

FEBRUARY/MARCH

## The great innovation race

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Despite bold promises, the EU's drive to become the world's most competitive knowledge economy by 2010 has failed to gain any real momentum. Not only has Europe failed to close the gap with the US, it may soon be surpassed by Asia, says *Courtney Fingar*.

Five years ago this March, European Union leaders gathered for a summit in Portugal's capital city and boldly vowed to make Europe the world's most competitive knowledge economy by 2010.

This was never going to be easy – the US has had a stranglehold on this title ever since the term 'knowledge economy' was coined and looked unlikely to relinquish it any time soon.

But now, at the halfway mark towards the deadline date, even sceptics of the so-called Lisbon strategy might be surprised at just how little progress has been made. Most recent reports on global research and development, innovation and competitiveness reveal that Europe is falling further behind the US rather than catching up. The goal line looks ever more distant.

### Bad news

Indeed, there is some grim reading out there for Europe's would-be innovators. The 2005 World Knowledge Competitiveness Index (WKCI), by UK-based Robert Huggins Associates, names Silicon Valley's San Jose region as the world's leading 'knowledge-competitive' economy (see page 78 for a list of the top 25).

The WKCI benchmarks the knowledge capacity, capability and sustainability of 125 regions worldwide, and the extent to which this knowledge is translated into economic value and transferred into the wealth of the citizens of these regions. It takes into account such factors as employment levels in the knowledge economy, patent registrations, R&D investment by the private and public sector, education expenditure, information and communication technology infrastructure, and access to private equity.

The US dominates the rankings, with Stockholm the only non-US region to break into the top 10, at number eight. Though the report's authors note optimistically that most western European regions had improved their positions since last year's rankings, there is a worrying dearth of European locales in the upper echelons of the index. Apart from Stockholm, the only other European region to appear in the top 25 was Uusimaa, Finland, at number 20.



### SECTORS

SSC & CALL CENTRES

Location

Recruitment

AEROSPACE INDUSTRY

AUTOS

ICT INDUSTRY

NANOTECHNOLOGY	The south-east of England dropped to an embarrassing 55th, followed by London at 56th and eastern England at 62nd. The Celtic Tiger, Ireland, leapt forward an impressive 17 places – but only to 74th.
BIOTECHNOLOGY	
Challenge discovery	
West Virginia	
Arizona	
Puerto Rico	
Canada	
Asia	
Pennsylvania	
Philadelphia	
Italy	Although Europe still has strengths in a few high-tech sectors such as instrumentation and electrical machinery, and in R&D for sectors such as automotives, it is found lacking in most of the individual factors that equate to competitiveness in the ‘new economy’ (which is, in fact, not so new anymore). The discrepancies between the US and EU are wide and deep, and exist in everything from venture capital (only a handful of European regions are competitive in terms of private equity provision, says Huggins Associates) to patents (EU companies register far fewer patents than US companies) to higher education (Europe has few true rivals to the Ivy League universities).
REAL ESTATE	

## COUNTRY REPORTS

LATEST REPORTS	Meir Pugatch, a lecturer at the University of Haifa and head of the Intellectual Property Competition Programme of the Stockholm Network (a working group of European think-tanks), points out that in the 1980s both the US and Canada passed legislation (the Bayh-Dole and Stevenson-Wydler Technology Innovation acts respectively) that brought about “an explosion of innovative activities” by exploiting the knowledge arising from public research bodies. “Europe, on the other hand, is still struggling to adopt a coherent policy that will bring about a boost in these activities,” he says. “Denmark is one country that chose to implement such a policy, with the Danish Act on Inventions at Public Institutions of 2000. However, pan-European legislation must be put in place if Europe is to excel in this dimension.”	
TURKEY		
DOMINICAN REPUBLIC		
EGYPT		
AFGHANISTAN		
SCOTLAND		The EU also has no counterpart to the US’s National Institutes of Health, which spurs so many US medical breakthroughs and doles out nearly \$30bn in research funds a year.
LAZIO - ITALY		
PAKISTAN		
PUERTO RICO		
THAILAND		
SOUTH KOREA		
NAMIBIA		
SOUTH AFRICA		
SINGAPORE		
SPAIN: BIZKAIA		
WALLONIA	The US government spends much more on R&D (3.2% of GDP) than the EU does. The Lisbon accord set an EU-wide target of 3% of GDP for R&D spend, but current growth rates indicate a rate of only 2.2% would be achieved by 2010. And even that might be too generous an estimate: Eurostat, the EU statistical office, reports that in 2004, overall EU R&D spending was 1.9%, down from 1.92% the previous year. On this measure, Scandinavians are ahead of the curve, with Finland and Sweden each spending more than 3.5% of their GDP on R&D – but they are clearly the exceptions.	
NIGERIA		
UNITED ARAB EMIRATES		
DUBAI		
Investment, Science and Technology Branch - Canada		

### Spending gap

## ROUND TABLES

MURCIA	There is also a spending gap at the corporate as well as governmental level. According to the UK Department of Trade & Industry’s 2005 R&D Scoreboard, which looks at the top 750 UK and 1000 global companies by R&D spending, six of the 15 biggest R&D-investing companies are American, as are 11 of the top 15 by R&D intensity (measured by R&D as percentage of sales). The business climate for R&D-active companies has improved globally, the DTI says, but growth in the three key measures – sales, profitability and R&D levels – has been strongest in the Americas. The European Commission issued its own scoreboard at the end of 2005 that also showed European companies lagging their US and Japanese competitors in R&D spending.
FRANCE	
LOCATION STRATEGY	
SUB-SAHARAN RISING STARS	
	Colin Coulson-Thomas, a professor of competitiveness at Cambridge University, hints that the European economic model is the root of the problem: “Countries with high taxes, over-regulation, excessive red tape and rigid labour markets are likely to slip down competitiveness league tables.”

## BACK ISSUES

2006	The EU still has too many anti-competitive practices, barriers to entry and obstacles to takeovers, he says, and these must be addressed before any specific innovation-driving initiatives are
FEB/MARCH	

2005	launched. In fact, targeted measures and incentives are often ‘red herrings’ and serve only to distract from more important systemic reforms, he argues: “EU governments should concentrate on providing a low tax and light regulation business environment that will allow businesses of all sizes to thrive and prosper. In the global knowledge economy, the focus should be unashamedly on international competitiveness.”
DEC/JAN 2006	
OCT/NOV	
AUG/SEPT	
JUNE/JULY	
APRIL/MAY	
FEB/MARCH	<b>Eastern threat</b>
2004	
DEC/JAN 2005	Europe has its work cut out for it if it is to catch up with the US in knowledge-economy competitiveness. But it is no longer just the US that EU countries must compete with; perhaps the biggest threat to Europe’s future competitiveness comes from the East. Japan has always been a strong rival for R&D dollars, but there are some new, possibly more formidable, contenders emerging.
OCT/NOV	
AUG/SEPT	
JUNE/JULY	
APR/MAY	
FEB/MARCH	
2003	According to UNCTAD’s World Investment Report 2005, R&D expenditures in Asia by majority-owned foreign affiliates of US companies increased from \$400m in 1994 to more than \$2.1bn in 2002. The Chinese government says the number of foreign R&D operations in the country has gone from zero to 700 in the past decade. China’s R&D spend is rising at double-digit rates and should exceed EU levels by 2010.
DEC/JAN 2004	
OCT/NOV	
AUG/SEPT	
JUNE/JULY	
APRIL/MAY	Meanwhile, Microsoft recently said it would pour £1.7bn into India over the next four years, half of which would go towards expanding existing R&D and technical support operations. This followed announcements by Intel, which is to beef up its Bangalore R&D centre, among other investments, at more than \$1bn, and Cisco Systems, which will also invest more than \$1bn in India. Motorola, which has already invested nearly \$85m in the country, plans to add an additional 1000 Indian developers to its 2500 software engineering and R&D professionals by the end of this year. South Korea has opened some 140 foreign affiliate research institutes in recent years; the list goes on.
FEB/MARCH	
2002	
DEC/JAN 2003	
OCT/NOV	
AUG/SEPT	
JUN/JUL	
APR/MAY	
2001	There is evidence, beyond the anecdotal, of a shift towards the ‘internationalisation’ of R&D. An UNCTAD survey of the world’s largest R&D spenders, released in December 2005, reveals that 70% of transnational corporations expect their share of foreign R&D activity to rise while only 2% expect it to decline (see page 79 for more results). European companies show above-average levels of R&D internationalisation (41% compared with 24% of American respondents and 15% of Japanese), though one can only speculate as to whether this is because of a home environment that is less conducive to R&D.
OCT/NOV	

Western Europe certainly remains highly attractive as an R&D location, according to the survey; it was the host region mentioned most often by respondents both at home and in the US and Japan. But that was when companies were asked about their existing operations – the shape of future expansion looks rather different. The most striking trend highlighted by the report was the growing importance of developing countries as R&D locations – a trend that UNCTAD predicts will accelerate in the next five years.

### Asia first again

One guess which developing region was cited most often for future R&D expansion, and another guess which country in that region holds the most interest. More than half (57%) of the companies surveyed already have an R&D presence in China, India or Singapore. On the list of most attractive locations for future foreign R&D, China tops the US, with more than 60% of

companies surveyed eyeing expansion there. India comes in at number three, followed by Japan and the UK. Russia finishes ahead of France and Germany, which hold seventh and eighth place respectively.

The pattern does vary by industry: the survey showed that companies in such sectors as software, electronics and IT hardware are keener on Asia as a potential R&D location than those in pharmaceuticals, chemicals and automotives. Despite some interest in Latin America for automotive R&D, western Europe was still the most-cited location by UNCTAD respondents in this industry.

And despite the emergence of China and India as R&D heavyweights and the suggestion of a shift towards select central and eastern European and Commonwealth of Independent States (CIS) markets, “the majority of developing countries remain excluded from this phenomenon”, UNCTAD says. “Whether R&D activities will spread to more developing countries will to a great extent depend on the ability of these locations to strengthen their innovation systems.”

It could also be said, however, that whether R&D activities stay in EU markets in large numbers will also depend on the ability of those countries to improve their own innovation systems. There is good reason to question this ability, mainly because the political will is often lacking. It is not that the EU’s leaders are oblivious to the competitive threats it is facing. EU trade commissioner Peter Mandelson admitted to the *Financial Times* newspaper in October 2005: “If we do not raise our performance and increase our investment in research, we are going to be in trouble.”

### **Slight movement**

There have been some small moves in the right direction. The European Investment Bank (EIB) has said it will lend €34bn towards carrying out the Lisbon reforms and increase its lending to higher-risk R&D projects to €10bn, which could generate an additional €20bn in private investment. It has also expanded its venture capital arm, the European Investment Fund.

At a national level, individual member states are, of course, carrying out their own initiatives, with varying degrees of success and enthusiasm (see page 25 for the French and German efforts).

But for all the talk about boosting competitiveness and encouraging innovation, the EU has not been prepared to put its money where its mouth is. At an EIB conference in October 2005, EU research commissioner Janez Potocnik called for a “growth-oriented budget” that would create “a positive shock”. But that is not what he got. In the ugly battle over the budget for 2007-2013, R&D and innovation lost out to the contentious and costly central agriculture policy, with the former being reduced under the Britain-brokered compromise and the latter remaining untouched. A plan to double the EU’s research budget to €70bn over the budgetary period had already been binned in June. Under the new €862bn EU budget, 8.4% will be allocated to boosting competitiveness, compared with 43.1% for agricultural and rural support.

### **No harmonisation**

Mr Pugatch of the Stockholm Network, meanwhile, is dismayed at the lack of any real effort to harmonise patents across the EU. “There are some very powerful reasons to insist on having a community patent,” he says. “For example, today patent protection in just eight European countries costs about €50,000, around five times as much as in the US or Japan.”

The European Commission estimates that a community patent could cut these costs by half. “Yet

more than eight years have passed and the signs are definitely not encouraging,” says Mr Pugatch. In 2002, the commission presented a new directive seeking to harmonise the patenting of computer-implemented inventions in Europe. But after much debate and the usual political infighting, the European Parliament rejected the initiative.

Perhaps Luxembourg’s prime minister, Jean-Claude Juncker, summed it up best with his oft-repeated comment that EU leaders know what they should do but they do not know how to win elections after doing it.

Whatever the reasons for the EU’s failure to make good on the promises of Lisbon – and there are many – the implications of this failure could be far-reaching and dramatic, even if they are not keenly felt or fully appreciated for some time. Unable to compete on the crucial knowledge metrics with the present-day superpower and unwilling to do what needs to be done in order to ward off the threat of tomorrow’s superpower, Europe risks being left behind as the Americans and Asians speed down the information superhighway towards 2010.