



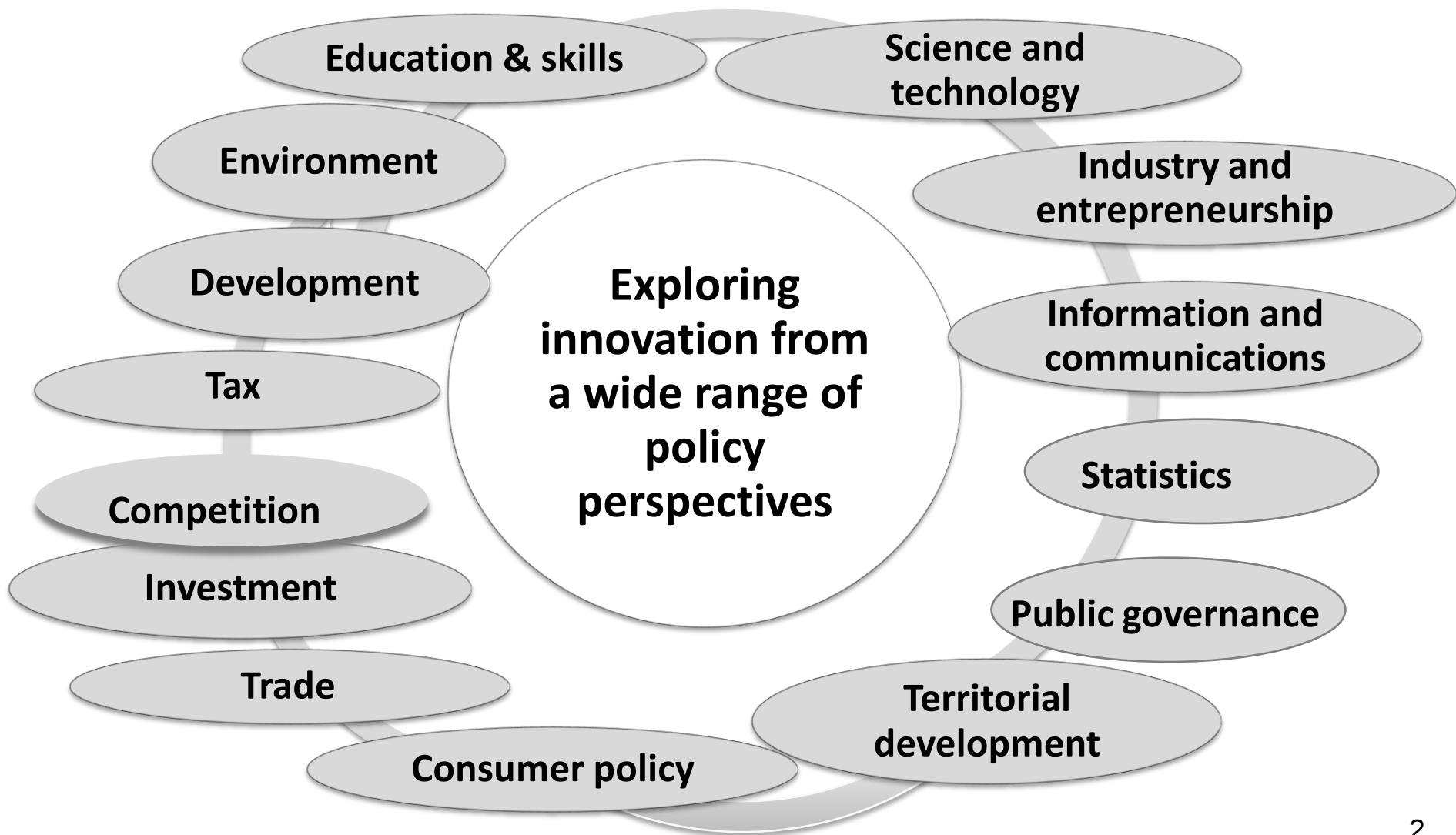
OECD Innovation Strategy

**Prague Round Table,
30-31 March 2010**

Iain Gillespie & Mario Cervantes

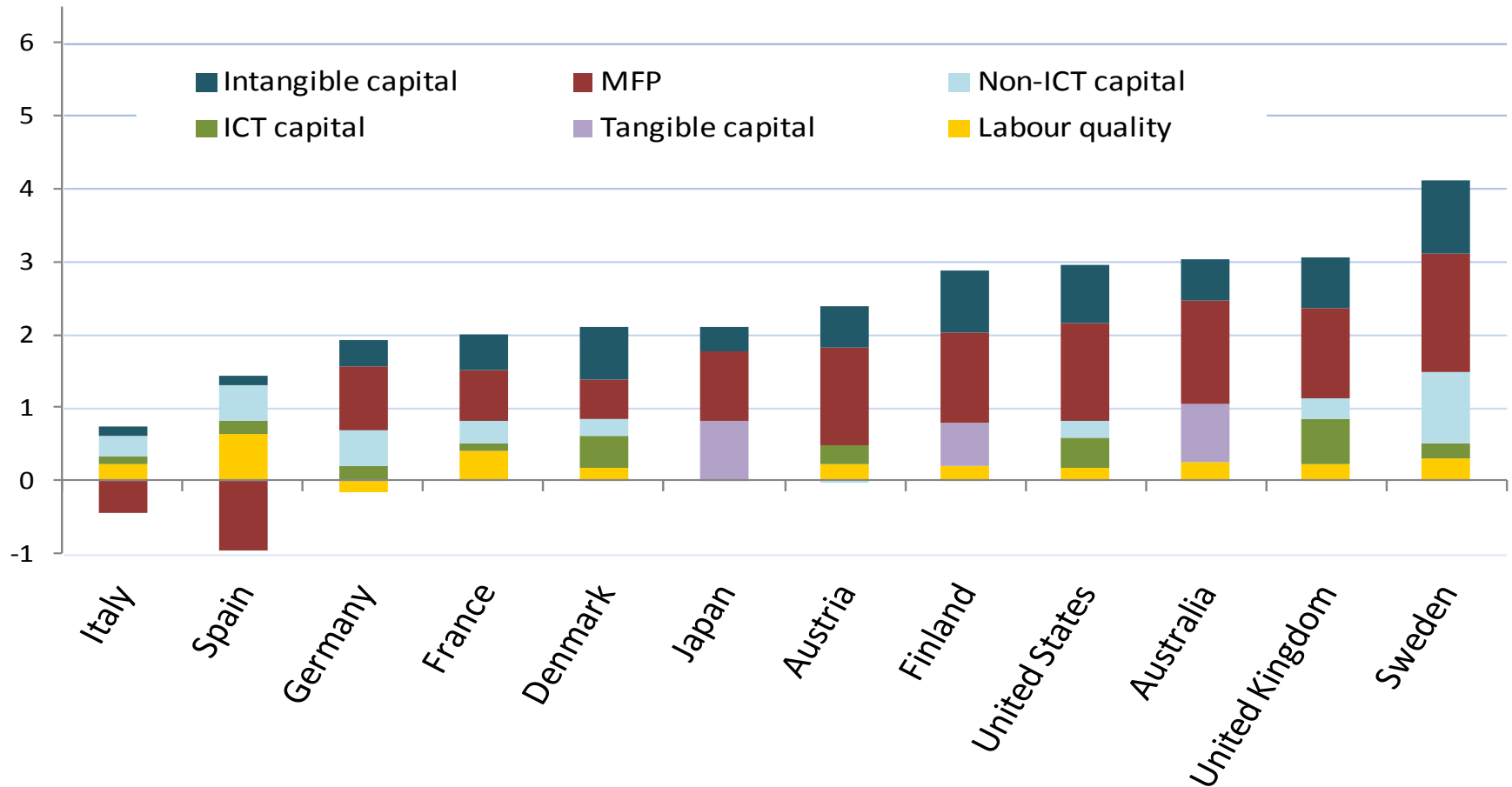
The OECD Innovation Strategy:

Cutting across policy areas



Innovation is key to growth...

Contributions to labour productivity growth, 1995-2006, in %



** Investment in intangibles and multi-factor productivity growth account for between two-thirds and three-quarters of labour productivity growth.*

... accounts for most of the difference between developed and emerging economies...

Decomposition of cross-country differences in GDP per capita into their determinants, 2005

(United States = 100)

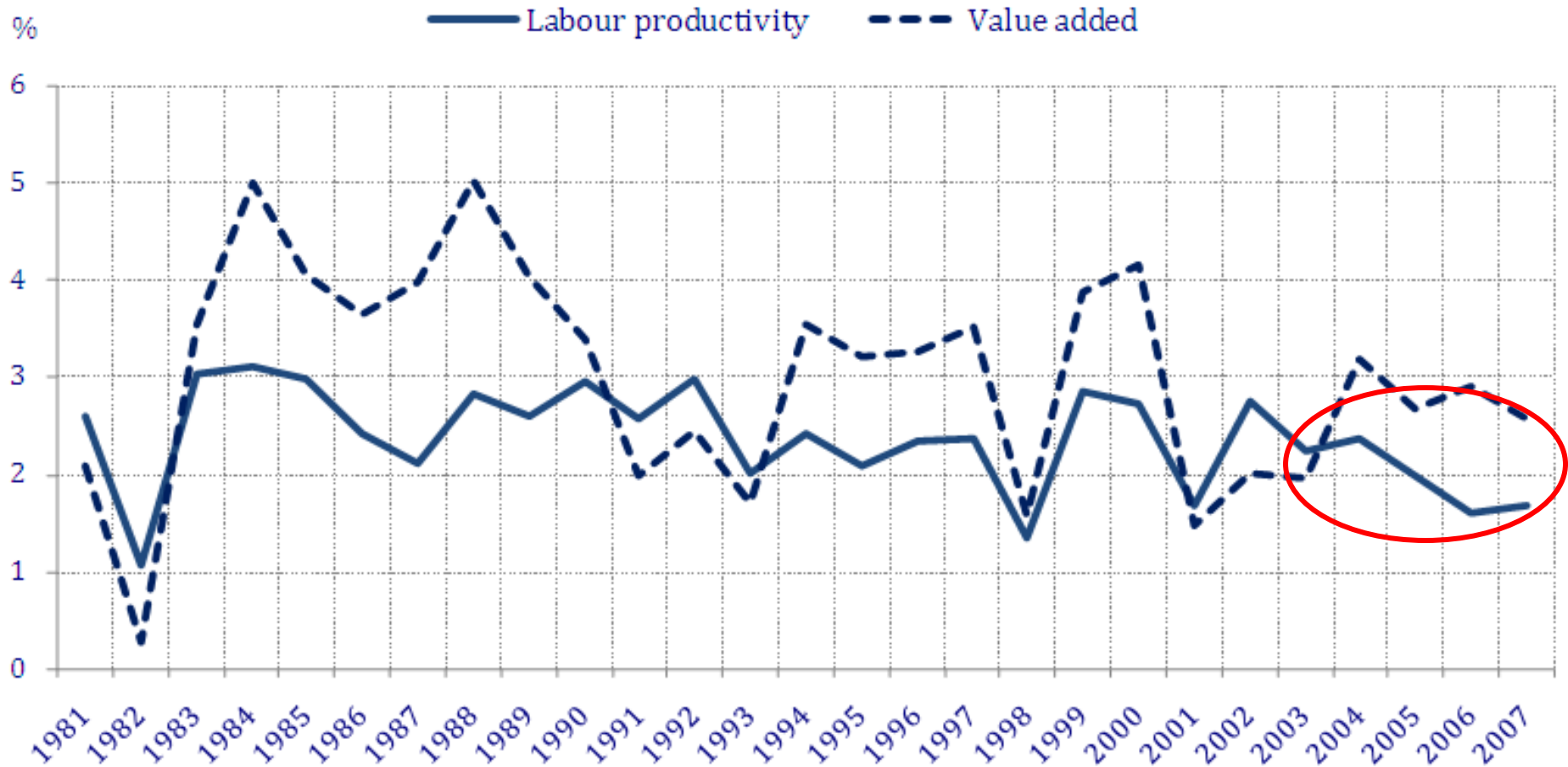
	GDP PPP per capita	TFP	Human capital	Physical capital	Employment
United States	100.0	100.0	100.0	100.0	100.0
Canada	83.5	72.0	103.3	105.8	106.0
Japan	72.6	52.6	100.4	130.7	105.1
China	9.8	13.6	57.3	105.2	119.5
India	5.2	12.7	47.7	98.3	87.1
Brazil	20.5	29.3	70.1	103.1	96.8
Russian Federation	28.6	31.5	84.9	97.4	99.3
EU27 + EFTA	64.7	67.8	91.2	114.1	91.3
Total World	22.8	27.9	64.2	104.2	95.8

Source: OECD

..., may help restore lagging productivity growth ...

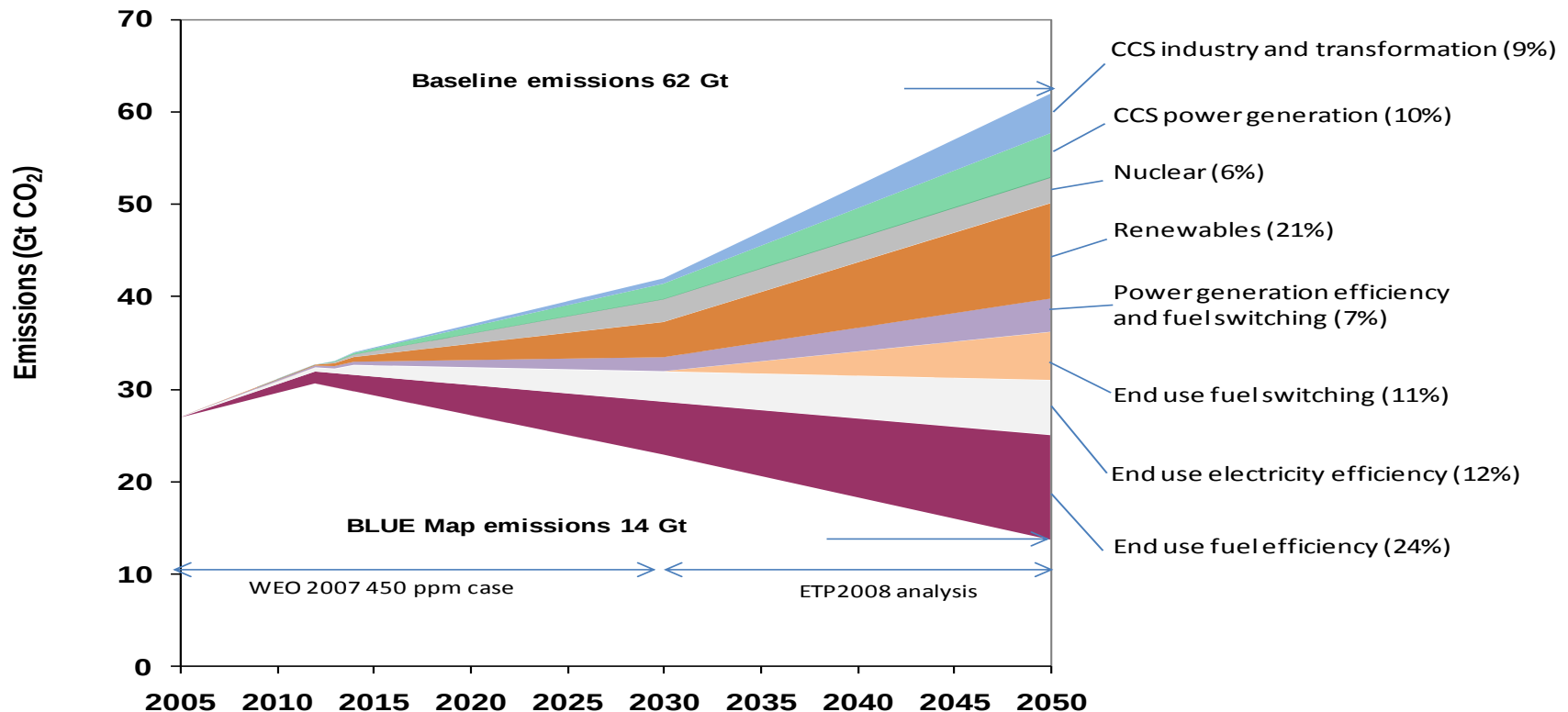
Labour productivity growth in the OECD area, 1981-2007

Annual growth rate, percentage



... can help address global & social challenges such as climate change...

Potential technological contributions to CO₂ emission reductions



Note: WEO refers to the IEA's 2007 World Energy Outlook.

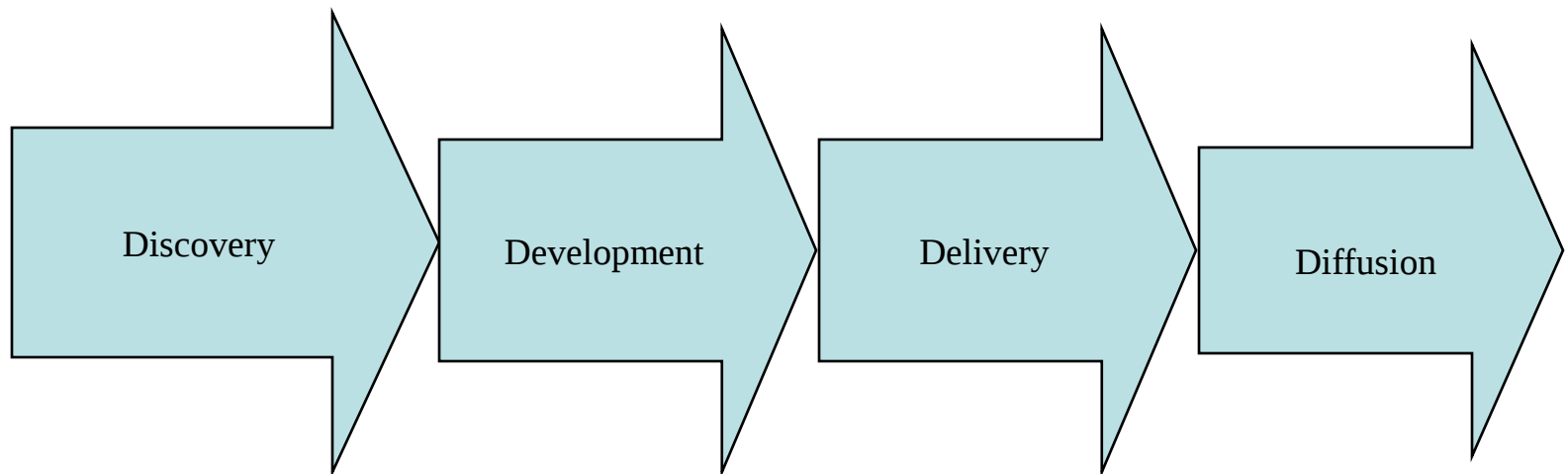
Source: International Energy Agency, Energy Technology Perspectives 2008: Scenarios and Strategies to 2050.

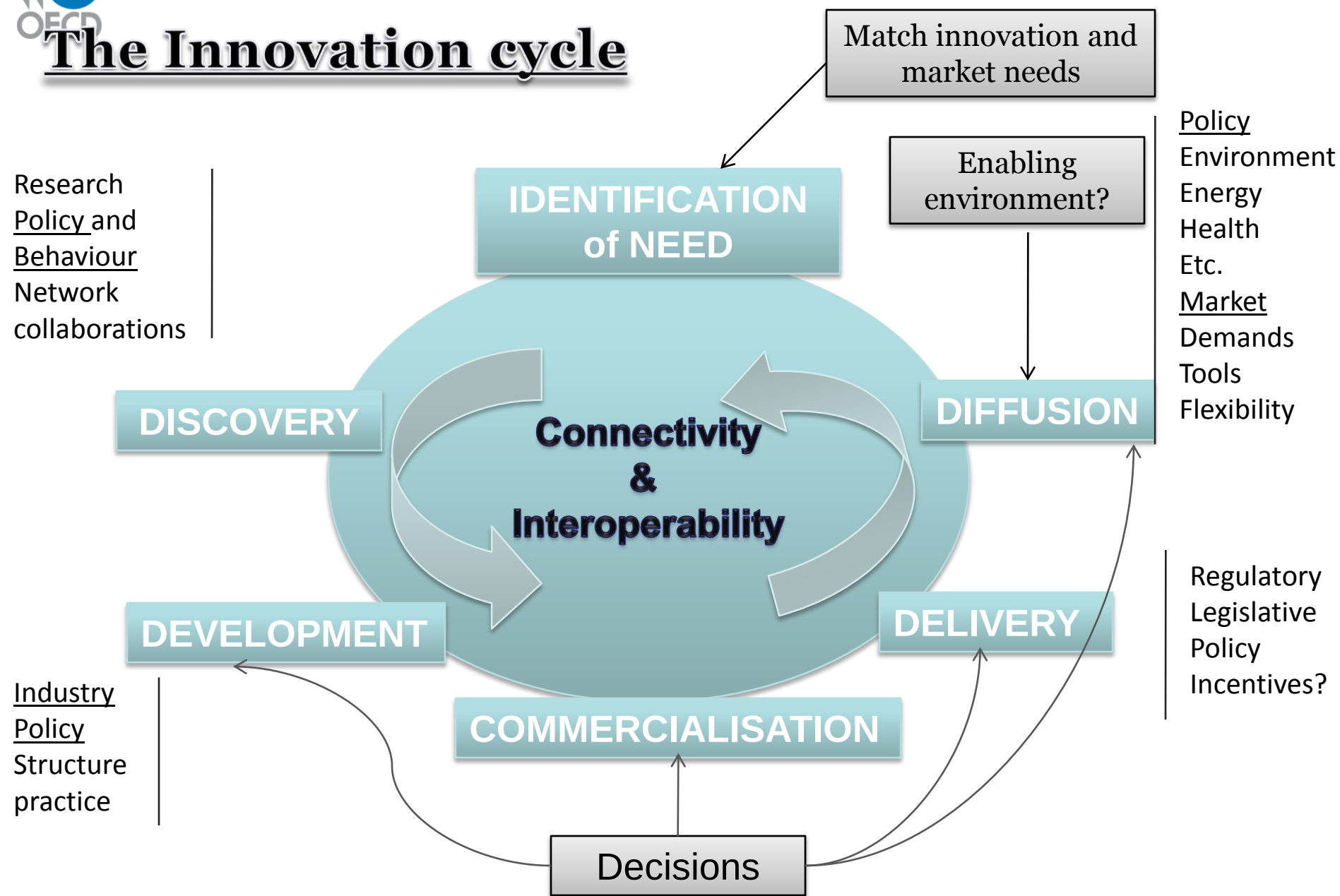
MESSAGE 1.....

- 1. Don't stop investing in STI upon exit from recovery packages**
 - Future productivity growth depends on investment in innovation and innovation infrastructure
 - Policy needs to make the link between innovation and social challenges crystal clear

Linear Model

The policy approach.....

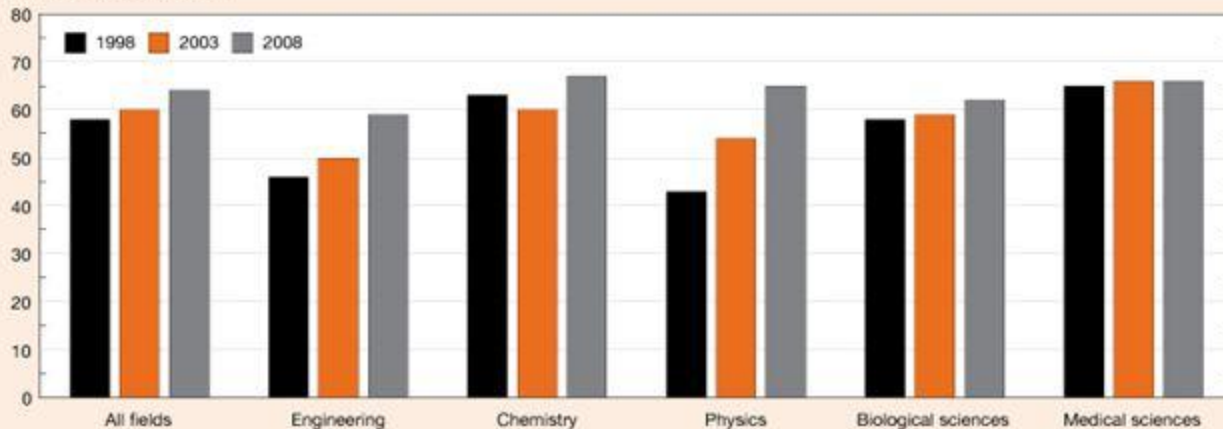




Much innovation is highly reliant on science....

Figure 5-28
Academic share of U.S. patent citations to U.S. articles, by selected field: 1998, 2003, 2008

Percent total U.S. citations



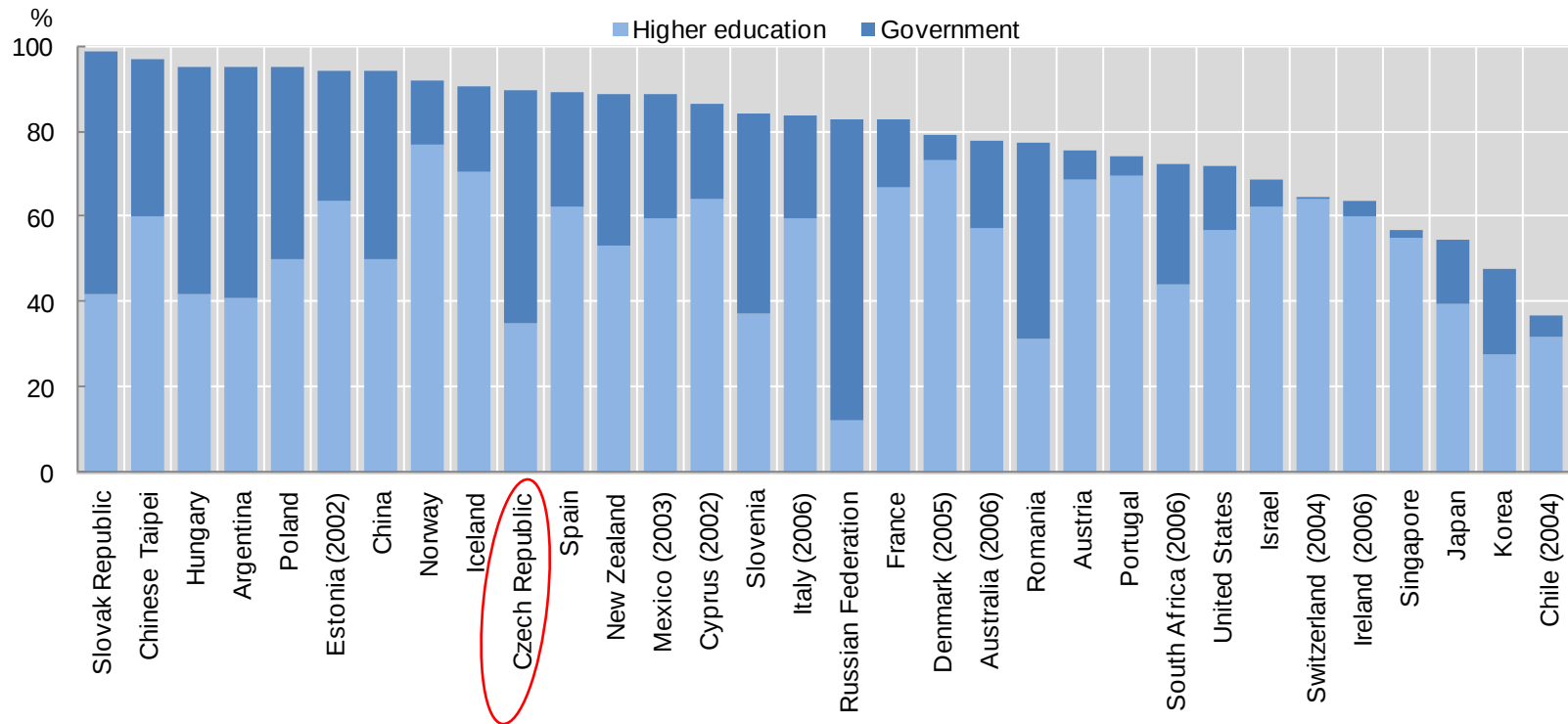
NOTES: Citations are references to U.S. S&E articles in journals covered by Science Citation Index (SCI) and Social Sciences Citation Index (SSCI). Citation counts based on a 6-year window with 5-year lag, e.g., citations for 2003 are references in U.S. patents issued in 2003 to articles published in 1993-98.

SOURCES: U.S. Patent and Trademark Office; Thomson Reuters, SCI and SSCI, http://thomsonreuters.com/products_services/science/; The Patent Board™; and National Science Foundation, Division of Science Resources Statistics. See appendix table 5-49.

Science and Engineering Indicators 2010

Public investment is key

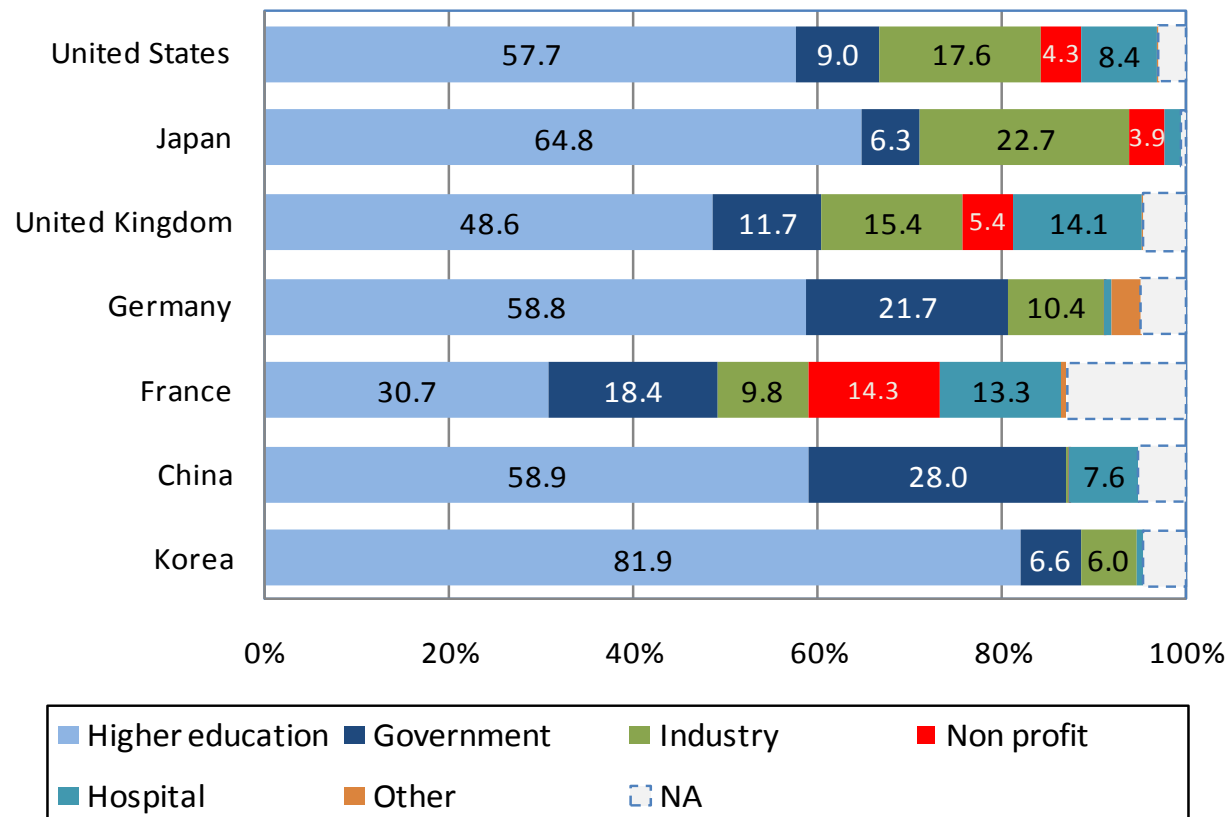
Basic research performed in the public sector, 2007 Percentage



Biotech Reliance on Public Science...

Reliance of patents on science citations

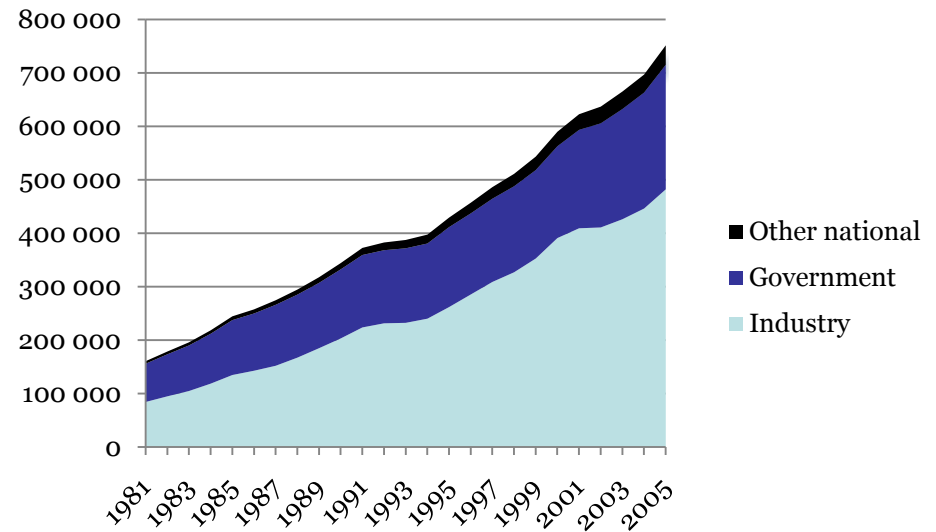
(biochemistry papers cited by pharmaceutical patents)



The financing of R&D has also changed over time ...

- Business financing of R&D has taken on greater importance as innovation has become more important for firm performance – high-tech industries have grown in particular.
- Government's share has declined and other national sources (notably non-profit institutions) have become more important sources of R&D financing.

Financing of R&D, 1981-2005

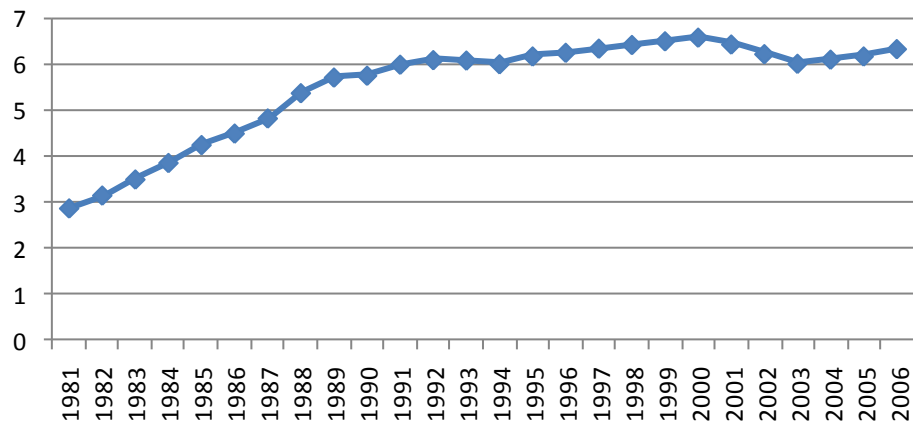


With some implications for R&D financing

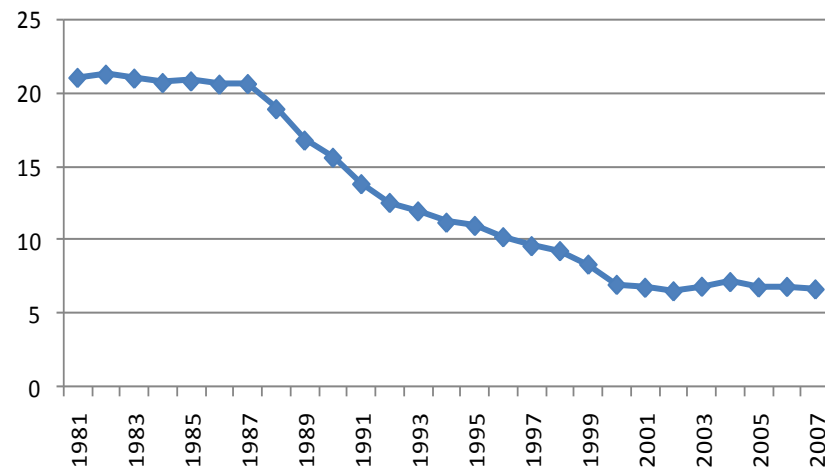
- Firms have started to finance R&D in universities to access basic research.

- At the same time, governments are funding less business R&D through direct support.

Share of higher education R&D financed by industry

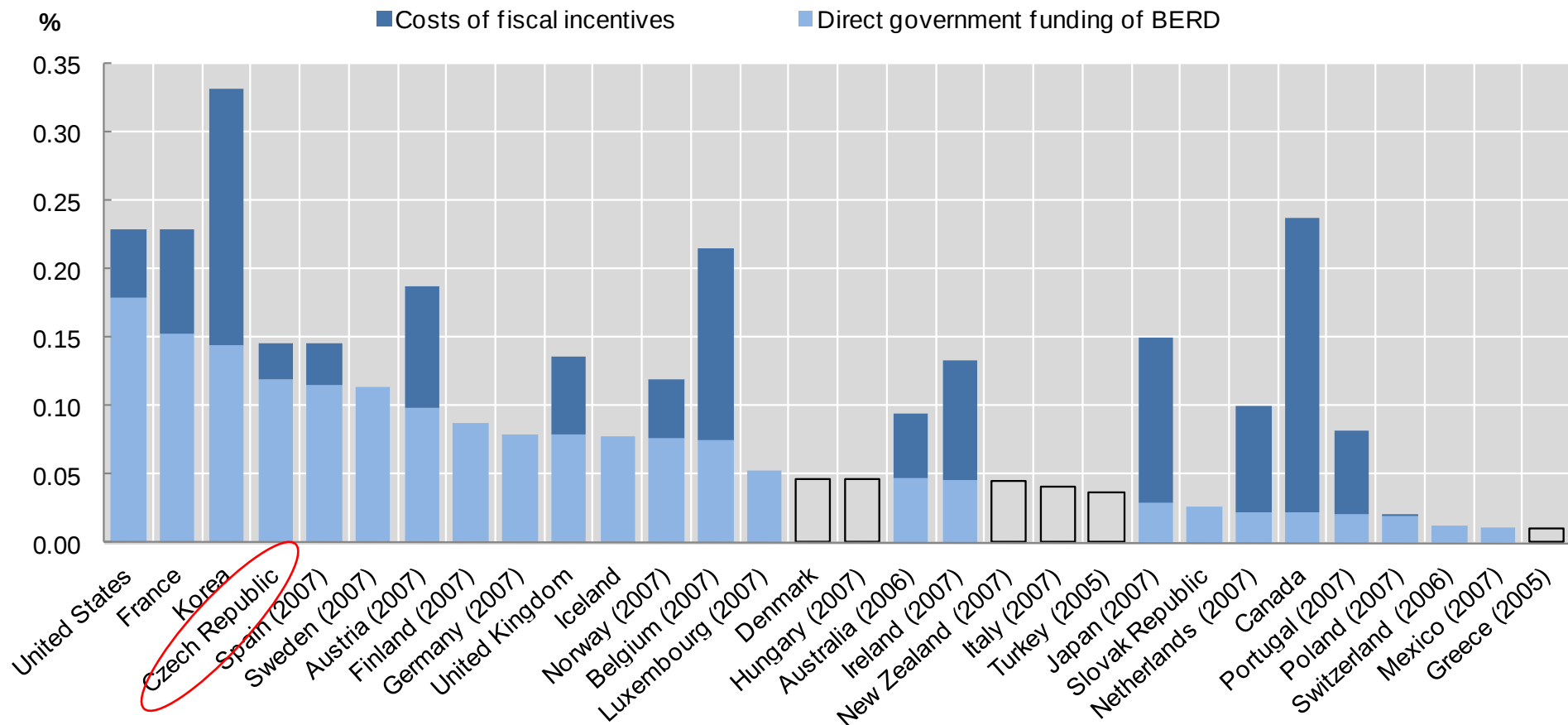


Share of business R&D financed by government



Direct and indirect government support to business R&D (BERD), 2008

As percentage of GDP

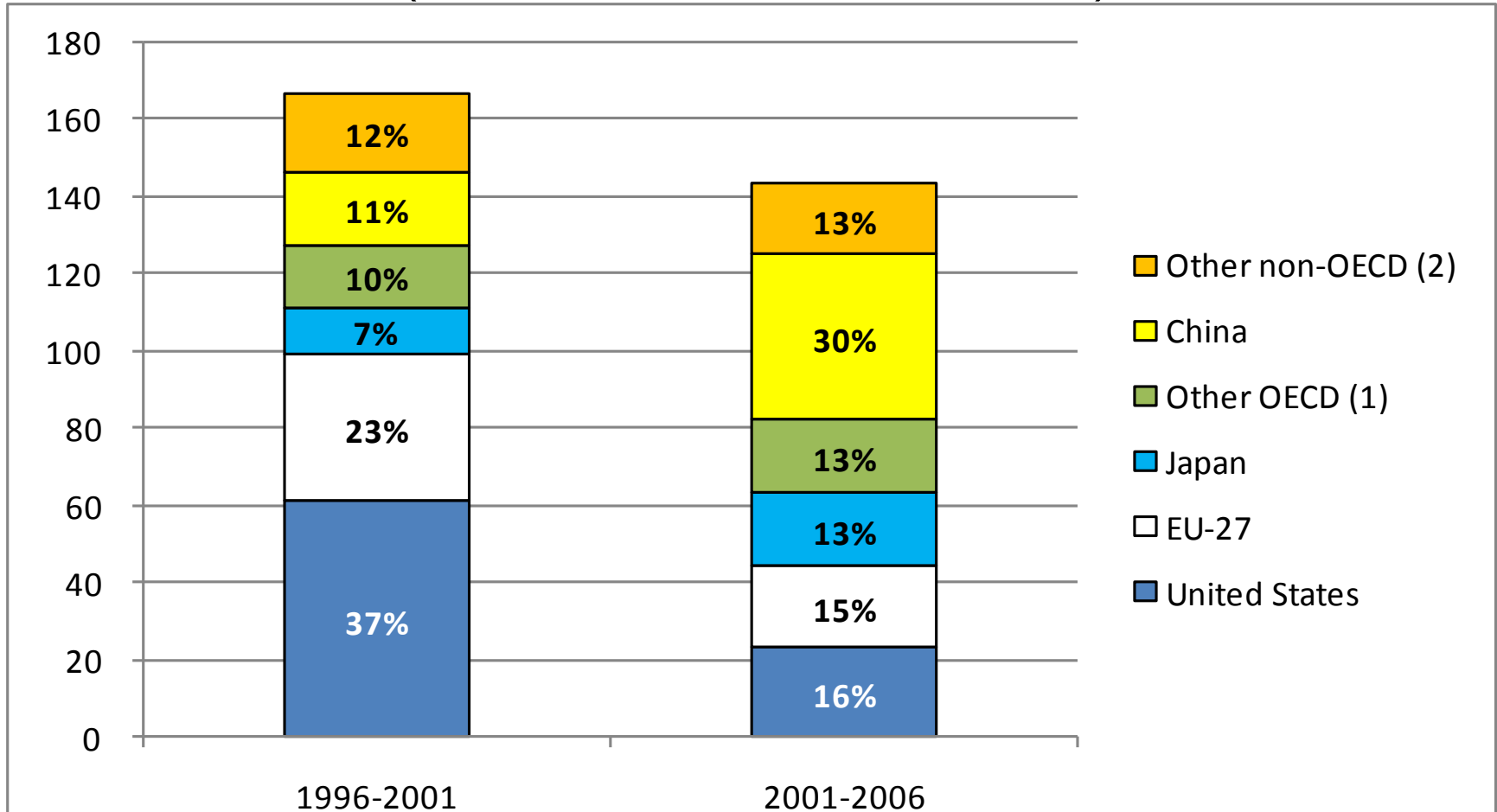


Source: OECD, NESTI 2009 R&D tax incentives questionnaire, based on national sources, some of which may be preliminary.

Note: Countries with a non-shaded bar provide R&D tax incentives but the cost of these incentives is not included yet (waiting to receive estimates).

New global players have emerged

Contributions to growth in global R&D, 1996-2001 and 2001-2006
(in billion constant US PPP and %)



Note: (1) Australia, Canada, Iceland, Korea, Mexico, New Zealand, Norway and Turkey

(2) Argentina, Brazil, India, Israel, Russian Federation, Singapore, South Africa, Chinese Taipei

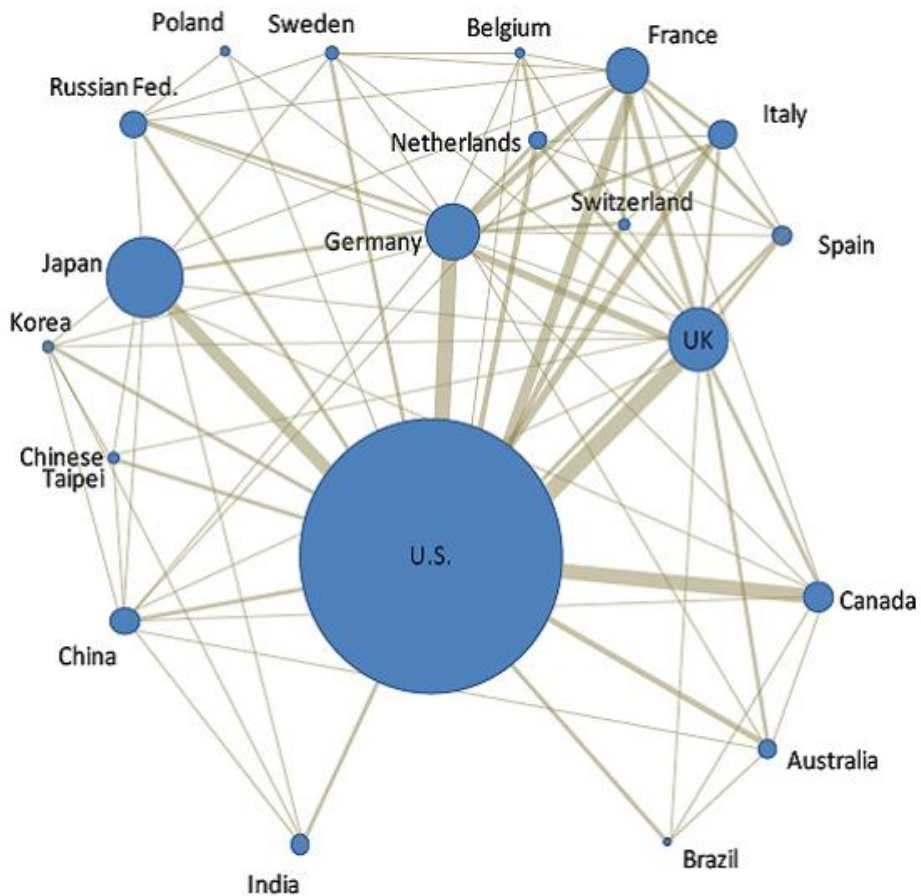
Source: OECD.

Co-operation in science is increasing

co-authored S&T articles (whole count), 1997 and 2007

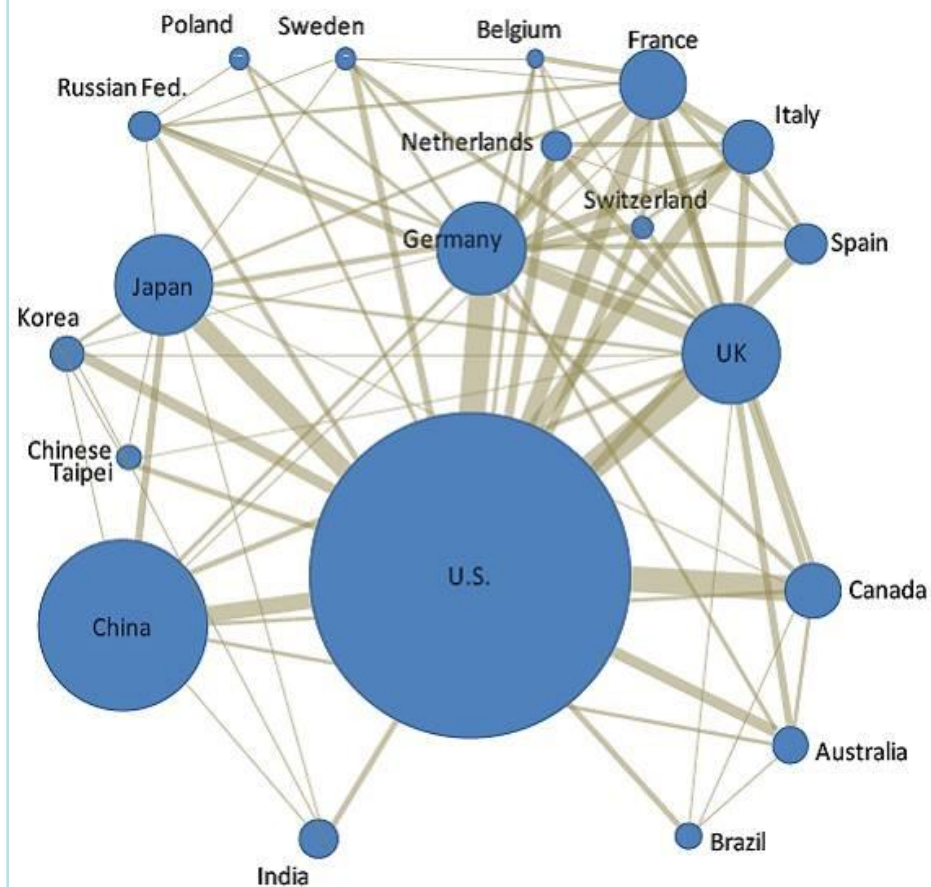
1997

1997



2007

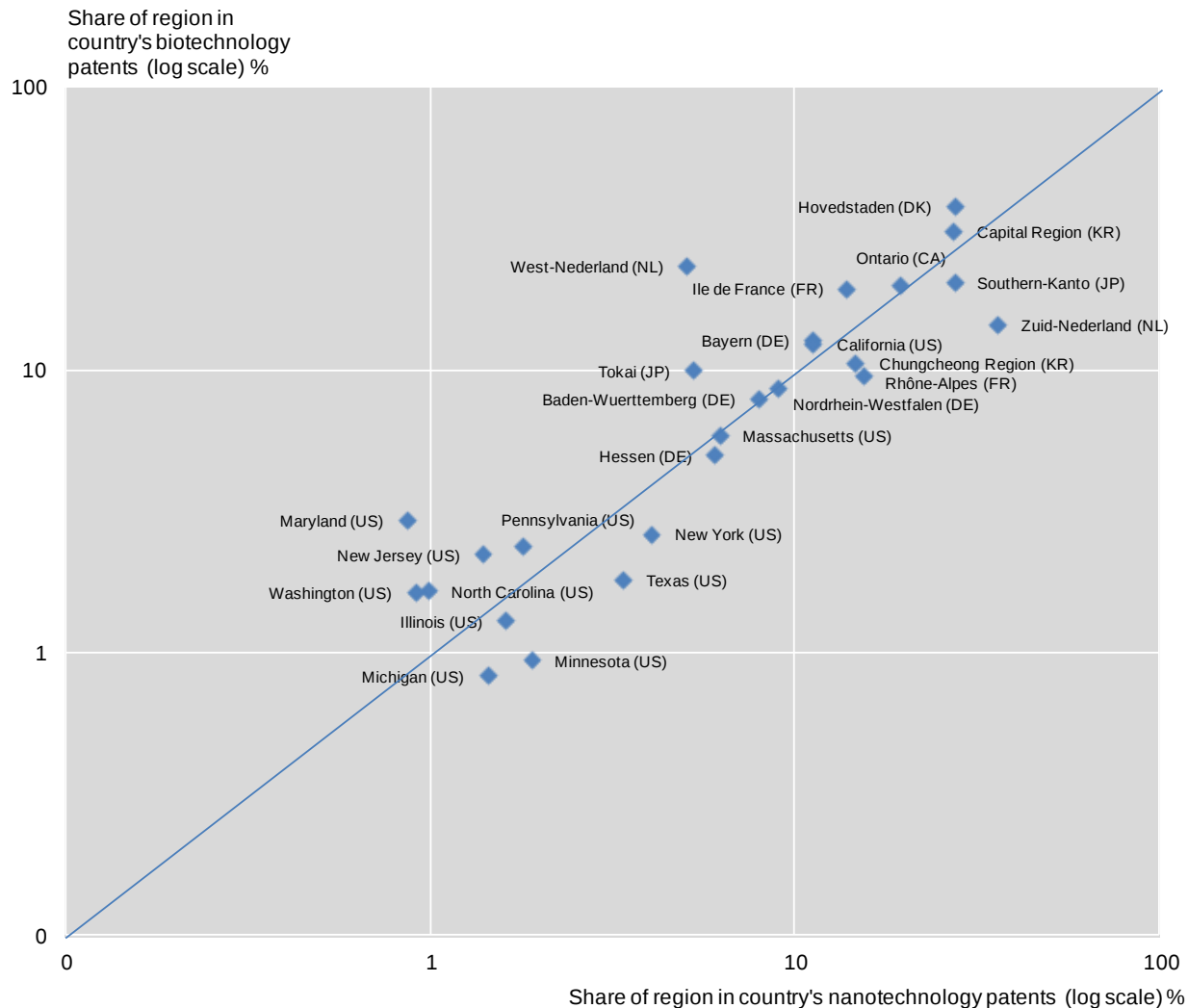
2007



...as is technology convergence

Top patenting regions in biotechnology and nanotechnology, 2005-07

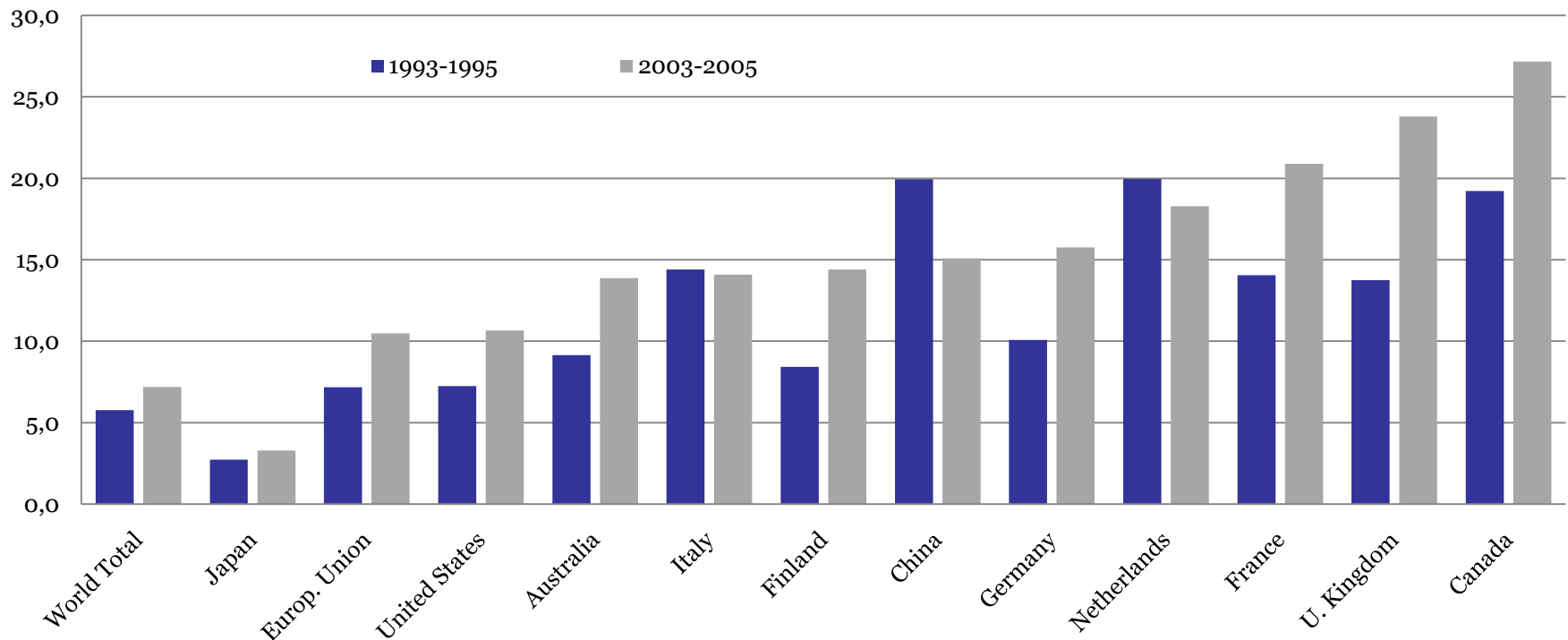
As a percentage of patents in biotechnology and nanotechnology of the country



... and innovation increasingly happens across borders

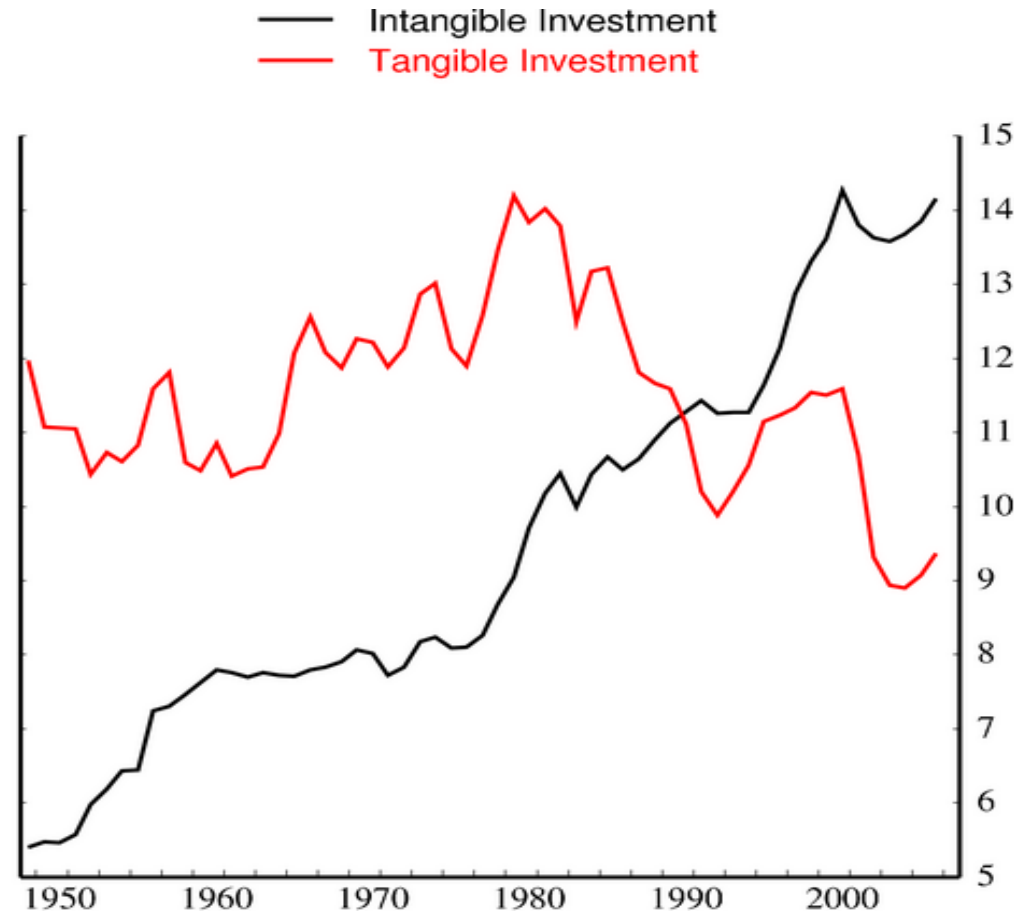
(institutions, countries, disciplines).

Share of patents with foreign co-inventors (%)

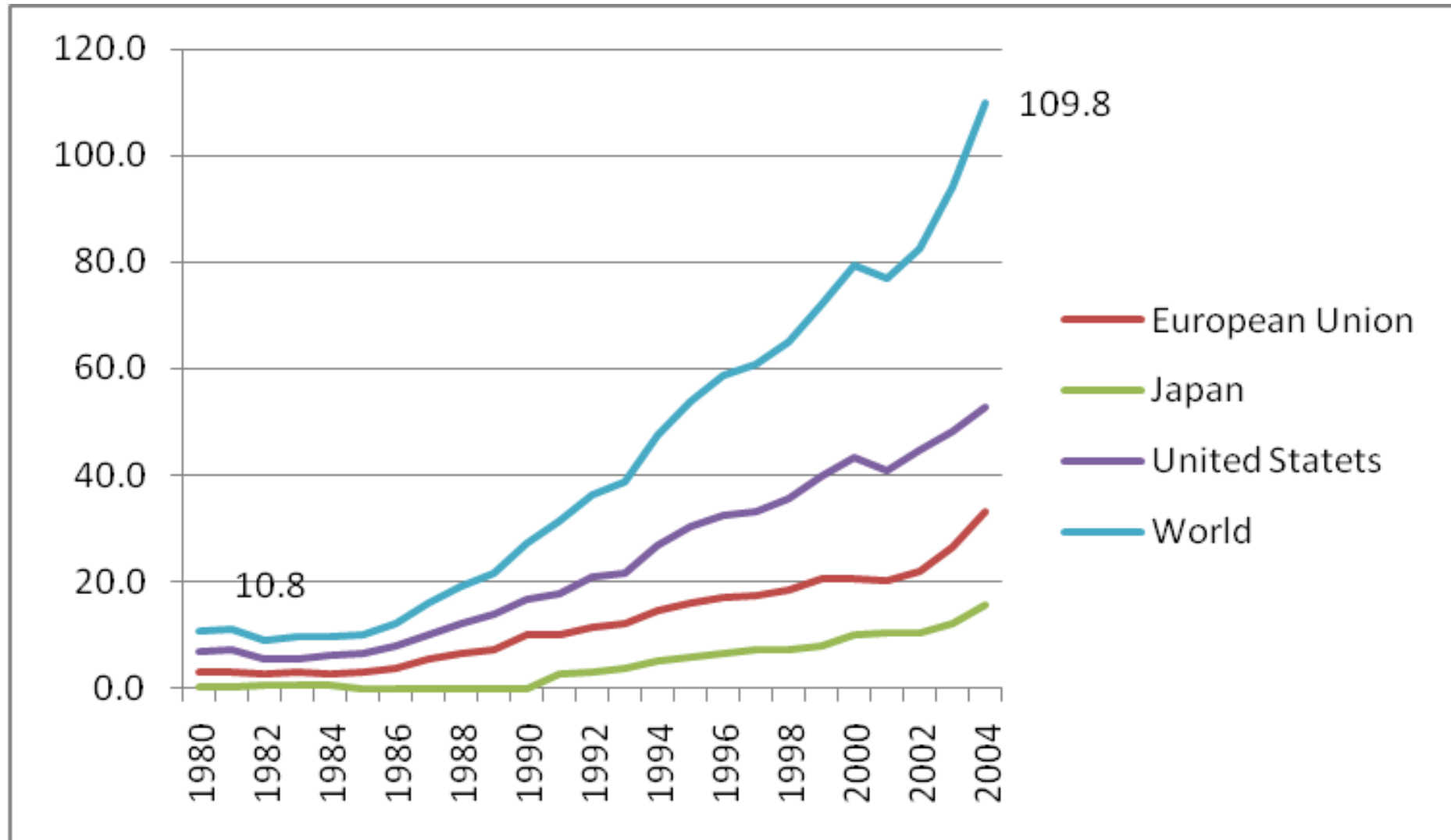


The composition of investment is shifting towards intangible assets

- Estimates for the United States show that intangible investment (software, R&D, training and organisational factors) is now larger than investment in machinery, equipment and buildings.
- Intangibles are often not included in firm (& national) accounts.

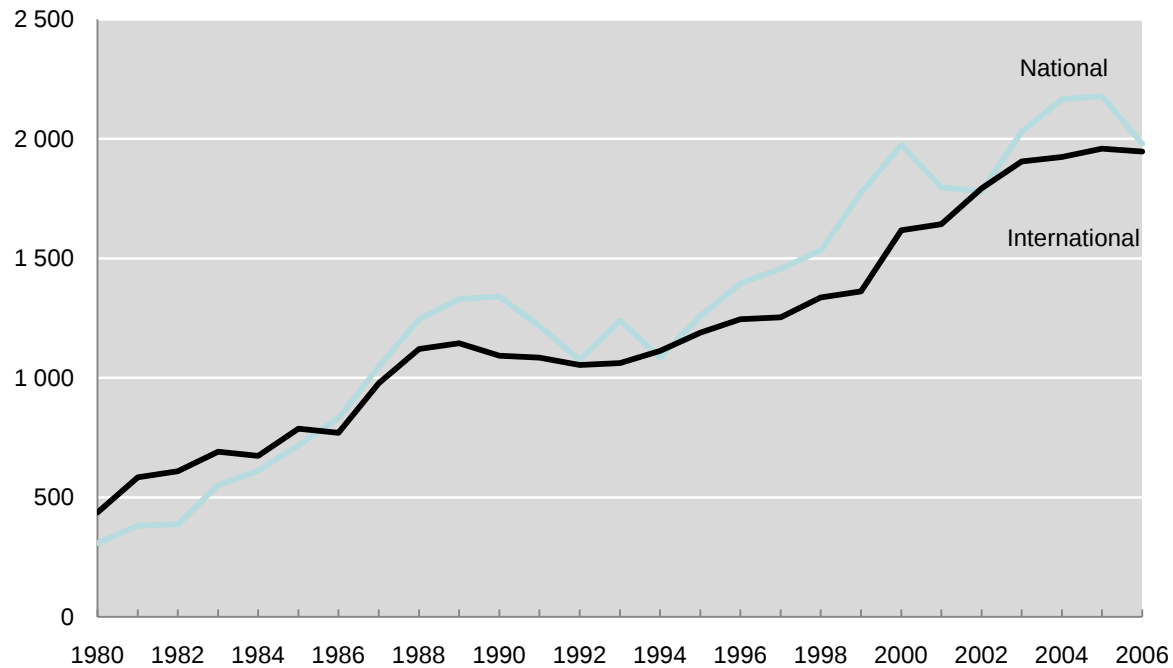


Receipts from international licensing (billions of USD)



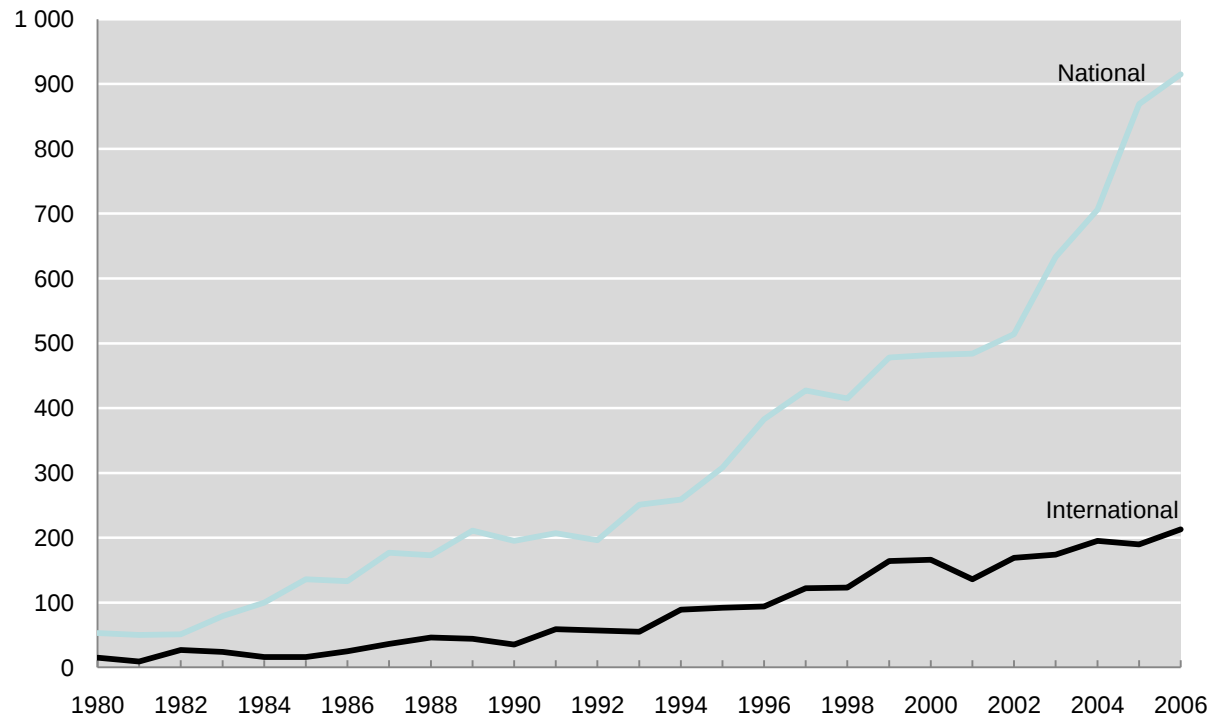
Co-ownership of Innovation is growing

Between Businesses...
numbers of co-owned patents



Co-ownership of Innovation is growing

Between Businesses and PROs...
numbers of co-owned patents



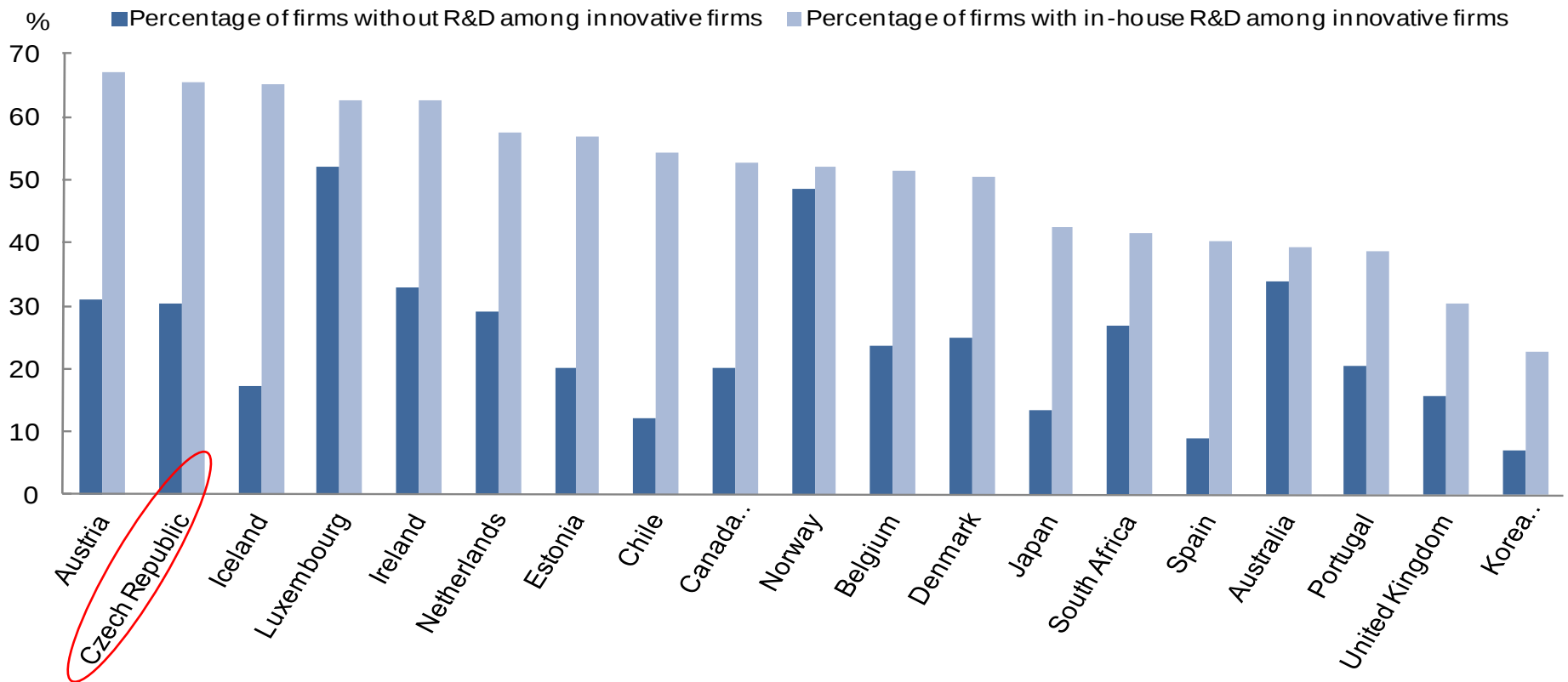
MESSAGE 2

2. Develop networks and markets for knowledge and value capture

- Intellectual asset valuation and management
- Knowledge networking and exchange
- Efficient translation across the cycle of innovation

Innovation is not only about R&D...

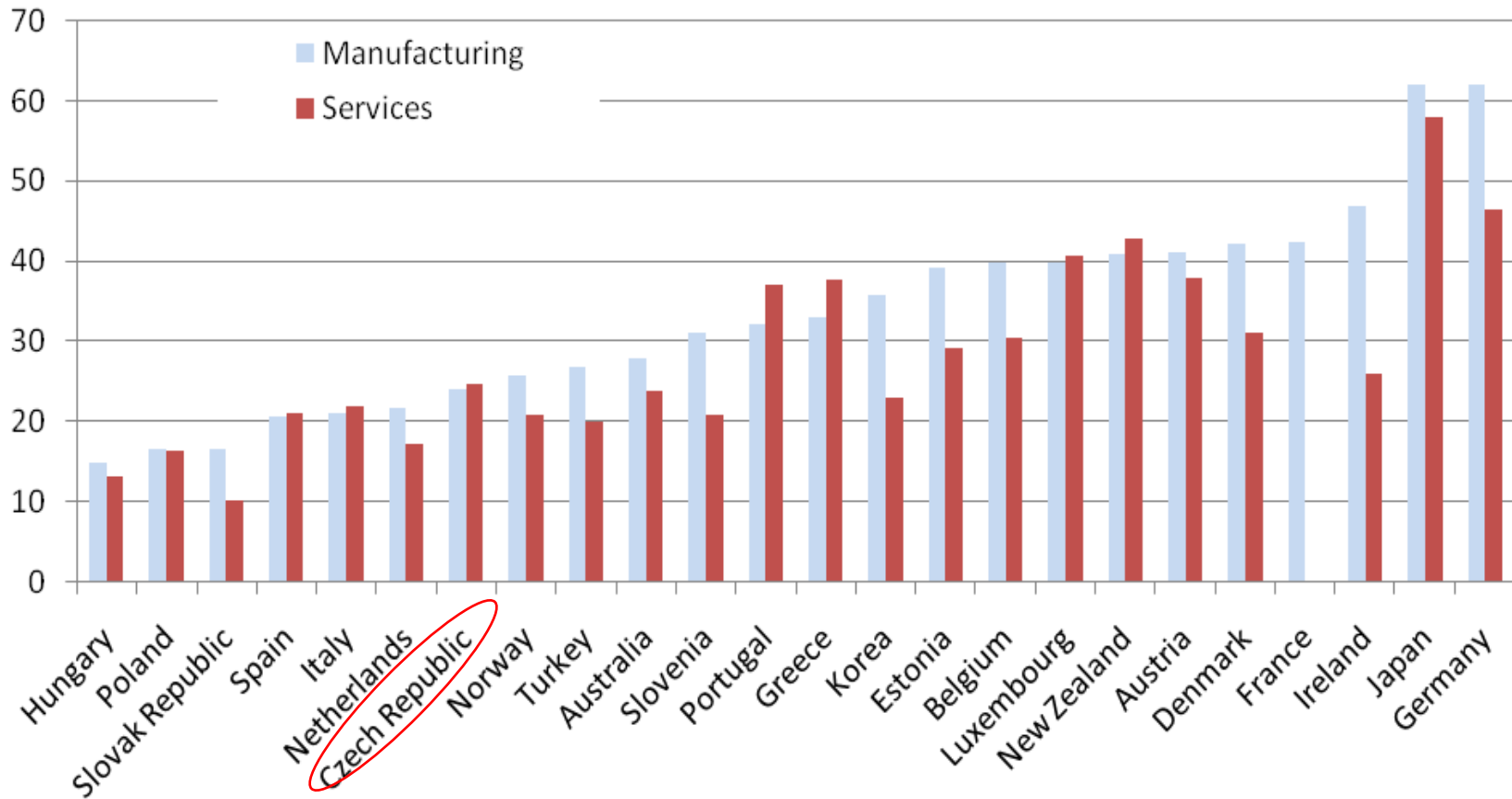
New to market product innovators with and without R&D, 2004-06 (or latest)
As a percentage of innovators



...it takes different forms...

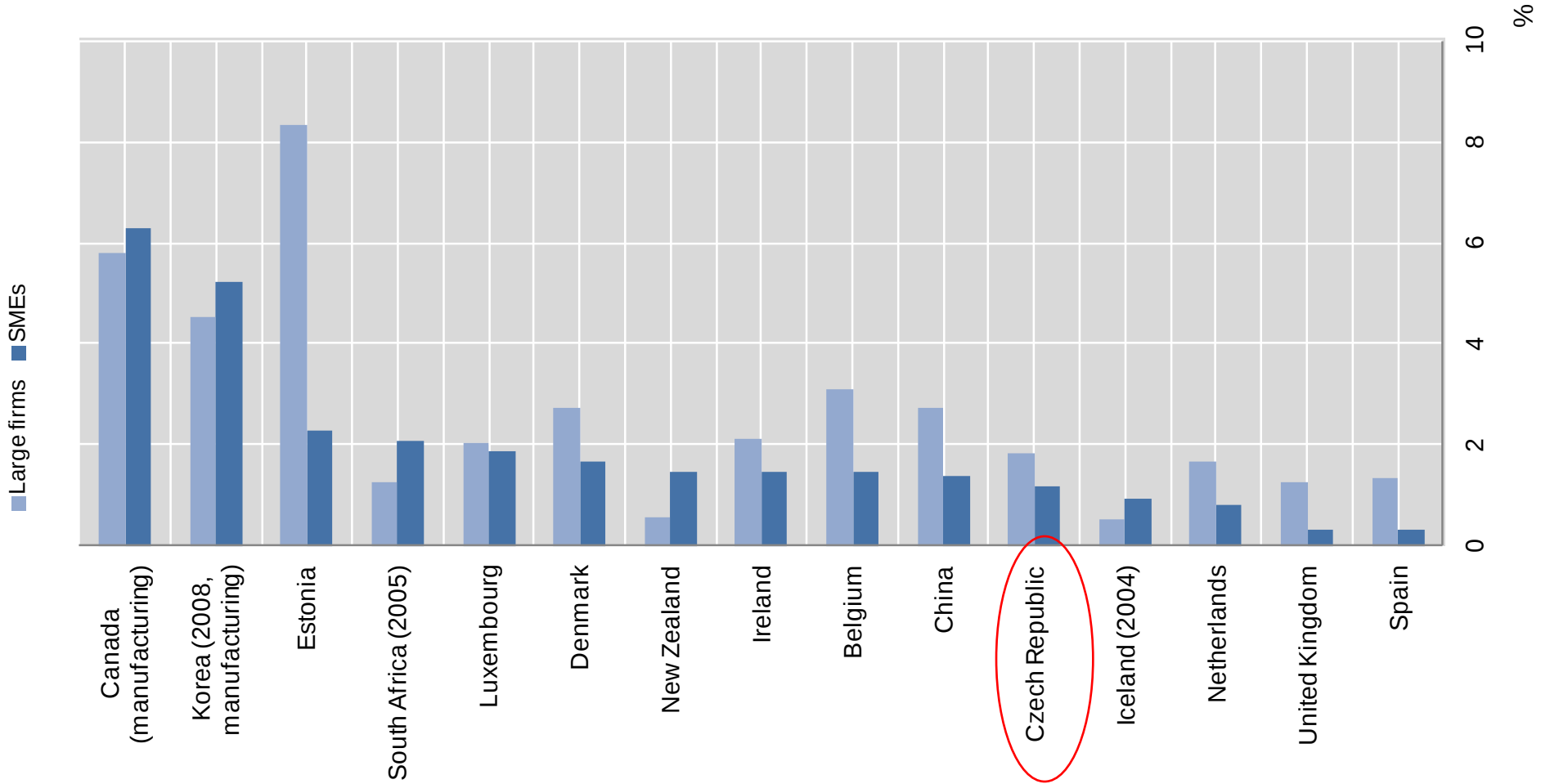
Non –technological innovators 2004-06 (or latest)

As a percentage of all firms



Expenditures on innovation by firm size, 2006

As a percentage of turnover

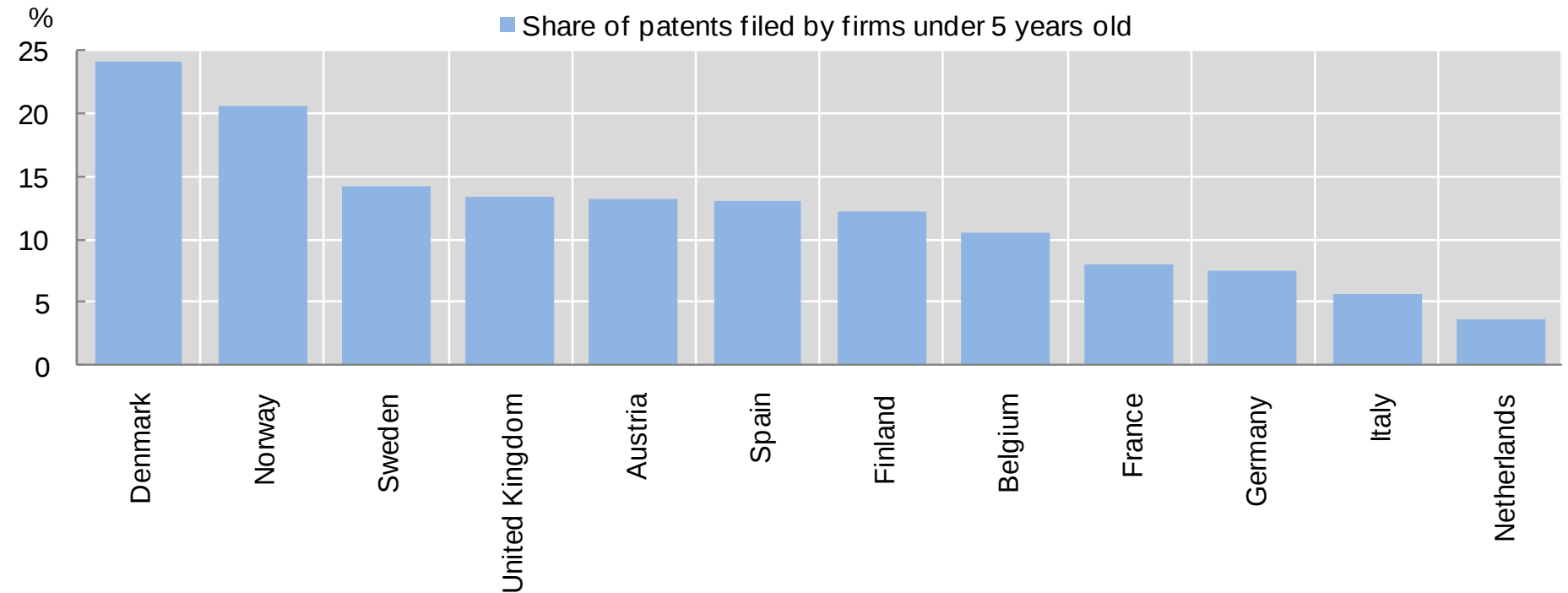


Source: OECD, NESTI innovation micro-data project based on CIS-2006 for EU countries except Iceland which is based on the CIS-4. For other countries, data are based on the latest available innovation surveys: Canada (2005), China (2006), Korea (2008), New Zealand (2007), and South Africa (2005).

Business dynamics: young firms

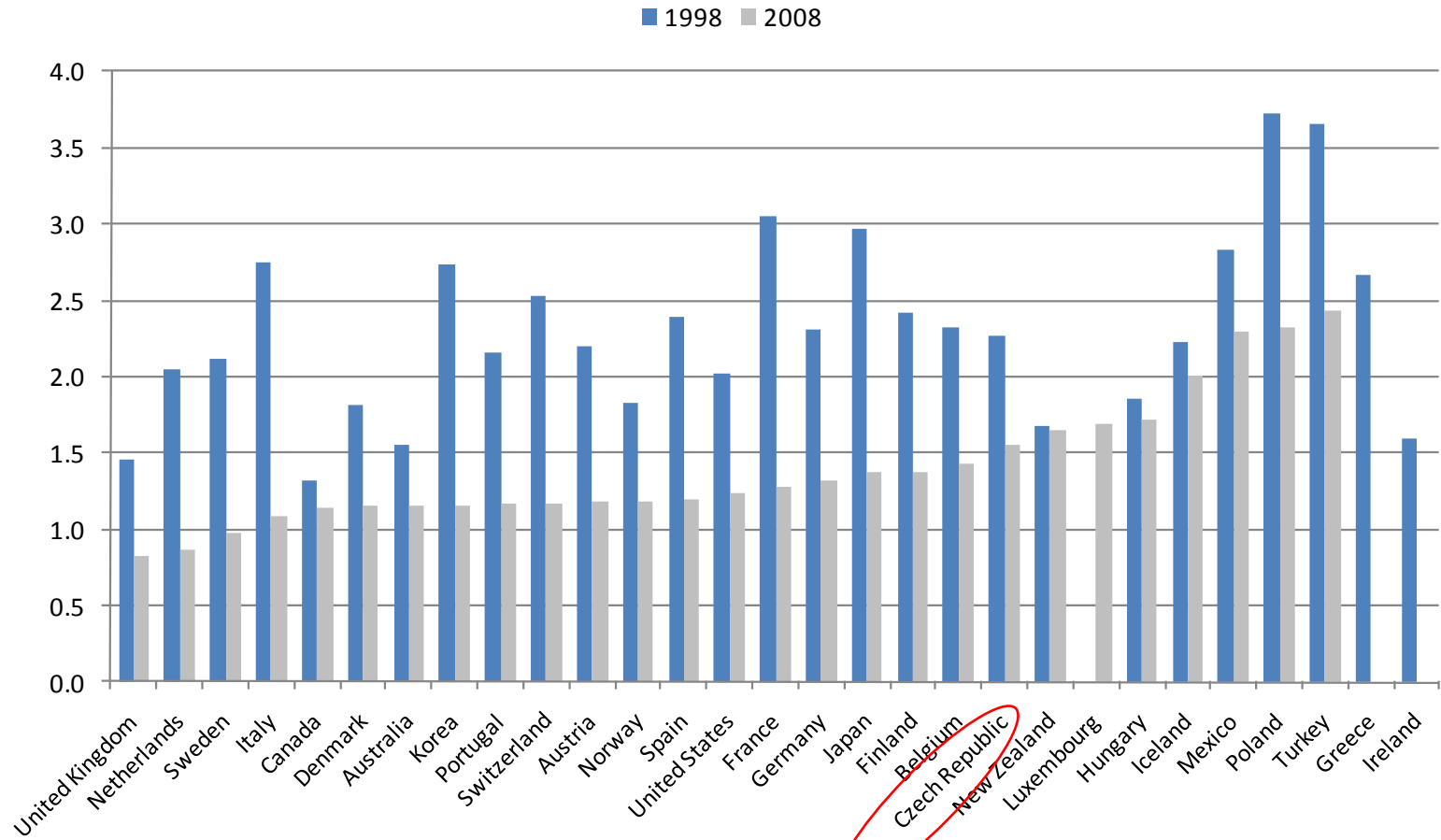
Patent applications filed by young firms, 2005

As a percentage of patents filed by firms at the European Patent Office (EPO)



Barriers to entrepreneurship

Scale from 1-6



MESSAGES 3 & 4.....

3. Overcome barriers to young firms and entrepreneurship

- Reduce churning barriers
- Capture value from young firms

4. Enact policies to deliver coherence between demand and supply side policy measures

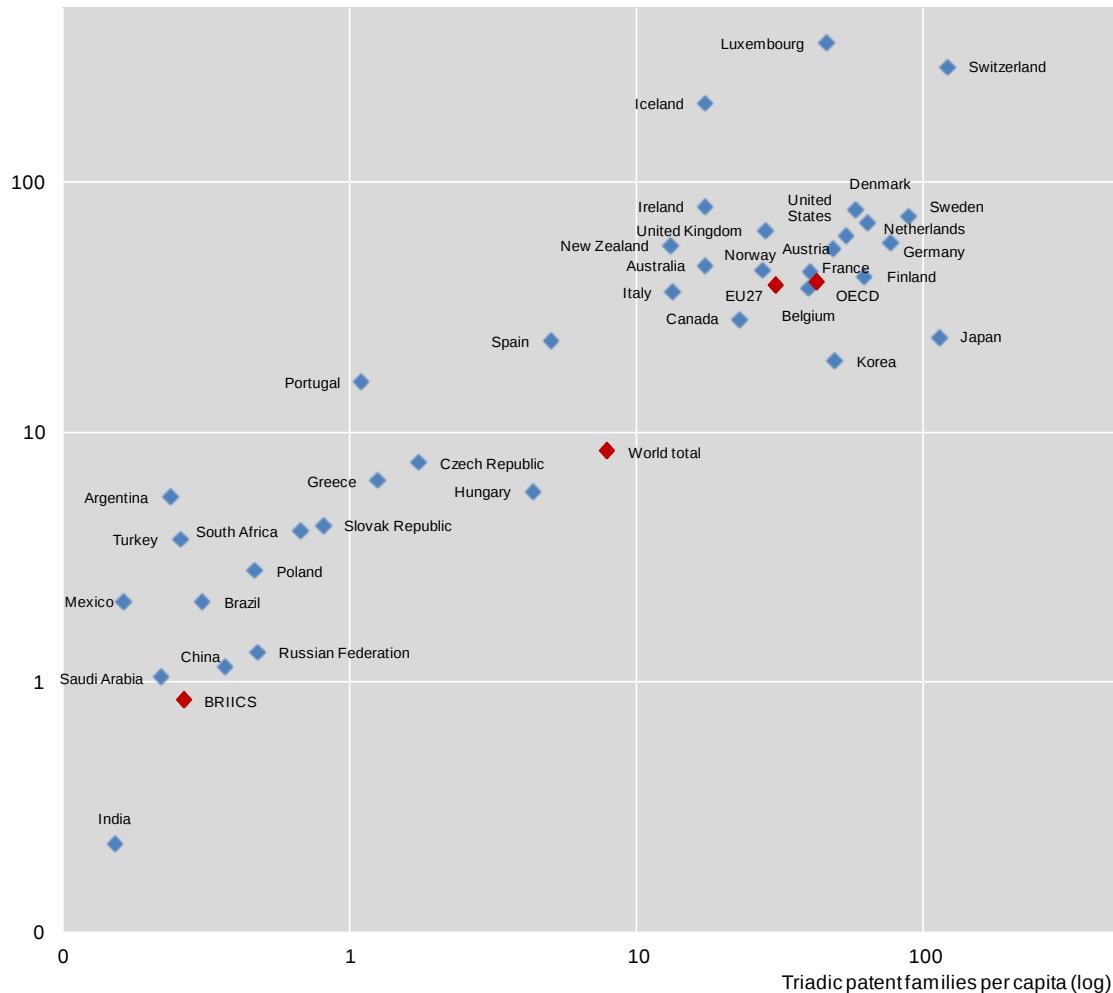
- Match supply and demand side signals
- Strategic perspective of how science can drive innovation, how innovation can drive science and how the market affects this.

Technological and non-technological innovation unevenly distributed

Patents and trademarks per capita, 2005-07

Average number per million population, OECD and G20 countries

Cross-border trademarks
per capita (log)



In summary.....

1. Don't stop **investing** in STI upon exit from recovery packages
2. Develop networks and markets for **knowledge** and value capture
3. Overcome barriers to young firms and **entrepreneurship**
4. Enact policies to deliver coherence between **demand and supply** side policy measures
5. New model for governing **multilateral STI** co-operation
6. New **metrics**, especially for intangibles and outcomes

For further information

OECD website

www.oecd.org/innovation/strategy

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