

# Research talent and the transfer market

Sweden's latest drive to recruit foreign expertise on attractive terms, which ends next week, is far from unusual among the world's leading economies. It is just one in a long line of increasingly desperate attempts to tempt and secure the best talent around. **Hanns-J Neubert** reports.

Even prominent research institutions are not immune to brain drain. When, in March, Bertil Andersson suddenly quit his job as chief executive of the European Science Foundation in Strasbourg for a post in Asia, he struggled to contain his excitement: "It's just that Singapore is, in a molecular chemistry sense, an attractive force that is pulling me in. But it is definitely not at all the case that Strasbourg or Europe is a repulsive force."

Quite some attraction; Andersson, plant biochemist by training and dedicated administrator by inclination, had completed barely three years of a five-year contract.

Before he signed for the ESF in 2003, Andersson was president of Linköping University in Sweden where he also chaired various committees for the Swedish Biochemical Society and was a member of the Nobel Committee for Chemistry. Now, he is the first provost of Nanyang Technological University, which claims to have nearly 20,000 undergraduates, more than 8,000 graduate students and 2,500 teaching and research staff.

Three months after Andersson's latest move, Sweden revealed that it had woken up to the loss of one of its favourite sons. In June, the Swedish Foundation for Strategic Research announced the launch of a new campaign, Strategic International Recruitment, whose call for applications expires on 23 October.

This is the latest of several schemes launched in a number of countries all around Europe during recent years that aims to reverse brain drains by attracting foreign or expatriate researchers—not only with excellent research infrastructures and world leading research themes, but also with money.

The Swedes offer remuneration packages in line with, or better than, the home salary of the acquired researcher. To make the offer even more attractive, the Swedes ask new recruits to join Swedish research groups only part time, aware that high calibre researchers like to maintain extensive and long-term commitments at their home universities.

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Last year, when Finland decided that it wanted to recruit top researchers for between two and five years, it started the Finland Distinguished Professors Programme (FiDiPro) with a budget of 17.5 million euros, jointly provided by the Academy of Finland and the Finnish Funding Agency for Technology and Innovation (TEKES). This attracted 24 key researchers from abroad, and provided each of them with an average of 400,000 euros per year to cover salary, technical staff and extra equipment. Marjatta Hietala, the project's Finnish coordinator, says that it is impossible to attract top researchers to Finland with Finnish pay levels, which average about 4,000 euros per month. "I was just in Ireland and, there, researchers are paid staggering amounts of money," Hietala says.

In 2002, Science Foundation Ireland set up a Principal Investigator programme to keep or attract talented researchers, with each supported by an annual budget of between 50,000 and 250,000 euros, depending on the researcher's experience and the necessary overhead costs. During the 1990s, the country built up its science and technology sector pretty much from scratch—culminating in the founding of the SFI in 2000. Since then, research funding has more than doubled, and now the country faces a shortage of highly skilled talent.

The expression "brain drain" was coined by the Royal Society in London to describe the migration of scientists and technologists to the US and Canada as long ago as the 1950s. But the UK's response was a long time coming. In 2000, the government and the Wolfson Foundation launched a five-year research award programme worth £20 million (33m euros in 2000) to stimulate the return of Britain's leading expatriate scientists and to encourage the migration of top

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**Hanns-J Neubert**

## Big EU firms still lag behind US on R&D spend

Leading EU companies increased their R&D spending by 7.4 per cent last year, according to new figures from the Commission. The rise was an improvement on the 5.3 per cent recorded the year before. However, their counterparts in the US and elsewhere did better for the fifth year in a row, raising their spending by 11.1 per cent.

Overall, the top 1,000 EU firms spent 121 billion euros on R&D in 2006, against 250bn euros for the top 1,000 firms elsewhere.

"R&D spending is rising, which is a good thing, it means we are on the right track," said Anne Heidenreich, a research adviser for Eurochambres, the association of European chambers of commerce.

### Mixed messages

R&D spending by leading European firms in 2006, the rise on 2005, and the ratio of R&D to sales

Sector	Spending (bn euros)	Rise %	Ratio %
Automobiles and parts	27.1	2.6	4.5
Pharmaceuticals	18.7	10.9	12.0
Telecomms equipment	9.3	5.6	11.5
Aerospace and defence	9.2	5.8	7.5
Chemicals	7.5	16.8	3.3

Source EU Industrial R&D Scoreboard 2007, European Commission

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young foreign researchers to the UK. Besides profiting from the reputation of its famous universities, the UK can also offer funding through charitable trusts such as the Wellcome Trust, the second largest after the Bill and Melinda Gates Foundation.

Even a country such as Italy, which has almost totally ignored research for decades and still invests just 1 per cent of its GNP in R&D (half of the EU average), has put the brain drain on the political agenda. In 2002, Italy's Ministry for Education and Scientific Research developed a project offering economic incentives to attract 96 highly skilled scientists from abroad.

There is irony at the heart of the competition for the world's best brains. As advanced economies struggle to find the talent they need, they see their youth reject science and careers in research. Or so says the Relevance of Science Education (ROSE) project, which has been running since 2001 and now involves about 40 countries. This study of the attitudes of 15-year-olds to science and technology is led by Svein Sjøberg, nuclear physicist and professor of science education at the University of Oslo, and funded by the Norwegian Research Council. Japan and the US are the most affected countries.

Taking into consideration the incredible wealth of US universities—Harvard with \$22 billion, Yale with \$12bn,

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European services sectors showed some of the biggest changes in R&D spending—both up and down. Banks increased their spending on R&D by 36 per cent to 2.4bn euros and general retailers increased theirs by 24 per cent. But spending on R&D in life insurance firms dropped by nearly 5 per cent, in leisure goods firms by nearly 15 per cent and in non-life insurance firms by 21 per cent.

DaimlerChrysler was the highest spender in Europe, putting 5.2bn euros into R&D in 2006.

The gap in investment between Europe and the rest of the world may be due to weaknesses in the EU's environment for R&D, said Heidenreich. "If we want to compete worldwide we need to raise R&D spending," she said. "Businesses are already doing as much as they can; the lack of spending might be a sign of insufficient framework. We need to make sure there are enough funds, the regulation framework is encouraging and research is supported by society.

"There is a serious lack of researchers in Europe. Germany, which is top R&D spender in the EU, will lack 30,000 researchers by 2010," she added. "Investment is one thing, but the framework, the supply, goes hand in hand with it."

Stanford with \$10bn—it is hard for European universities to compete for leading US researchers with six-figure salaries. Only the ETH Zurich, which is linked to 21 Nobel Laureates, can offer remuneration on a similar scale, with annual salaries of up to 160,000 euros for its professors. According to the Commission study, *Remunerations of Researchers in the Public and Private Commercial Sectors*, published in May, average annual salaries for scientists in Europe range from just over 9,800 euros in Bulgaria to almost 46,500 euros in Switzerland.

In Singapore, a magnet mainly for the life sciences, money does not seem to be an issue, with even doctoral candidates receiving as much as S\$3,000 a month, or around 1,500 euros. This is the sort of salary that ETH pays its postdocs, which is considered generous; in Germany, postdocs can expect between 1,000 and 1,200 euros, depending on location and experience.

In a world of mobile brains and competitive research environments, money focused in a few spots seems to be the driving force for the advancement of science regions. "We rightly believed that strong scientists would be attracted to a system with ready funding and few boundaries to create research programmes," said Haresh Shah, an emeritus professor of engineering at Stanford University and a member of NTU's board of trustees, when Andersson arrived at his new office in Asia.

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