



# Competitiveness and Knowledge Creation - The Finnish Path to a Knowledge Economy

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ETLA, Research Institute of the Finnish Economy

Competitiveness: The Future Cornerstone of the Latvian Economy –  
Conference

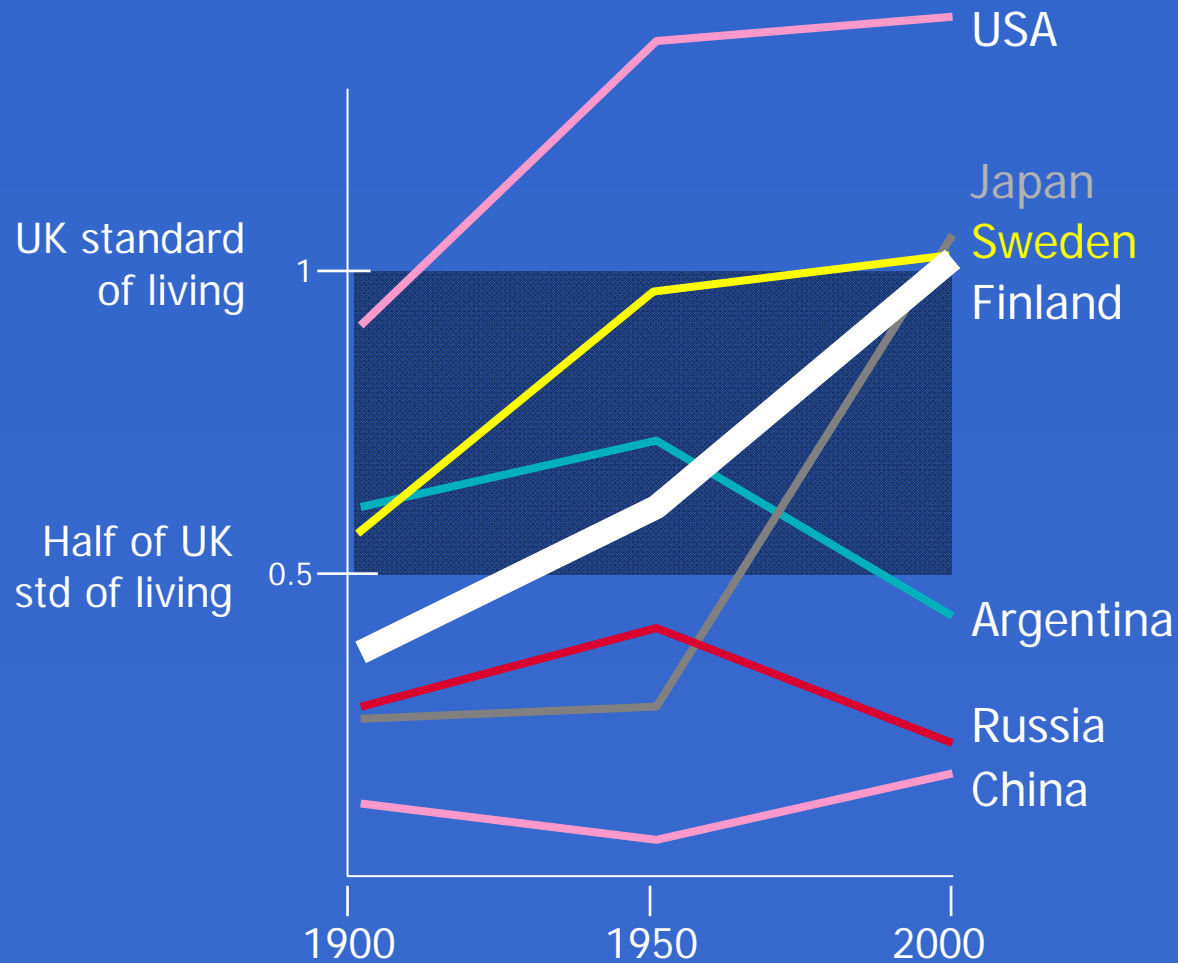
Riga, 10 October 2007

# Main points of presentation

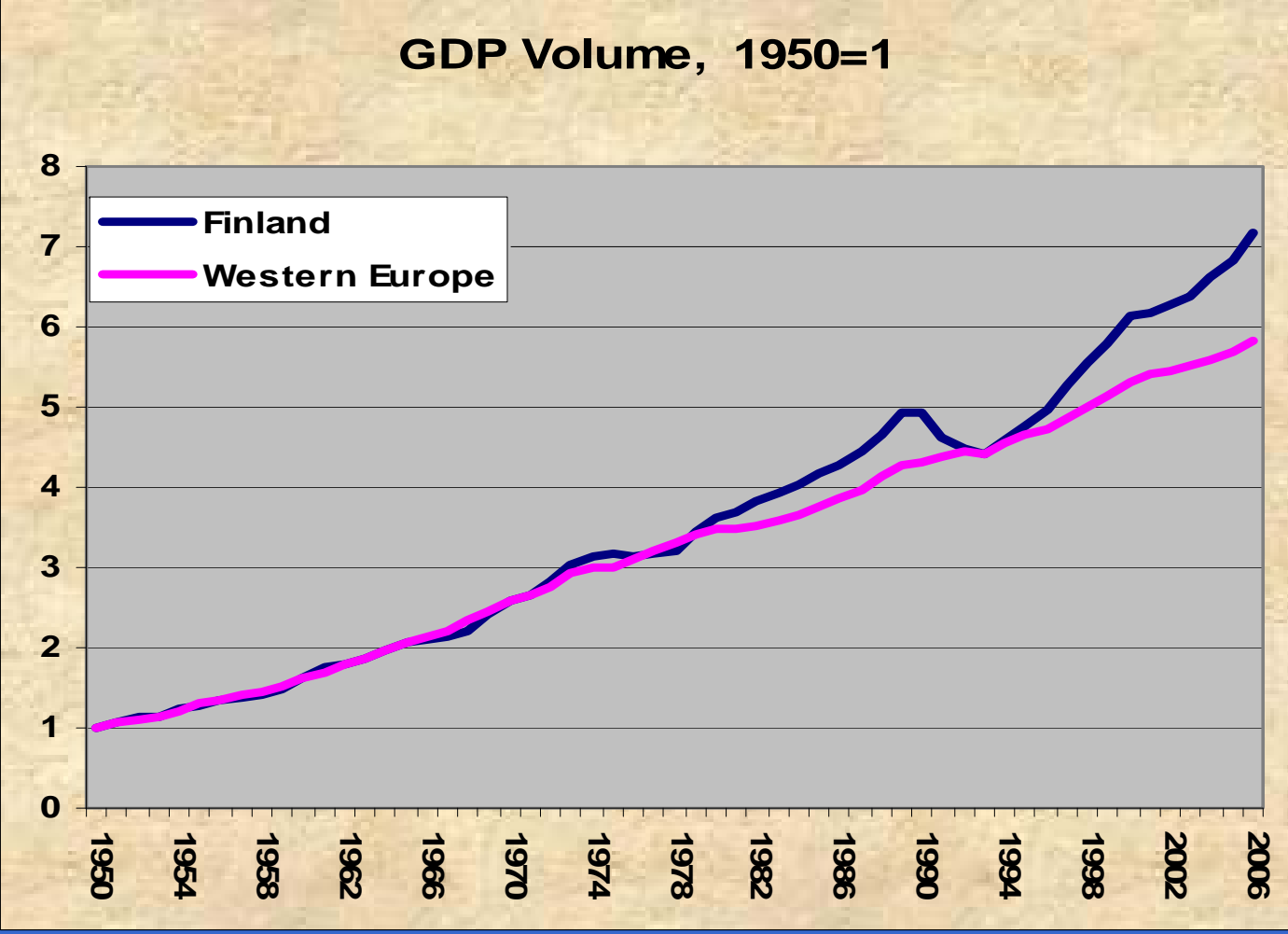
- Economic performance
  - Long run – a catching-up economy
  - Since the early 1990s
- Finland as a knowledge economy
  - ICT –driven knowledge economy
  - Role of Nokia
  - Role of research and innovation policies
- Lessons learned?
- Challenges ahead

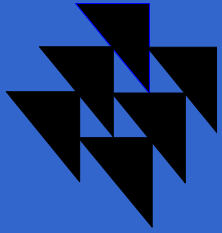
# Finnish economic developments – a long term

# Standard of living relative to the UK in 1900, 1950 & 2000 (UK = 1, GPD per cap., PPP\$, '90 p.)



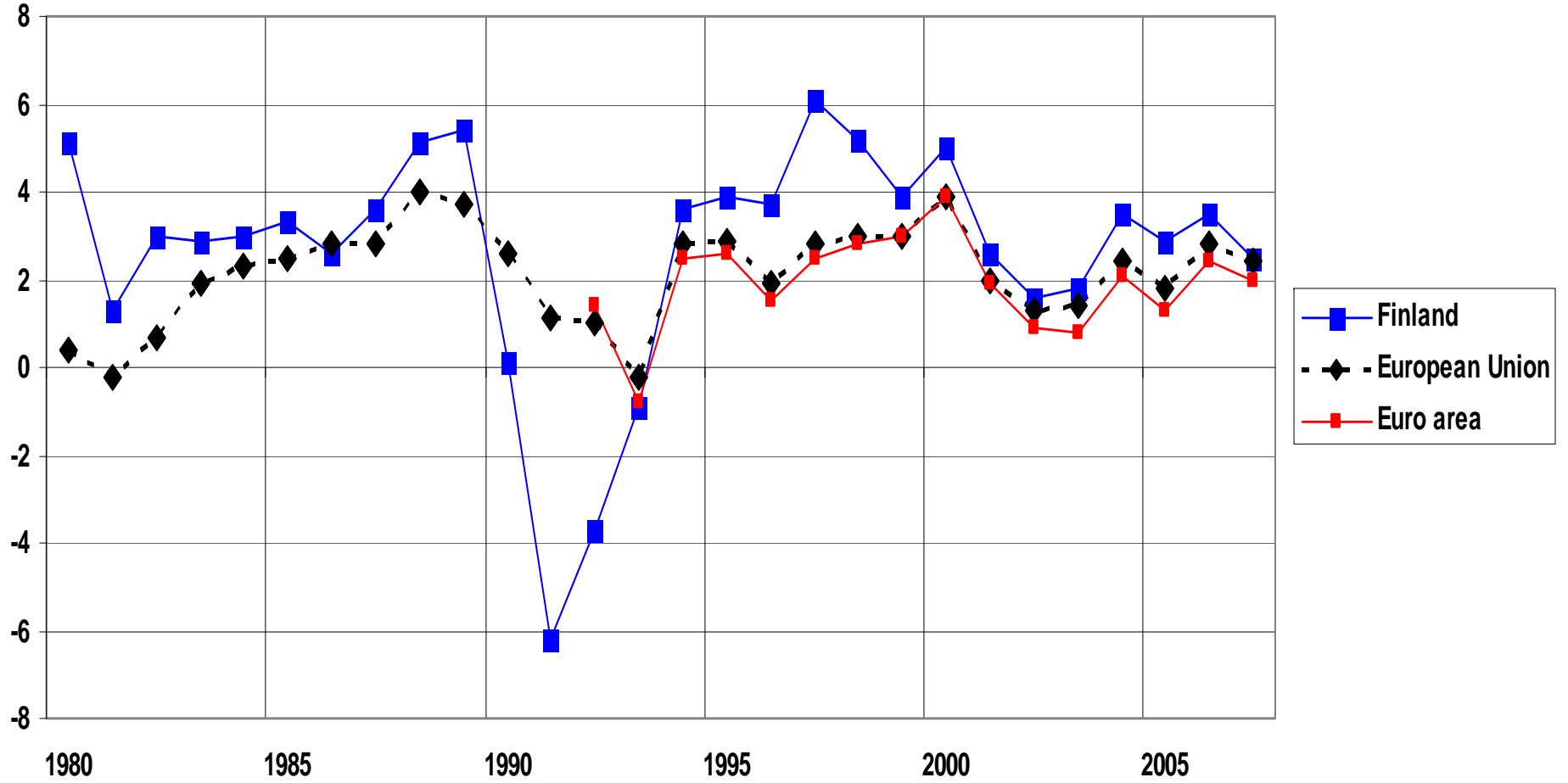
Data sources: Maddison (2003), Penn World Tables, ETLA.



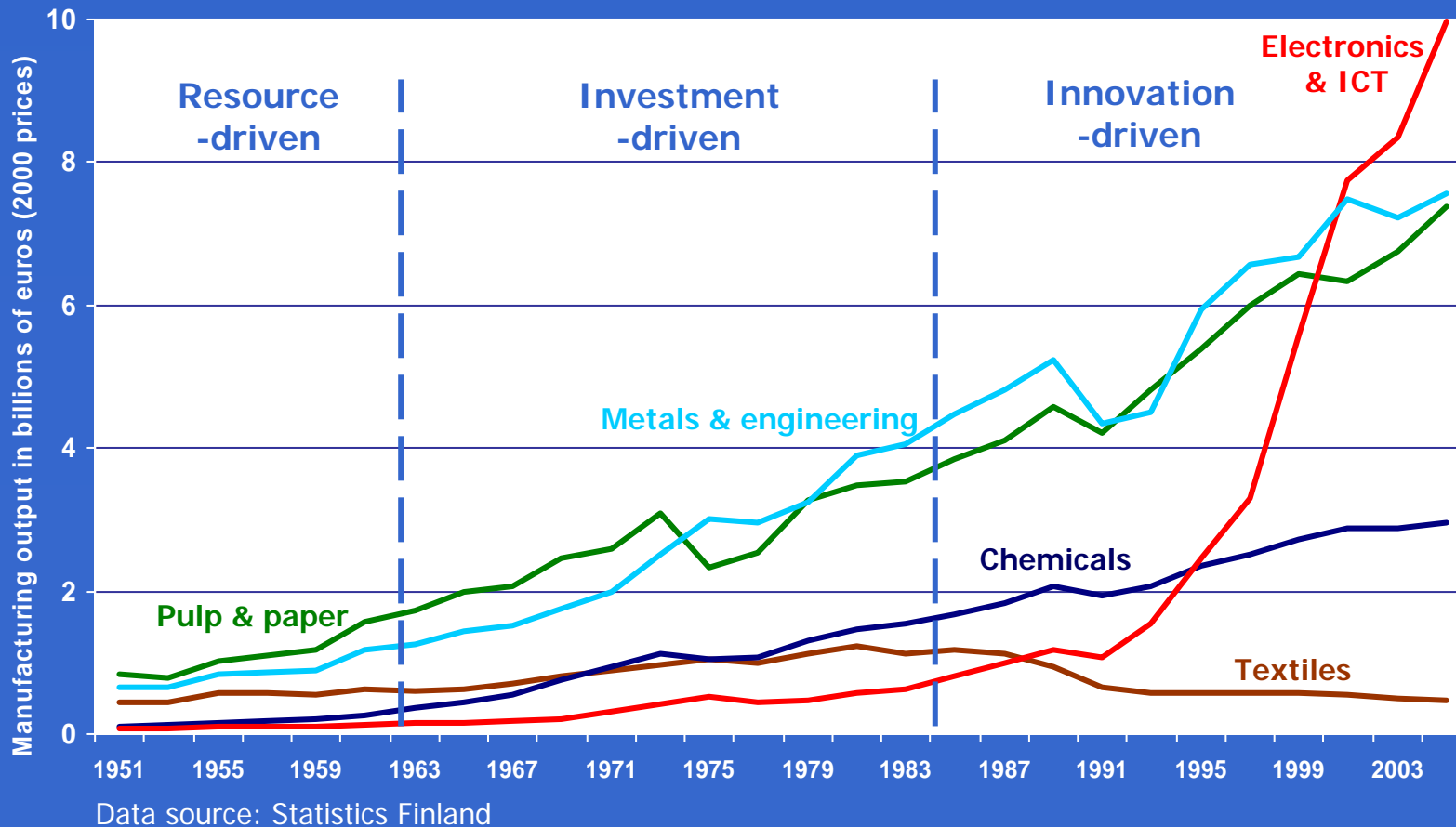


# **Economic performance since the early 1990s**

# GDP Growth in Finland, Euro Area and EU , %



# ...has transformed our industrial structure



- ICT?
- Renewal of traditional Industries?
- New industries?



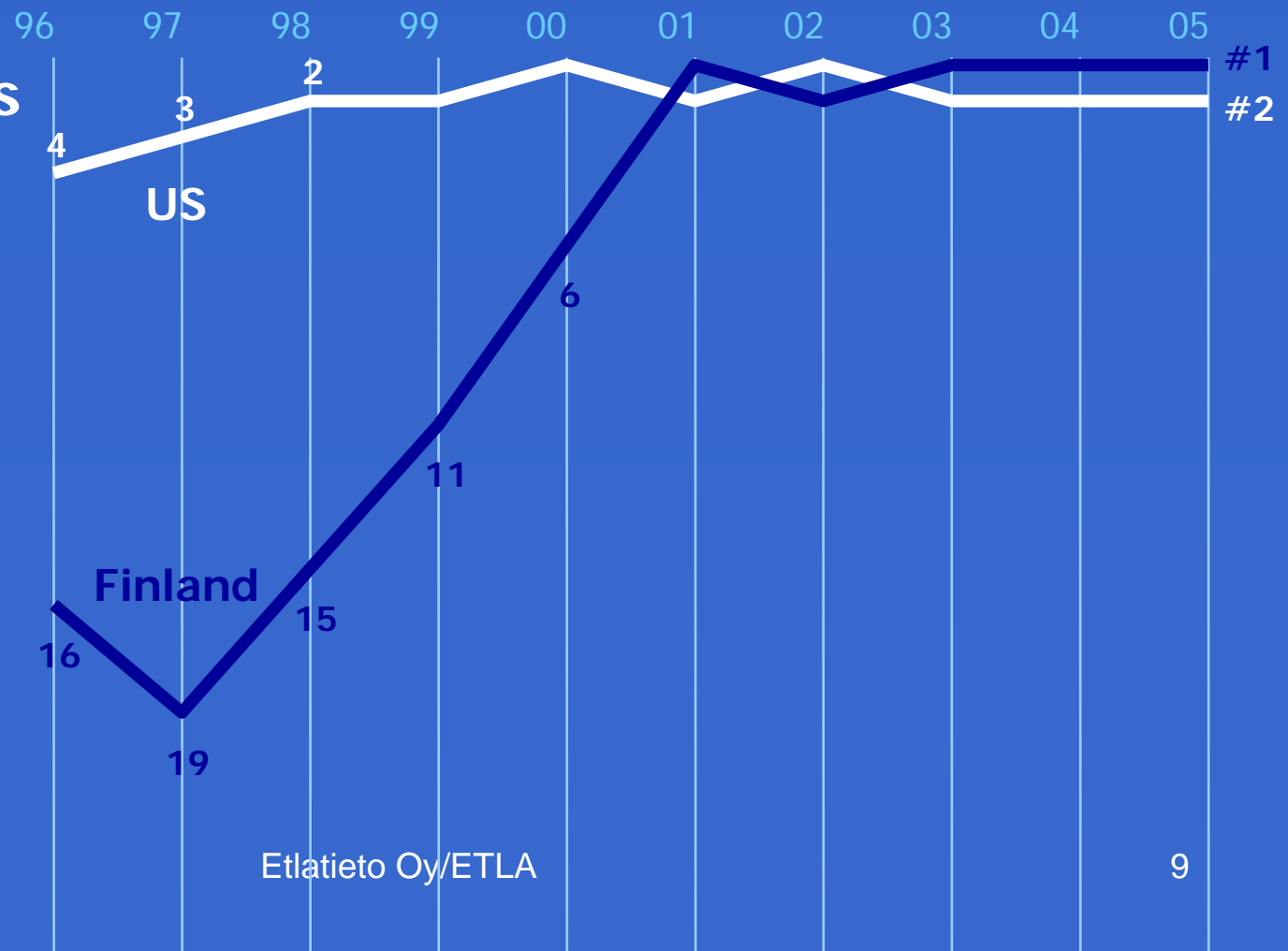
# Finland in competitiveness rankings from mid-1990s

## Growth Competitiveness Rankings ...

... according to *The World Economic Forum* ...

upon comparing 100+ nations

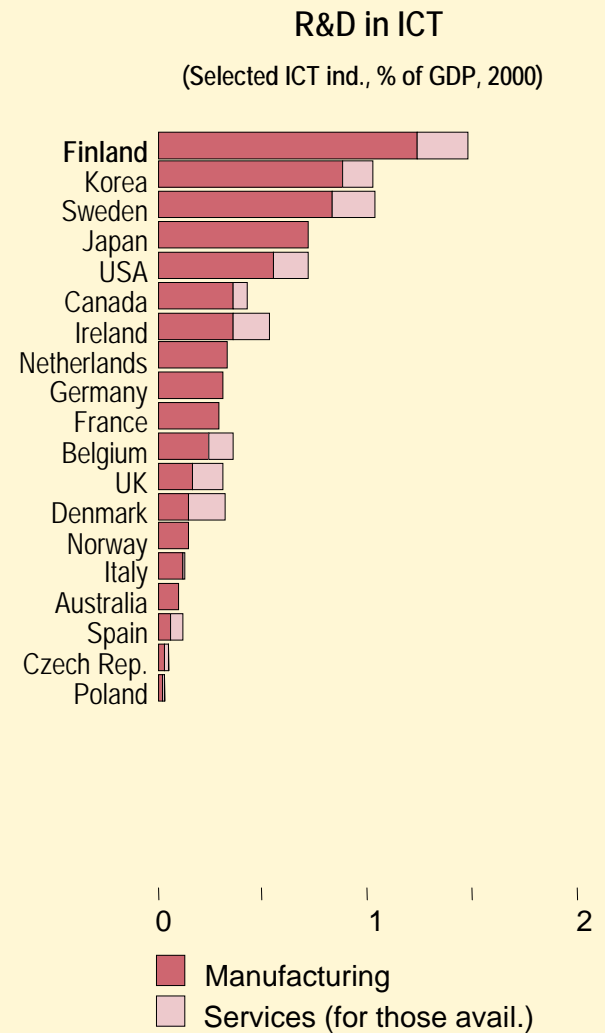
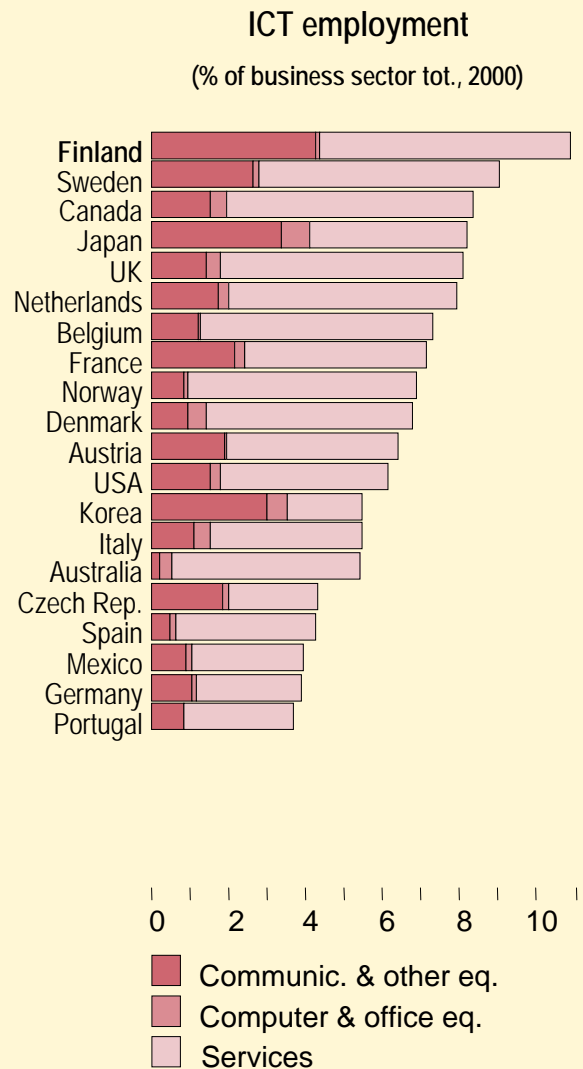
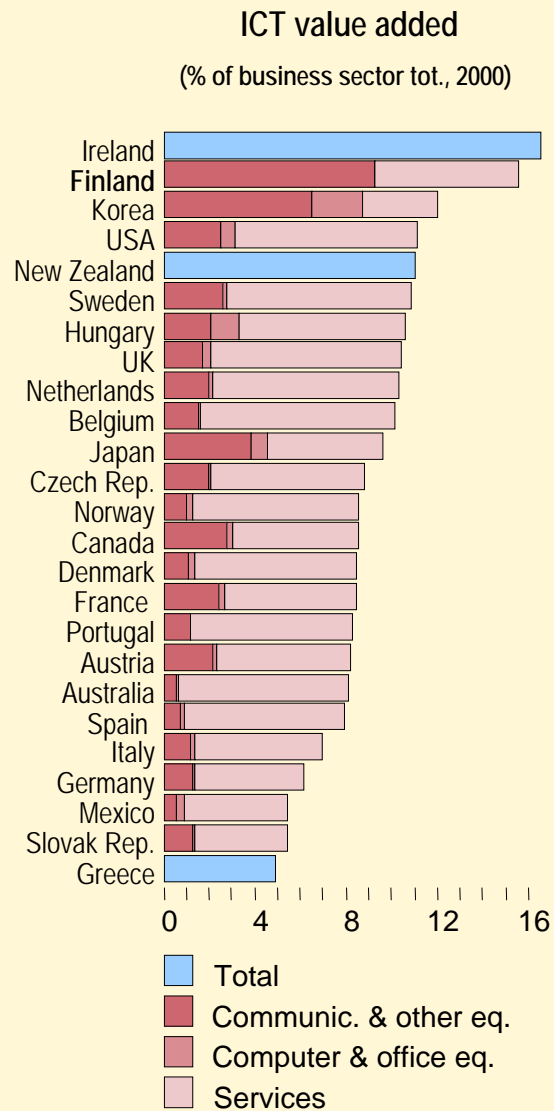
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# **Finland as a knowledge economy – The most ICT specialized economy**

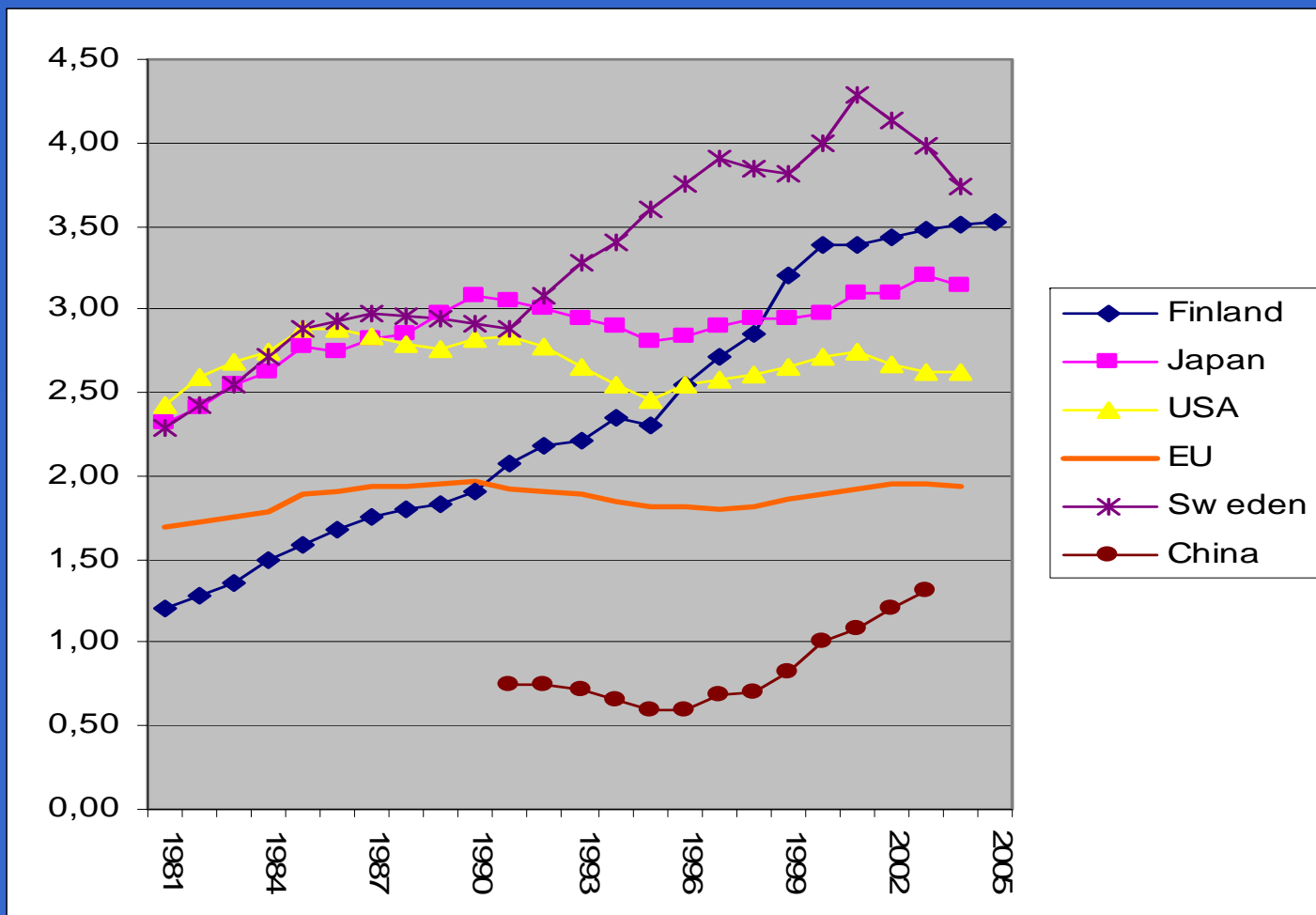
# ICT sector's share in value added, employment and R&D

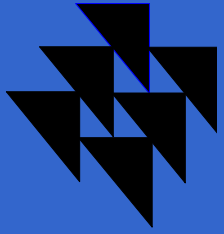


# Nokia in the Finnish economy

Nokia's estimated 2006 share in	
<b>GDP</b>	<b>2,9%</b>
% point contribution to GDP growth	0,3-0,5%
<b>R&amp;D (GERD)</b>	<b>33%</b>
<b>(BERD)</b>	<b>47%</b>
<b>Exports</b>	<b>17%</b>
<b>Employment, total</b>	<b>1%</b>
<b>Employment, manufacturing</b>	<b>5%</b>
<b>Market value at HEX</b>	<b>~40%</b>

## R&D expenditure, % of GDP





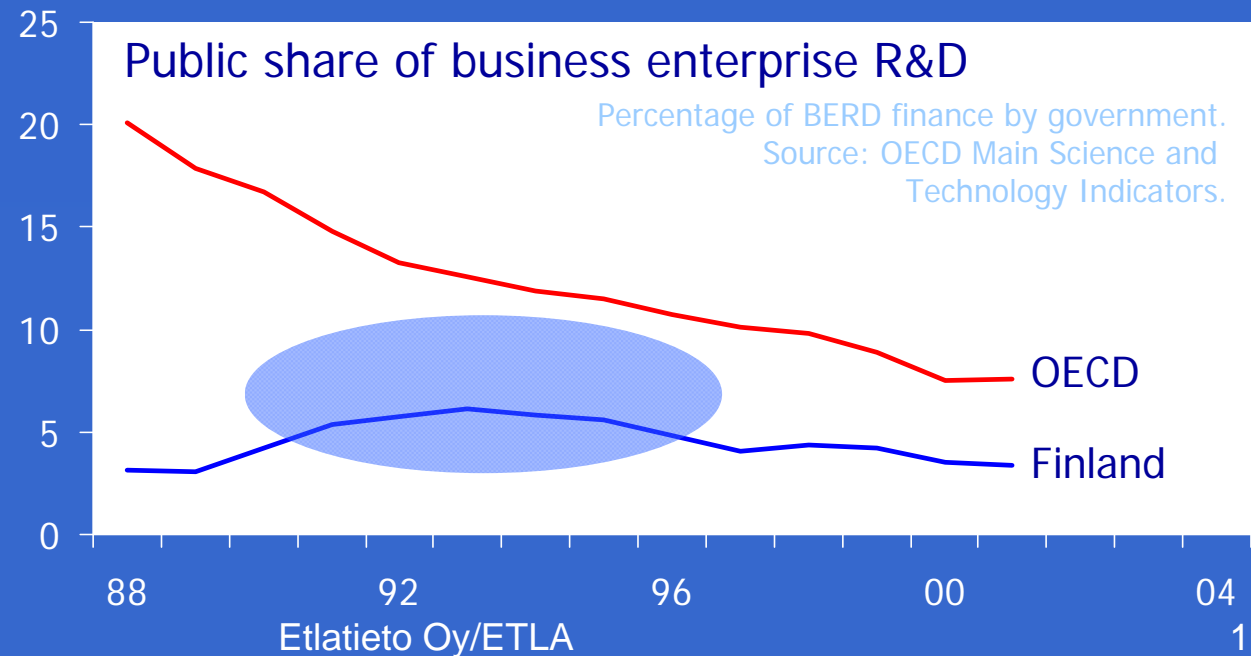
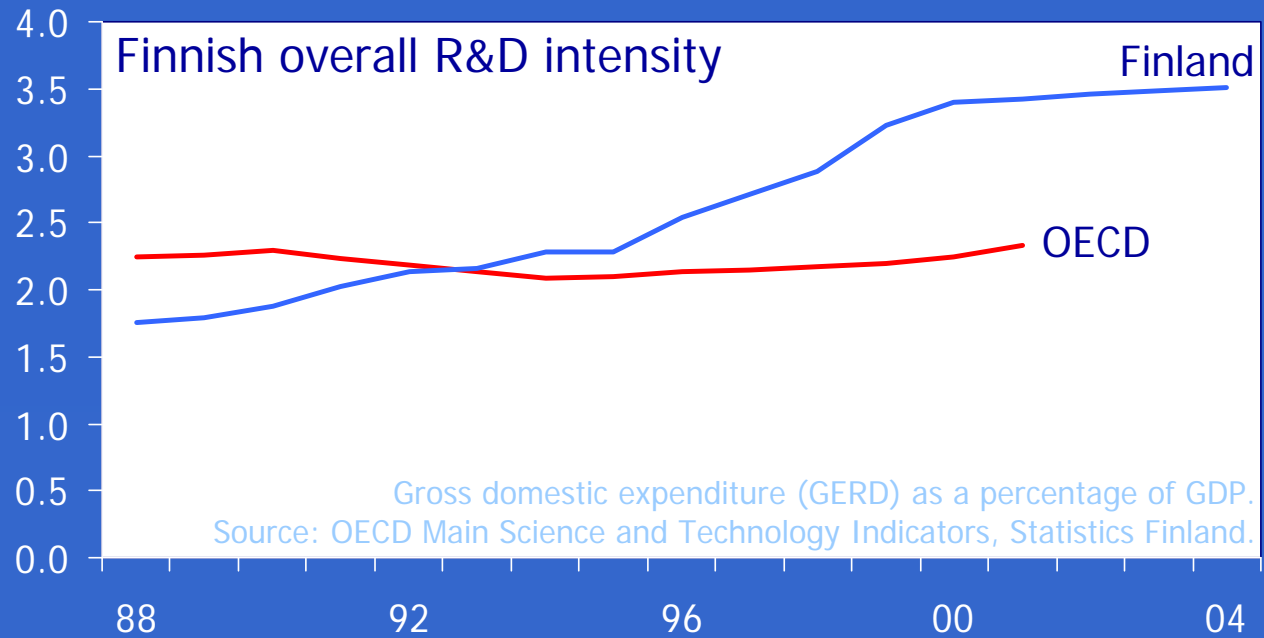
# Role of public policies?

# S&T Policies – Phases of development

- No “Master Plan” in the 1990s
  - roots in the 1970s and 1980s – designing of policies and creating competitive advantages take time
  - complementarities between policies, financial market liberalization, and institutional changes
- Phases of development
  - The building phase of the 1960s and 1970s
    - imitating, learning from others
    - building institutions & organizations
  - Technology phase - 1980s
    - technology policy more target-oriented – National Funding Agency for Technology and Innovation (Tekes) established
    - commercialization of technologies
  - Era of national innovation system – 1990s
    - Finland the first country to adopt the concept
    - collaboration nationally and internationally, including industry/university collaboration
    - Interplay between education, science, technology, and commercialization
    - concrete target: increase in R&D expenditure

Dedicated  
longer term  
R&D...

(...but still  
low public  
share...)



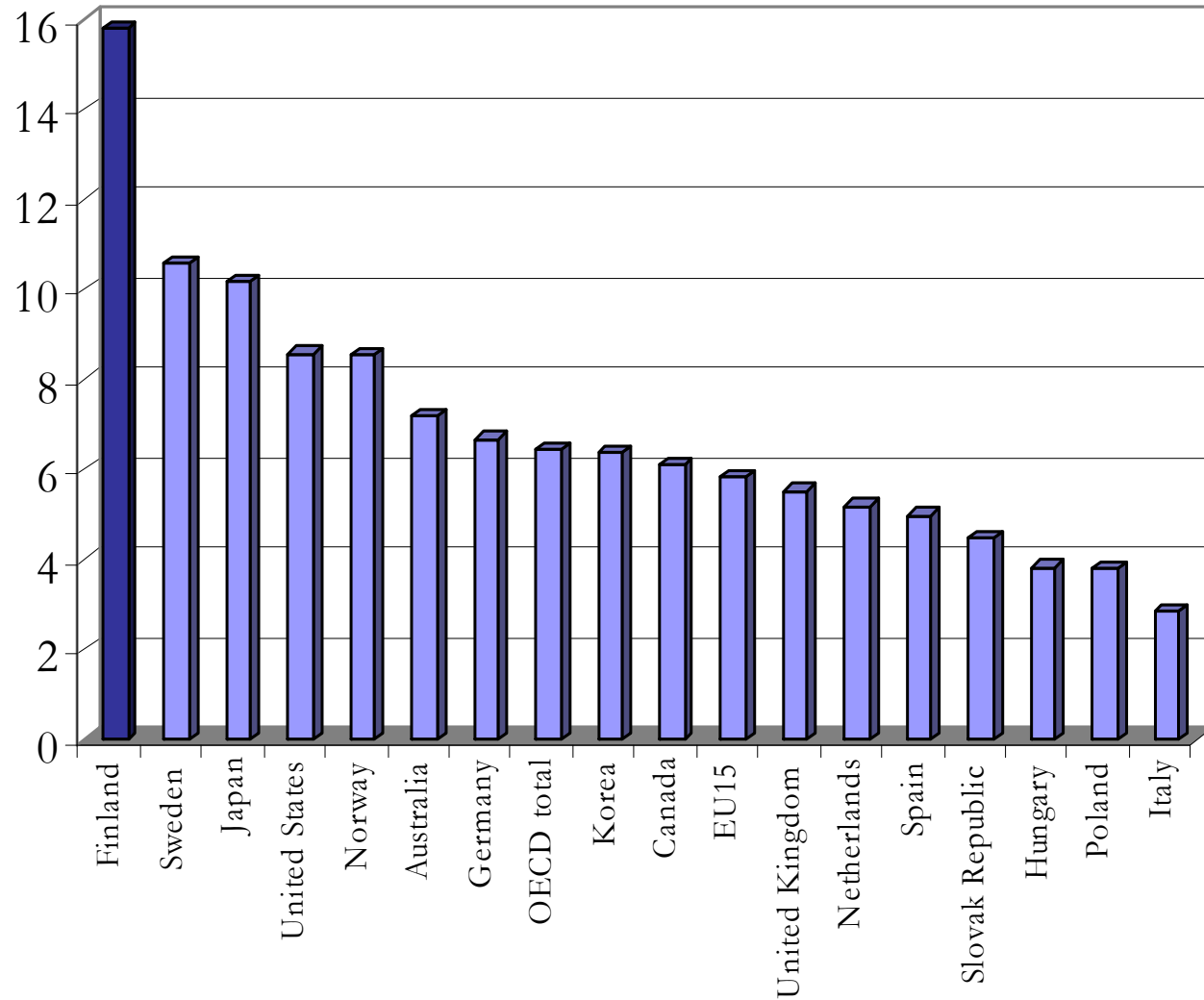


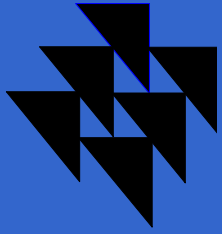
# Strong and early emphasis on education has paid off...

Mathematics	Reading literacy	Science	Problem solving
1. Hong Kong (550)	<b>1. Finland (543)</b>	<b>1. Finland</b> /Japan (548)	1. South Korea (550)
<b>2. Finland (544)</b>	2. South Korea (534)	2. Hong Kong, China (539)	<b>2. Finland</b> /Hong Kong, China (548)
3. South Korea (542)	3. Canada (528)	3. South Korea (538)	3. Japan (547)
4. Netherlands (538)	4. Australia (525)	4. Liechtenstein/Australia/Macao (525)	4. New Zealand (533)
5. Liechtenstein (536)	5. Liechtenstein (525)		5. Macao (532)
6. Japan (534)	6. New Zealand (522)		

Source: OECD Programme for International Student Assessment (PISA) 2003

## Number of researchers, per thousand employed

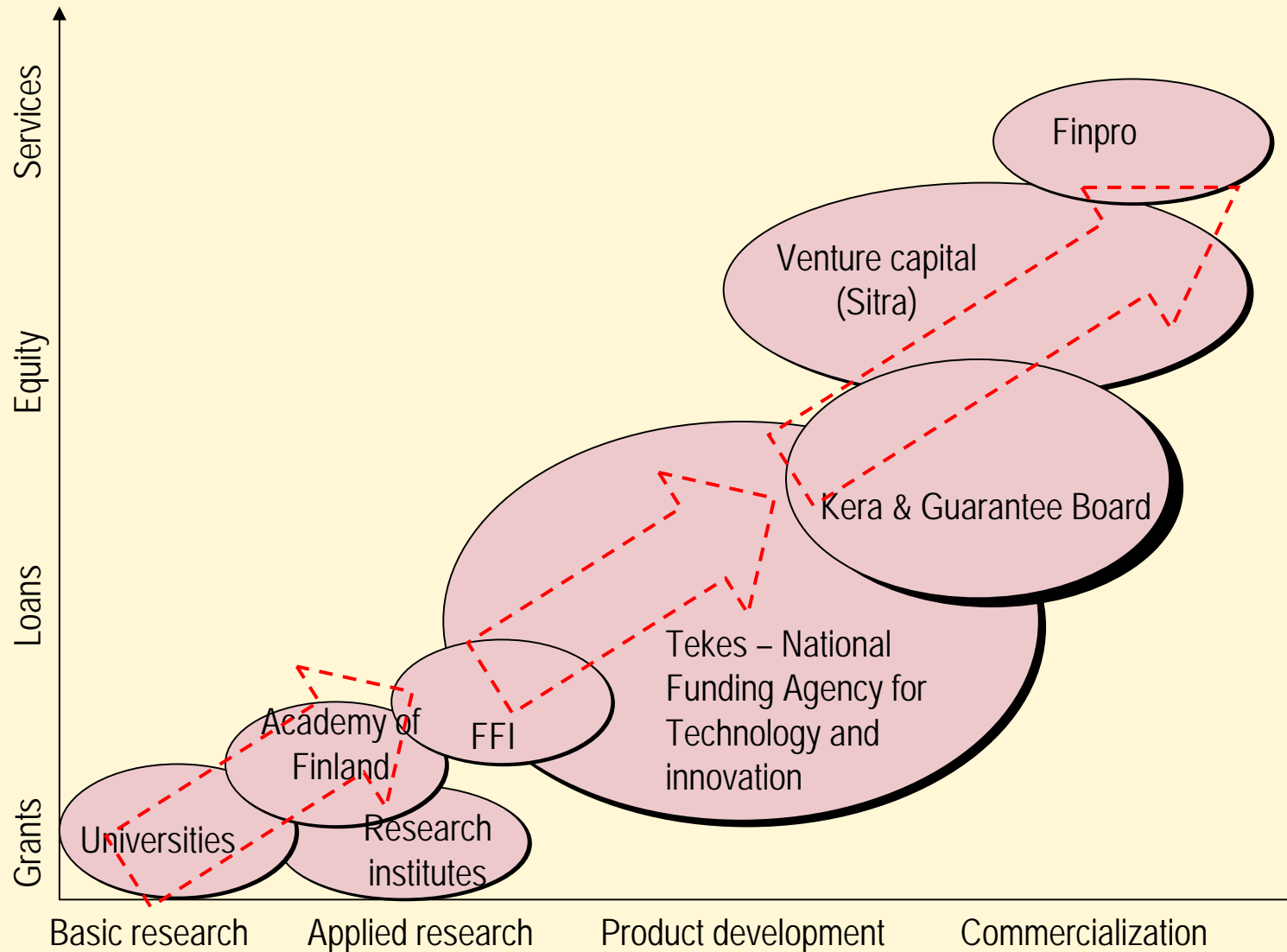




# **From linear innovation model to systemic view in policies**

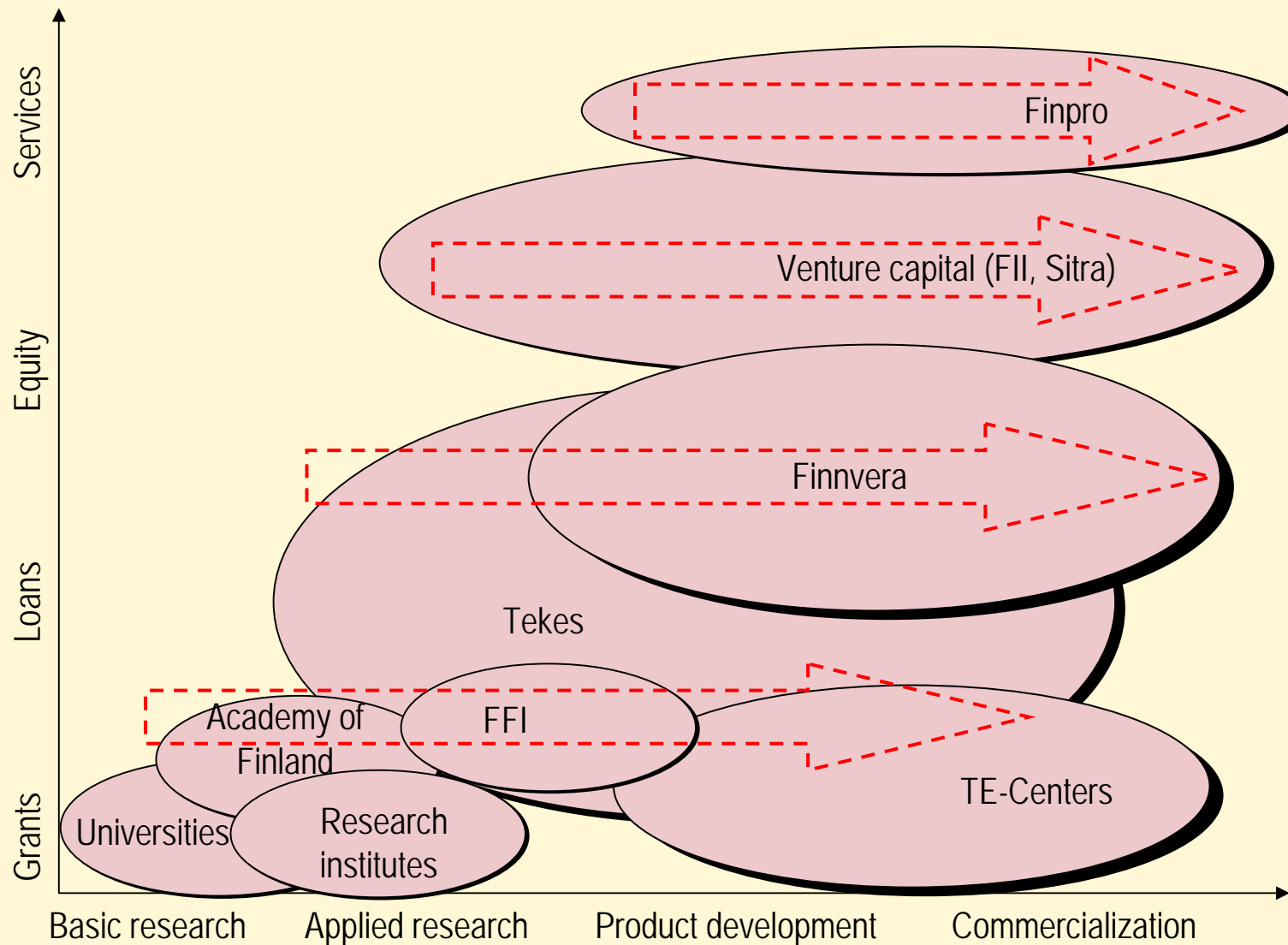
# Innovation supporting organizations

*The system in the 1980s*

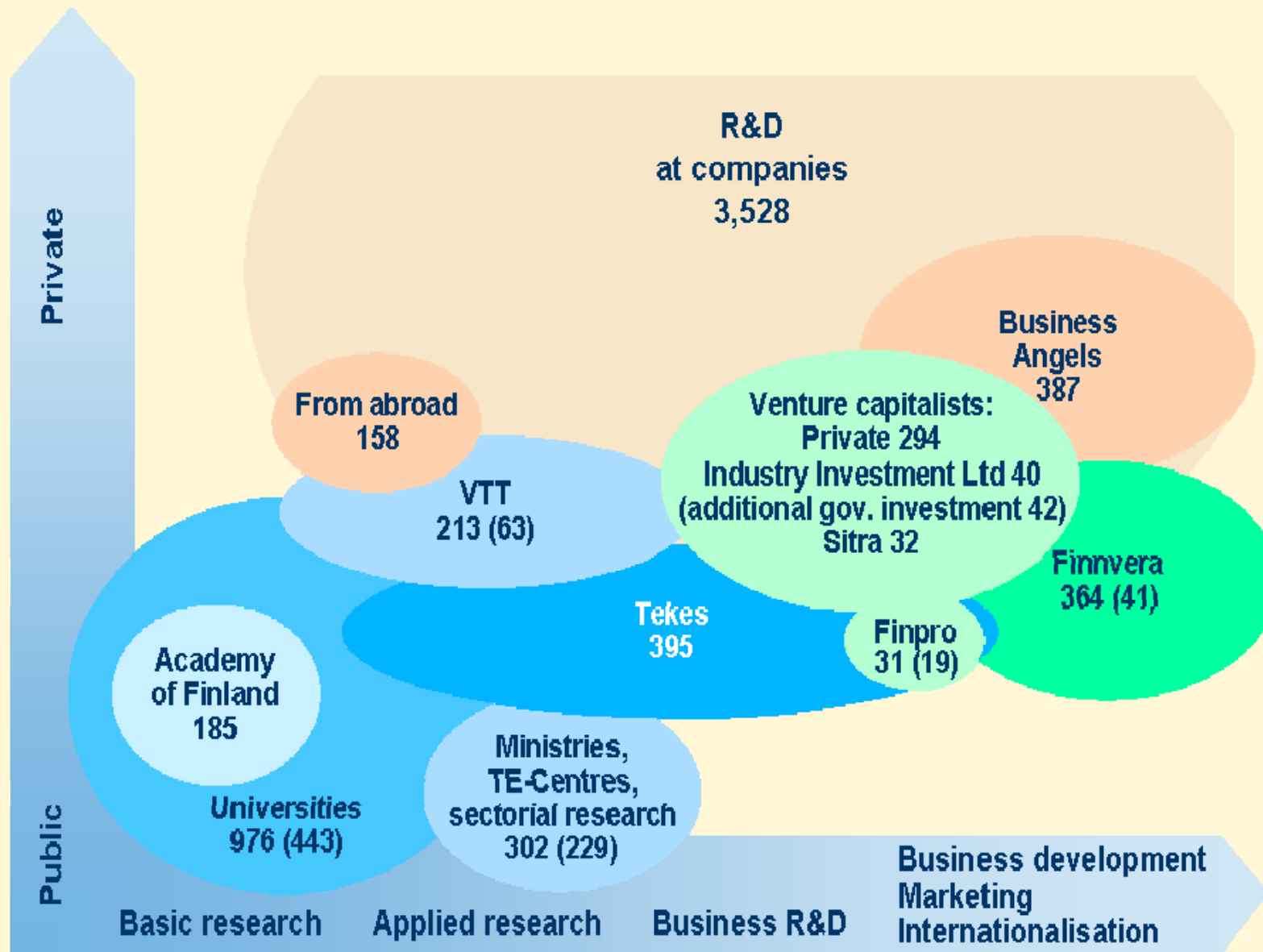


# Innovation supporting organizations

## *The current system*

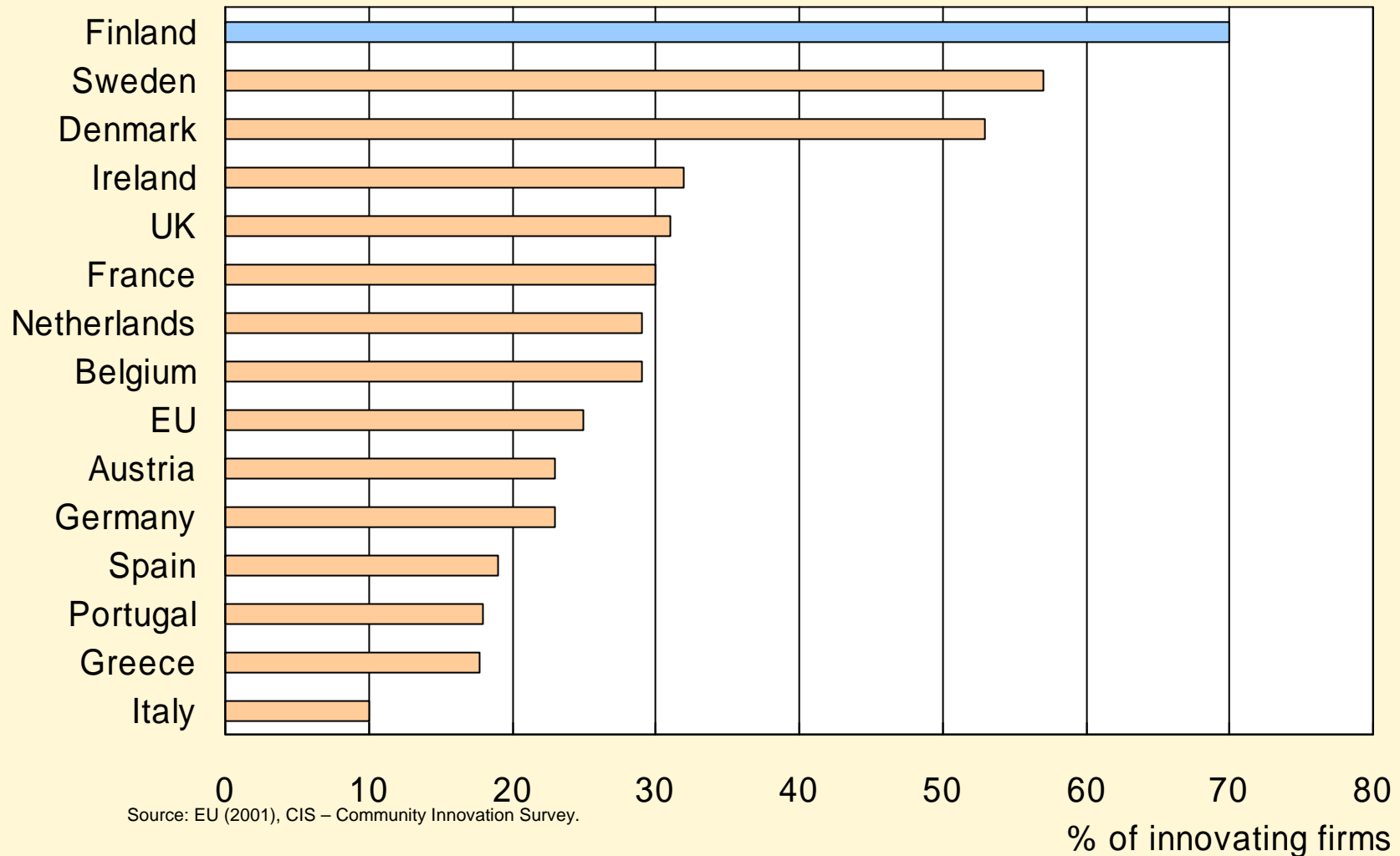


## Innovation Environment in Finland – Resources and Funding

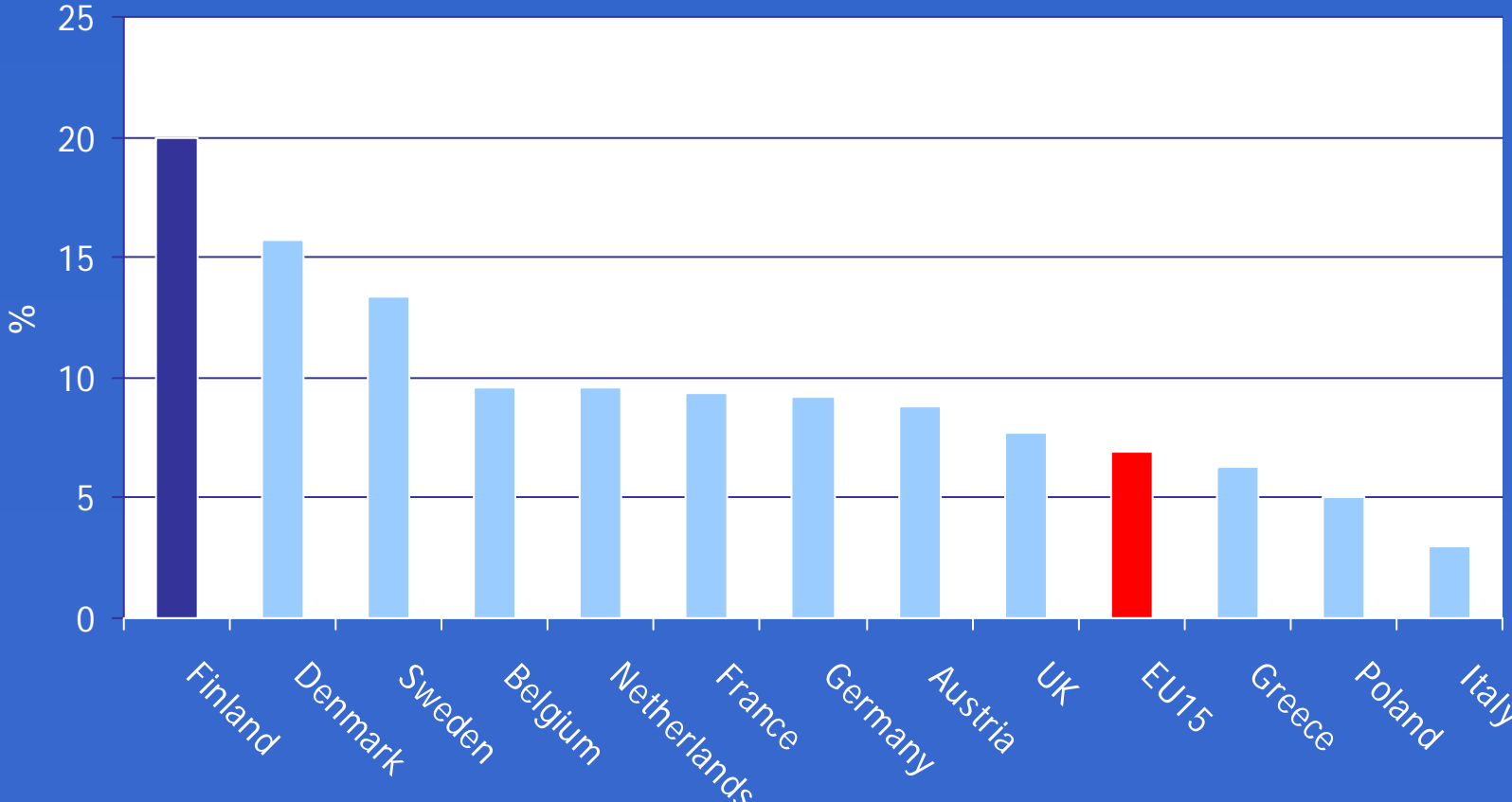


Total R&D of each organization in mill. euros. Funded from state budget in parenthesis. Tekes and Academy of Finland are Funded entirely by the state budget.

# Extent of collaboration with other firms and universities during innovation (Community Innovation Survey)



# Share of small and medium-sized firms participating in R&D collaboration



Source: EU: European Scoreboard, 2004 database

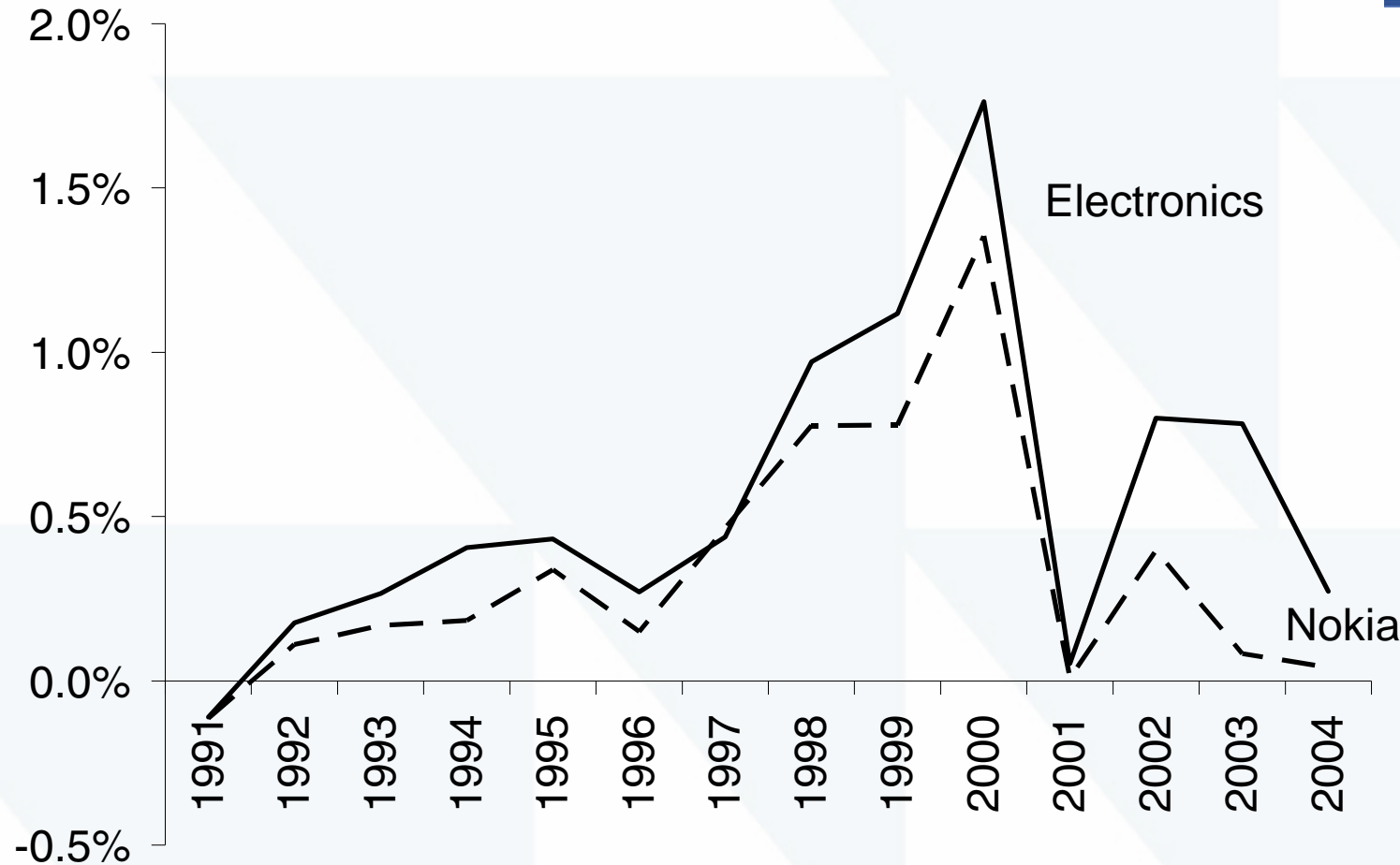




# Lessons learned & Challenges ahead

# Contribution of electronics and electrotechnical industry & Nokia to GDP growth, %-points

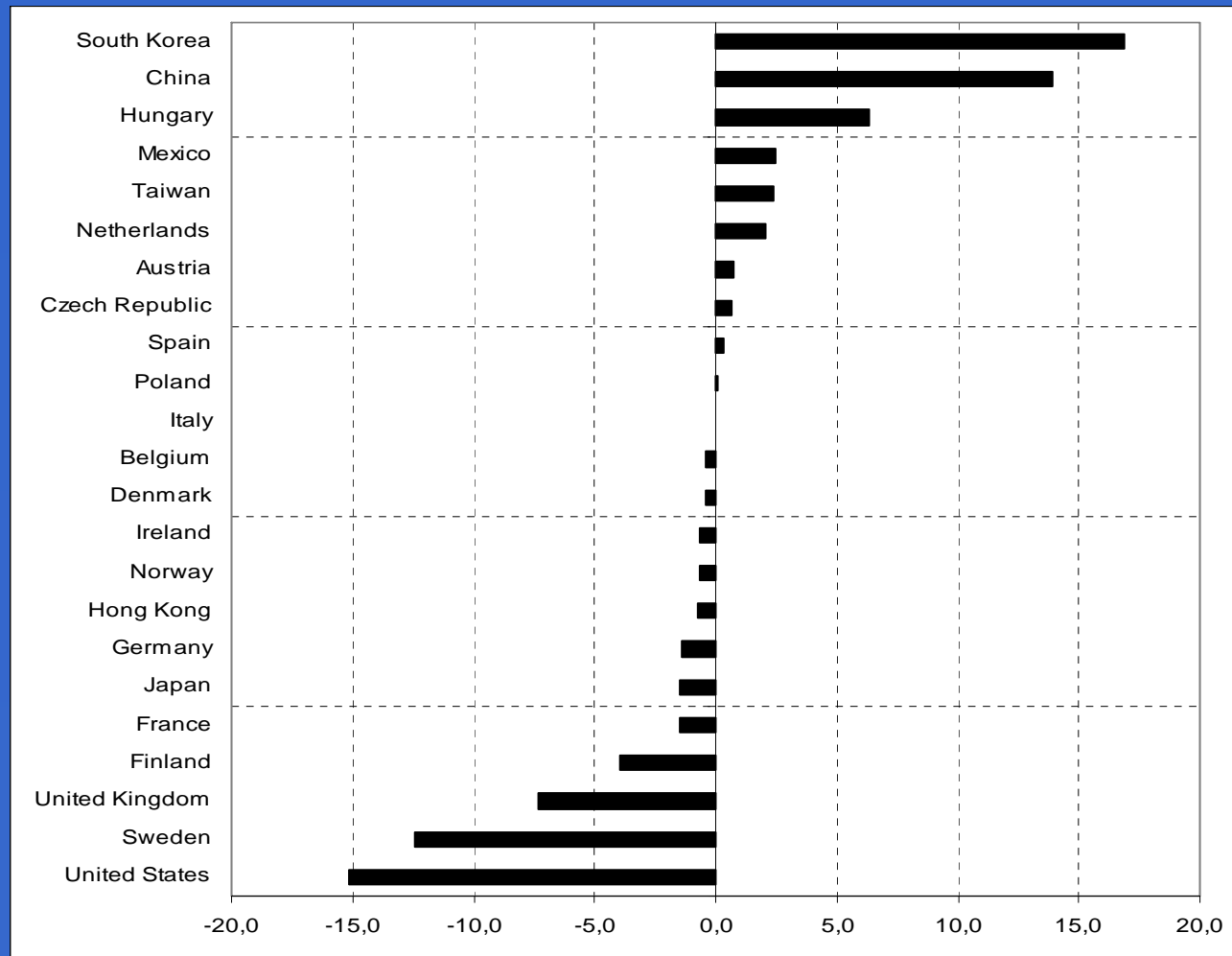
ETLA



— Sähkö- ja elektroniikkateollisuuden vaikutus  
 - - Nokian vaikutus

# ICT production is moving offshore.

## The 1996–2004 changes in global mobile phone export shares



Source: Rouvinen – Ylä-Anttila (2006). Data: OECD Foreign Trade Statistics

# Lessons to be learned?

- Finnish miracle?
  - policies played a role, but it is not the whole story
  - business -driven process
- Models come and go
  - Japan ranked the most competitive country in 1993 (!) by IMD
- Small country advantage?
  - Yes, to some extent – collaboration in innovation!
- Institutions matter
  - Openness to the external world has to be combined with dense interaction (collaboration & networking) internally
- Consistency of policies & long-term view (innovation policies)
  - Stability in the rules of the game

# References

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# Thank You!