and Europe that have adapted to these developments, or that masterminded them even, but these are too few and far between. These are first and foremost the ones that work with junior scientists and thus offer them career prospects. The Excellence Initiative played an exemplary role in this field with its cluster initiative. Many of these clusters create new administrative frameworks that cause old higher education structures to fall into obsolescence. Deans of conventional departments must suddenly work with cluster spokespersons who have a great deal more money and staff members than they themselves do. That is a good thing.

Europe must rise to an even more exceptional challenge in this context; namely, the vast differences in the support of research and development. The European average is 1.8 per cent of gross domestic product, though the trend is downward. Yet this average has a margin of deviation of a factor of ten or more. The funding of research and development ranges from 0.2 per cent in Malta and Greece to 0.8 per cent in Poland, 0.9 per cent in Italy, 2.5 per cent in Germany, and 4.4 per cent in Finland. The situation in the third generation of accession states is downright catastrophic after half a century of failed economic policies. Although there are a few rare cases of excellence, it is essential for these countries to do the most basic of homework first. As second-generation EU member states, Ireland and Spain have shown how it is possible to use structural funds not only for freeway projects but, by way of clever techniques, for the expansion of research infrastructure as well.
We can only hope that the most recent accession countries will take this as an example. They had the great opportunity to skip over the phase of reconstructing classic universities and immediately begin building on new developments in the world of academe.

Ladies and gentlemen, let us now return to our own situation: what else must be done on the path toward having leading universities? For one thing, the federal level and the German Länder could agree to develop the Max Planck Society and one or two additional universities into leading universities by way of targeted funding measures. This will take many years, but it could be worth the effort. Alternatively, we could increase the so-called research premium from its current rate of 20 per cent for DFG projects to 80 per cent or even 100 per cent. In numbers, that would mean that the TU Munich, for example, whose scholars currently receive around 130 million euros from the DFG, would see an additional 100 to 130 million euros per year. Nationwide, this would be equal to the entire yearly budget of the DFG, so approximately 2 billion euros per year. This money would be distributed based on output and would thus reach those who deserve it because of their achievements.

It would be an important step that would not only benefit the topmost few but also many across the board. At the end, a quality-based pyramid of research aid would emerge, the top of which could even be seen from abroad.

The Tale of Two Cities by Charles Dickens, which I quoted at the beginning, takes place in London and Paris at the time of the French Revolution:

It was the best of times, it was the worst of times, it was the age of wisdom, it was the age of foolishness, it was the epoch of belief, it was the epoch of incredulity, it was the season of light, it was the season of darkness, it was the spring of hope, it was the winter of despair, […]

We in Germany and Europe should allow ourselves to catch the spirit of this spring of hope. The foundations of tertiary education are good, the diagnosis is common knowledge, and so is the treatment. Why not simply tackle the problem? As a well-known politician recently said: Yes, we can!
Professor Jeffrey D. Sachs, Ph.D. was born in 1954 in Detroit, Michigan. He attended Harvard University for his undergraduate, graduate, and Ph.D. degrees, and stayed on to work there for more than 20 years. From 1995 to 2002, he served as Director of the Harvard Institute for International Development.

Since then, Sachs has been Director of the Earth Institute, Quetelet Professor of sustainable development, and Professor of Health Policy and Management at Columbia University. In addition, he is Special Advisor to United Nations Secretary-General Ban Ki-moon and was Director of the UN Millennium Project. He is also President and Co-founder of the Millennium Promise Alliance, a non-profit organisation dedicated to ending extreme poverty. Since the 1980s, Jeffrey Sachs has served as an advisor to a number of governments including Poland and the former Soviet Union and has assisted various UN institutions.

Professor Dr Dr h. c. Gesine Schwan was born in Berlin in 1943. She studied Romance studies, history, philosophy, and political science at the Free University of Berlin and the University of Freiburg. She earned her Ph.D. in 1970 and her habilitation in 1974, both at the FU Berlin.

From 1977 to 1999, she researched and taught courses as a full Professor of Political Science at the Otto Suhr Institute for Political Science at the Free University of Berlin. She has also taught in Washington, Cambridge, and New York. From 1999 to the autumn of 2008, she was President of the Europa-Viadrina University in Frankfurt an der Oder and has since been a Professor of Political Science at the Humboldt-Viadrina School of Governance (HVSG). She was the SPD and Green Party/Bündnis 90 candidate for the office of the Federal President in 2004 and lost a very close election. In 2008, she was again nominated by the SPD for this office. She has been the Coordinator of the Federal Government for Civil Social Cooperation in the German-Poland border region since January 2005. Prof. Schwan is also a member of the Board of Trustees of the Haniel Foundation.

Professor Dr Ernst-Ludwig Winnacker was born on July 26, 1941, in Frankfurt am Main. After studying chemistry at the Swiss Federal Institute of Technology (ETH Zurich), he earned his Ph.D. there in 1968 in the field of organic chemistry. After two years as a post-doctoral researcher at Berkeley and the Karolinska Institute in Stockholm, he earned his habilitation in genetics at the University of Cologne.

Winnacker has been a Professor of Biochemistry at the University of Munich since 1980. In 1984, he founded the Gene Center of the University of Munich, of which he was the director until the end of 1997. From 1984 to 1987, he served as a member of the Bundestag Study Commission “Opportunities and Risks of Genetic Engineering”. He was Vice President of the German Research Foundation (DFG) from 1987 to 1993 and served as its president from 1998 to 2006. Ernst-Ludwig Winnacker has been Secretary-General of the newly created European Research Council since January 2007.
About the presenters
**Professor James A. Cooney, Ph. D.** was born in 1947 in New York. He studied in Austria, Germany, and the US and received his Ph. D. in political science from Massachusetts Institute of Technology (MIT).

Jim Cooney is the Vice Provost for International Affairs at Colorado State University. He also serves as Director of the Office of International Programs. He worked at Harvard University for 24 years as Executive Director of the Weatherhead Center for International Affairs and earlier as Dean for International Programs at the Harvard Kennedy School of Government. While at the Kennedy School at Harvard, he developed the McCloy Scholarship Program and extended the ideas behind this programme to other countries. Professor Cooney served on the AFS Intercultural Learning Board of Trustees, including two years as chairman of the board. He is a member of the international Board of Directors of "NAFSA: The International Educators Association." In 2003, he received the Officer’s Cross of the Order of Merit of the Federal Republic of Germany for his contributions to German-American relations. James Cooney has authored five books on US-European relations.

**Professor Dr Dietmar Herz** was born in Schwabniederhofen (Upper Bavaria) in 1958. He studied political science, law, philosophy, and history at the Ludwig-Maximilians-University in Munich (LMU) and at the London School of Economics. He earned his Ph. D. in 1991 and his habilitation in 1996, both at the LMU. He holds an MPA degree from the John F. Kennedy School of Government at Harvard University, where he was a McCloy Scholar from 1987 to 1989.

From 1997 to 2000, Dietmar Herz served as Professor for Political Science at the University of Bonn. In 2000, he moved as professor to the newly founded University of Erfurt. From 2001 to 2004, Professor Herz was Vice President for Studies and Teaching at the University of Erfurt. From 2001 to 2004, he served as the University of Erfurt’s Vice President for International Affairs and Research. After guest professorships in Israel and the US, he held a guest professorship at the Universidade de São Paulo in 2007. Professor Herz is Director of the Erfurt School of Public Policy, which he founded as the first German school of public policy in 2001. He holds the Chair of Comparative Government at the University of Erfurt. Since 2005, Professor Herz has also served as lecturer for the “attaché training” of the Federal Foreign Office.
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