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Weakening growth in investment and increasing brain drain: two major threats to the European knowledge-based economy

Today in Brussels European Research Commissioner Philippe Busquin presented two new publications on Europe's position in research and innovation. The "Key figures 2003-2004 for science, technology and innovation", and the "Brain drain study - Emigration flows for qualified scientists" display a bleak picture. The March 2000 Lisbon European Council's call to turn Europe into a world-class economic powerhouse, and the subsequent March 2002 Barcelona Council's objective of boosting EU spending on R&D from 1,9 to 3% by 2010, are far from being met. Progress is slow and in some areas we are even losing ground. The growth rate of investment in the knowledge-based economy is declining; the R&D investment gap between the EU-15 and the US is increasing in favour of the US and 'brain drain' is on the rise. The two new publications highlight an overall deterioration of Europe's scientific and technological performance.

"Additional efforts are needed to keep the Union on track in its process of reaching the overall Lisbon and Barcelona targets, "said European Research Commissioner Philippe Busquin. "More than ever, it is paramount to maintain and enhance the attractiveness of the European Research Area (ERA) as a place to carry out world class research. The implementation of the Commission's action plan for increasing investment in R&D and the improvement of the researcher's environment and mobility become, in the current situation, a key priority. I call on EU Member States and industry to upgrade their efforts in this field. No more lip service: we need action - now".

Vital statistics on S&T and brain drain

The first publication is the fourth edition of the EU 'Key Figures on Science, Technology and Innovation' report, which, for the first time, provides comprehensive data for the acceding and candidate countries. The second one is an in-depth study on the mobility of human resources in science and technology within Europe's borders and beyond, entitled 'The Brain Drain - Emigration Flows for Qualified Scientists'.

Slowing down

In 2000-2001, the EU-15 experienced a significant slowdown of its transition towards a knowledge-based economy. The growth rates of both the overall investment and overall performance in the knowledge-based economy were much lower than during the second half of the 1990s.

Acceding and candidate countries lagging behind

For the first time, systematic data exists for the acceding and candidate countries as well as an EU-25 average, which offers valuable insight into the degree of convergence (or divergence) between the existing and new Member States. All Acceding and Candidate countries are lagging behind the European average in terms of both overall investment and performance in the transition to a knowledge-based economy. However, there are indications that a large majority of them are catching up with the rest of Europe.

A widening gap with the US

As far as R&D expenditure is concerned, the EU-15 is far from closing the large absolute investment gap with the US. On the contrary, the R&D investment gap between the EU-15 and the US has continued to increase in favour of the US. The trend has been negative since the mid-1990s and the latest data does not show any reversal in the trend. About 80% of the gap comes from the difference in domestic business R&D expenditure between the US and the EU-15.

European companies invest in research – but in the US!

Moreover, analysing the flow of business R&D expenditure between the Triad (US-Japan-EU-15) shows that the US attracts one third more R&D expenditure from EU-15 companies than US companies allocate to the EU-15. This implies that, for the year 2000 alone, there was a net outflow of nearly € 5 billion of European R&D investment, mainly to the advantage of the US research system. Compared to other world regions, the EU-15 is attracting a share of about 10% less US R&D spending than ten years ago. This trend underlines a major weakness for Europe, namely the inability to attract enough knowledge-intensive and knowledge-producing capital in the global knowledge-based economy.

Brain drain on the rise

The ‘brain drain’ of people born in Europe is increasing. Seventy one percent of EU-15-born US doctorate recipients who graduated between 1991 and 2000 had no specific plans to return to the EU-15, and more and more are choosing to stay in the US. The most important reasons keeping European scientists and engineers abroad relate to the quality of work. Better prospects and projects and easier access to leading technologies were most often cited as reasons behind plans to work abroad.

Less scientific publications and patents in the EU-15

This year’s publications also highlight a deterioration of Europe’s scientific and technological performance (as measured by publications and patents) compared to the US. The EU-15 is still lagging behind the US in terms of technological performance and does not appear to be catching up, whereas its world leadership in scientific performance seems to be declining. Moreover, at world level the share of Europe’s high-tech trade is substantially inferior to that of the US and Japan. Although recent growth rates of high-tech exports have been higher in the EU-15 than in either the US or Japan, the EU-15 still has to make up for a large gap.

Background: what to do now?

At the Competitiveness Council meeting tomorrow, November 26, 2003, Research Ministers will address competitiveness and growth. This follows up discussions from the November 10 Council meeting, when the Council addressed the 3% Action Plan and the career of researchers.

High time to implement the 3% Action Plan

On 30th April 2003, the Commission adopted a Communication on “Investing in research: an action plan for Europe” (COM(2003)226) which sets out initiatives to reach the Barcelona ”3% objective”. The Action Plan identifies initiatives required to increase the level of investment in research in the EU from 1.9% to 3% of average Gross Domestic Product (GDP), with two-thirds financed by the private sector. Priorities include promoting human resources, developing a European risk capital/venture capital market, improving the environment for the development of new technologies, and intensifying co-operation between industry and public research.

The Initiative for Growth

The Action Plan and "3% objective" feed into the Commission's "Initiative for Growth", as endorsed by the October 16-17 European Council. The Initiative for Growth aims at encouraging Europe's economic recovery by focussing on transport infrastructures and major research projects. Within this framework, the Commission recently presented a list of "QuickStart" projects, including R&D projects on space, nanotechnology, next-generation lasers, and hydrogen and fuel cells.

Plugging the brain drain high on agenda

On November 10th the Council also adopted a Resolution on the profession and the careers of researchers in the ERA. This follows on from the July 2003 Commission Communication on “Researchers in the European Research Area: one profession, multiple careers”, which identifies factors that impact on the development of careers in R&D, namely training, recruitment methods, employment conditions, evaluation mechanisms and career advancement. It also feeds into the drive to increase the number of researchers in the European Union to meet the objective of increasing European research spending to 3% of EU GDP by 2010. According to recent estimates, this would require 700,000 new researchers.

Keeping best brains in Europe – and encouraging them to come back

The Commission's initiatives in this field include the launch of a “European Researcher’s Charter”, of a code of conduct for the recruitment of researchers, and of a European Year of Researchers. It calls for further analyses and data gathering on career development issues and research training, and for further improvement in the work of the Researchers' Mobility Portal and the European network of mobility centres. The Commission also calls for the establishment of criteria to record different professional achievements throughout the career of researchers, and for identifying and exchanging good practice on the evaluation and appraisal systems for careers in R&D.

It encourages social dialogue, as well as dialogue among researchers, stakeholders and society at large, including improving public awareness of science and promoting the interest of young people in research and in science careers. It addresses the conditions of doctoral candidates, and asks for the promotion of equal opportunities for male and female researchers. It also fosters efforts to remove other obstacles to researchers' mobility. The Commission is currently preparing a proposal for a directive on facilitating entry conditions for third country researchers to the EU, thus increasing their mobility from a third country to an EU member state and benefiting research and development across the EU.

The reports and a series of snapshots providing more information are available at:
http://europa.eu.int/comm/research/press_en.html

See also:
http://www.cordis.lu/indicators/

The "3% Action Plan":
http://europa.eu.int/comm/research/era/3pct

Combating the brain drain:
http://europa.eu.int/comm/research/fp6/mariecurie-actions/home_en.html

The Initiative for Growth

http://europa.eu.int/comm/commissioners/prodi/pdf/growth_initiative_en.pdf

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