Opening Address of Prof. Helga Nowotny
President of the European Research Council

European Research Council fifth anniversary,
Brussels, 29 February 2012

CHECK AGAINST DELIVERY

Distinguished guests, Ladies and Gentlemen, Colleagues,

It is a great pleasure to be able to stand here today in front of so many distinguished guests at the fifth anniversary celebrations of the European Research Council.

In particular, I would like to welcome in our midst the former founding members of the ERC Scientific Council and extend an especially warm welcome to my predecessor as ERC President, Fotis Kafatos, whom I had the honour to succeed in March 2010.

Over the course of this event we will hear more about the genesis of the ERC and its achievements. We will discuss the role of excellence in the global scientific landscape. And most importantly, we will hear from some of the talented and inspirational scientists who the ERC has been able to support so far.

The ERC has undeniably become a success story within a very short period of time. But what I want to emphasize today, more than the past achievements, is the vision that continues to guide us towards the future. We are only at the start of something much bigger and I will attempt to outline that the ERC can, and hopefully will, still go much further.

Permit me, however, a brief glance back.

The ERC's Scientific Council met first in October 2005. On 27 February 2007 the ERC was officially inaugurated under the German EU presidency in Berlin with encouraging speeches by Chancellor Merkel and, among other, Elias Zerhouni as President of NIH. I dare say that none of us imagined then how many of the objectives articulated by our well-wishers have been attained since.

You will hear more about the road to success – and about some of the formidable roadblocks we encountered – by those deeply involved: Ernst-Ludwig Winnacker and William Cannell, an impressive duo on the scientific and administrative front, and later Jack Metthey who was an excellent pilot when the going got rough.

In my view there were three preconditions which fortuitously converged at the right time and in the right way to enable the ERC to take off to such a good start.

First, the political: the ERC filled a policy void at EU level for what we call „frontier research". Its recognition came at a critical moment when it was clear that basic research at European universities was underperforming, due to underfunding, being below critical mass or both, in order to compete in a rapidly changing global scientific landscape. Industry and business would turn to the knowledge, know-how and the best trained graduates they needed wherever they were around the globe and major new players started to move rapidly ahead in the production of new knowledge.

Second, the scientific: the radical policy shift from funding basic research at the level of Member States towards funding frontier research at EU level could only succeed by setting up a genuine international competition with an exclusive focus on the brightest and most talented individual researchers. We give generous, long-term funding to our Principal Investigators to set up their own teams and ensure that they have the independence to use it themselves. We do not set any thematic priorities. And we include the social sciences and humanities in the tradition of the 19th century German term of „Wissenschaft".

Scientifically speaking, the only way to find and fund the best researchers was on the principle of „excellence only".

Third, the cultural: to build a genuine European scientific culture of excellence. Culture, like ideas, is not to be contained. It spreads to far away places. It is emulated. It transforms in unexpected ways. Thus, the ERC is setting new standards in evaluation. The reputational gains that come with an ERC grant have introduced competition between European universities and initiated changes within. A European scientific culture of excellence inspires young and talented researchers to circumvent academic hierarchies and to insist that they have a future in Europe.

Thus, seizing a unique political opportunity, transforming it into a robust scientific strategy and linking it with a cultural vision beyond the immediate necessities of running a new programme, were the three most important ingredients for success.

As always, people matter and we were extremely fortunate to receive support from many individuals in crucial moments: from inside the Commission and from outside, from Member States and from the European Parliament, from the scientific community and from the media all over Europe. Thank you all.

Funding frontier research based on ‚excellence only' comes with an in-built tension. This is not unique to the ERC. There has always been an inherent tension between the demands of policy-makers for practical innovation, seen as the undisputed motor of productivity and economic growth, and the deeply-rooted interests of scientists in curiosity-driven research.

Mutual expectations and the politics of anticipations shape legitimate demands on both sides. The tension is heightened in times of economic crisis and when facing unprecedented societal challenges and increasing competition for global resources.

How to resolve this tension?

One answer is to target resources. To plan. To coordinate. To organise committees and high level expert groups. To look to strategic sectors. To put science to work on the most pressing problems. It all looks so easy, so obvious.

But frontier science does not work like this. We cannot programme scientific breakthroughs or order them as if from a menu.

We simply do not know what we do not know. We cannot foresee the consequences of what we discover. Trying to understand the physical world and ourselves gives us the power to intervene and to transform it. It confronts us with the fact that these worlds with all their problems are largely of our own making. And that we have some means to tackle them.

This was already known to Francis Bacon and to all of the great thinkers of the European Enlightenment. They insisted that only the persistent and systematic inquiry of the unknown natural and human world would lead to human betterment.

For the members of the Royal Society in the 17th century it was obvious that scientific discoveries of such esoteric phenomena as magnetism, optics, universal gravitation and the motion of heavenly bodies would lead to practical use in instrumentation in watches and engines, indispensible for carrying out trade on land and across the oceans.

Today, we have incontrovertible evidence and numerous examples from the history of modern science and technology that the unfettered pursuit of new knowledge leads to beneficial outcomes for the public and private good. I regret that for lack of time I cannot even start to enumerate some of them.

In 1939, Abraham Flexner wrote a famous manifesto with the title „The usefulness of useless knowledge“. It was the blueprint for establishing the IAS in Princeton, later home to Einstein, Gödel and many others.

Today, we are surrounded with countless applications, found in electronic devices that have radically altered the way we access, process and produce information, pass through cyberspace and interact with people anywhere around the globe.

Nobody asked for this. But these technologies meet deep human needs. They have seen the creation of multi-billion euro companies from nothing. They have changed the way we work forever. And we are only beginning to see the effects of these technologies. There is much more to come, as David Deutsch recently argued in his book „The Beginning of Infinity“.

But behind the hand-held apps, the iphones and ipads, the GPS and many other technologies, including ways how once fatal diseases have been transformed into chronical illness – behind all these amazing transformations of the way we live and how long we live - is frontier research.

All radical innovations, the radical scientific and technological breakthroughs that lead to a paradigm change in the way our societies and their economy function, are without exception science-based.

Incremental innovation continues to play an important part in increasing efficiency, productivity and well-being. But let us not forget: had we continued to improve candle-light, we never would have gotten electricity. And to continue to improve electricity most probably would *not* have led to the first laser built in 1960. Theodore Maiman, the American physicist and engineer, happily admitted that he had no idea what it might be useful for when he called a laser “a solution seeking a problem”.

Therefore, our message to policy-makers is loud and clear:
Do trust us when we speak of the usefulness of useless knowledge.

For behind its apparent uselessness is the cunning of Reason: the uses to which ideas are to be put, have yet to emerge. They have to find a specific material or immaterial form. They must become embedded in already existing systems, structures and practices or carve out for themselves a new space to occupy.

We know that it takes on average 15 years or more to move an idea to market. The process of translation takes time. Usefulness has first to find its users and its uses. It involves many social processes and negotiations with different social actors that take time to converge. It needs venture capital and a conducive regulatory environment to guide the many, risky steps so familiar to every innovator.

To transform a discovery or invention into a useful innovation therefore requires a long-term perspective. No short-cuts exist, which should not prevent us from attempting to shorten the time lag.

But it is also patently clear: without lead ideas in the pipeline, the flow of innovation will dry up. Without investment into basic research, there will be no translation, no use, no innovation and no knowledge to be applied.

But all accumulated evidence and arguments for resolving the inherent tension between policy-makers and scientists will not suffice if they fail to take one more, crucial step into account: to make sure that the right kind of environment is there to take up fertile ideas and put them to beneficial use.

We need to create creative environments.

Obviously, this cannot be done by the ERC or any other funding agency alone. It can only be achieved by working together and the European Research Area provides the framework. The challenge is enormous. But Europe is capable of it. Europe needs to do it.

And Europe has a responsibility, both towards the next generation of its younger researchers and towards its citizens. In the end, science is part of society and society speaks back to science.

Undoubtedly, some of these creative environments already exist. We can name them. If 50 % of all ERC grants go to 50 institutions across Europe, it is obvious that they are extremely attractive to some of the best researchers.

But what about the other 430 institutions? How to create creative environments among some of them? (Note: one of the reasons for the research advantage of US universities is the concentration of research funding on less than one-tenth of degree-giving institutions).

Attempting to imitate the most successful institutions will not lead very far. Path dependency is strong not only for technological innovations, but also for institutions.

Obviously, every creative environment has to meet some minimal requirements: it must be sufficiently financed, provide an attractive research infrastructure and a congenial atmosphere. It has a governance structure with flat hierarchies and a genuine, international openness.

But in science as in life, variation and selection are important driving forces in the dynamics of evolution. Without variety, we would all end up in the mainstream (and as a Chinese proverb says, only dead fish swim in the mainstream). Therefore, room must be given to encourage variety and special niches for creativity to spring up in unexpected places.

Today, a creative environment is part of a larger scientific and technological innovation eco-system.

What a creative environment does above all is to foster permeability: between and across disciplines, between and across institutions, and between people with different experience, skills and knowledge. It has the potential and the ambition to become a breeding ground for new ideas and to take new ideas and develop them further for use.

I would like to think that Europe as a whole, this complex, yet fertile „mess" that Europe is today, can be turned into a creative environment. Paradoxically, it needs more permeability inside if it is to become a stronger whole in the outside world.

I just returned from a trip to Asia and New Zealand. The image of Europe, as reported in the media and among my otherwise well-informed interlocutors, is dismal. Europe is seen as falling apart in the midst of an economic crisis that inevitably is also a political crisis. Seen from the outside, Europe does not appear to have much of a future.

I reassured my discussion partners that Europe has the political will and farsightedness to invest in research and education, especially in times of crisis. I informed them about the ERC strategy of going global by inviting the best and brightest from non-ERA countries to see for themselves and come to work in Europe.

I emphasized that Europe has a positive agenda and that creating creative environments is part of it.

Science is a public and collective good. In economics, a public good is a non-rival and non-exclusionary good, meaning it does not subtract but add by sharing. Public knowledge cannot be contained and isolated. Ideas percolate and diffuse in all possible ways and directions.

For innovation this means that the river of new knowledge and ideas does not know its source. Investment at one level cannot necessarily be allocated to returns at the same level. This is why it is important to cultivate the capacity to recognize, absorb and utilize new ideas, regardless of where they were originally produced.

With its 2,500 grantees funded to date and rising numbers, the ERC is generating an impressive amount of new discoveries, knowledge and ideas. It has set an example of how it can be done - for Europe as a whole.

ERC grantees are our best ambassadors. Listening to them, you will quickly discover that it does not matter where they come from or where they are now, but who they are and what they have to say.

I once called innovation a bet on our collective future. It rides its own waves of creative destruction, but we must make sure that the creative aspect prevails for the benefit of European citizens.

The European Enlightenment and what economic historian Joel Mokyr calls the Industrial Enlightenment, were premised on a bold vision and the belief that only a systematic inquiry into the natural and human world would provide the basis for the betterment of the human condition. Then as now, courage was needed to sustain this core belief, as results do not always come as rapidly as we wish for.

So my sincere hope is that the ERC will be given time and the support necessary to play its part in fulfilling these ambitions. And I hope that you understand that this ambition is not just for our grantees. Nor for the institutions where they are based.

But for all of us.

Thank you.
