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## Round Table Discussion: Promoting Excellence at National Level



# Perspectives

- Finland: chair of Medical Research Council (Academy of Finland, 1998-2003); chair of national working group on research careers (2004-2006); Professor of Molecular Biology and Chancellor of the University of Turku
- International tasks at the EC, ERC, ESF, EMBL, EMBC etc.

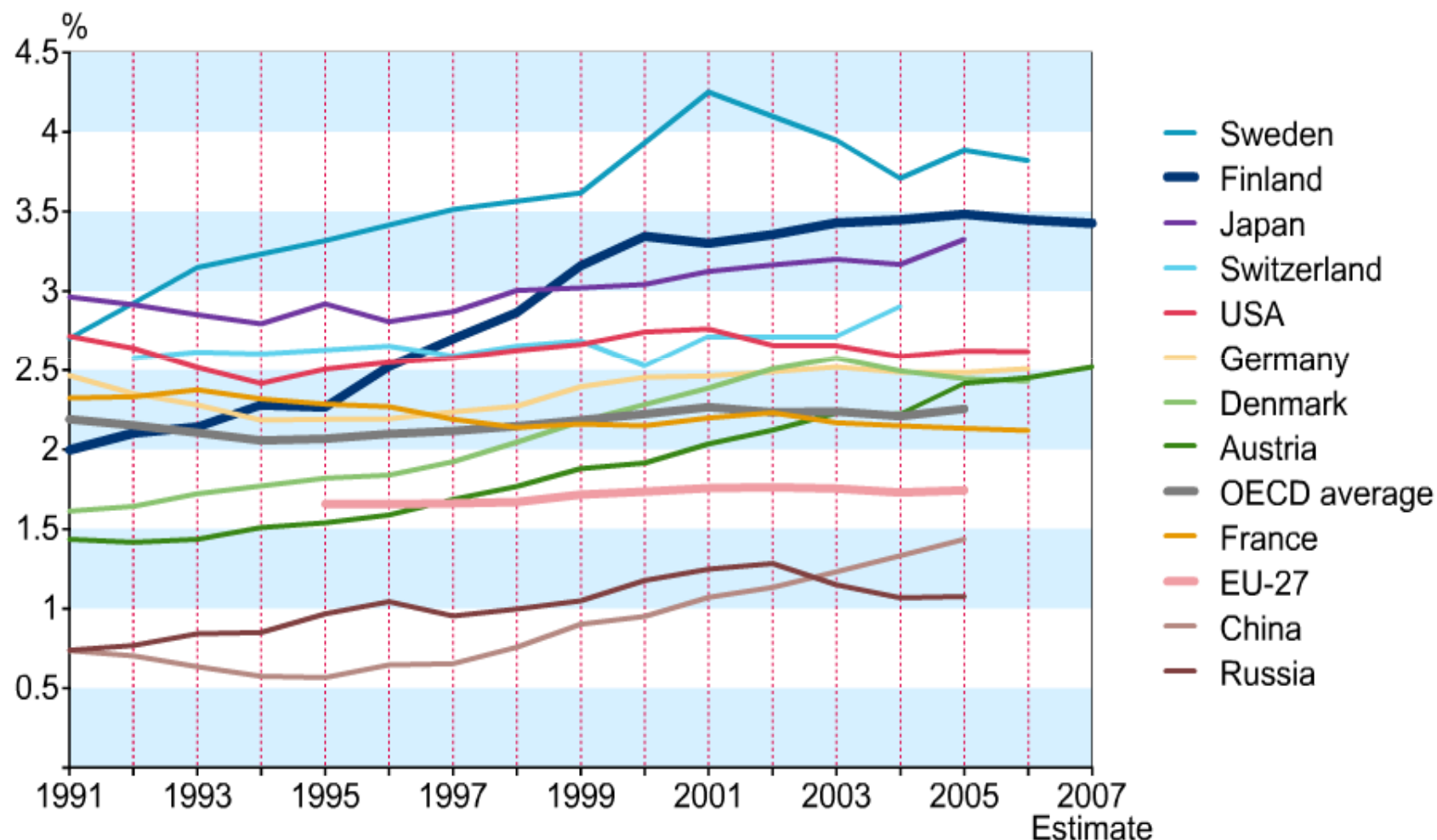


# Finland as an example for investments in R&D

- Particularly after the economic recession of the early 1990's public funding to R&D was increased considerably, mainly through competitive funding via the Academy of Finland and Tekes (Finnish Funding Agency for Technology and Innovation).

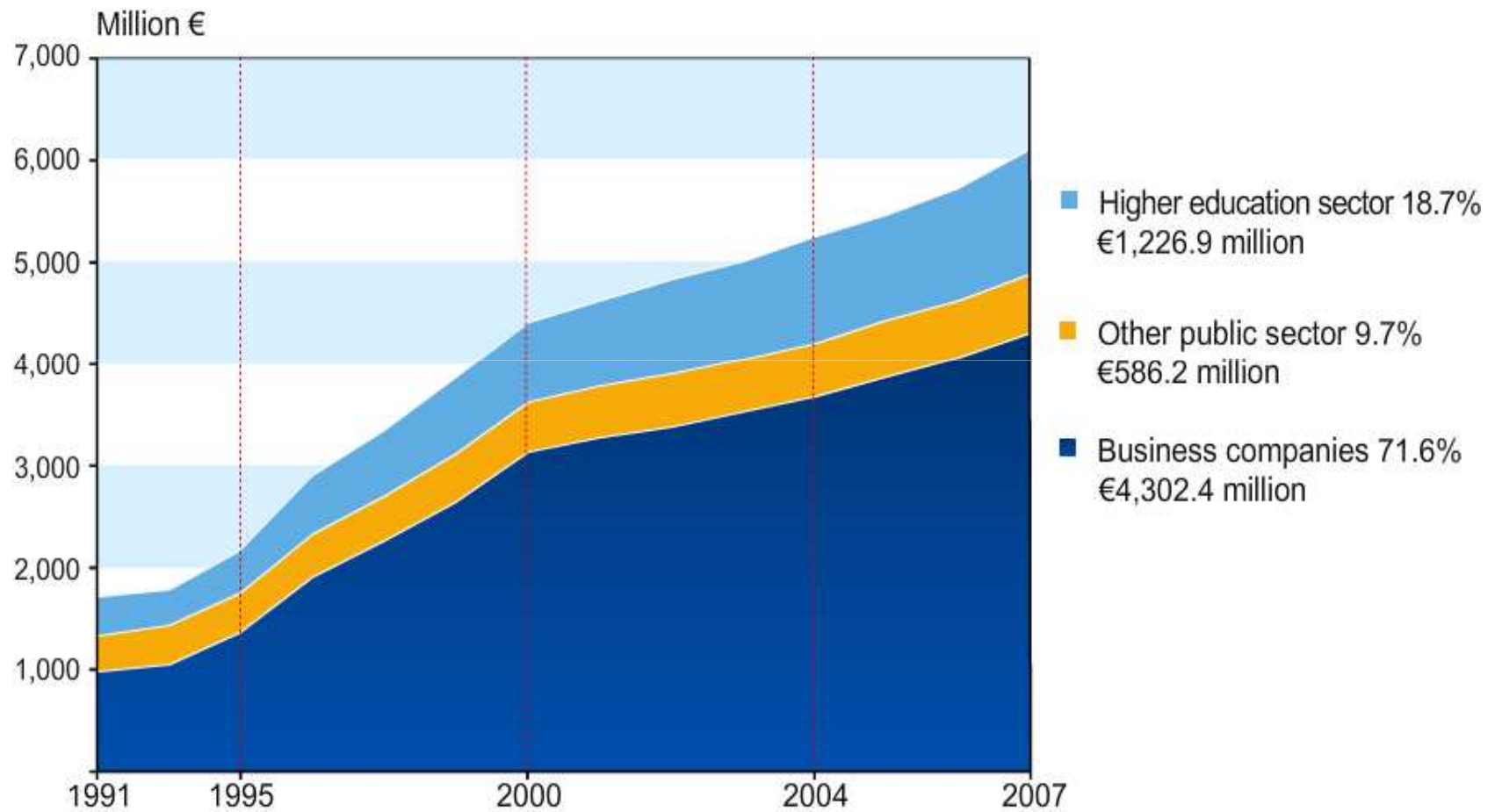


## R&D investment in selected OECD countries, and in China and Russia (% of GDP)



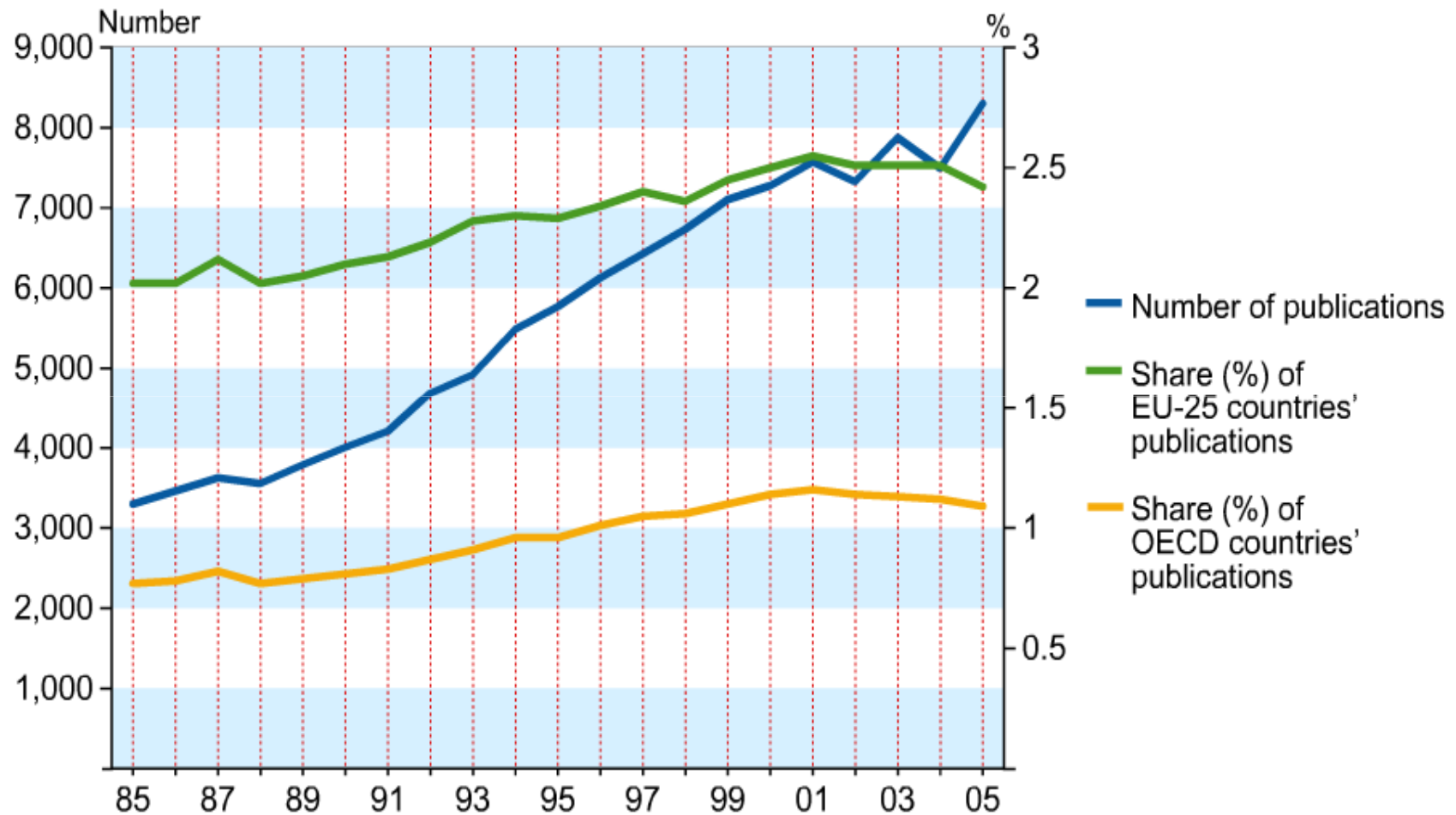
Source: OECD, Main Science and Technology Indicators (2008) and Statistics Finland, R&D activities 2007 (2008)

## R&D expenditure in Finland 1991–2007, by sector



Total €6.1 billion

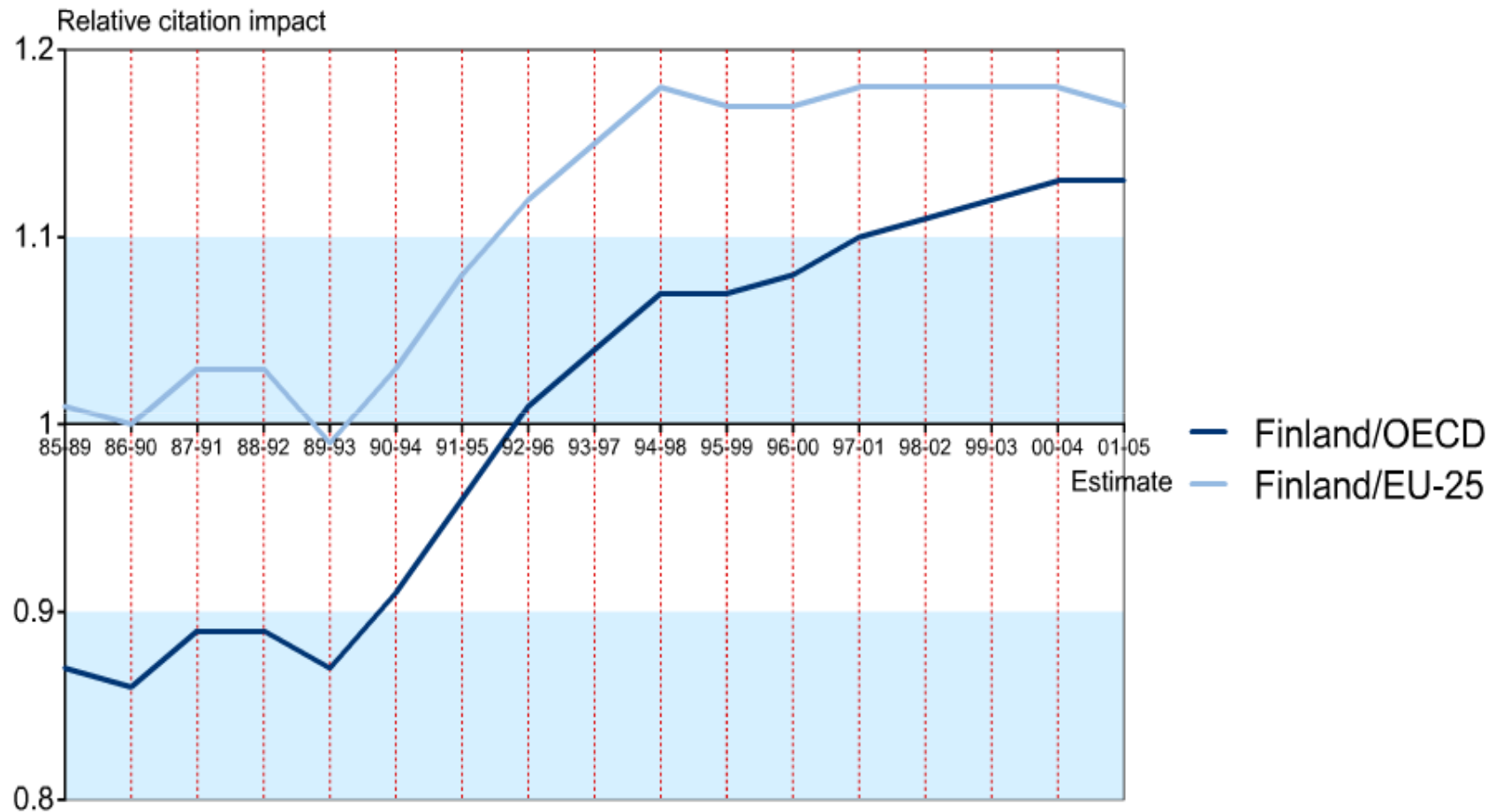
## Number and share of Finnish scientific publications 1985–2005



EU-25 refers to the 25 EU countries during the period under review

Source: Thomson Scientific, NSI 1981–2005

## Development of Finland's citation impact 1985–2005



Relative citation impact = impact factor for Finland (number of citations/number of publications) in comparison to EU-25. EU-25 refers to the 25 EU countries during the period under review.

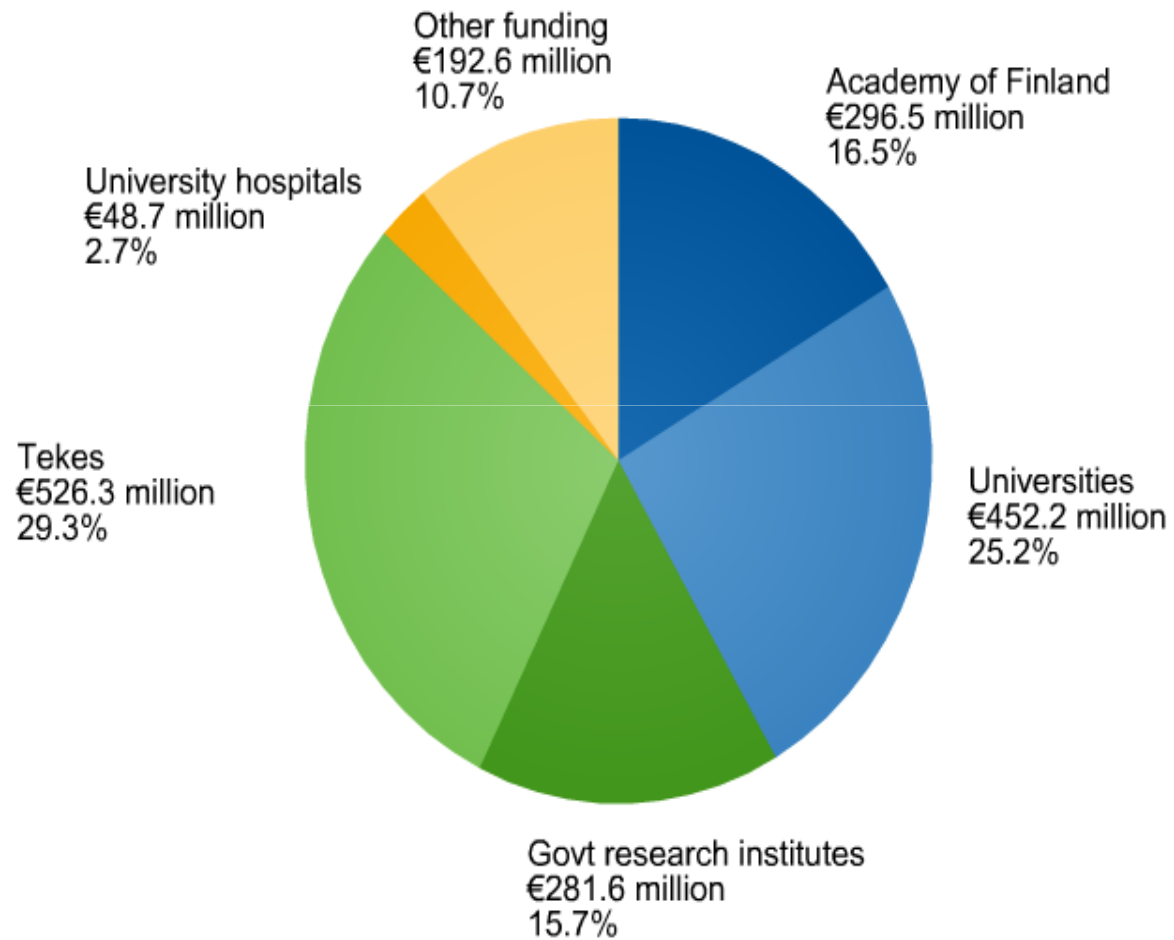
Source: Thomson Scientific, NSI 1981–2005

## R&D in Finland in 2007

- Employed some 80,000 people
- R&D funding amounted to €6 billion, of which business companies accounted for 71%
- R&D input 3.4% of GDP
- Finland among the leading R&D investors and clearly ahead of the EU average
- 20 universities and 30 polytechnics
- More than 1,500 doctoral graduates from universities



## Government research expenditure 2008



Total €1.8 billion

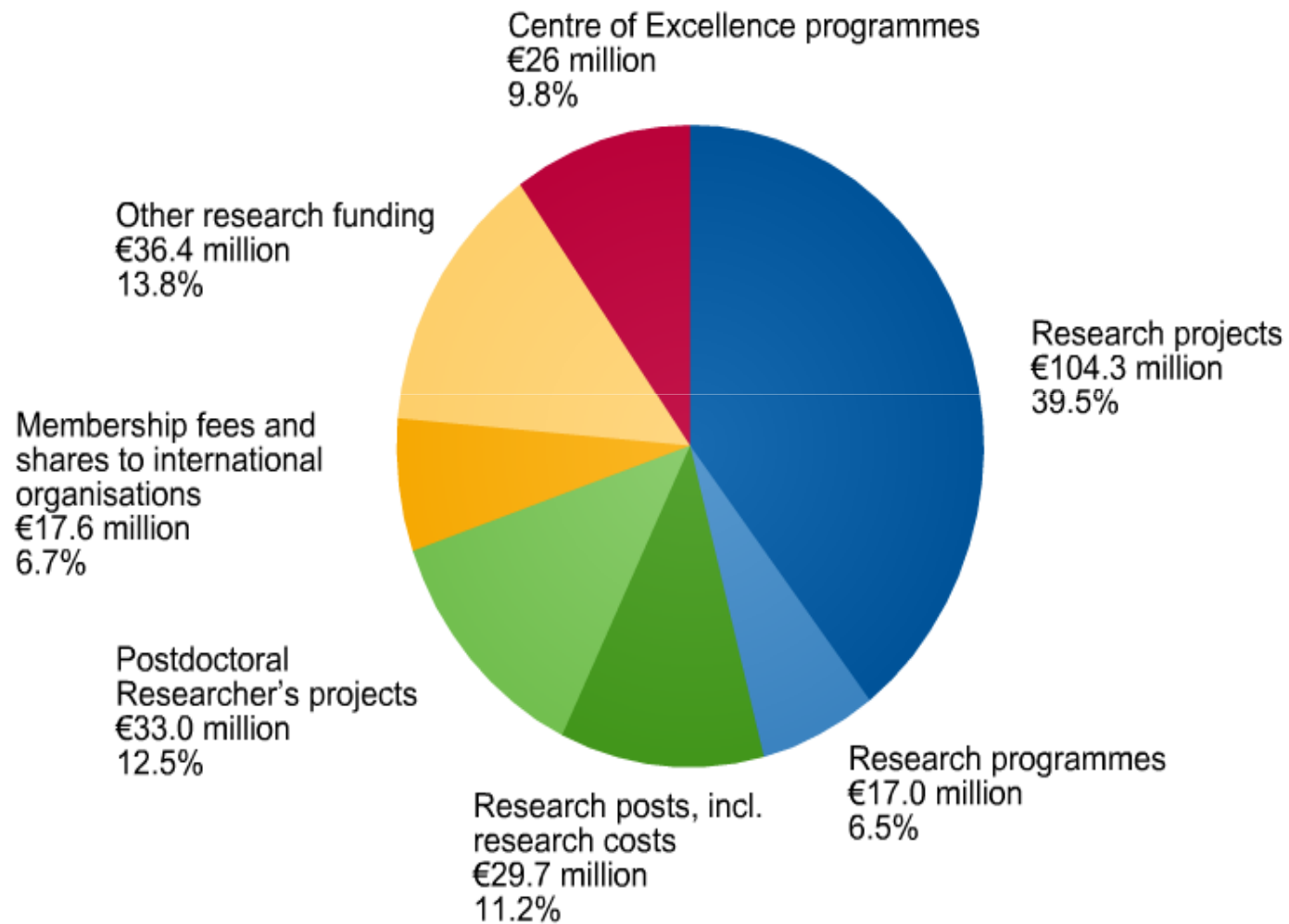
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## Key new funding instruments introduced

- Research programmes (in specific fields); networking
- Centre of Excellence programmes
- Research posts: Academy Professors and Academy Research Fellows, Postdoctoral scheme
- Finland Distinguished Professor Programme (FiDiPro)
- Graduate schools
- Researcher mobility in working life and doctoral studies of employed persons
- International mobility
- Funding for infrastructures

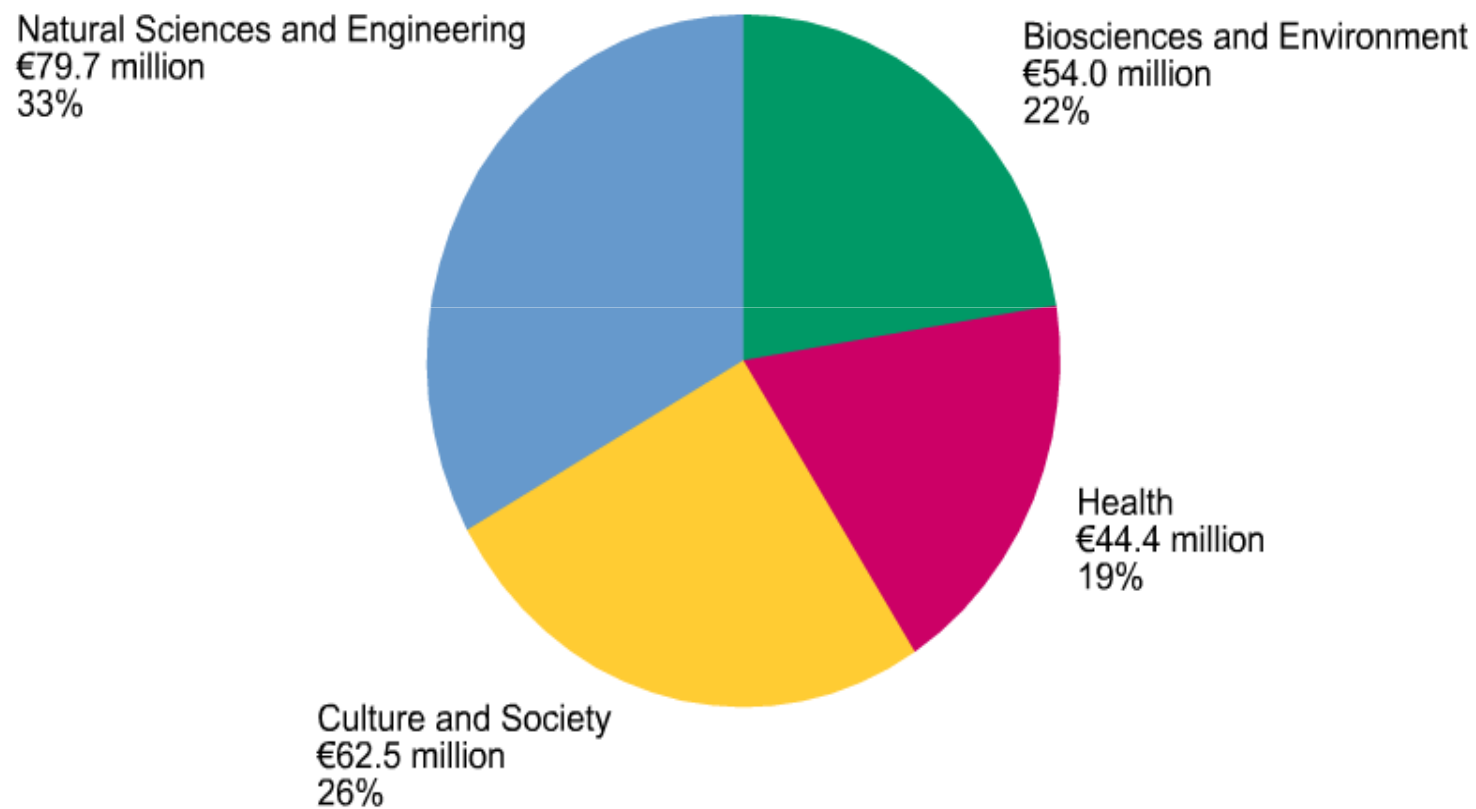


## Academy research funding in 2007

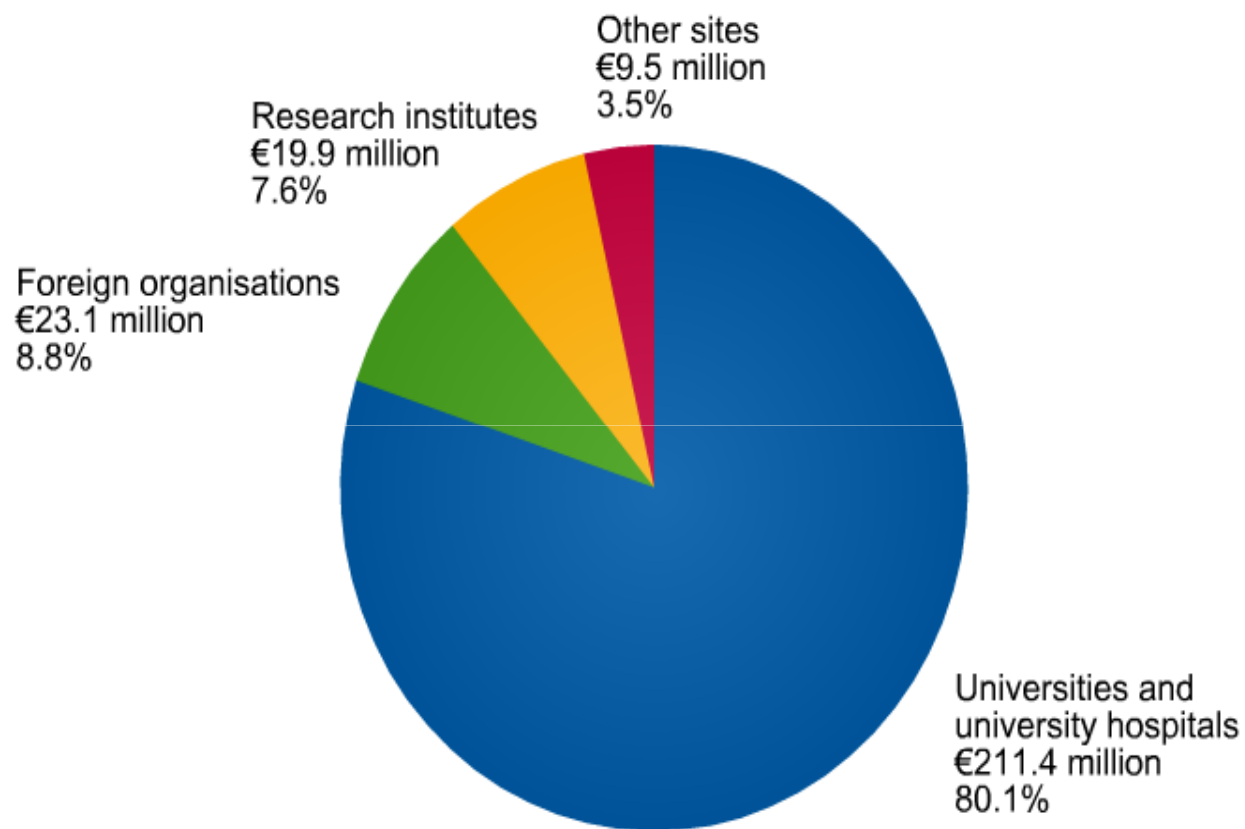


17.3.2009 Total €264 million

## Funding decisions among Research Councils in 2007



## Academy funding decisions in 2007, by site of research



Total €264 million

17.3.2009



# Development of research career

## **Well-trained scientists are the foundation of any R&D system**

Restructuring of the research career since mid-1990's:

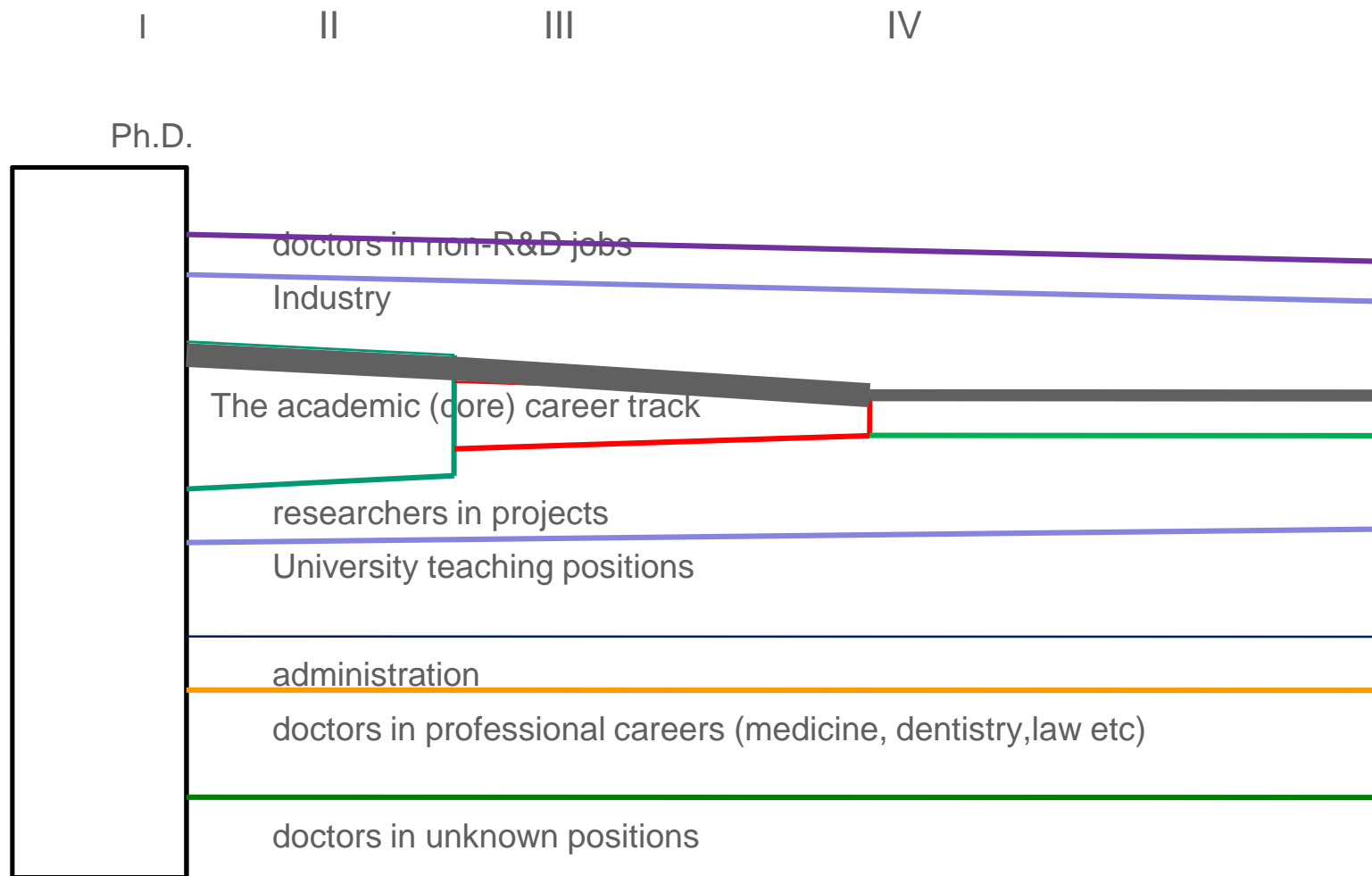
1. Doctoral training programmes ("Graduate schools",;salaries, structured training, thesis committees, training agreements; EC\*s C&C) [pension scheme for all researchers on stipends]
2. Post-doctoral positions (2-3 yrs) for competitive funding , and funding for postdoctoral training abroad
3. Academy researchers (5 yrs) for starting independent researchers (very competitive; incl. research funding)
4. Academy professorships (5 yrs; very competitive; incl. research funding), plus a sabbatical scheme for all professors

## **Problems remain**

The number of positions low; research careers in other sectors (including Universities) less well developed: the research career does not appear as a sufficiently attractive and predictable alternative for the young graduates



# The four-stage research career in Finland



# Investments in infrastructures

## **National funding to research infrastructures**

Joint efforts to strengthen infrastructures in specific fields (life sciences, ICT)

2009: national roadmap for research infrastructures

## **International participation in**

Pan-European infrastructures/intergovernmental organisations (CERN, ESA, ESO, EMBL etc.) – access to top-of-the-line research infrastructures for Finnish scientists

Participation in the ESFRI process, and in appr. 50 % of the infrastructures of the first roadmap



# Other international activities

Active participation in

- European Commission FP's
- European Research Council (ERC)
- European Science Foundation (ESF)
- etc

as applicants, reviewers and decision makers

