ERA – OPPORTUNITIES for Polish Science

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Structure of presentation

- Polish perspective on ERA
- Polish R&D in ERA – some data
- Opportunities ?

Polish perspective on ERA

The basics of ERA

- "Fifth Freedom": free circulation of researchers, Knowledge and technology
- attractive conditions, effective and efficient governance for doing research and investing in R&D intensive sectors
- Strong interactions within the "knowledge triangle" (education, research, innovation) and simultaneous modernisation of its components

- fostering a healthy Europe – wide scientific competition and, at the same time, ensuring the appropriate level of cooperation and coordination
- responsive to the needs and ambitions of citizens and effectively contributes to the sustainable development and competitiveness of Europe

"The ERA defines the European way to excellence in research and is a major driver of European competitiveness in the globalised world"

"The ERA provides a seamless area of freedom and opportunities for dialogue, exchange and interaction open to the world"

Green Paper
"The European Research Area: New Perspectives", 2007

“The European Research Area that the scientific community, business and citizens need should have the following features:

-**An adequate flow of competent researchers** with high levels of mobility between institutions, disciplines, sectors and countries (single labour market for researchers)

-World – class research infrastructures, integrated, networked and accessible to research teams from across Europe and the world

-Excellent research institutions engaged in effective public-private cooperation and partnership, forming the core of research and innovation „clusters', mostly specialised in interdisciplinary areas and attracting a critical mass of human and financial resources;

-Effective knowledge – sharing notably between public research and industry, as well as with the public at large;

-Well – coordinated research programmes and priorities, including a significant volume of jointly – programmed public research investment at European level involving common priorities, coordinated implementation and joint evaluation; and

-A wide opening of the European Research Area to the world with special emphasis on neighbouring countries and a strong commitment to addressing global challenges with Europe's partners".

Polish view on ERA (Green Paper)

Focus on:

1. development of the most competent and skilled researchers
2. building world-class research infrastructure
3. reducing fragmentation of research in Europe

Instruments to be applied:

1.

-support of mobility of (young) researchers across borders and between academia and industry

-open and transparent international competitions for recruitment of researchers

-portability of grants

-reducing differences in personnel costs

2.

- participation of lower research- intensity institutions in Pan – European research infrastructures
- transparent rules of governance of European research infrastructures and open access of European researchers to them

-support of building of “satellite infrastructures” in countries with lower R&D expenditures

Polish R&D in ERA -Some data

Data from “A more research – intensive and integrated European Research Area”, Science, Technology and Competitiveness key figures report 2008/2009,

TABLE I.1.1 Gross Domestic Expenditure on R&D (GERD)(Countries are ranked in terms of total GERD)

	GERD million euro 2006 [1]	GERD EU-27 shares (%) 2006 [2]
US [3]	*273772*	-
EU-27	*213805*	100.0
Japan	118295	-
Germany	*58848*	*27.5*
France	*37844*	*17.7*
UK	34037	15.9
China	30002	-
Italy	15599	7.7
Spain	*11815*	*5.5*
Sweden	11691	5.5
Netherlands	*8910*	*4.2*
Switzerland	8486	-
Austria	*6946*	*3.0*
Finland	*6016*	*2.7*
Belgium	*5798*	*2.7*
Denmark	*5349*	*2.5*
Israel [4]	*5263*	-
Norway	4071	-
Ireland	*2500*	*1.1*
Turkey	2432	-
Czech Republic	1761	0.8
Poland	1513	0.7
Portugal	*1294*	*0.6*
Greece	*1223*	*0.6*
Hungary	900	0.4
Luxembourg	*497*	*0.2*
Slovenia	484	0.2
Romania	444	0.2
Iceland	364	-
Croatia	297	-
Slovakia	*252*	0.1
Lithuania	191	0.1
Estonia	*151*	*0.1*
Bulgaria	121	0.1
Latvia	112	0.1
Cyprus	*62*	*0.03*
Malta	*28*	*0.01*

Source: DG Research STC key figures report 2008
Data: Eurostat, OECD
Notes: [1] CH: 2004; IT, IS: 2005; IE, AT, SK, FI: 2007
[2] IT: 2005
[3] US: GERD does not include most or all capital expenditure
[4] IL: GERD does not include defence
[5] Values in italics are provisional

Gross Domestic Expenditure on R&D (GERD)- real growth (%) between 2000 and 2006

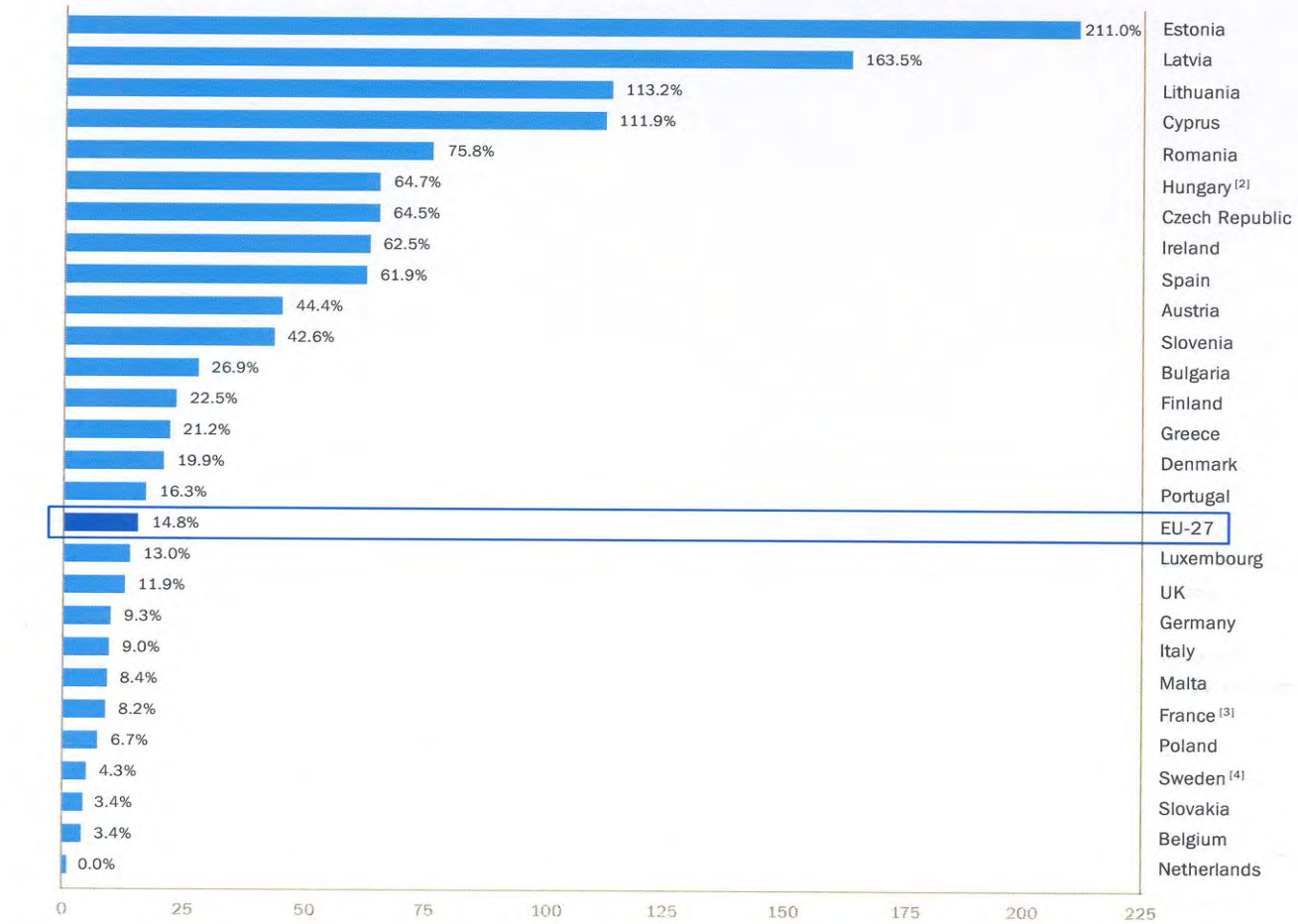
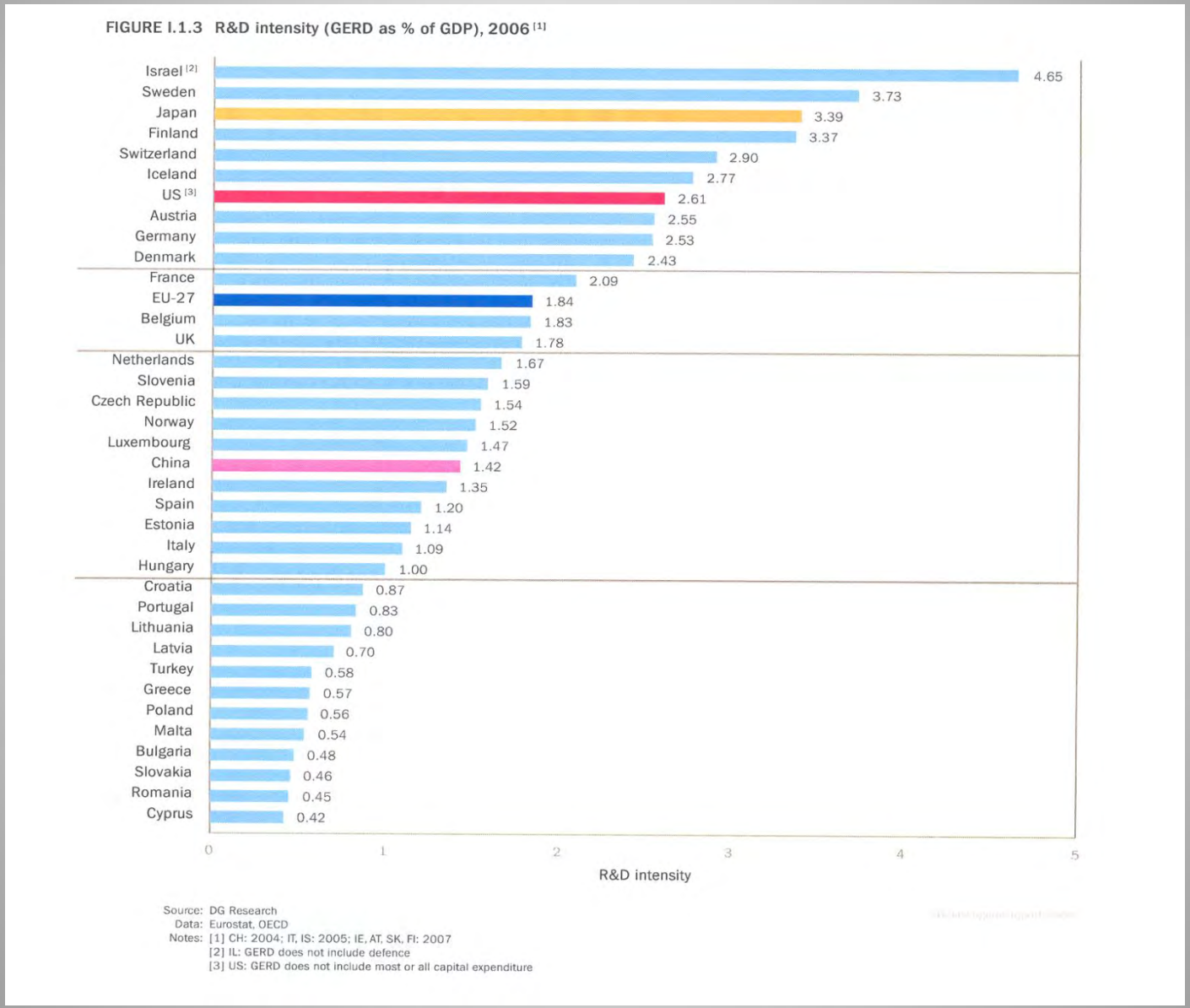


FIGURE 3 Gross Domestic Expenditure on R&D (GERD) – real growth (%) between 2000 and 2006 [1]

Source: DG Research
Data: Eurostat
Notes: [1] IT: 2000-2005; EL, SE 2001-2006; MT 2004-2006
[2] HU: There is a break in series between 2004 and the previous years
[3] FR: There is a break in series between 2004 and the previous years
[4] SE: There is a break in series between 2005 and the previous years

GERD as % of GPD, 2006

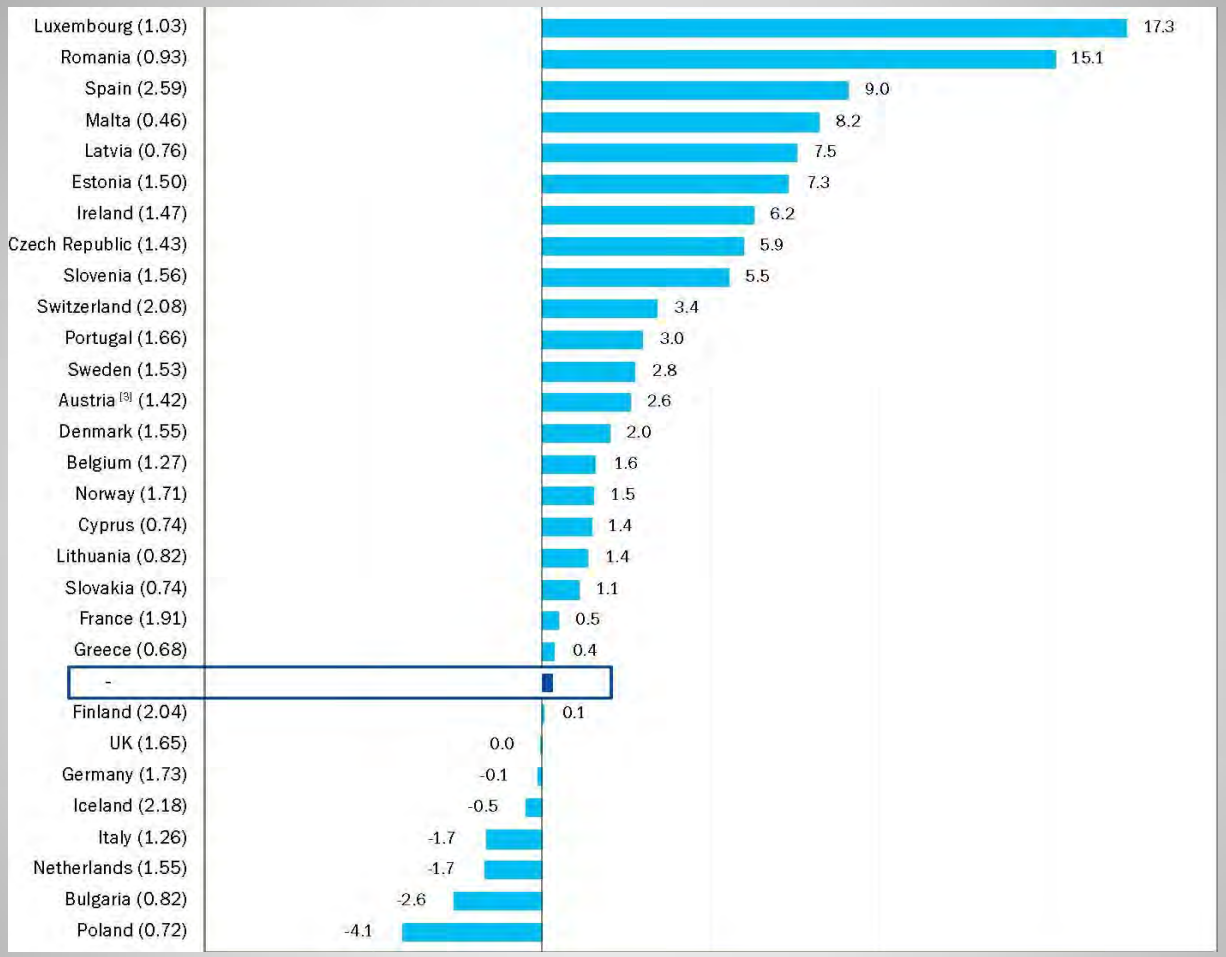


GPD, GERD and R&D intensity – average annual growth

2000-2006

	GPD	GERD	R&D Intensity
Estonia	13.8	26.4	11.1
Cyprus	6.4	16.7	9.6
EU-27	4.0	3.8	-0.2
Poland	6.1	3.5	-2.4
Slovakia	10.2	4.9	-4.8

FIGURE I.1.8 GBAORD as % of general government expenditure — average annual growth, 2000-2007 [1]in brackets GBAORD as % of general government expenditure, 2007 [2]

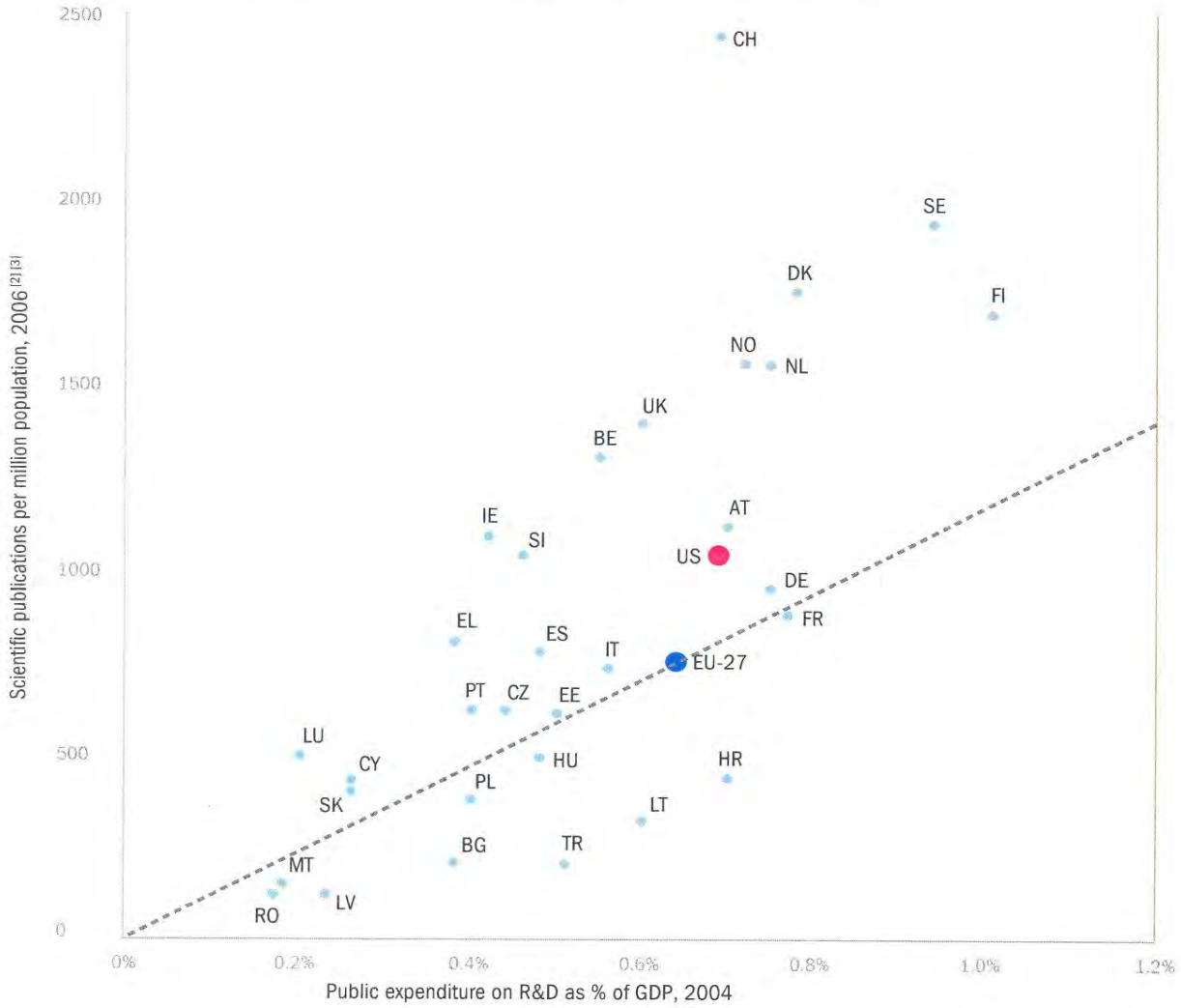


Source: DG Research

STC key figures report 2008
Data: Eurostat, OECD

Notes: [1] CH: 2000-2004; BE, ES, FR, IT, LV, PL, IS: 2000-2006; UK: 2001-2006; DK: 2001-2007; BG, EU-27: 2002-2006; CZ, SK: 2002-2007; CY, MT: 2004-2006
[2] CH: 2004; BE, BG, ES, FR, IT, CY, LV, MT, PL, UK, EU-27, IS: 2006
[3] AT: GBAORD refers to federal or central government expenditure only
[4] Hungary is not included due to unavailability of data
- EU – 27 (1.62) 0,3

FIGURE I.3.2 Scientific publications in relation to public expenditure on R&D [1] [4]

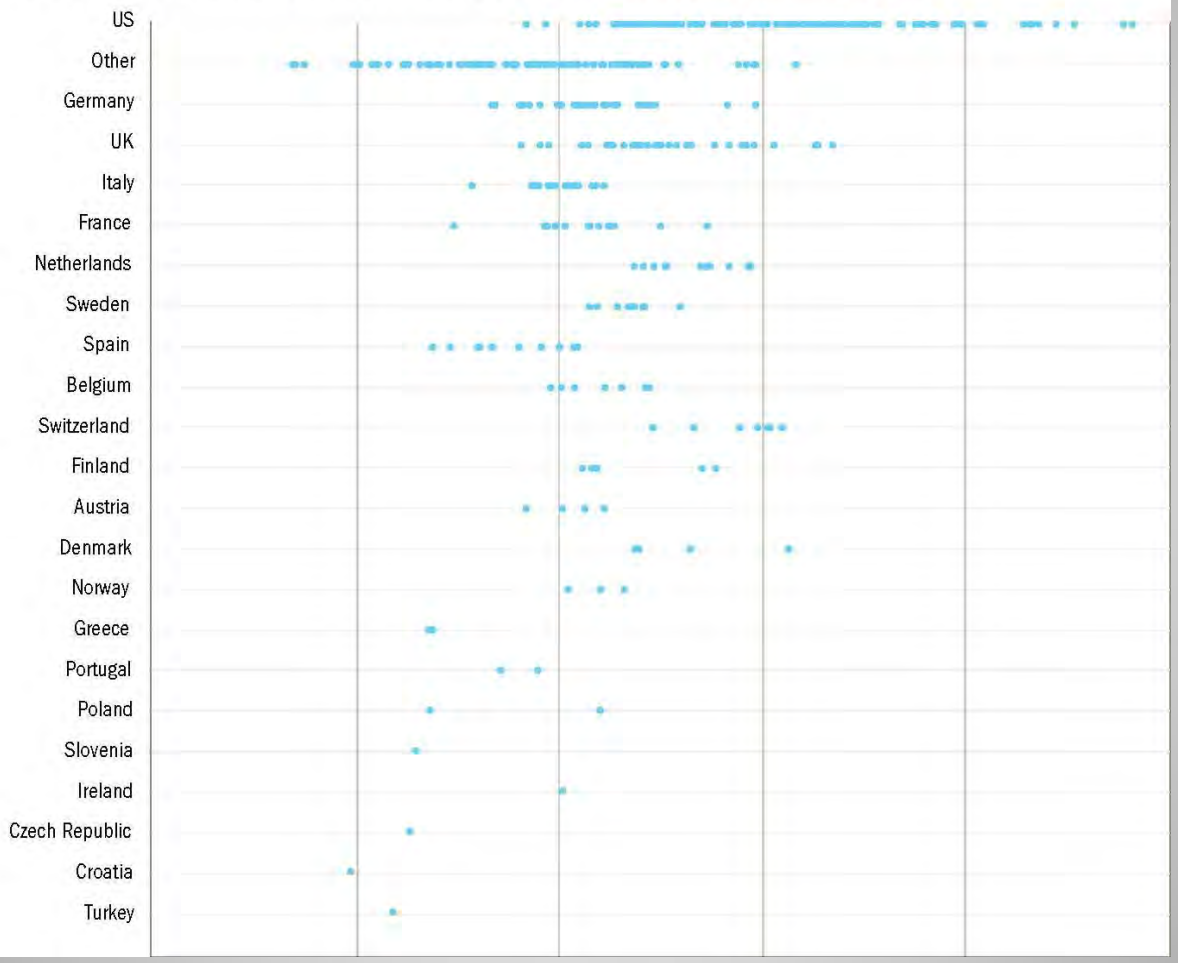


Source: DG Research
Data: Thomson Scientific/CWTS, Leiden University, Eurostat, OECD
Notes: [1] In order to take into account the gap between R&D input and scientific output, a two year lag between public expenditure on R&D and scientific publications per million population has been applied
[2] EU-27: Scientific publications – full counting method was used at country level. At the aggregate level, double countings were avoided
[3] 2006 population average; US: 2006 mid-year estimate
[4] The dotted line links the origin to EU-27 – for the points on this line the ratio between the two values is equal to that of EU-27

EPO patent applications per million population, 2004

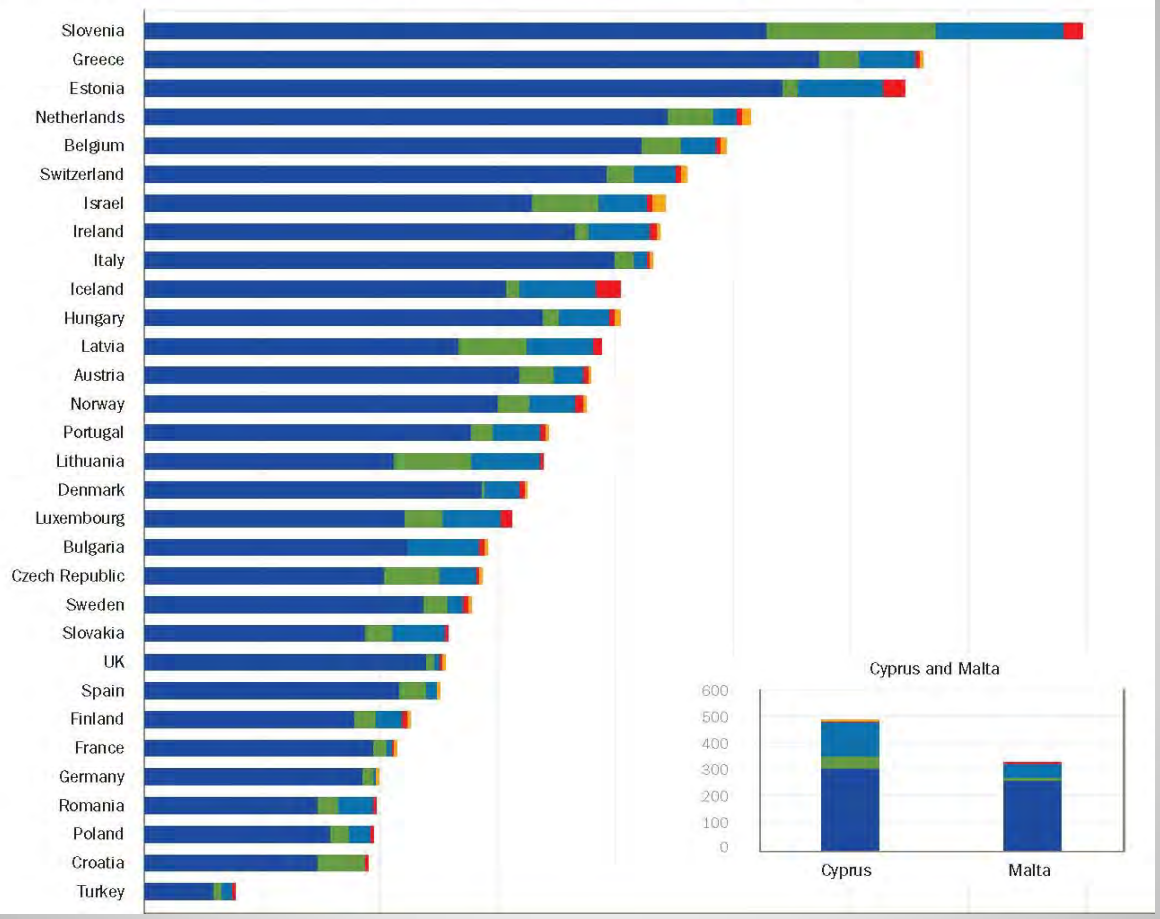
US	109			
EU-27	108			
Switzerland	394		Slovakia, Lithuania, Latvia	4
Germany	271		Poland	3
Finland	253		Bulgaria	2
			Romania	1

FIGURE II.1.1 The most active research universities – normalised citation impact by country, 1997-2004



Source: DG Research STC key figures report 2008 Data: Thomson Scientific/CWTS

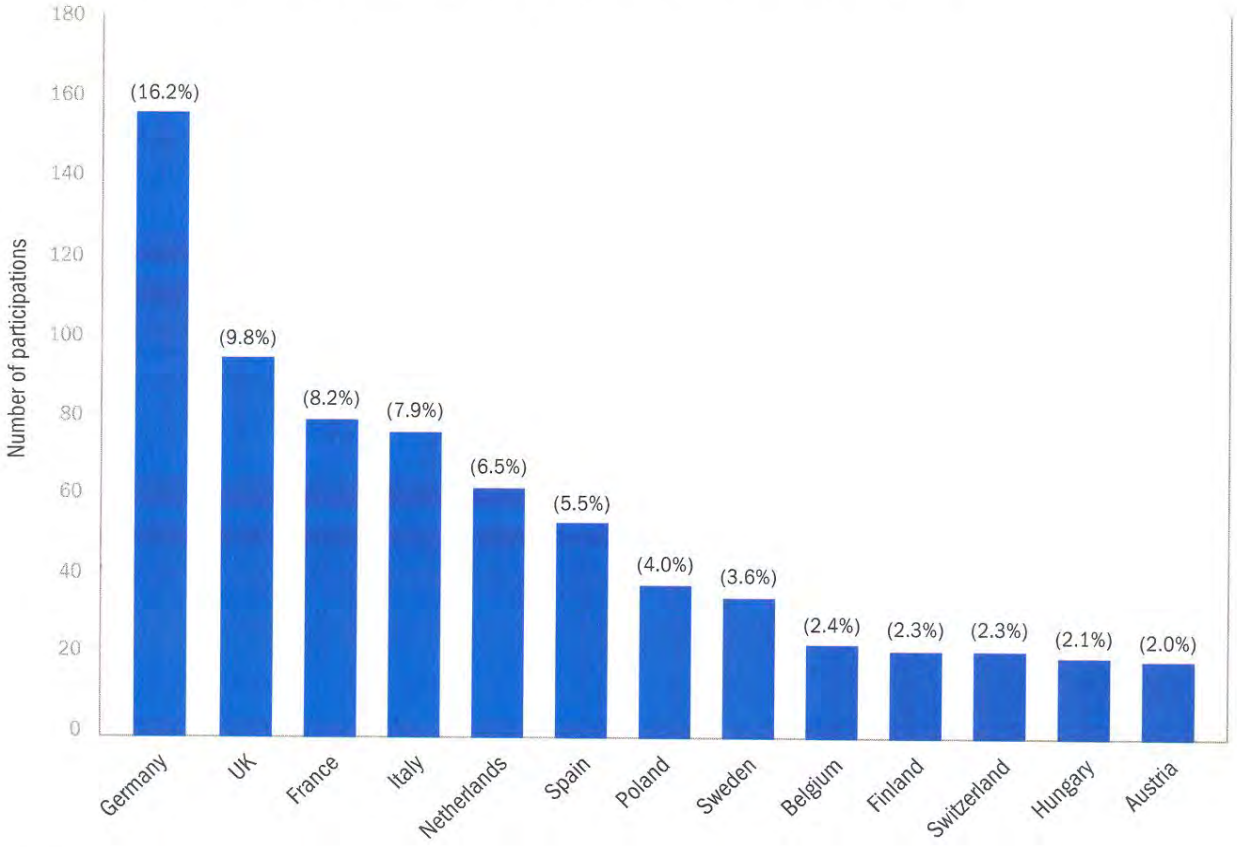
FIGURE II.2.4 Number of participations in European programmes per thousand researchers



FP6 EUREKA COST EURA – NET ERC

Source: DG Research STC key figures report 2008
Data: DG Research, EUREKA, COST, ERC

FIGURE II.3.3 Number of institutional participations by country [1] in research infrastructure projects funded by FP6 (I3 and TA) [2]; in brackets: % share of the total number of participations (959)



Source: DG Research
Data: DG Research
Notes: [1] Countries which account for less than 2 % of the total number of participations are not represented
[2] I3: Integrated Infrastructures Initiatives; TA: Transnational Access

[174] The lower share of foreign users in the humanities research infrastructures is linked to the fact that there are strong national research traditions in the humanities where much research is produced in national languages. There is also less international funding for humanities research infrastructures.

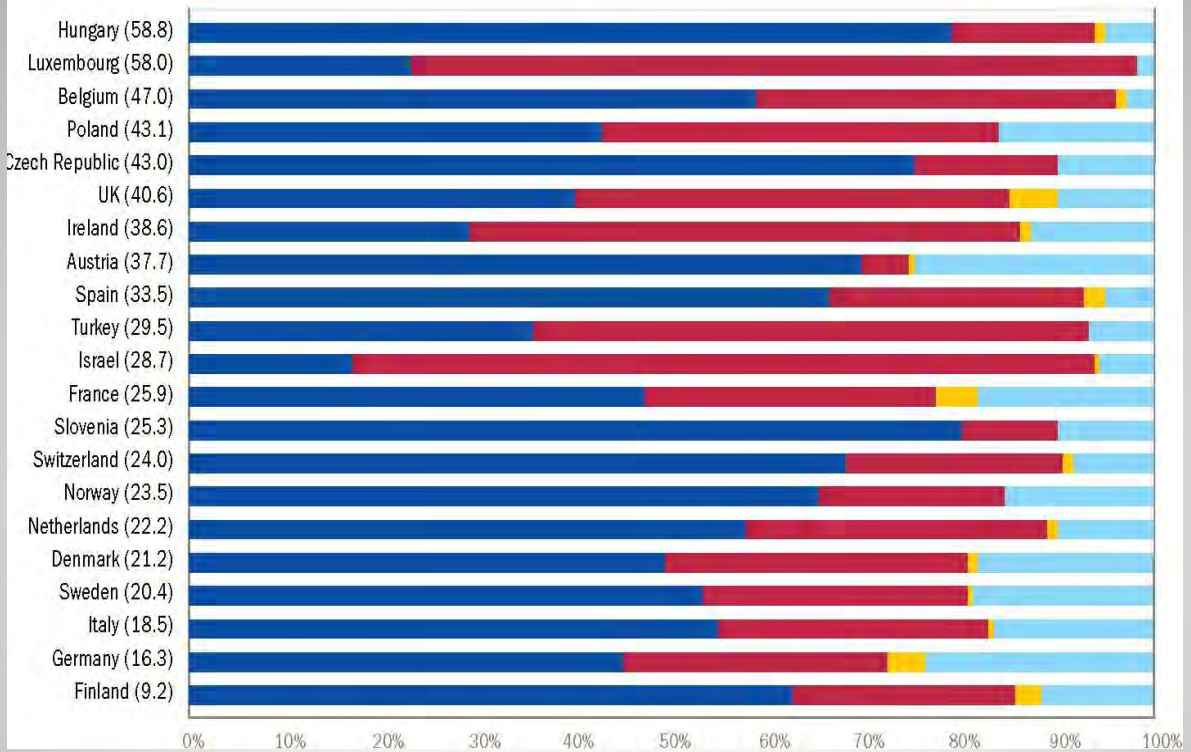
TABLE II.3.4 The ten biggest transnational flows of research infrastructure (RI) users in FP6 [1]

ORIGIN	DESTINATION	Number of RI users
Country of home institution	Operator country	
UK	Germany	614
Germany	Switzerland	605
France	Germany	539
Italy	Germany	528
Germany	Italy	528
Belgium	Germany	514
France	Italy	438
Poland	Germany	436
Germany	Germany [2]	398
Italy	France	336

Source: DG Research STC key figures report 2008 Data: DG Research Notes: [1] Data include users of an RI who came to this RI up until January 2008 through an FP6 I3 or TA contract

[2] The transnational character of the access is assured by the nationality of the users in these cases (non-German users)

FIGURE II.5.13 Foreign ownership of domestic inventions[1], 2003; in brackets: the share (%) of domestic EPO patent applications owned by foreign residents



EU – 27 US Japan Other countries

Source: DG Research STC key figures report 2008
Data: OECD
Notes: [1] The share of domestic EPO patent applications owned by foreign residents The patents count is based on the priority date and the inventor's country of residence
[2] In the cases of EU-27 Member States, EU-27 refers to all Member States except the Member State under consideration

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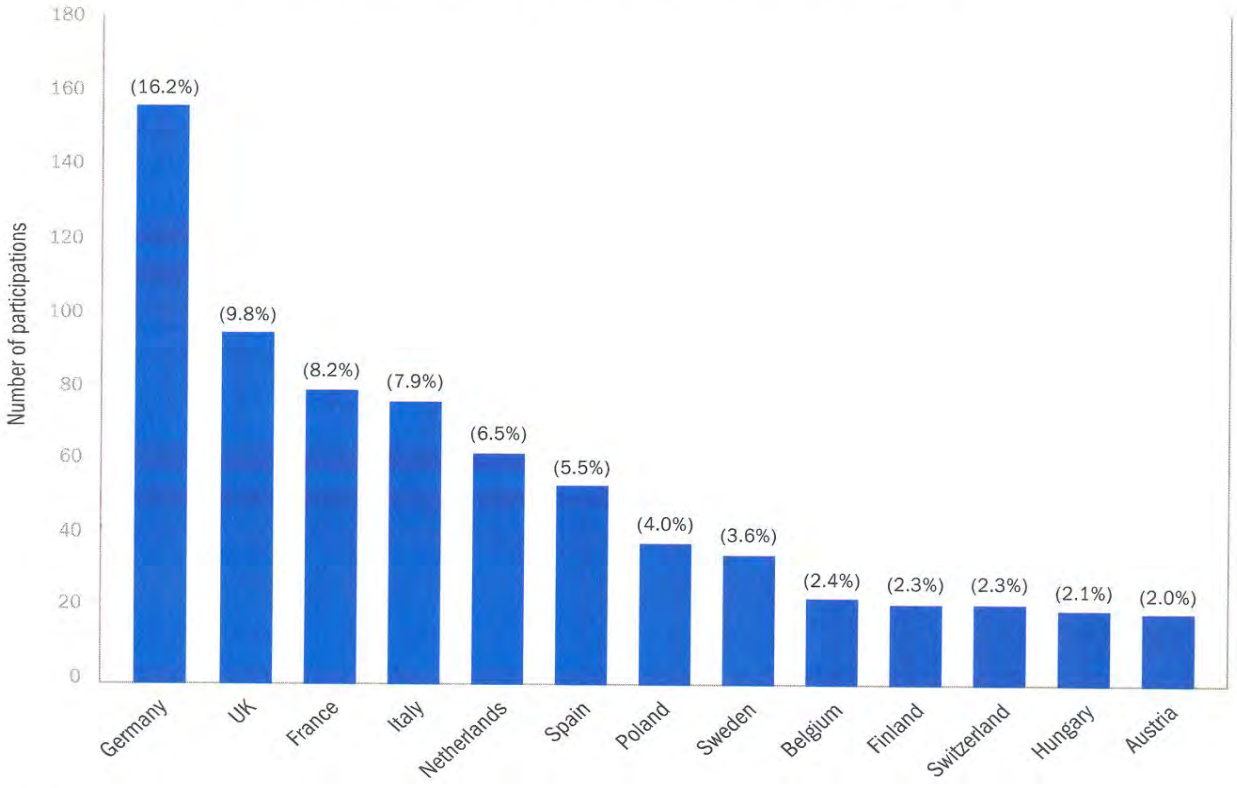

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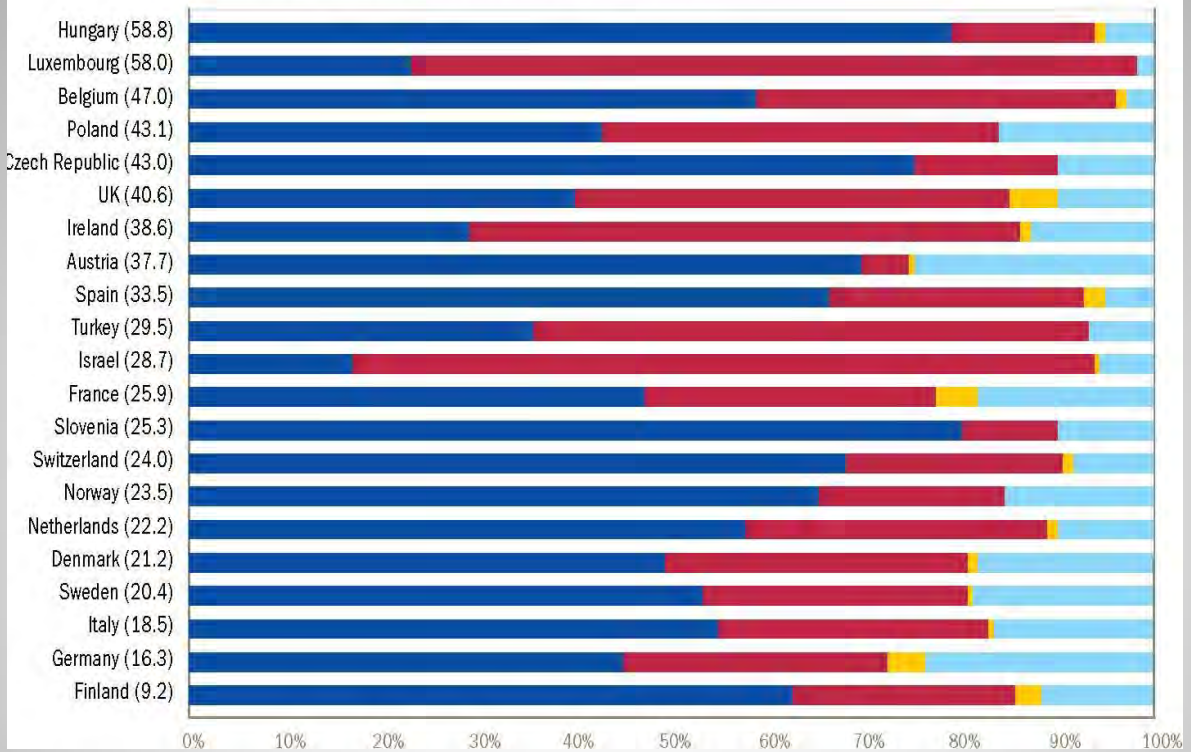

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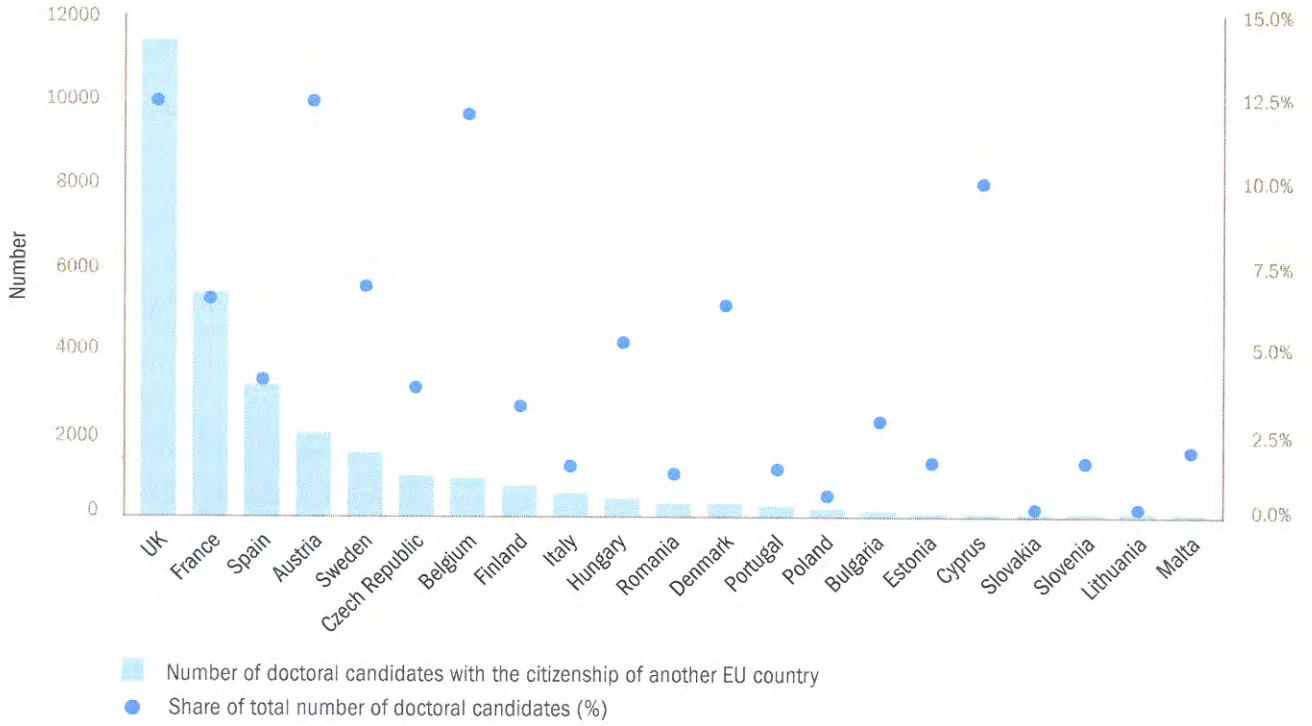
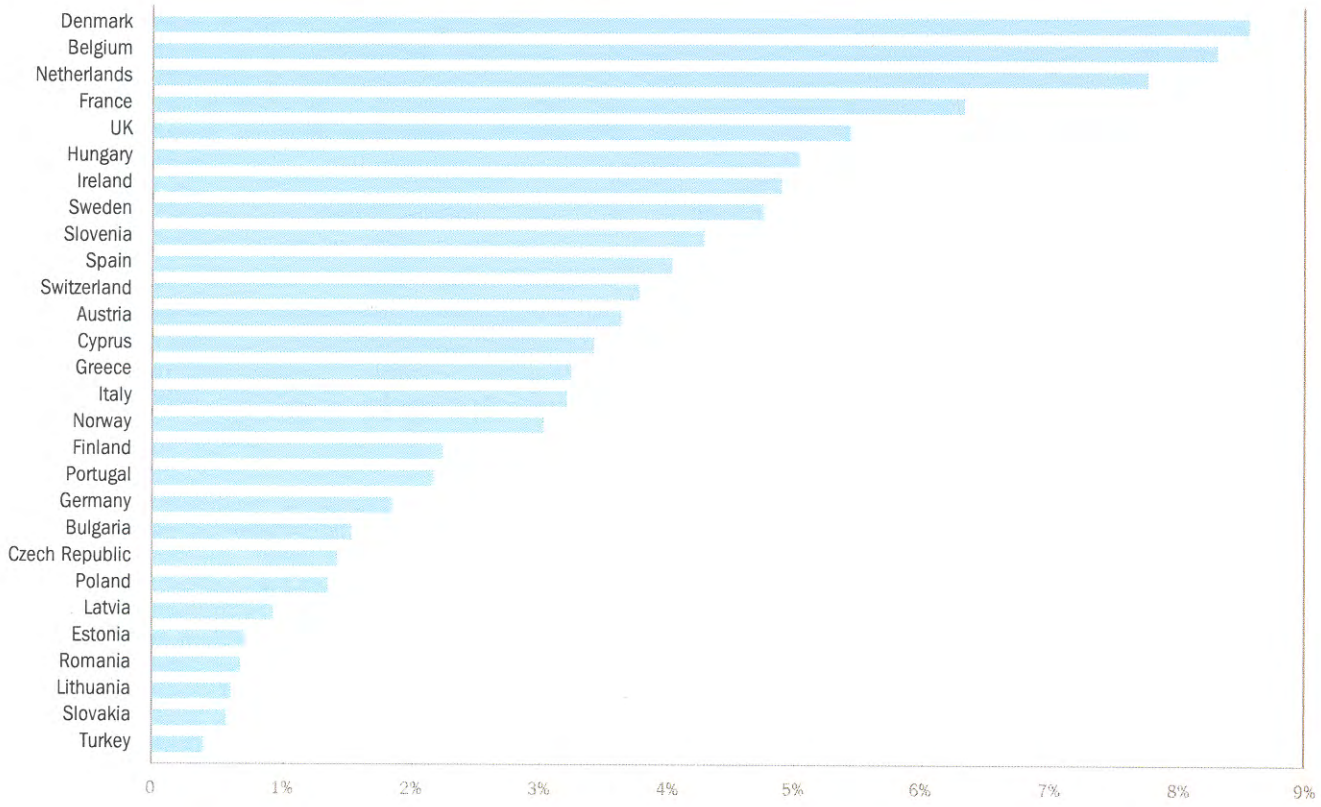
FIGURE II.4.3 EU-27 [1] – number and % share of doctoral candidates with the citizenship of another Member State in the reporting country, 2005



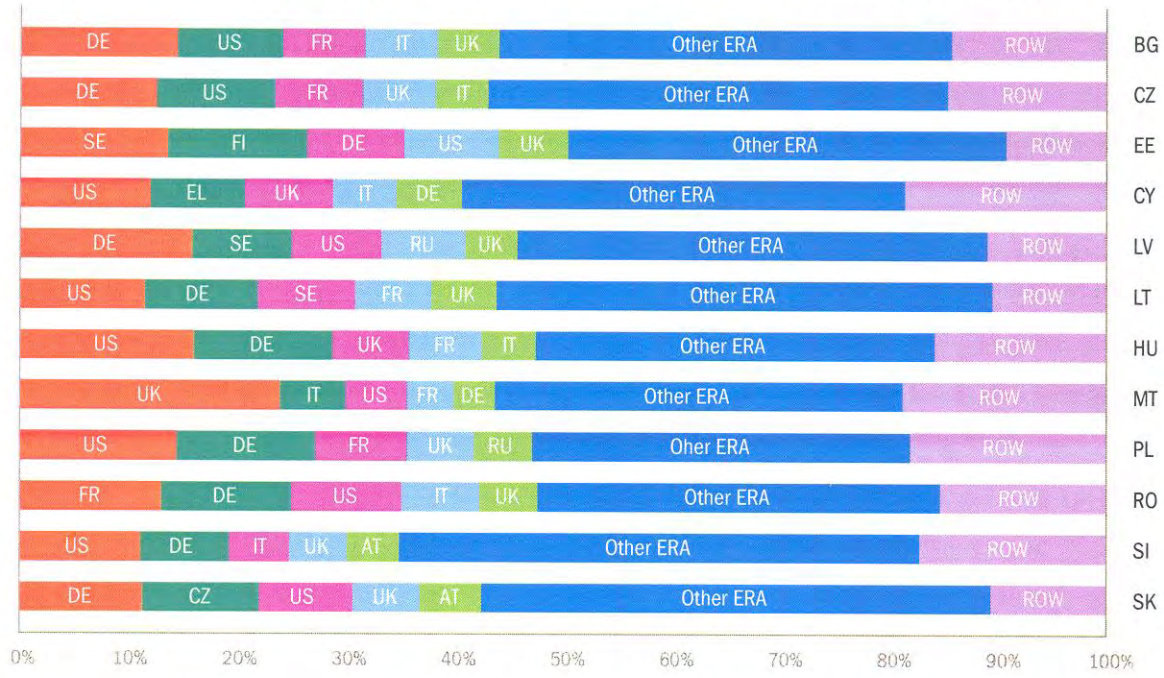
Source: DG Research
Data: Eurostat
Note: [1] EU-27 does not include: DE, IE, EL, LV, LU, NL

FIGURE II.4.4 Marie Curie Fellowships – Flows (incoming plus outgoing) [1] as % of total PhD/Doctoral graduates, 2006 [2]



Source: DG Research
Data: DG Research
Notes: [1] Outgoing applications for intra-European fellowships are included on the basis of country of residence rather than nationality of the applicant
[2] Total PhD/Doctoral graduates refers to 2006 for all countries except Italy (2004)

FIGURE II.5.3 The five main co-publication partners of each of the 12 new Member States (%), 2000-2006



Source: DG Research
Data: Thomson Scientific/CWTS, Leiden University

Polish participation in FP's

- Participation of Polish teams in total number of projects:

2003: 19%

2008: 10.2%

- Received funding/contribution to EU budget:

2003: 1.8

2008: 0.42

Other initiatives

- ESFRI
- Joint Technology Initiatives
- ERA-Net (ca 30 projects)
- European Charter for Researchers and Code of Conduct for their recruitment

Conclusions

- Waste of opportunities?
- Comprehensive SWOT analysis needed
- Identification of underlying factors
- New supporting mechanism and incentives