

WUN Presidents Forum 2016
Open Doors: European Opportunities in Research & Education
Thursday, 7 April 2016

Keynote speech¹ by Jean-Pierre BOURGUIGNON, President of the European Research Council

I am very pleased to have the opportunity to speak at this event today. So thank you for the invitation.

This meeting is taking place during very challenging times for Europe and for the world. As you can imagine, this is particularly felt here in Brussels after the recent brutal and blind terrorist attacks. The reaction of some when faced with the terrible events of recent days and months is to respond to hate with hate, to build walls and barriers between people. But we must resist this reaction because it is precisely what the terrorists aim for.

That is why organisations such as yours, the World Universities Network, are important. By bringing together institutions from five continents to address global issues you demonstrate the value of working together and put cooperation at the heart of your action. To me it is vital to carry on encouraging and supporting such exchanges, and to claim that this is the way to go against all odds.

Science, which has been and is my life, is a collective, public and international endeavour. New ideas have always spread rapidly. And these days discoveries made anywhere are available almost instantly to the global scientific community. In 2013, over 35% of articles with an EU author were co-publications involving international partners. The top research institutions benchmark themselves at the global level. National and European policymakers therefore need to maximise the ability of their scientific communities to take part in and contribute to this overall enterprise. There is no such thing as national or European science.

In today's event you will hear about the many exciting opportunities in Europe available to colleagues from around the world. Commissioner Moedas in charge of Research, Science and Innovation in the European Commission has made "Open to the World" one of its top priorities. The European Research Council (ERC) of which I am proud to be President has also adopted it as one of its mottos.

I would like to describe briefly the opportunities offered by the ERC.

The ERC is a relatively new body set up only in 2007 after a long struggle by the scientific community. It took a new treaty, the Lisbon Treaty, to make research a shared responsibility of the European Union, making it possible for the European Commission to set up a programme such as ERC with the critical support of some political leaders, such as Mariano Gago and Philippe Busquin, but also from people within the Commission such as Robert-Jan Smits, the present Director General in charge of Research, then in charge of developing new programmes.

¹ My thanks go to Benjamin TURNER for his help in preparing the speech.

The ERC is unique at the European level in two ways. Firstly, the ERC has a simple mission: to provide substantial, long-term funding to researchers with ambitious ideas to carry out their work while they are based at a European institution with a strong priority for young researchers. Secondly, its Scientific Council has the full responsibility to allocate the annual budget, for 2016 1.7 billion Euros, i.e. nearly 2 billions \$, and to set up the format of the programme, as well as to organise the scientific evaluation of proposals.

Awards are granted solely according to scientific quality with no predetermined priorities, targets or quotas. The level of competition guarantees excellence. Stimulating researchers to explore their own ideas at the frontiers of knowledge is proven to be the best way to generate radical breakthroughs. We need them.

The 5-year time frame chosen by ERC researchers gives me the opportunity to stress how important it is to have the time and freedom to explore new knowledge.

The public often, and too often also policy makers, do not understand how science actually develops. People believe that, if we put enough resources into a problem, then we can solve it. Maybe they have in mind something like the Manhattan or Apollo Projects of the middle of the last century. These were amazing feats with the Manhattan Project growing to employ more than 130,000 people at more than 30 sites across the United States, the United Kingdom and Canada. And in both cases the goal was successfully reached.

But these examples do not offer a general model for how science could contribute to changing the world. On the surface it might appear that curing cancer or tackling climate change might be amenable to a similar approach with an a priori chosen strategy. However, this resemblance is purely superficial. In both the cases of the Manhattan and Apollo projects there was a very tightly defined task, and, just as importantly, scientists had already understood the underlying physics in the decades before the projects began.

If one takes the case of a major disease like cancer, we know that we have only a limited understanding of the full complexity of the processes involving abnormal proliferation of cells. We are only now beginning to achieve this understanding fifty years after the launch of a “war on cancer”. We could make similar observations about tackling climate change and many other grand challenges.

And we must remember that the most important scientific results of all often come about when scientists are not looking to solve any particular societal or technological problem. Look how CRISPR, this totally new approach to genetic engineering, has been appearing: it was first spotted by a team of Japanese scientists in 1987 with no clue what it could be good for. Jennifer Doudna, one of the key discoverers of its possible extraordinary uses, considered this because it looked like “cool” chemistry.

This shows clearly that, sometimes, an unexpected discovery or a new approach or theory appears that changes the framework completely. It is here that we see the difference between incremental work and true breakthroughs. If you increase the magnification of your microscope by ten percent, then of course you will see something that others could not see. But true breakthroughs like

general relativity, quantum physics or the unravelling of the DNA change the whole framework in which everybody is operating. The wider community then comes to realise that this new discovery, or finding, or approach, is in fact extremely important. It needs to be discussed, analysed, reproduced and explored further. As fundamental part of their activities, researchers develop new concepts and create the groundwork for new research in the future.

This approach is sometimes seen as idealistic. But to me it is not, and actually a question of true efficiency. So it is very important to help the public and policy makers, among which politicians, understand that a significant part of research should be organised using the bottom-up approach. In many countries, more and more researchers are concerned about a decline in resources devoted to basic research. So my plea is that, even at a time when cuts are being made, we as scientists should make sure that a minimum level of funding goes to bottom-up, basic research. It is very simple. If you do not give researchers enough freedom, you are curtailing the possibility of unexpected developments, which are vital for the future.

The WUN also supports researcher mobility. And even now when ideas travel at the speed of the internet the circulation of people still remains highly relevant. That is because much of the knowledge needed to be a successful researcher is tacit. It cannot simply be read. It must be practised, and experienced through human exchanges. This kind of knowledge comes from trying out new methods, techniques and approaches directly. It comes from observing, discussing and working closely with leading experts from one's own field and others on a daily basis. There are therefore real advantages to be gained from researchers spending time physically located in another team, in another institution, or in another country.

And the ERC is open to researchers from anywhere in the world. ERC grantees are required to spend only 50% of their time in Europe. Dual affiliations are possible. Team members can also be based outside Europe. And additional funding of up to one million euros is available to cover 'start-up' costs for scientists moving to Europe.

Overall, around 8% of ERC-funded researchers are nationals from outside the European Research Area (the EU and the countries associated to the EU research programmes). And 25% of the team members working on ERC projects, mostly post-docs and PhDs, were originally from outside Europe.

Out of the 18 universities in the WUN, eight are based in Europe and all of them host ERC grantees. Altogether since 2007, researchers based at these universities have received 141 frontier research grants, and also 6 Proof of Concept Grants, set up to help develop the connection with markets and societal challenges. This is a very significant achievement given the high level of competition to receive our grants, and shows the quality of the researchers available to your network.

I know that you still have a busy schedule ahead of you. You will hear a lot more about other research opportunities. I can only urge you to continue your great work to support scientific and educational collaborations and to foster the next generation of researchers. The world needs initiatives like yours now more than ever!