



Economic divide taking toll on European science

The Horizon 2020 programme threatens to siphon away the best scientists from southern Europe, argues Colin Macilwain.

Just before Christmas, European Union (EU) legislators delivered an unexpected bonus for European scientists: a generous 2015 budget for the flagship Horizon 2020 funding programme. The scheme, which runs from 2014 to 2020, seems to have wind in its sails, and has already proved immensely popular with researchers.

There is trouble ahead, however. The benefits of the programme are unevenly spread. Horizon 2020 will mainly finance countries and regions that are already doing well, but it will not do much for the other half of Europe, which has steadily weakening research and innovation capacities. This conflicts with a central mission of the EU Framework programmes, of which Horizon 2020 is the eighth version.

Apart from doing good research, the goal of the programmes has always been to develop closer, deeper ties across Europe's diverse research community. With the enlargement of the EU to the east, this became more difficult. Now, with economic mayhem in the south, this goal is in danger of receding out of sight.

Although Horizon 2020 only started last year, its main pillars were established in 2008, when most European countries were committed to increasing science spending. It concentrated on addressing 'grand challenges', such as climate change and healthy ageing, and on supporting 'research excellence'.

The scheme was well suited for a time of growth. But its architects could not know that by the time their grand plan was put into action, half of Europe would be falling off an economic cliff. Financial meltdown has drastically changed the topography of European research, and after decades of gentle convergence, the system is diverging sharply.

According to the European University Association's Public Funding Laboratory, for example, public money for universities has fallen by more than 10% in 10 European countries since 2008. In Italy it is down by 20%, and in Greece and Hungary by more than 40%. Funding has shot up by one-fifth, meanwhile, in Germany, Norway and Sweden, with Austria and Belgium not far behind.

The European Research Area (ERA) now functions very differently from when it was inaugurated in 2000. It was supposed to facilitate a single area within which students, researchers and ideas could freely circulate. Some aspects of this have been implemented: university recruitment, for example, is far more open and international than before.

However, this adjustment was not meant to instigate what we have now: a one-way flow of talent from the south and east to the north. If maintained for much longer, this haemorrhage of people and ideas can only entrench the divide in economic competitiveness that triggered the Eurocrisis in the first place.

In 2013, the most recent year for which

numbers are available, Germany and the United Kingdom were the top two recipients of Framework funding, receiving €1.1 billion (US\$1.35 billion) each. The Netherlands got €560 million, much the same as Italy, which has almost four times the population. Poland got €67 million; Romania just €17 million.

The EU has a mechanism, separate from Horizon 2020, that is designed specifically to address this sort of imbalance: 'structural funds' for infrastructure projects in poorer regions. These used to be aimed primarily at bringing eastern Europe up to speed with the west, but they are increasingly needed in the south, as well as in parts of the northern fringe.

For the 2014–20 period, around €50 billion in structural funds is meant to be made available for research and innovation-related projects, such as new laboratory buildings. But the use of structural funds for research purposes has not worked well in the past. I have toured glass palaces, constructed in improbable locales, with no researchers budgeted for and scant prospect of them ever arriving. Such projects are often backed by local political leaders who have weak understanding of what breeds innovation, wrongly believing that fancy buildings with Wi-Fi will do the job.

Commission officials know that €50 billion, working in concert with the total Horizon 2020 budget of €70 billion, could achieve a lot — in theory. But the practice is more troubling. Unlike Horizon 2020 projects, structural-fund projects are selected locally, with less EU oversight. Such infrastructure projects need political backing in

their own regions and take years. But even when they are finished, local researchers may be as unlikely as before to win fiercely competitive Horizon 2020 grants.

The EU has set up a small project, called Stairways to Excellence, to help applicants marry the two approaches. But what is needed is more fundamental reform: a thorough re-alignment that would use structural funds to build up research teams that are already almost good enough to partner in Horizon 2020 projects, together with a dash of 'positive discrimination' to favour these partners within Horizon 2020. This cannot happen under the current structure, and that stores up problems for the future.

Like other instruments of European integration, Horizon 2020 will not work if the centrifugal forces pulling the continent apart exceed the centripetal ones holding it together. EU research policy has always been a careful balance between 'excellence' and 'cohesion'. Right now, much more attention needs to be paid to the latter. ■

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