
dti

Productivity, Science and Innovation – The Role Government Can Play

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Presentation Overview

- Importance of Productivity
- Challenging global environment
- UK productivity framework
- Science and innovation as a productivity driver
- Conclusion

Importance of Productivity

- Productivity crucial for higher living standards
- The external context is changing
  - Greater global competition for manufacturing and services
  - Pressing global challenges (climate change, ageing, security, pressures on resources)

Growth inside and outside Europe

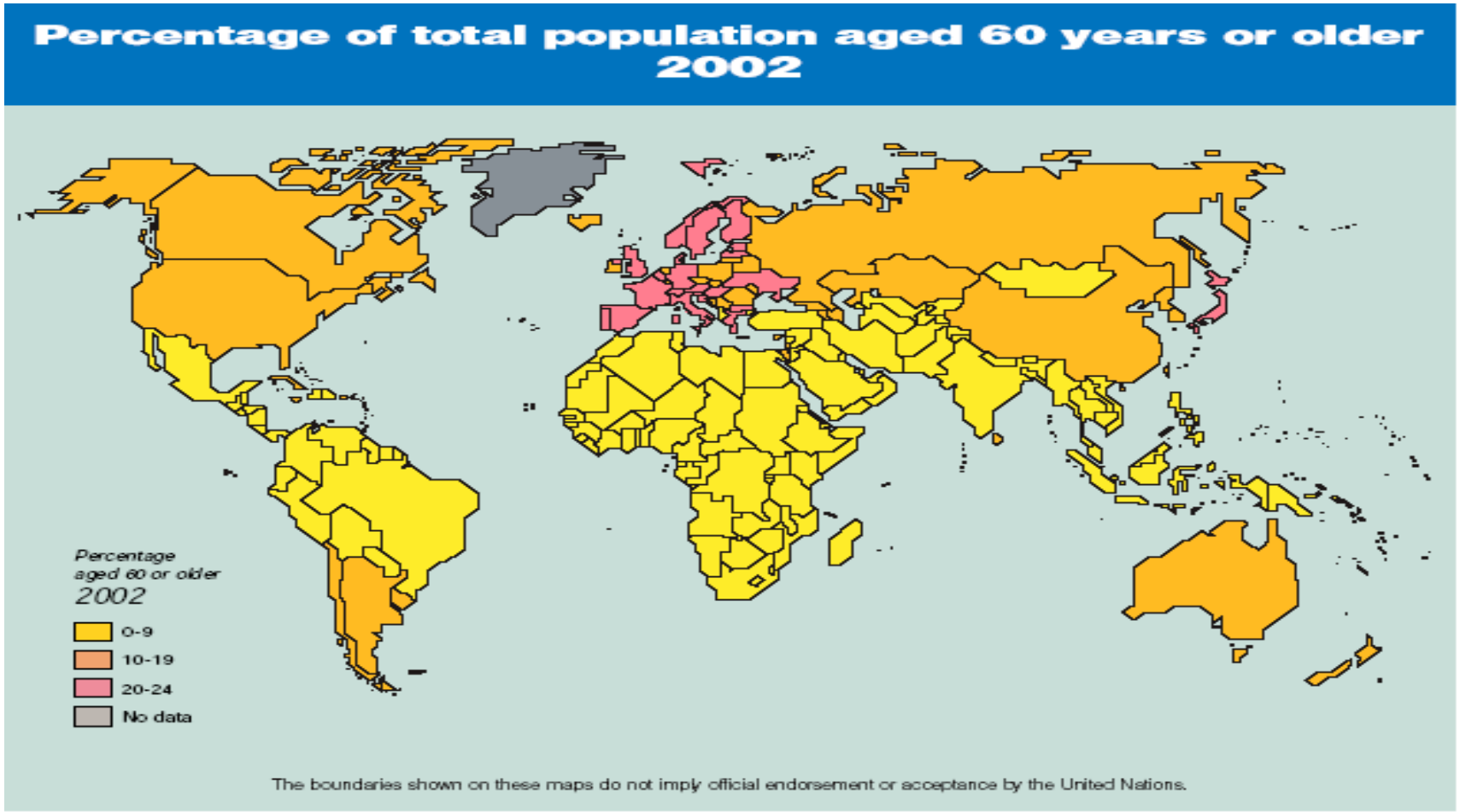
2.5% growth

380 million

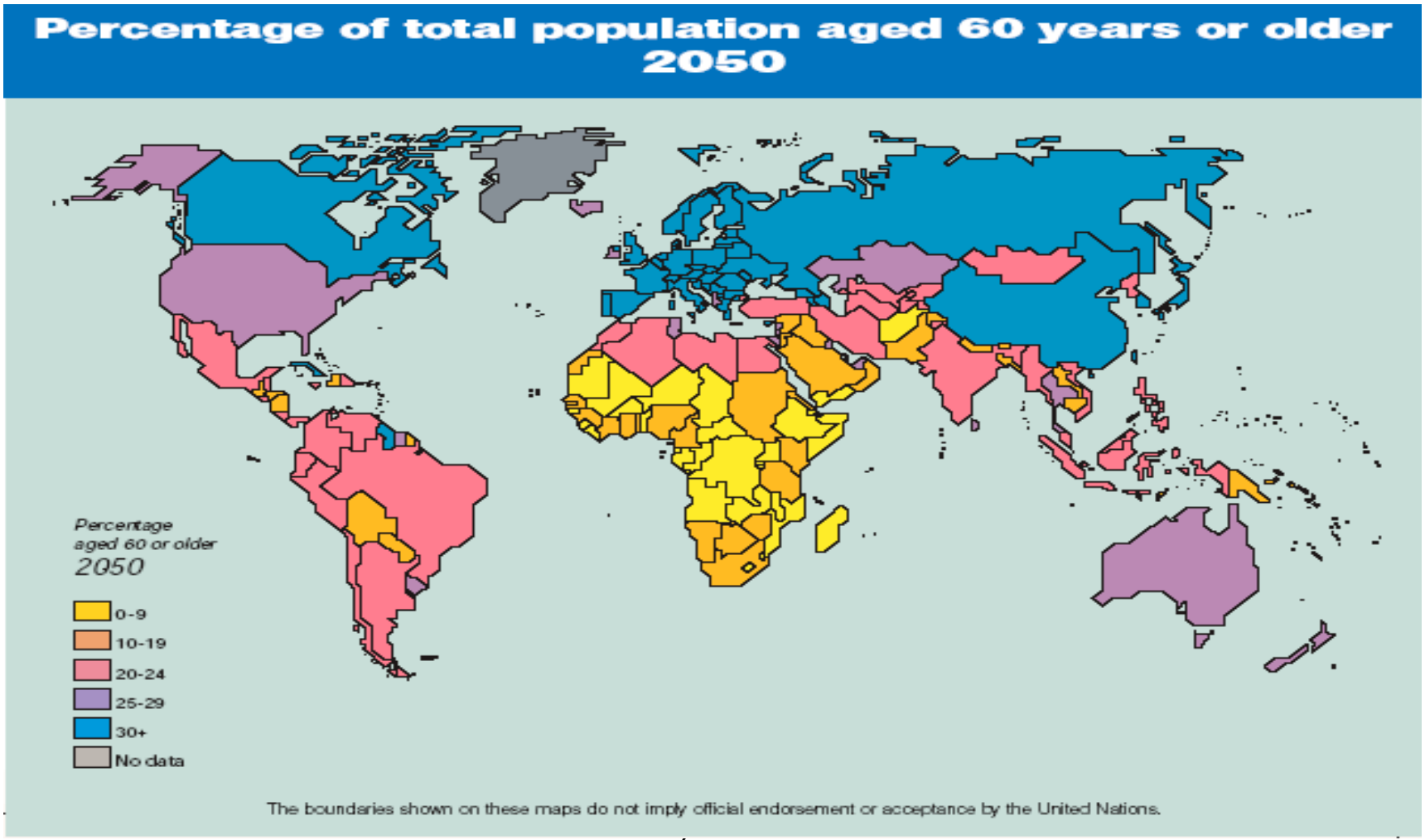
7% growth

1.3 billion

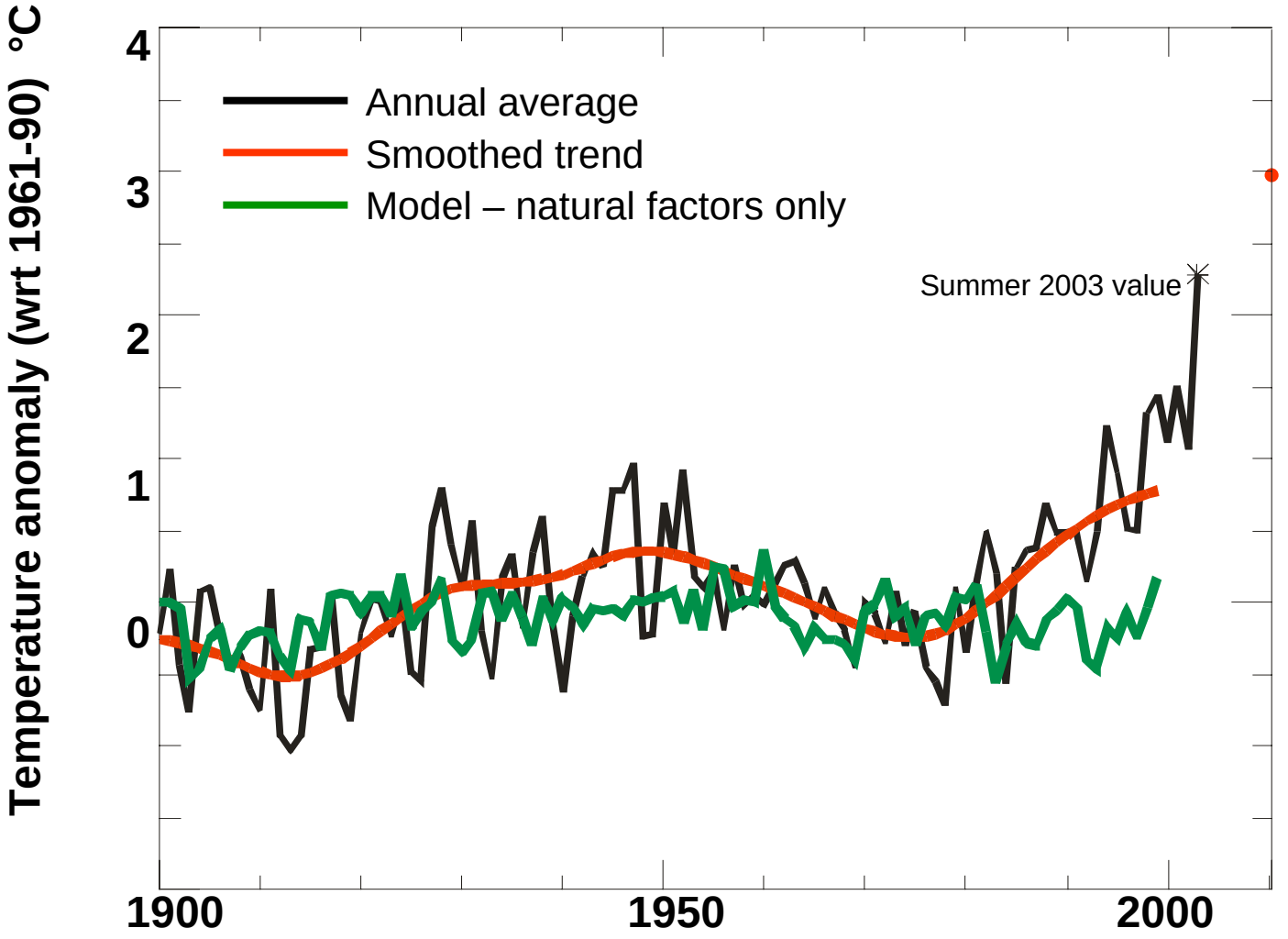
Ageing - a global phenomena



China and India are ageing too



Increasing evidence of climate change

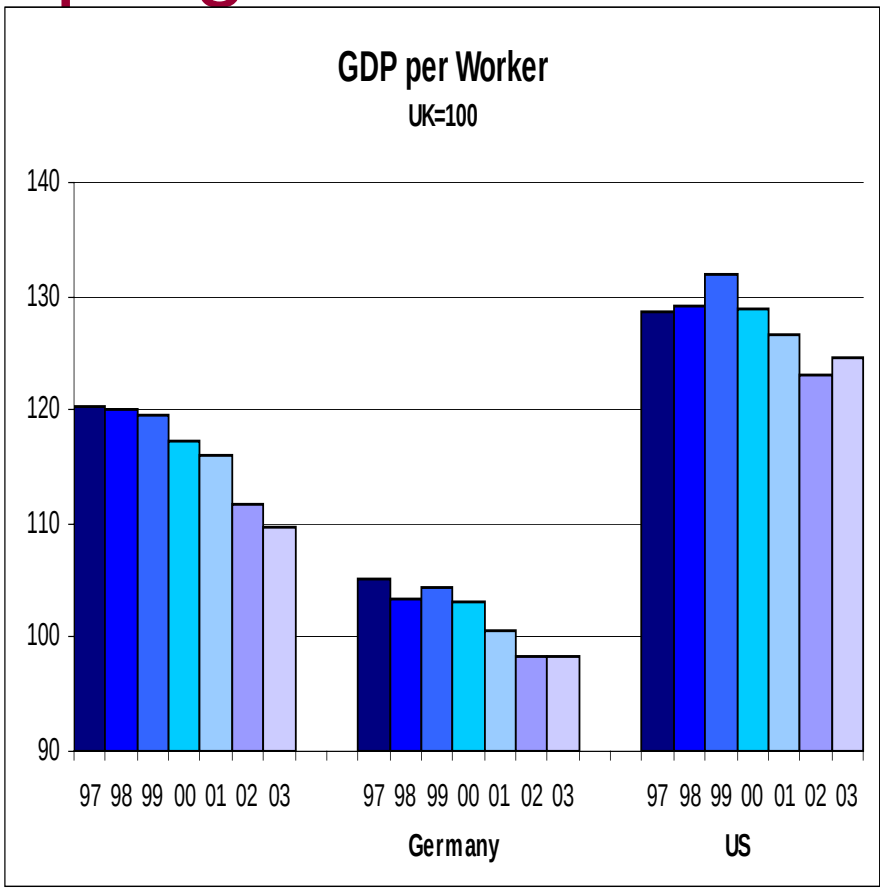


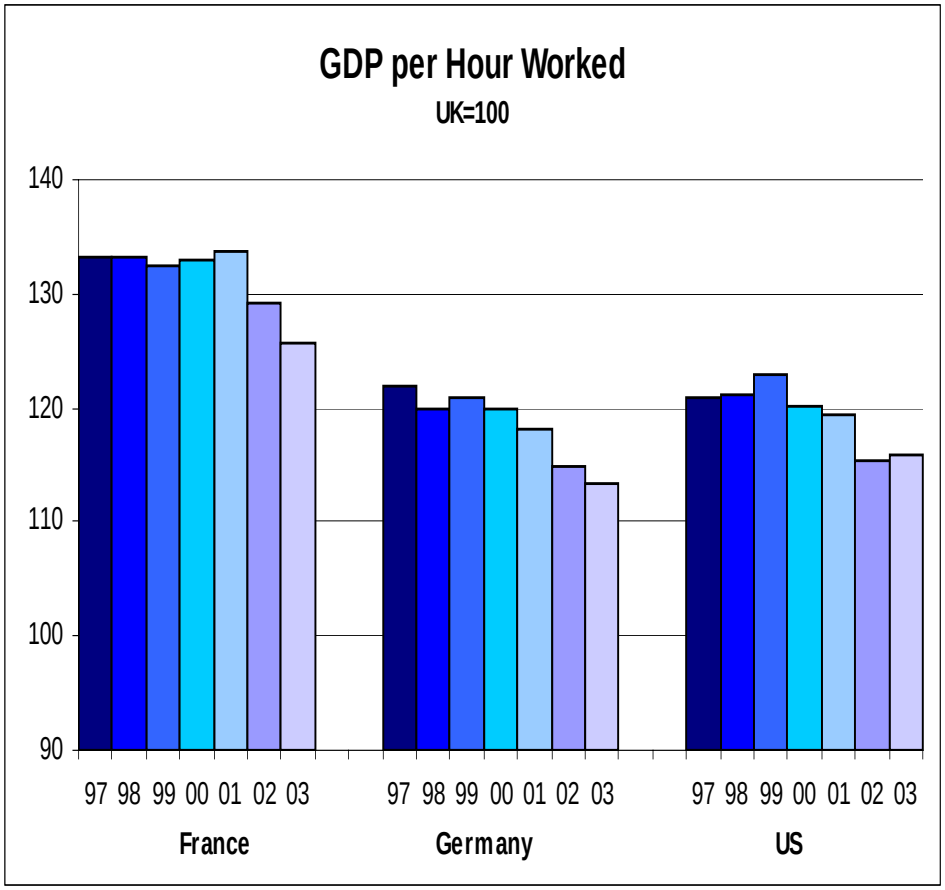
Source: OST

How to meet the challenges?

- UK cannot compete on low wage costs
- Protectionism no solution
- Need scientific and commercial innovation to rise to the challenge posed by developments like climate change
- Increasing importance of creating value through generating and exploiting knowledge

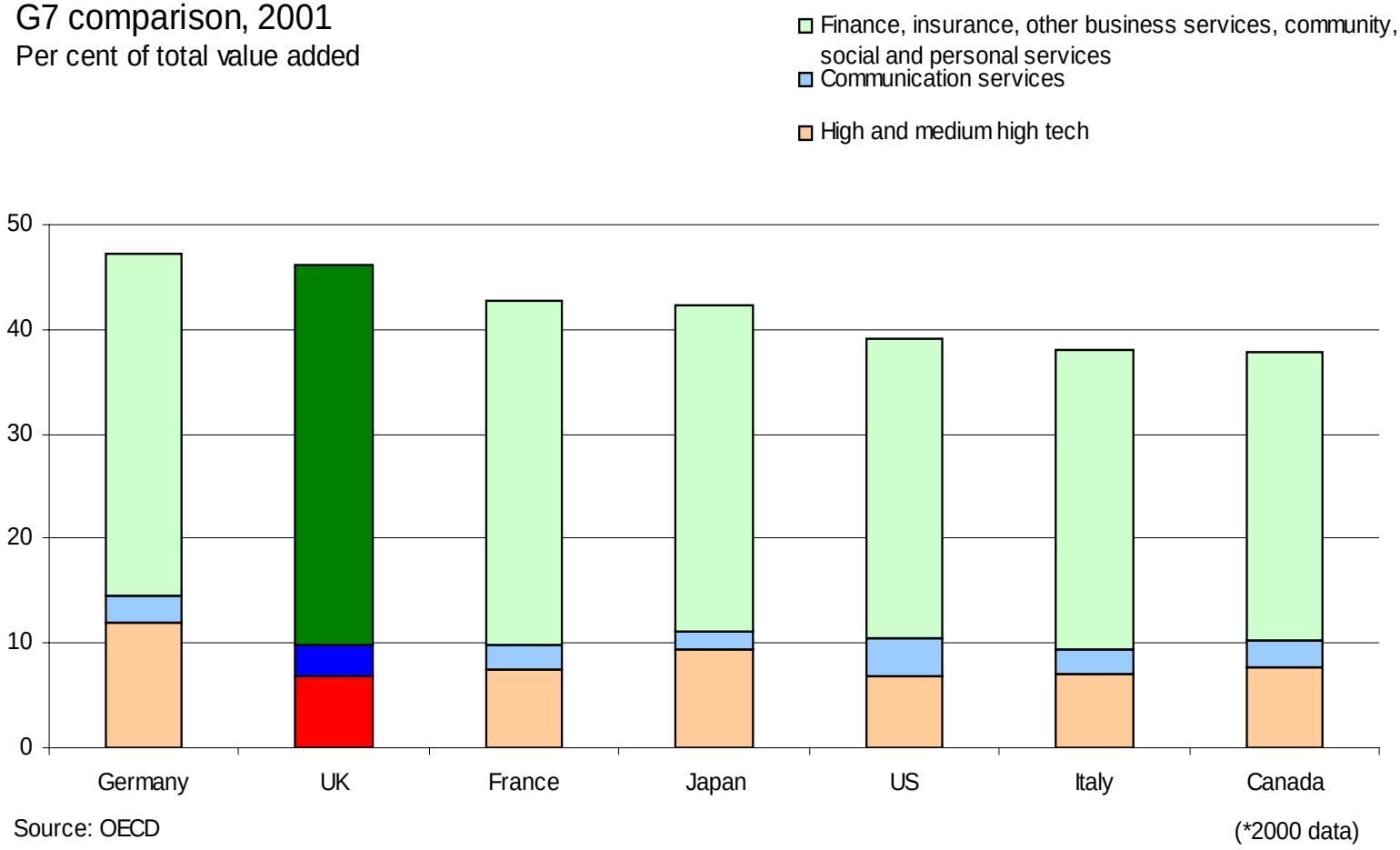
The 'Productivity Gap' – Some progress





Value added by knowledge based services and industries

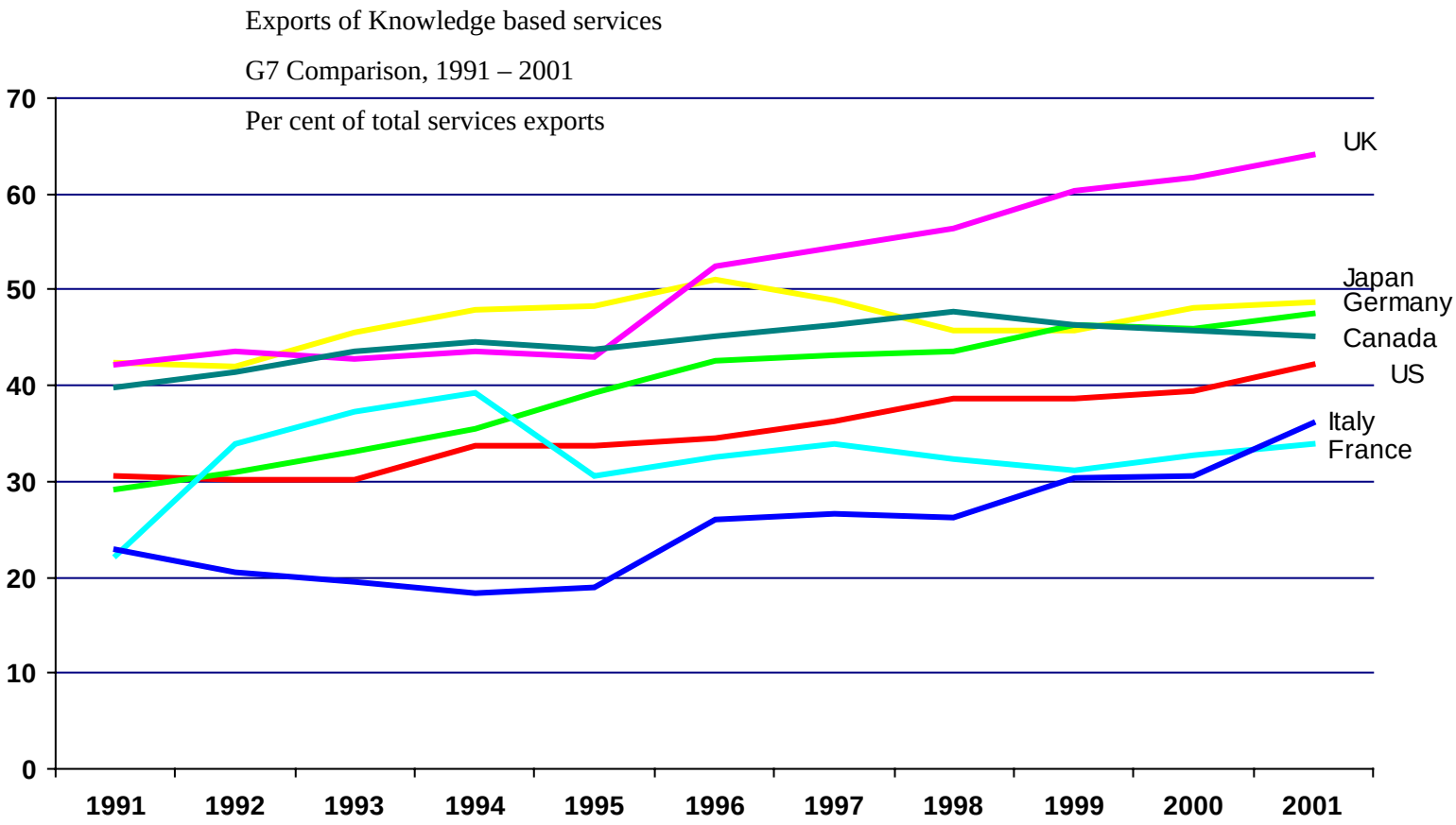
G7 comparison, 2001
Per cent of total value added



Source: OECD

(*2000 data)

And these form an increasing share of UK exports



Source: IMF

UK Productivity Framework

- The ‘5 Drivers’
  - Investment
  - Innovation
  - Skills
  - Enterprise
  - Competition

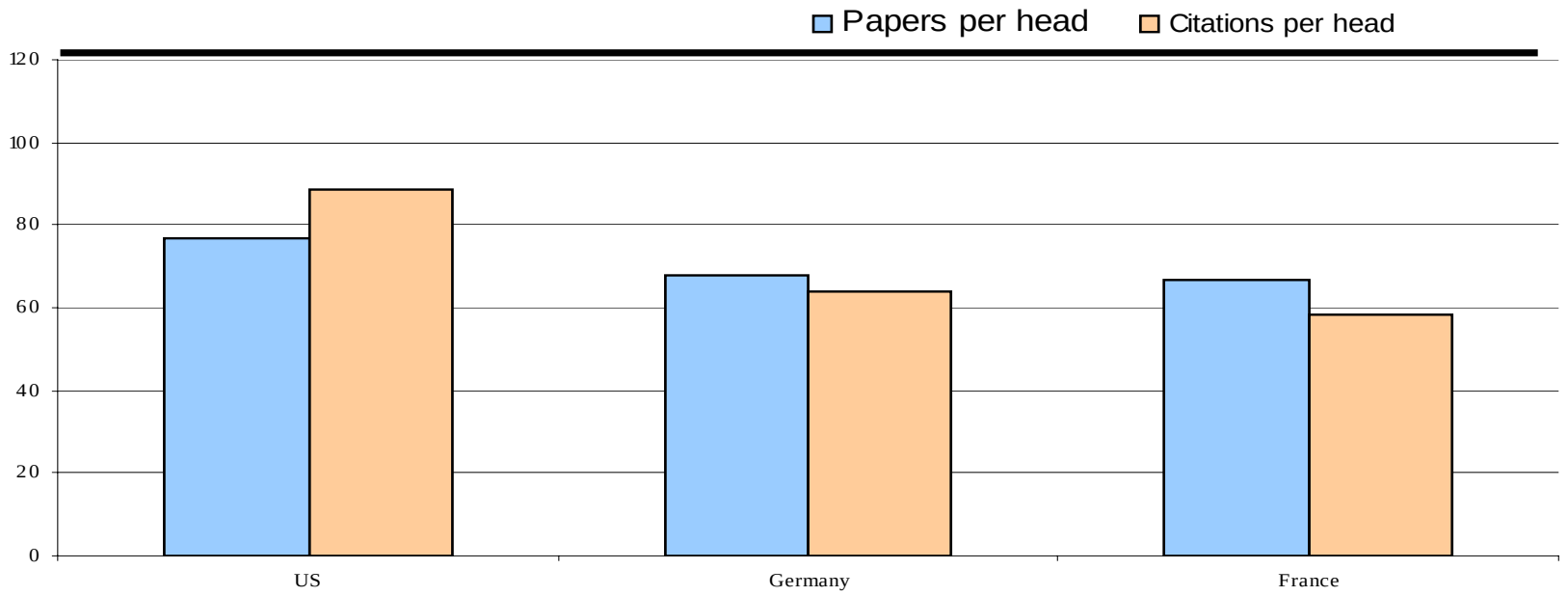
  Drivers ‘interact’ (e.g. successful implementation of new ideas requires skilled workforce).

Innovation

Strong science

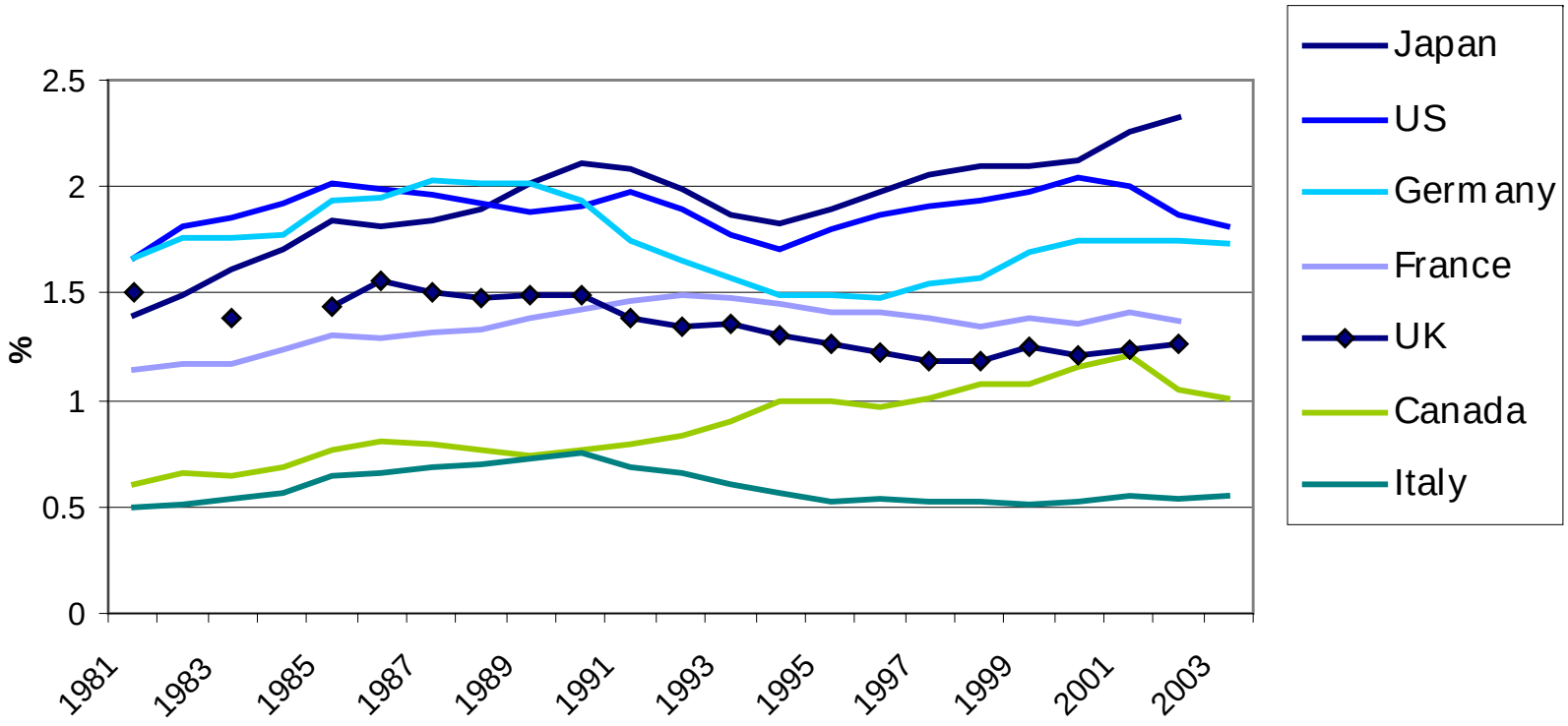
Papers and citations per head of population

G7 comparison, 1998-2003
Index, UK = 100



Source: Evidence Ltd, Thomson ISI

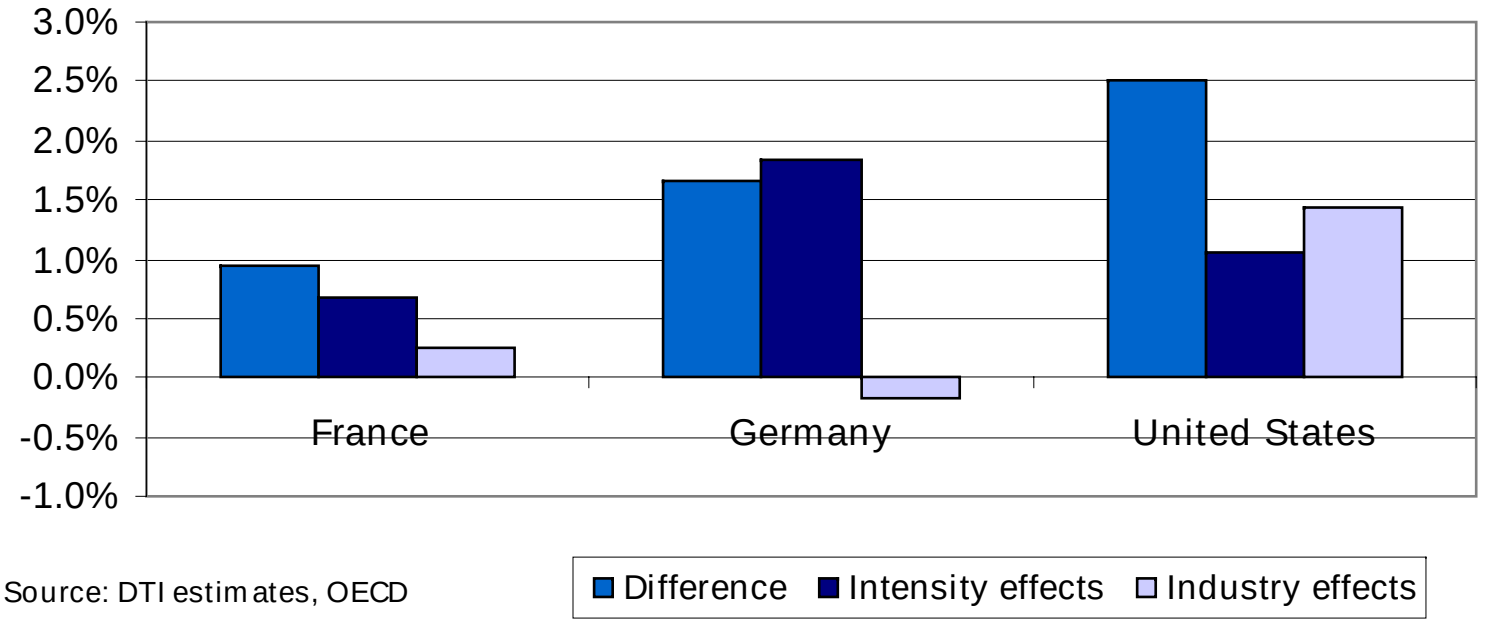
Innovation – business R&D as % GDP



Source: OECD MSTI

Part of UK overall R&D performance due to sector mix

Differences in manufacturing R&D as a % of value added between UK and competitors: industry and intensity effects, 2000

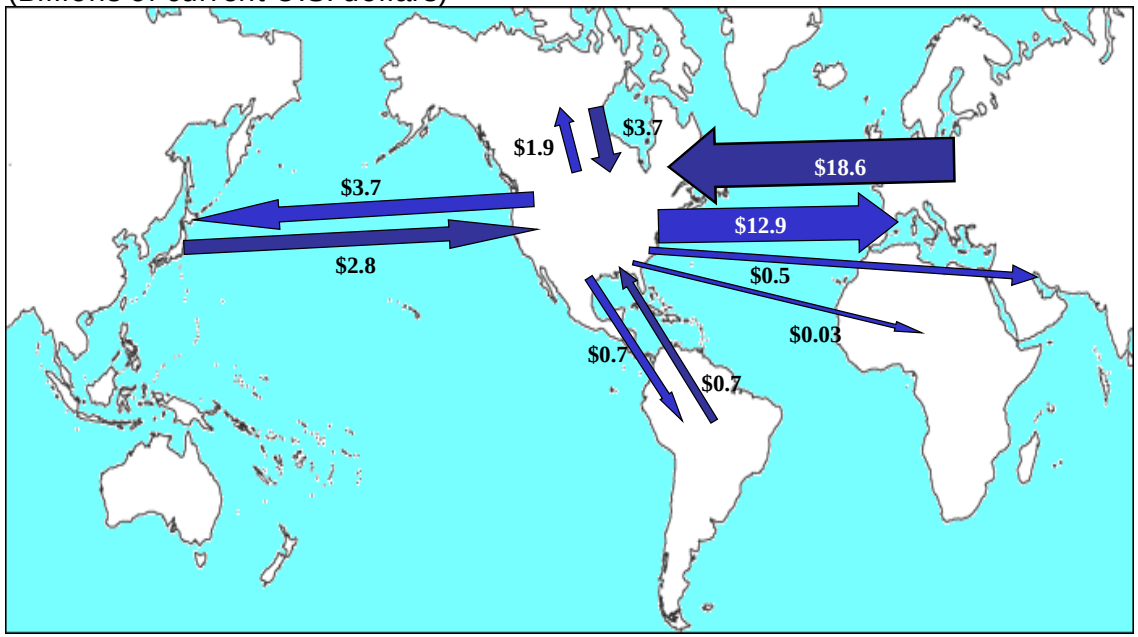


Source: DTI estimates, OECD

R&D is becoming increasingly mobile

Fig 16. Foreign-owned R&D in the United States and U.S.-owned R&D overseas, by investing/host region: 2000

(Billions of current U.S. dollars)

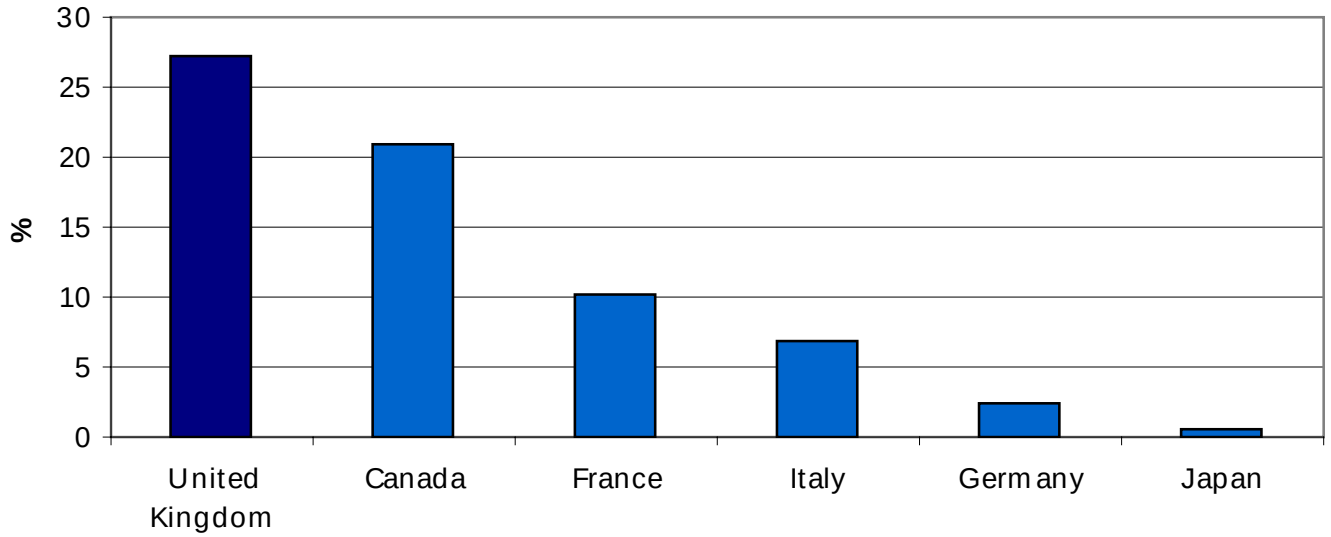


SOURCES: U.S. Bureau of Economic Analysis, *Foreign Direct Investment in the United States,* annual series: and U.S. Bureau of Economic Analysis, *U.S. Direct Investment Abroad,* annual series.

Science & Engineering Indicators - 2004

UK is an attractive location for R&D

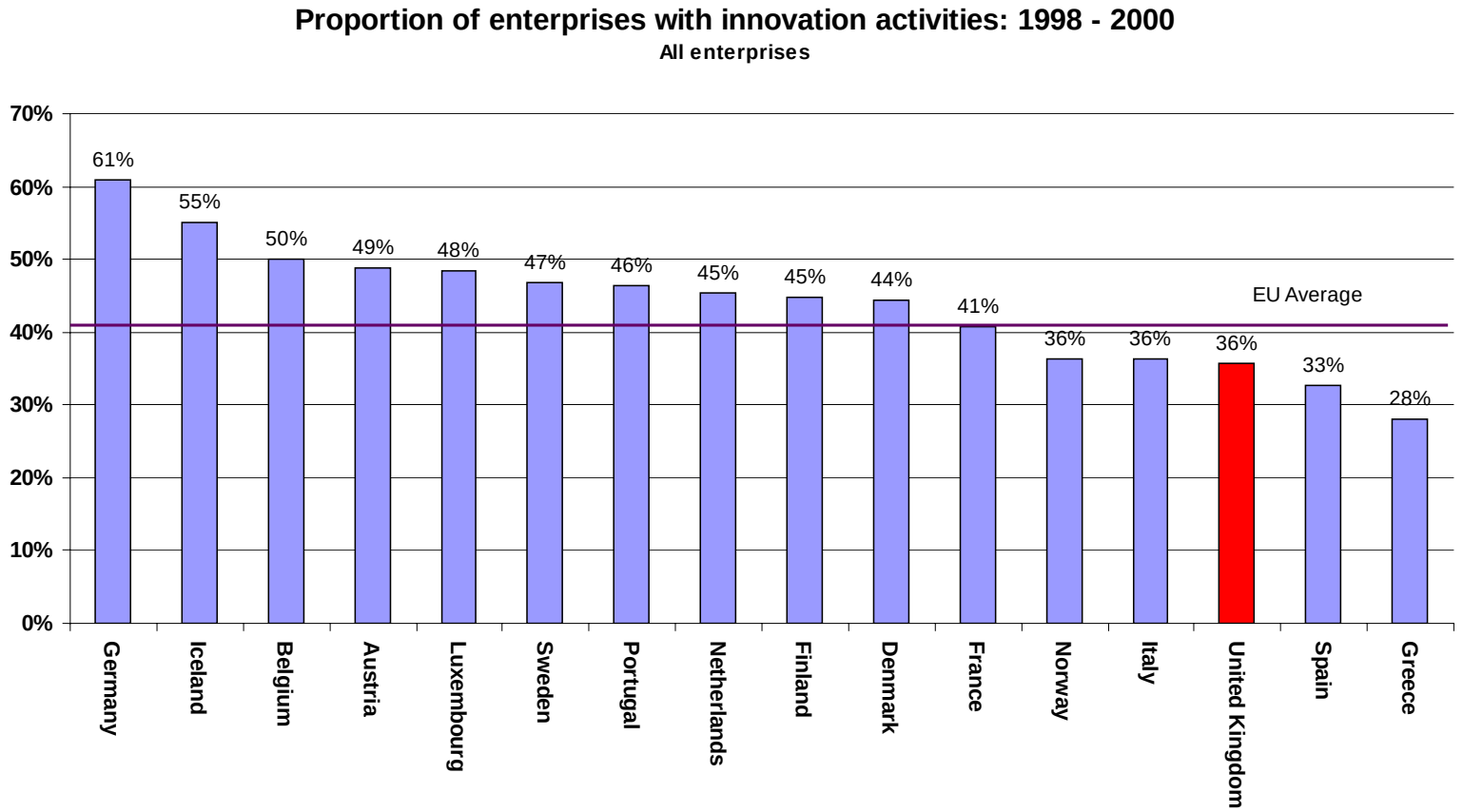
Percentage of Business R&D funded from abroad, for G7* Countries, 2002



Source: DTI estimates, OECD MSTI

* US 'Financed from Abroad' data is unavailable. This data is pre-aggregated into other categories by the US statistical department

Broader innovation measures suggest room for improvement



When should Govt. take action?

- Government uses a market failure framework
  - Provides public goods
  - Internalise externalities
  - Correct information problems
  - Market power
- Important not to confuse a *market outcome* with a *market failure*

Science and Innovation – The Policy Response

- DTI Innovation Report and HMT/DTI/DfES '10 Year Science and Innovation Investment Framework'
  - Significant increases in the science budget
  - 2.5% of GDP R&D target
  - R&D Tax Credit
  - Progress report on business R&D
  - Increased investment in 'third stream' funding
- Technology Strategy (collaborative public/ private R&D programmes)

Technology Programme

- £320m over three years; complements R&D tax incentives introduced in 2000 (small firms) and 2002 (large firms)
- To fund user-driven, applied research to give UK industry a competitive edge
- Successful applications from April 2004 call announced in January. Successful companies from a range of sectors, including SMEs.

Innovation

- DTI's recent 'Five Year Programme' continued the emphasis on innovation
- Budget 2005 announced more 'Science Cities'
- Budget 2005 also announced new work on creativity and public procurement of R&D (SBRI)

Conclusion

- Productivity key to maintain competitiveness, raise living standards, and meet new challenges
- Government has to get the framework right
- Our strong science base a key asset
- Substantial policy changes to boost UK innovation
- Progress on the ‘Productivity Gap’