

*UK Approach To Research In The
Higher Education Sector*

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EUA Conference, Bristol University

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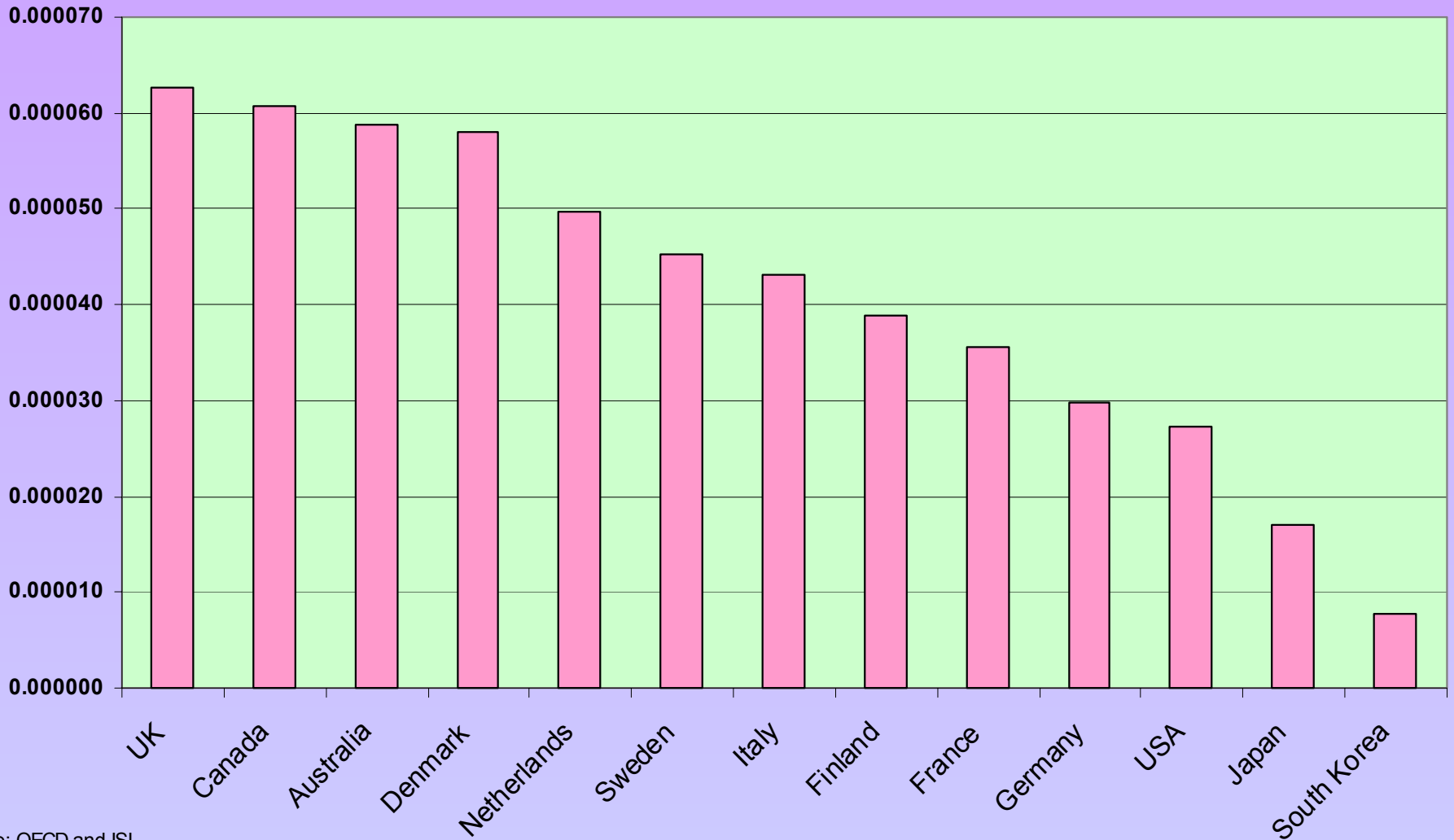
Current Standing in Science

- With 1% of the world's population, we fund 4.5% of the world's science funding, produce 8% of the scientific papers and receive 9% of the citations
- Worldwide, second only to the USA in science research output
- 13% of the world's most cited papers



Number of Papers per £ of Gross Expenditure on R&D for Selected Countries

Papers per £

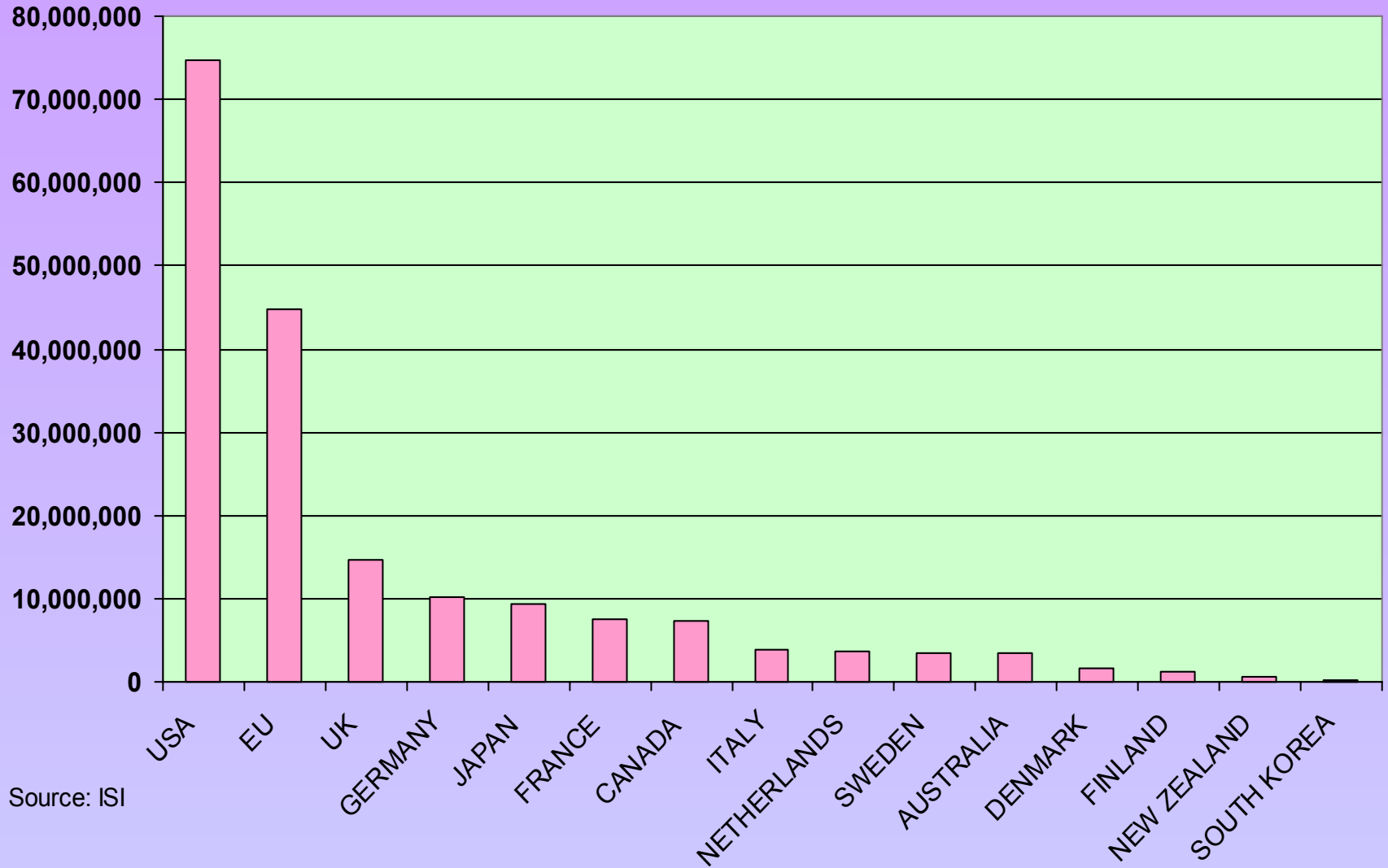


Science Budget

- UK Science Budget was £1.45 billion per annum in 1997-1998
- In 2002-2003 science budget now nearly £2 billion per annum
- By 2005-2006 will be £2.9 billion



Total Citations 1981-2000



Source: ISI

Spin-offs Exploit Research

- British Universities are spinning out science-based companies at an ever increasing rate
- The number of companies set up by academics rose from 203 in 1999-2000 to 248 in 2000-2001
- There had been just 338 spin-offs during the previous five years

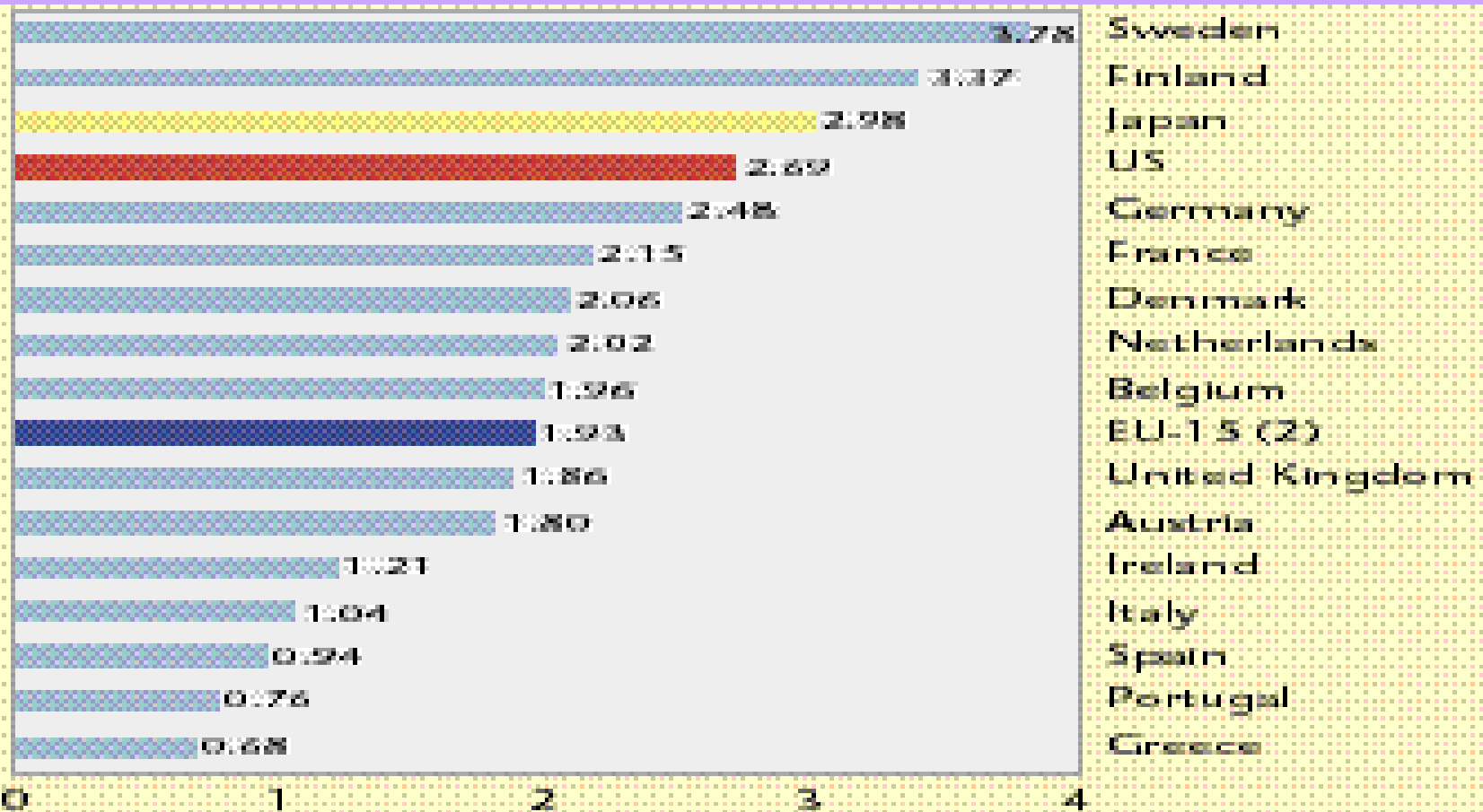


The Benefits of Spin-offs

- British universities generate one new company for every £12m of research spending compared with one for every £46m in the US
- Vision is to see more products invented in Britain, developed in Britain and made in Britain
- Vision of Britain as a major high tech manufacturing country



R&D Intensity (GERD of %GDP)



Source: DG Research

Data: Eurostat, Member States

Notes: (1) EL, IRL, IT, NL, DK, S: 1999; All other countries and EU: 2000.

(2) EU average is estimated and does not include L.

Key Figures 2002

R&D Financing By Main Sources Of Funds (%)

	Business enterprise	Government	Other national sources	Abroad	Total
Belgium	66.2	23.2	3.3	7.3	100
Denmark	58.0	32.6	3.5	5.3	100
Germany (1)	66.9	30.7	0.4	2.1	100
Greece	24.2	48.7	2.5	24.7	100
Spain (2)	49.7	38.6	6.8	4.9	100
France	54.1	36.9	1.9	7.0	100
Ireland	64.1	21.8	1.6	12.4	100
Italy (3)	43.0	50.8	-	6.2	100
Netherlands	49.7	35.8	3.4	11.2	100
Austria	40.1	40.3	0.3	19.3	100
Portugal	21.3	69.7	3.7	5.3	100
Finland (2)	70.3	26.2	0.9	2.7	100
Sweden	67.8	24.5	4.2	3.5	100
UK (2)	49.3	28.9	5.5	16.3	100
EU-15 (4)	56.3	34.2	2.1	7.4	100
US (2) (5)	68.2	27.3	4.4	-	100
Japan (2)	72.4	19.6	7.6	0.4	100

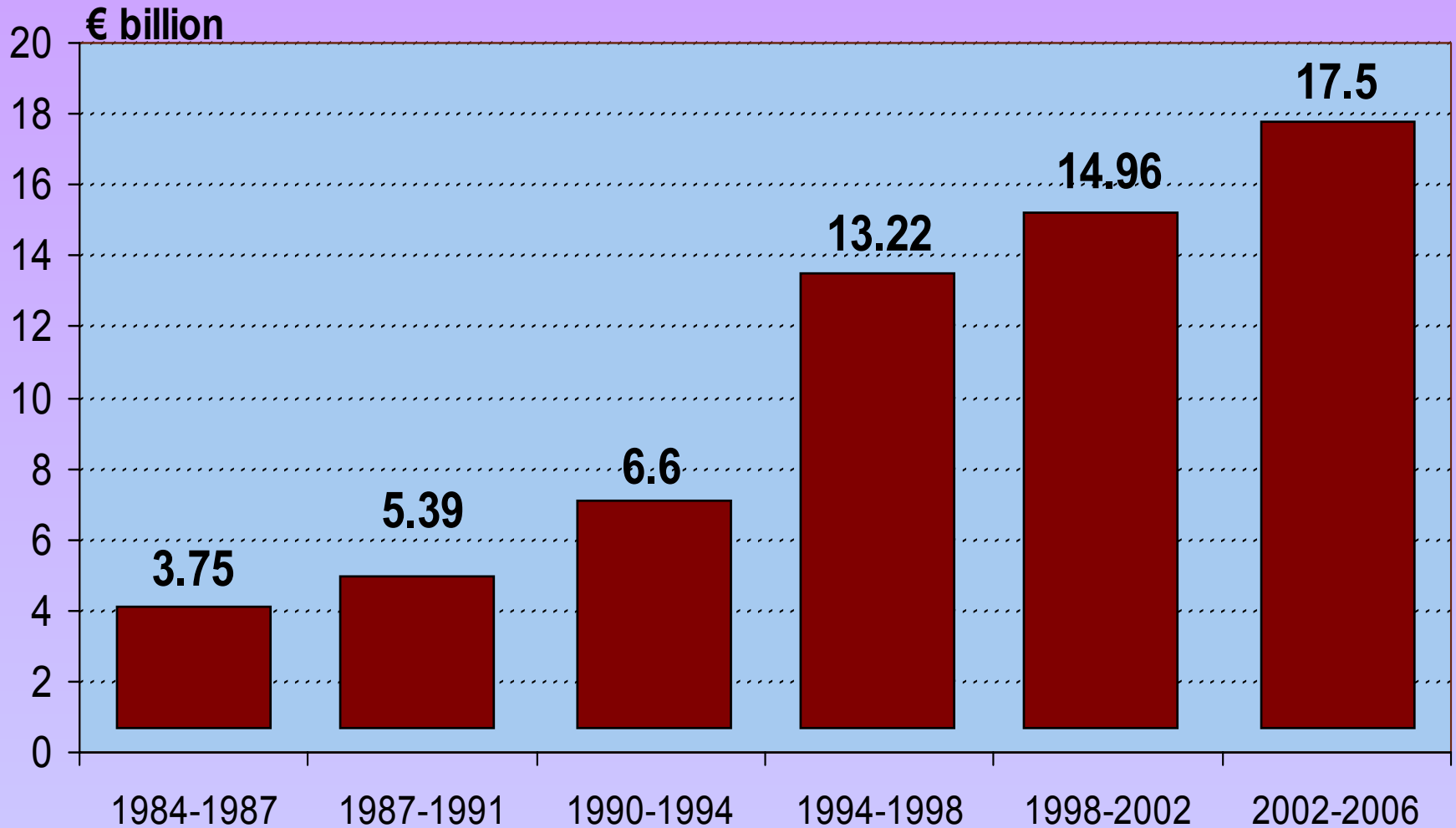
Source: DG Research

Data: OECD

Notes: (1) 2001 (2) 2000 (3) 1996 (4) EU average does not include L.
(5) excludes most or all capital expenditure.

Key Figures 2002

FP6 Budget



European Research Area



Key:

EIB = European Investment Bank

EURAB = European Research Advisory Board

SMEs = Small and medium-sized enterprises

s/t = Science and Technology

Co-Operative Links Created by FP5 Projects

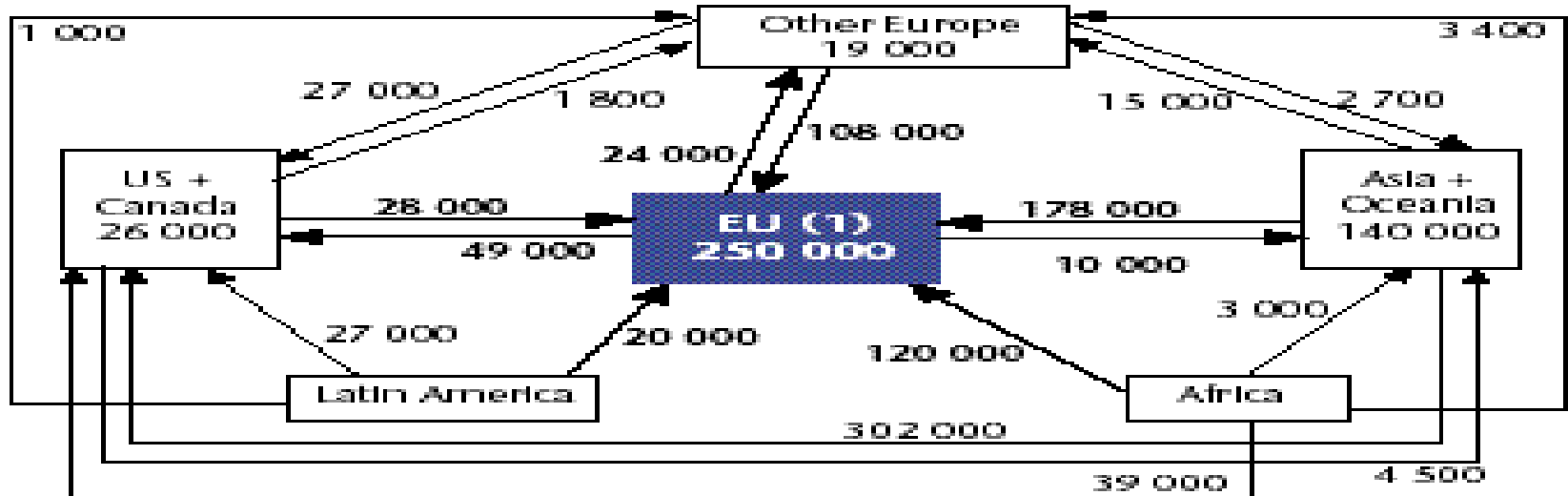
	B	DK	D	E	EL	F	FIN	I	IRL	L	NL	A	P	S	UK
Belgium	3.8	4.1	4.5	4.2	4.1	5.3	3.8	4.1	4.4	6.2	5.2	3.8	3.6	3.9	4.5
Denmark	2.8	4.1	2.6	2.6	2.3	2.4	3.8	2.4	4.5	2.4	3.6	2.8	2.5	3.7	3.3
Germany	15.5	13.1	10.8	14.7	13.5	17.5	15.1	15.6	12.2	11.7	16.3	19.4	13.9	16.1	16.6
Greece	3.8	3.1	3.7	4.4	6.9	3.6	4.1	4.9	4.0	6.2	3.3	3.6	5.2	2.8	3.9
Spain	7.0	6.5	7.2	7.6	7.9	8.0	6.8	9.3	7.3	3.8	6.2	5.9	8.4	6.6	7.1
France	15.0	10.2	14.5	13.6	11.0	10.8	9.5	13.0	10.0	12.8	12.4	10.1	11.3	11.8	13.5
Ireland	1.6	2.4	1.3	1.6	1.6	1.3	1.4	1.4	2.4	1.7	1.7	1.3	1.8	1.5	2.1
Italy	9.8	8.6	10.9	13.2	12.7	10.9	9.6	10.5	9.2	10.5	9.1	8.9	10.7	9.5	10.7
Luxembourg	0.2	0.1	0.1	0.1	0.3	0.2	0.1	0.2	0.2	0.9	0.1	0.2	0.2	0.1	0.1
Netherlands	7.5	7.7	6.9	5.3	5.1	6.3	5.9	5.5	6.6	5.5	5.5	6.2	6.3	6.2	7.0
Austria	2.1	2.2	3.1	1.9	2.1	1.9	2.3	2.0	2.0	2.6	2.4	6.5	2.3	2.1	1.9
Portugal	1.8	1.8	2.0	2.5	2.8	2.0	2.1	2.2	2.5	3.1	2.2	2.1	3.5	1.7	2.2
Finland	2.7	3.9	3.1	2.8	3.1	2.3	4.5	2.8	2.7	2.6	2.9	2.9	2.9	4.9	2.9
Sweden	4.0	5.6	4.8	4.1	3.1	4.3	7.2	4.1	4.2	3.3	4.4	3.9	3.6	4.7	4.9
United Kingdom	15.1	16.4	16.2	14.2	14.0	15.9	13.7	15.0	18.7	12.1	16.4	11.4	14.8	15.9	10.7
Others	7.3	10.2	8.1	7.2	9.6	7.4	10.0	6.9	9.3	14.7	8.4	10.9	8.8	8.5	8.5
Total %	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
Total links	14 968	10 193	51 162	25 113	13 892	42 602	10 477	35 798	5 508	580	21 540	8 182	7 480	15 401	50 073

Source: DG Research
 Data: European Commission
 Note: Coverage: all contracts signed before 1/1 2/2001.

Key Figures 2002



Migration between the world regions: foreign students enrolled in Tertiary education 1999



Source: DG Research

Data: OECD

Notes:

(1) EU totals do not include EL and P.

The values inside the boxes show migration within the region. The EU figures do not include EL and P. The host regions only include OECD countries. The regions of origin are complete.

Key Figures 2002

European Physical Society

- The European Physical Society provides an international forum to discuss science and policy issues of interest to its members
- It represents over 80,000 members and physicists through its 38 national member societies
- It also provides a forum for around 3500 individual members

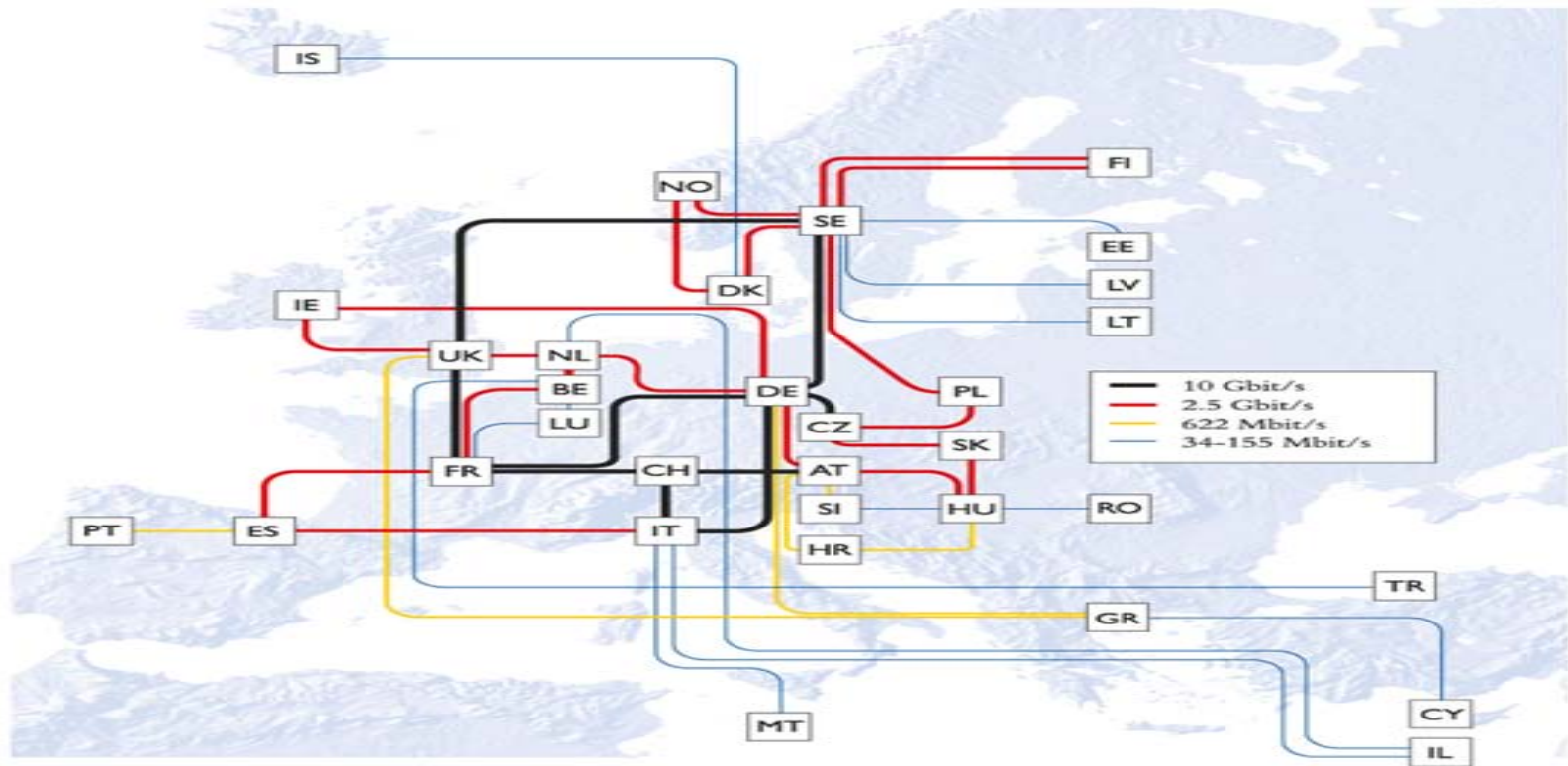


Large Scale Facilities In EU

- GEANT
- CMS
- Fusion
- CERN
- ESA
- European Synchrotron Source

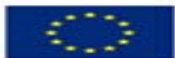


GEANT



AT Austria	DK Denmark*	GR Greece	IS Iceland*	MT Malta*	RO Romania
BE Belgium	EE Estonia	HR Croatia	IT Italy	NL Netherlands	SE Sweden*
CH Switzerland	ES Spain	HU Hungary	LT Lithuania	NO Norway*	SI Slovenia
CY Cyprus	FI Finland*	IE Ireland	LU Luxembourg	PL Poland	SK Slovakia
CZ Czech Republic	FR France	IL Israel	LV Latvia	PT Portugal	TR Turkey
DE Germany				UK United Kingdom	

* Planned connection. * Connections between these countries are part of NORDUnet (the Nordic regional network)



Multi-Gigabit pan-European Research Network
Backbone Topology December 2002



CMS - Compact Muon Solenoid



Summary

- Interesting and exciting times ahead for universities to make the ERA a reality
- Interaction and networking is vital
- UK committed to this goal

