The Atlas of Ideas : Mapping the new geography of science

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World Science Citations, 1997-2001

Country	% share of world publications		% share of world citations		Rank order
USA	34.9	↓	49.4	↓	1
EU15	37.1	↑	39.3	↑	
UK	9.4	↑	11.4	↑	2
GERMANY	8.8	↑	10.0	↑	3
JAPAN	9.3	↑	8.4	↑	4
FRANCE	6.4	↑	6.9	↑	5
CANADA	4.6	↓	5.3	↓	6
ITALY	4.1	↑	4.4	↑	7
CHINA	3.2	↑	1.6	↑	19
INDIA	2.1	↓	0.9	↑	22
SOUTH AFRICA	0.5	-	0.3	↑	29
IRAN	0.13	↑	0.06	↑	30

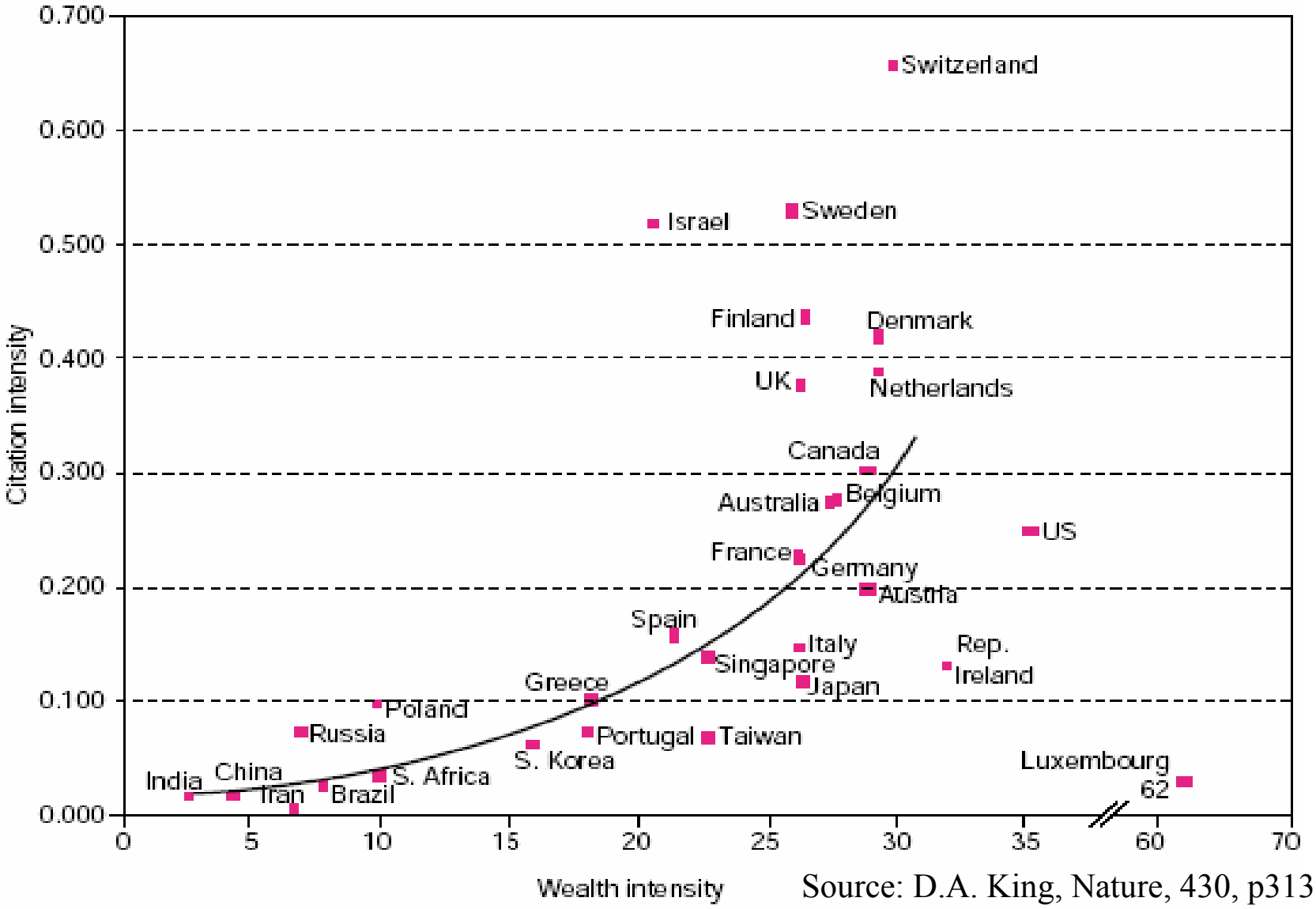
Source: D.A. King, Nature, 430, p312, 2004

Percentage of world share of publications

	China	France	Germany	Japan	Korea	UK	US	EU-15
1995	2.05	6.09	7.62	8.65	0.79	8.88	33.54	34.36
1998	2.90	6.48	8.82	9.42	1.41	9.08	31.63	36.85
2001	4.30	6.33	8.68	9.52	2.01	8.90	31.01	36.55
2004	6.52	5.84	8.14	8.84	2.70	8.33	30.48	35.18

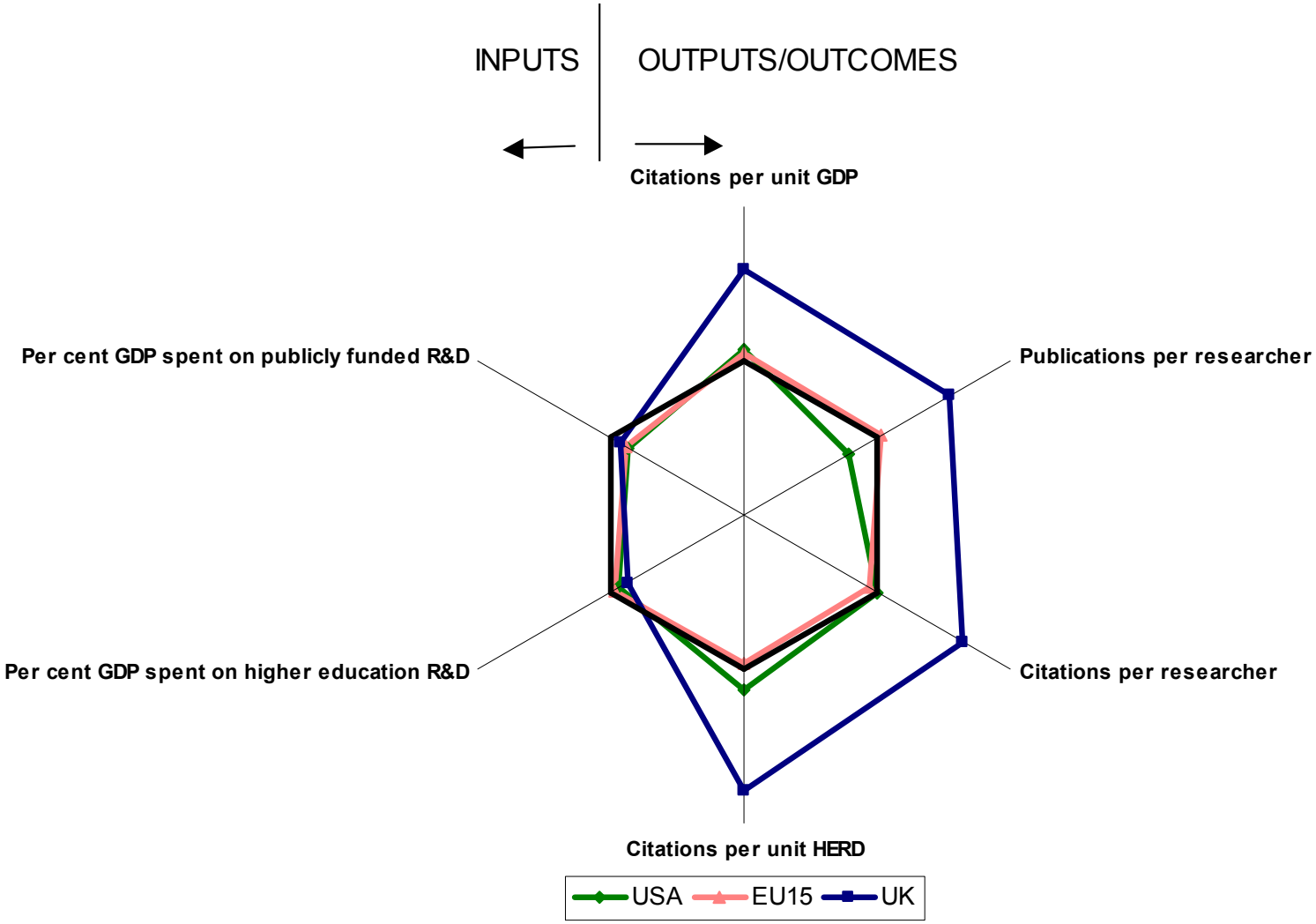
Source: Adapted from P Zhou and Leydesdorff,
'The emergence of China as a leading nation in science' Research Policy 35, no1 (Feb 2006)

Comparing economic and scientific wealth. 1997-2003



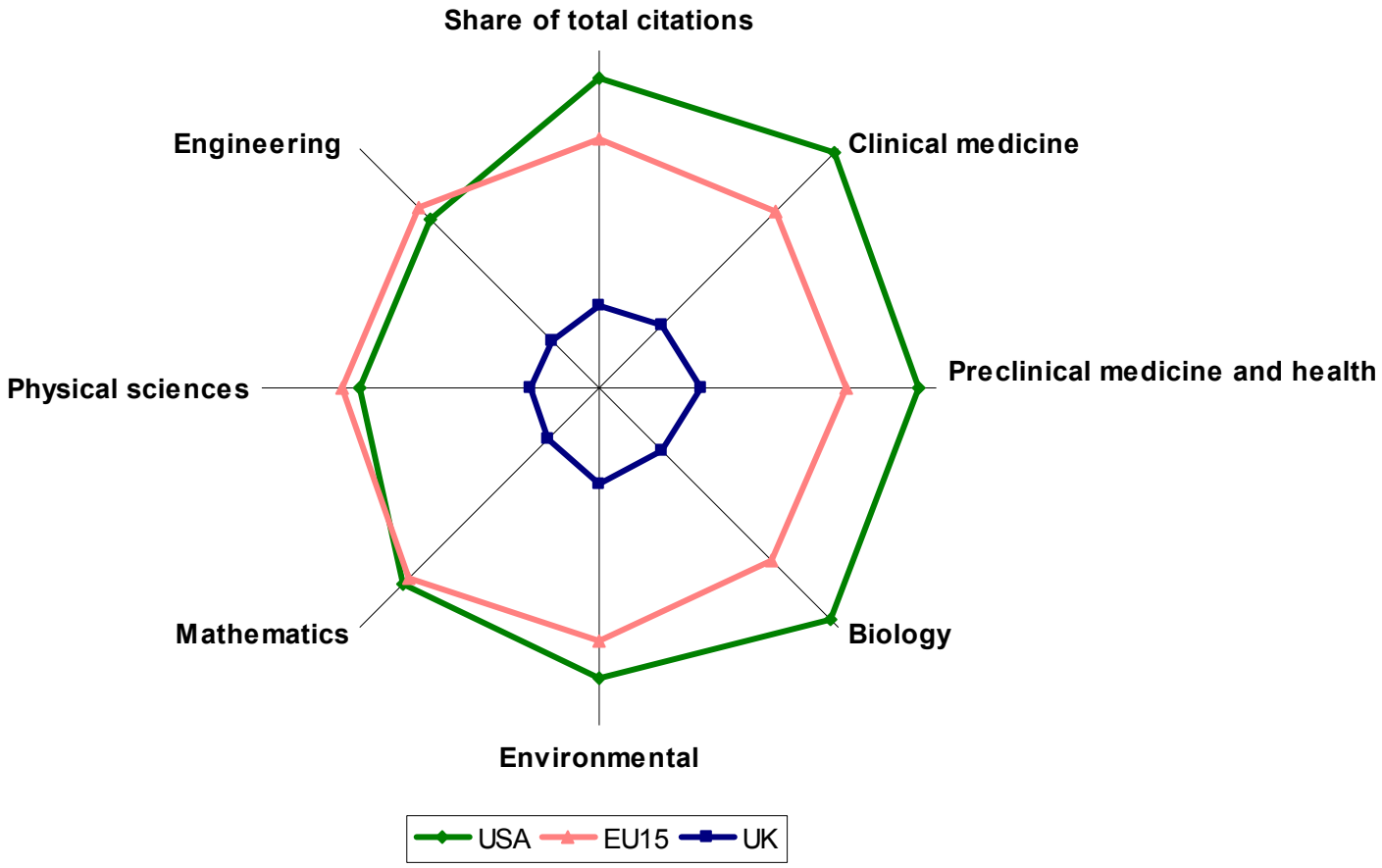
Source: D.A. King, Nature, 430, p313, 2004

Comparing inputs and outputs for the US, Europe and UK



Source: D.A. King, Nature, 430, p316, 2004

Comparing disciplinary strengths for US, Europe and UK



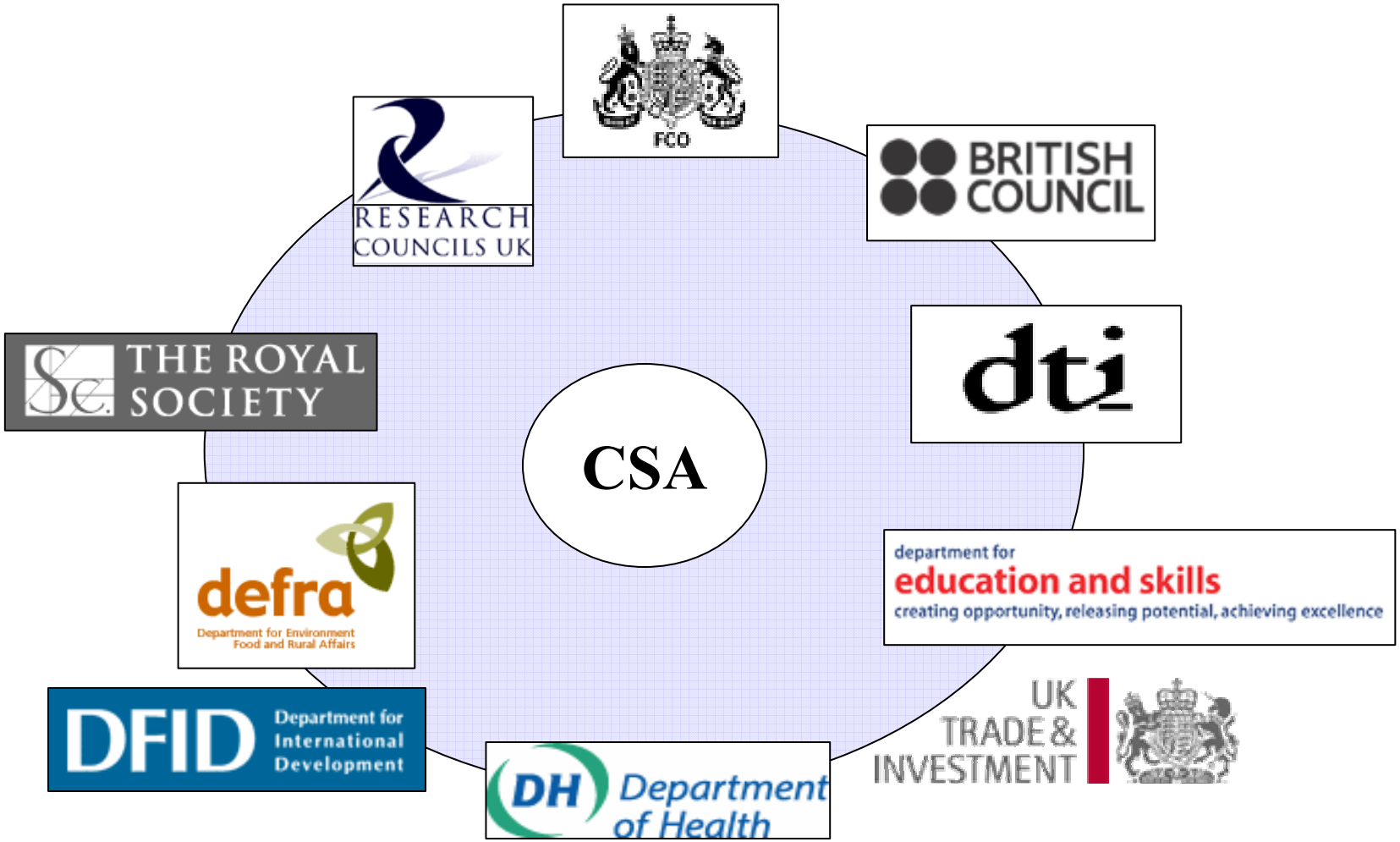
Source: D.A. King, Nature, 430, p315, 2004

At the beginning……

"The Government recognises the need for an overarching national strategy for international engagement in R&D and access to large facilities, to bring together the main UK players in international R&D, including Government departments, the FCO network of S&T attachés, scientific societies and the Research Councils….

A cross-government group – the Global Science and Innovation Forum – led by the Government's Chief Scientific Adviser, will develop this strategy."

Global Science and Innovation Forum



UK science base: the evidence

- Review of UK performance internationally
- International engagement - drivers and barriers
- Competitor country activity
- Services R&D – are we missing a trick?
- Views from GSIF members and across government more widely
- Intelligence from extensive in-country networks

A positive picture…

- world-leading research base
- strong participation in international research
- clear policy framework and commitment to investment in science and innovation
- scientists who are international leaders
- attractive to foreign students – English language
- high level of R&D investment from foreign business

Growth of scientific collaboration, e.g. international co-authorship

	UK	FR	DE
1992	20.5	27.1	25.1
1995	24.0	30.1	29.0
1998	31.3	35.8	41.7
2001	35.8	40.9	46.2
2003	39.2	43.7	43.0

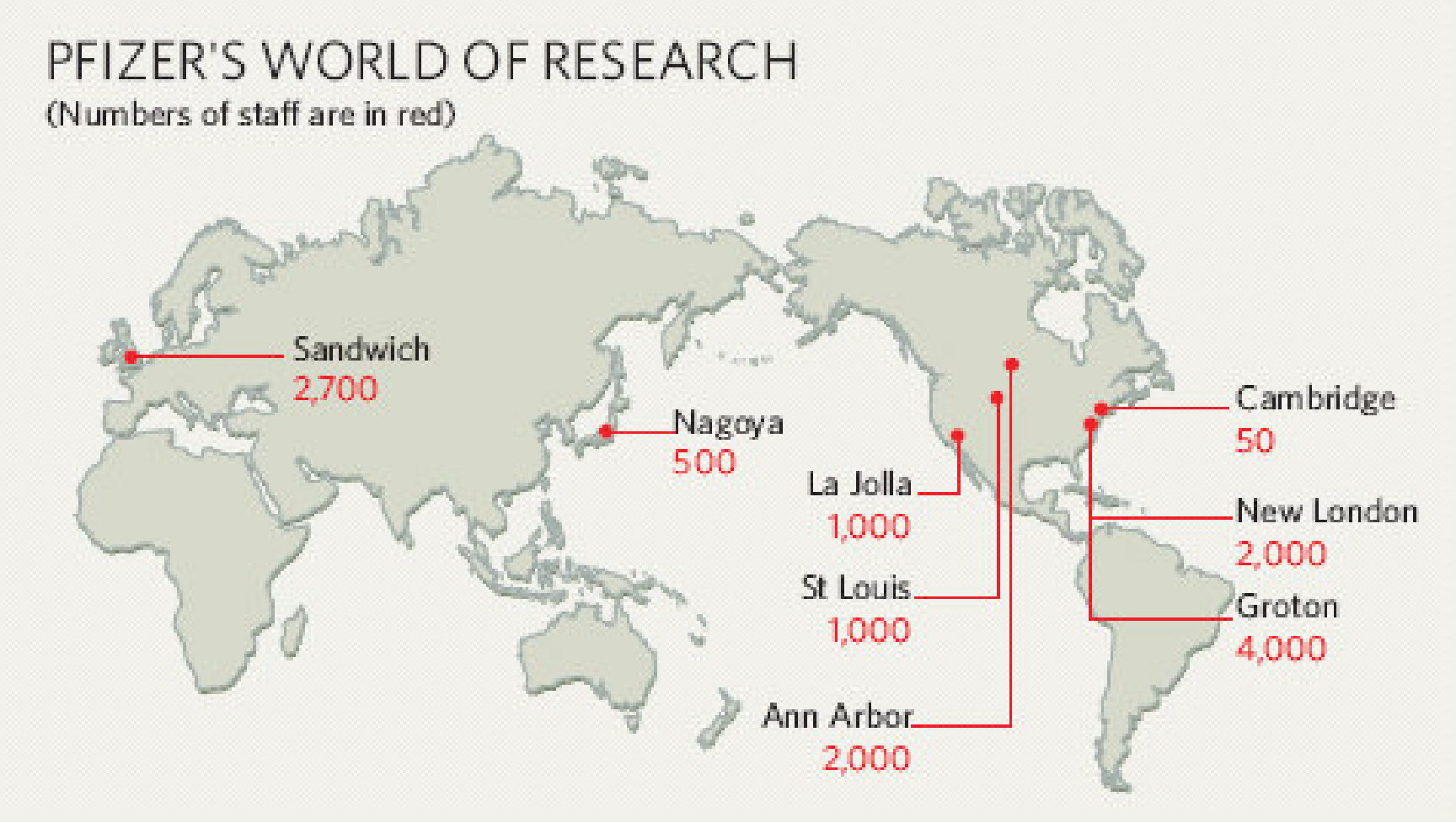
Share of international co-publications in total publications (%)

Increasing importance of inward R&D investment

	UK	FR	DE	US
1997	32	16	17	11
2001	45	19	25	14

R&D expenditure by foreign affiliates as a % of Business Expenditure on R&D (BERD)

Pfizer's world of research



Source: Nature, Vol 445, p13, 2007

Key elements and objectives of GSIF Strategy

The strategy is based on four distinct axes with associated objectives, that the UK should:

- be excellent in research
- be excellent in innovation
- use research and innovation to leverage global influence
- use research and innovation to meet international development goals

Initial focus countries

- **Research**
  - Australia, Canada, China, the EU, India, Japan, South Africa, Switzerland and the US
- **Innovation**
  - Canada, China, the EU, India, Japan, South Korea, Switzerland and the US
- **Influence**
  - G8 and EU countries plus Brazil, China and India
- **Development**
  - Africa

UK bound?

- In 2006, there were almost 53,000 Chinese students in the UK studying in higher education
- Almost 17,000 from India
- 2,000 from Mexico
- And 20,000 from Greece
- Over 100,000 from Europe
- 220,000 in total from rest of world

Mapping the new geography of science(1)

- China, India, S Korea – have all developed their S&I capacities in different ways from different historical and political perspectives
- Rapidly growing markets are attracting multinationals and enabling home grown companies to do more in Asia's innovation hotspots
- Science and innovation landscape is changing!

Mapping the new geography of science(2)

- The UK will have to use its resources more creatively
- Opportunity not threat
- People and skills are key
- The City of London should be a model for science
- UK need to move towards being at the centre of global innovation networks

Encouraging collaboration…

- Indo-UK Science and Innovation Council
- UK-India Education and Research Initiative (UKIERI)
- Proposed UK Research Councils' office in Beijing
- UK/China Partners in Science Initiative
- UK-Korea Science Technology and Innovation Partnership