IC for Finland:
Beyond the Nokia Success

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Prof. Pirjo Ståhle

Lappeenranta University of Technology

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- Facts about Finland
- ”The Finland Phenomenon”
- Finland from perspectives of competitiveness and IC
- Nokia’s influence
- The future challengies of Finland
- Some forgotten dimensions of IC

Facts about Finland

- independent republic since 1917, current president mrs Tarja Halonen
- joined the EU at the beginning of 1995
- population is 5.2 million, sixth largest country (338 000 sq.km) in Europe
- about two thirds of people live in urban areas
- the capital is Helsinki, 560 000 residents
- neighbouring countries are Sweden, Norway, Russia and Estonia

Facts about Finland (2)

- forest covers about 75 % of Finland, water covers almost 10 %
- 190,000 lakes and about 180,000 islands
- 20 universities and 29 polytechnics
- the metal, engineering and electronics industries account for 50 % of export revenues, the forest products industry for 30 %.
- one of the leading countries in Internet use, more mobile phone than fixed network subscriptions

”The Finland Phenomenon” 1990-2000

- From deep depression to top competitiveness.
- One of the main reasons to quick economic recovery was the transformation of the industrial structure in 1990s.
- It took less than a decade for electronics and ICT to become a biggest industry in Finland. Its contribution to the growth of GNP in 1995-2000 is about 0,85 % of which **Nokia covered alone almost 0,7 %.**
- There is no other case in the post war history where either one branch of industry or one company would have influenced in a country’s economy as strongly as this.

Finland from Perspective of the Competitiveness Reports

- According to WEF, Finland was the most competitive economy in the world in 2004.
- IMD ranks Finland 6th in overall competitiveness in 2005. The three most competitive countries were USA, Hong Kong and Singapore.
- Based on the Lisbon Review, Finland was the most competitive country in the EU in 2004, followed by Denmark and Sweden.
- Based on the comparisons of the European Commission, Finland was among the leading countries in investing into and performance of the knowledge-based economy.

Sources: WEF, The Global Competitiveness Report 2004-2005 and The Lisbon Review 2004; IMD, The World Competitiveness Yearbook 2005; EU, Science, Technology and Innovation Key Figures 2003-2004 and The European Innovation Scoreboard 2004; United Nations University, The Millennium Project 2001; OECD, Program for International Student Assessment PISA 2003

- The European Innovation Scoreboard 2004 shows that Sweden, Finland,Germany and Denmark are the leading innovative countries in the EU.

- In a comparison made by the University of United Nations, Finland was ranked second in overall ranking. Finland was also ranked second in education,technology and information indices.

- According to the OECD PISA 2003 study, young Finns were among the OECD top in mathematics, science and problem-solving.

Sources: WEF, The Global Competitiveness Report 2004-2005 and The Lisbon Review 2004; IMD, The World Competitiveness Yearbook 2005; EU, Science, Technology and Innovation Key Figures 2003-2004 and The European Innovation Scoreboard 2004; United Nations University, The Millennium Project 2001; OECD, Program for International Student Assessment PISA 2003

Competitiveness 2002-2005

Total ranking

	WEF Growth competitiveness 2004*	2003*	2002	WEF Business competitiveness 2004	IMD Total compe-titiveness 2005
Finland	**1**	**1**	**2**	**2**	**6**
USA	2	2	1	1	1
Sweden	3	3	5	4	14
Taiwan	4	5	3	17	11
Denmark	5	4	10	7	7
Norway	6	9	9	20	15
Singapore	7	6	4	10	3
Switzerland	8	7	6	5	8
Japan	9	11	13	8	21
Iceland	10	8	12	19	4
Great Britain	11	15	11	6	22
Netherlands	12	12	15	9	13
Germany	13	13	14	3	23
Australia	14	10	7	13	9

* Applying 2003 formula

Sources: IMD, The World Competitiveness Yearbook 2005 and WEF, The Global Competitiveness Report 2004-2005

Competitiveness in technology and science 2002-2004

	WEF Technology			IMD Technology	IMD Science
	2004	2003	2002	2004	2004
USA	1	1	1	1	1
Taiwan	2	3	2	7	8
Finland	3	2	3	11	10
Sweden	4	4	4	10	4
Japan	5	5	5	9	2
Denmark	6	8	11	6	13
Switzerland	7	7	6	15	5
Israel	8	9	7	23	15
Norway	10	13	10	13	26
Germany	12	14	12	14	3
Canada	13	11	8	4	17
Estonia	15	10	14	28	39
Australia	17	19	9	20	25
Great Britain	18	16	15	17	14

Sources: IMD, The World Competitiveness Yearbook 2004 and WEF, The Global Competitiveness Report 2004-2005.

Ranking of EU countries

The Lisbon review

	Total rank	Information society	Innovation and R&D	Liberalisation	Network industries	Financial services	Enterprise	Social inclusion	Sustainable development
Finland	1	1	1	1	4	1	3	2	1
Denmark	2	3	4	2	1	3	2	1	4
Sweden	3	2	2	6	2	4	5	2	3
UK	4	6	6	3	8	2	1	8	7
Netherlands	5	4	7	5	7	7	7	4	6
Germany	6	7	3	8	3	8	10	12	2
Luxembourg	7	5	13	4	5	5	6	5	8
France	8	9	5	7	6	6	9	9	9
Austria	9	8	9	10	9	10	12	7	5
Belgium	10	11	8	9	10	11	8	6	10
Ireland	11	10	10	12	15	9	4	10	13
Spain	12	14	11	11	12	12	11	11	12
Italy	13	12	12	13	13	13	15	13	11
Portugal	14	13	14	14	11	14	13	14	14
Greece	15	15	15	15	14	15	14	15	15

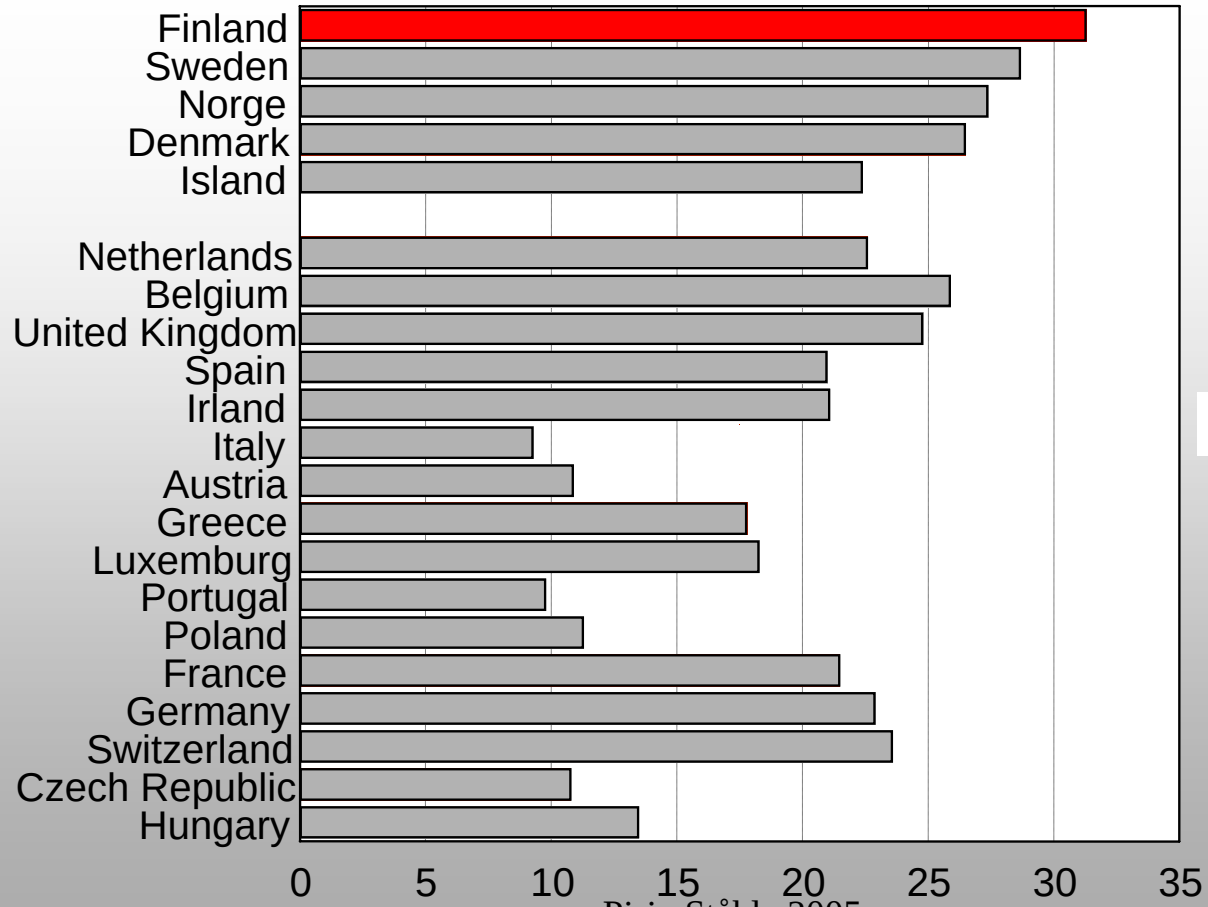
Source: WEF, The Lisbon Review 2004

Finland from IC perspective

- Human focus
- Market focus
- Process focus
- Renewal and development focus

Persons with Tertiary Education

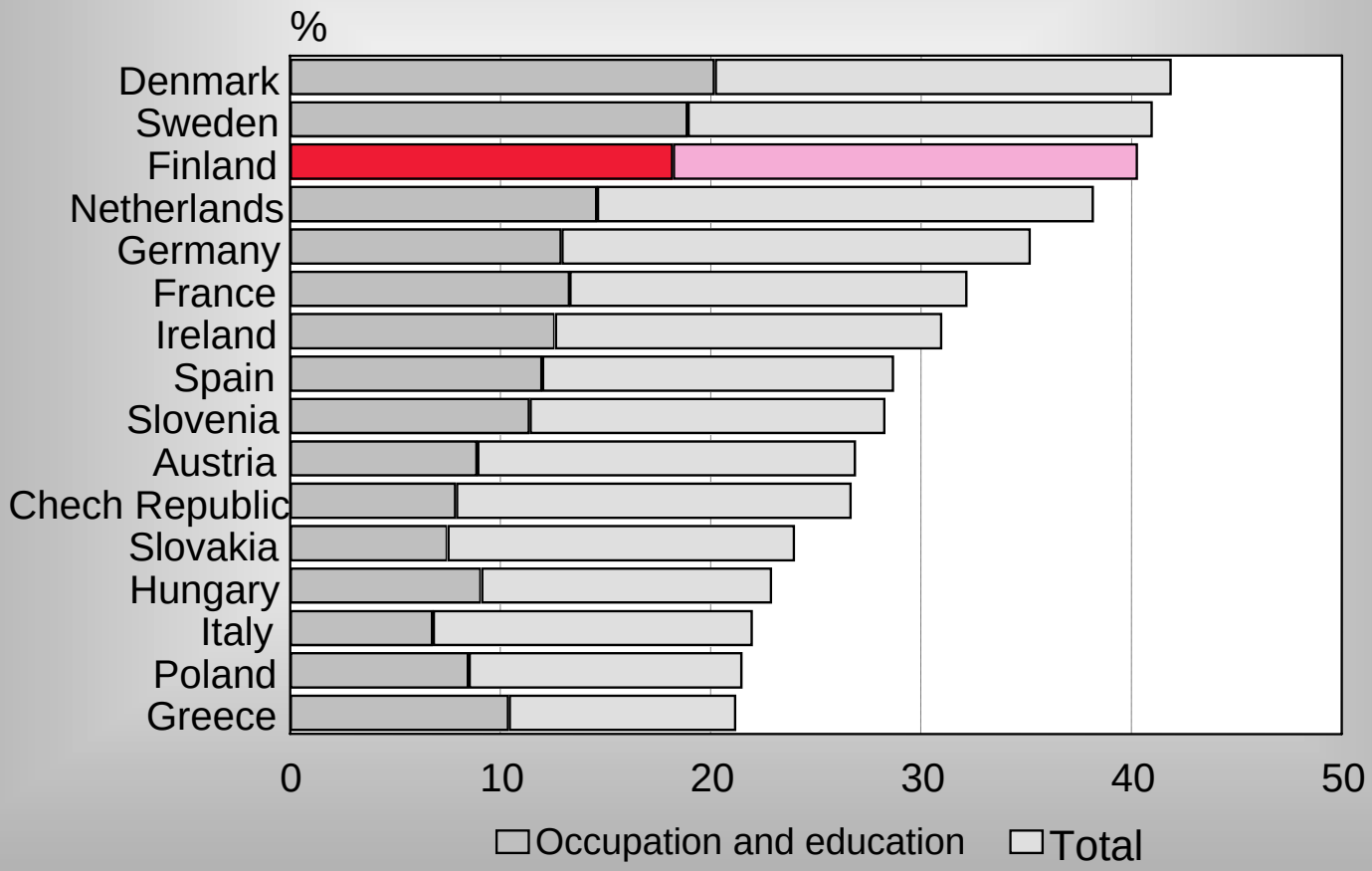
proportion of population aged 25-64 in 1999



Source: Statistical Yearbook of Finland 2004, Statistics Finland

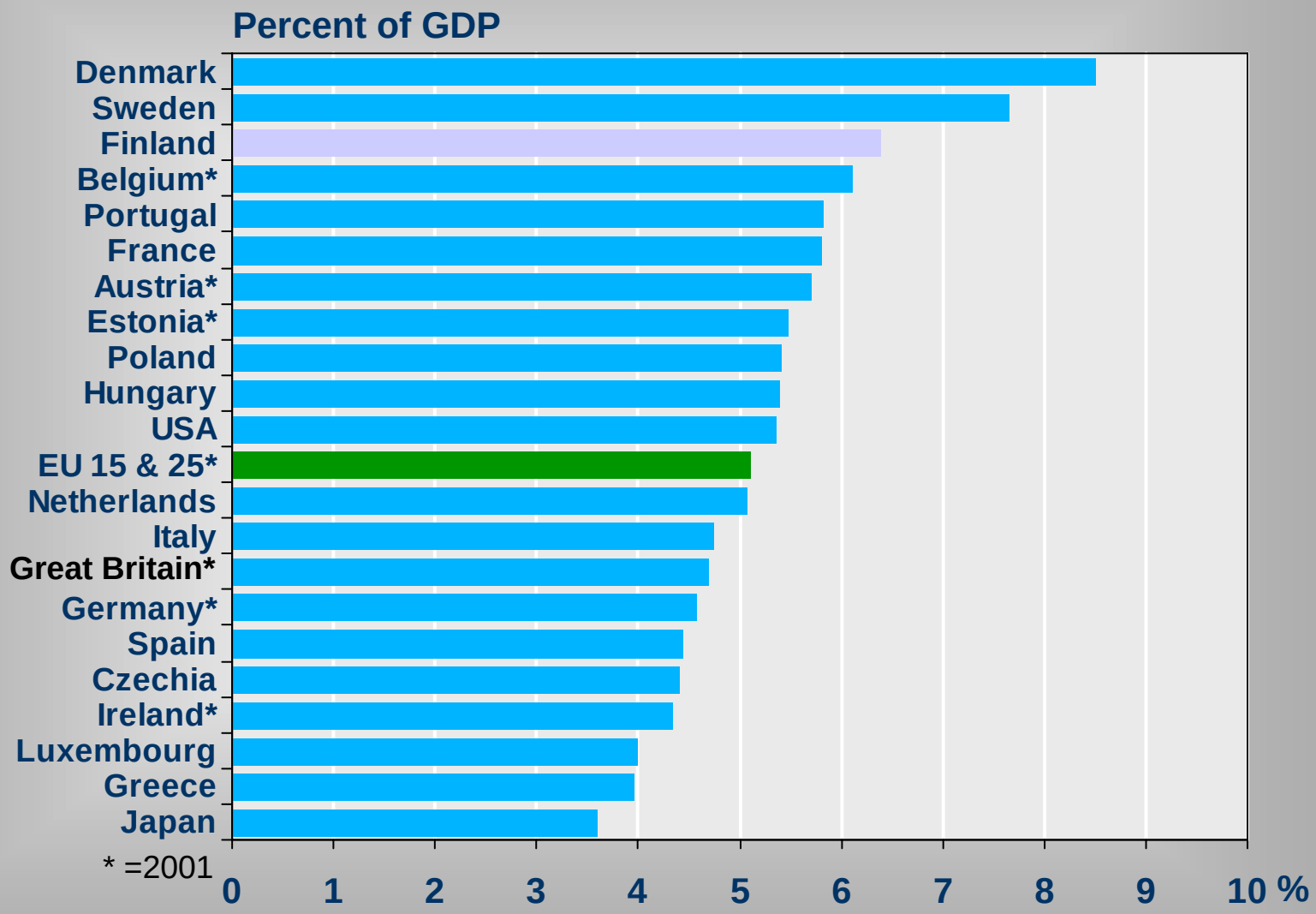
People with a Tertiary or Working with Science and Technology Occupations

(in 2003, per cent of the population aged 25-64)



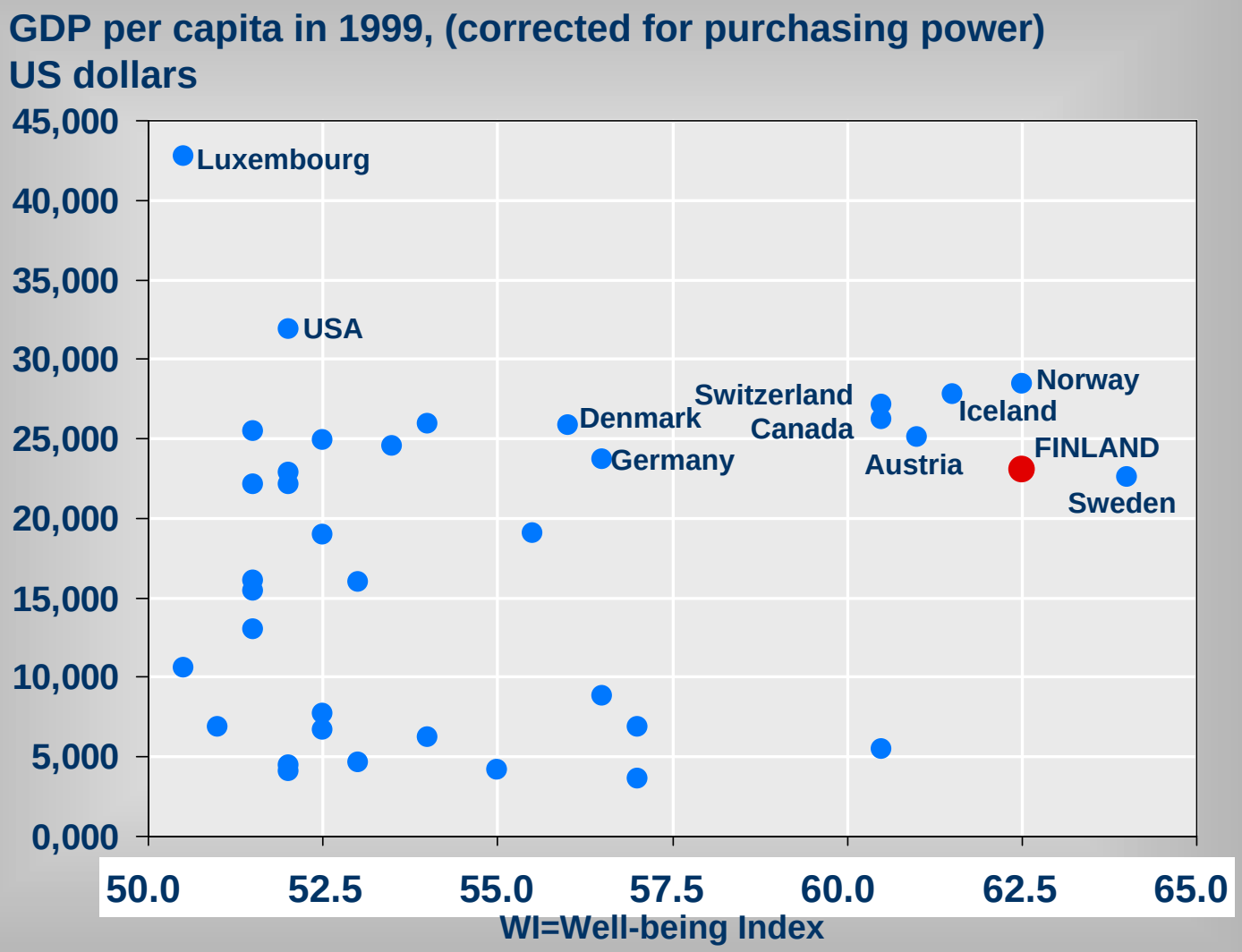
Source: Eurostat, New Cronos

Public Educational Expenses in 2002



Source: OECD, Eurostat 2004

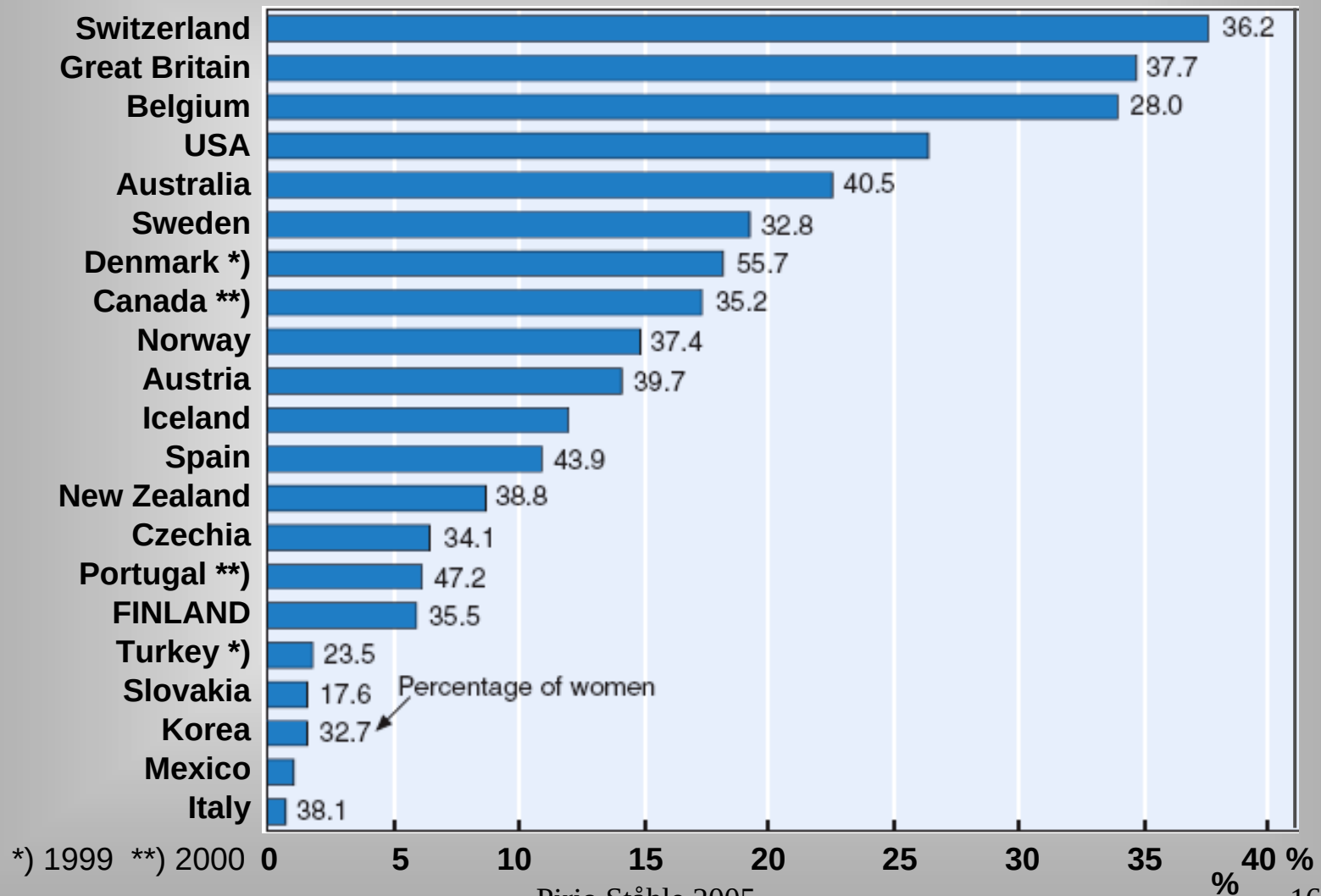
GDP and the Well-being Index



Sources: Robert Prescott-Allen (2001): The Wellbeing of Nations: A Country-by-Country Index of Quality of Life and the Environment; Human Development Report 2001. The United Nations Development Program.

Foreign PhD Students

Foreign PhD students as a percentage of total PhD enrolment in 2001

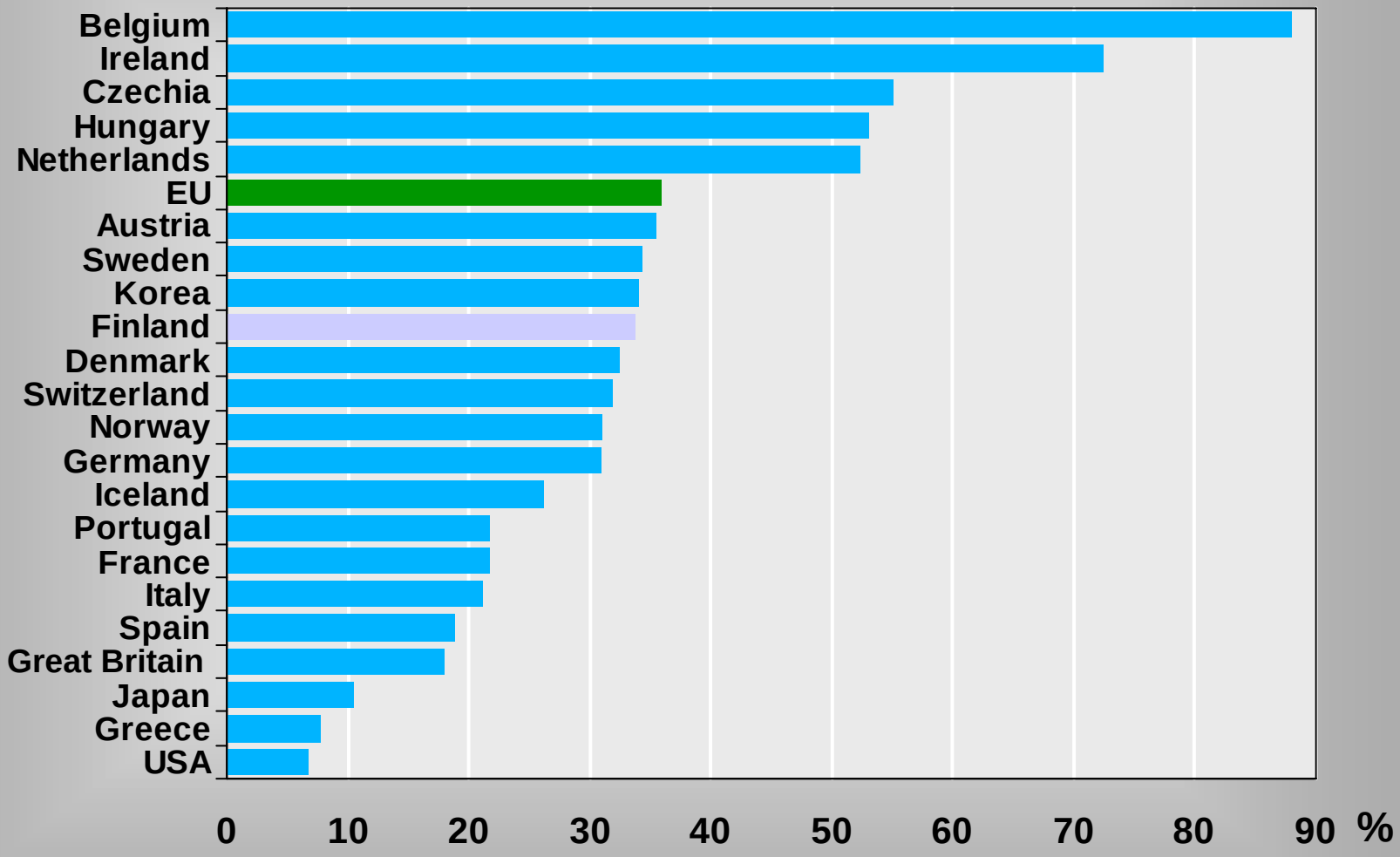


*) 1999 **) 2000

Source: OECD Science, Technology and Industry Outlook, 2004

Exports´ Share of GDP

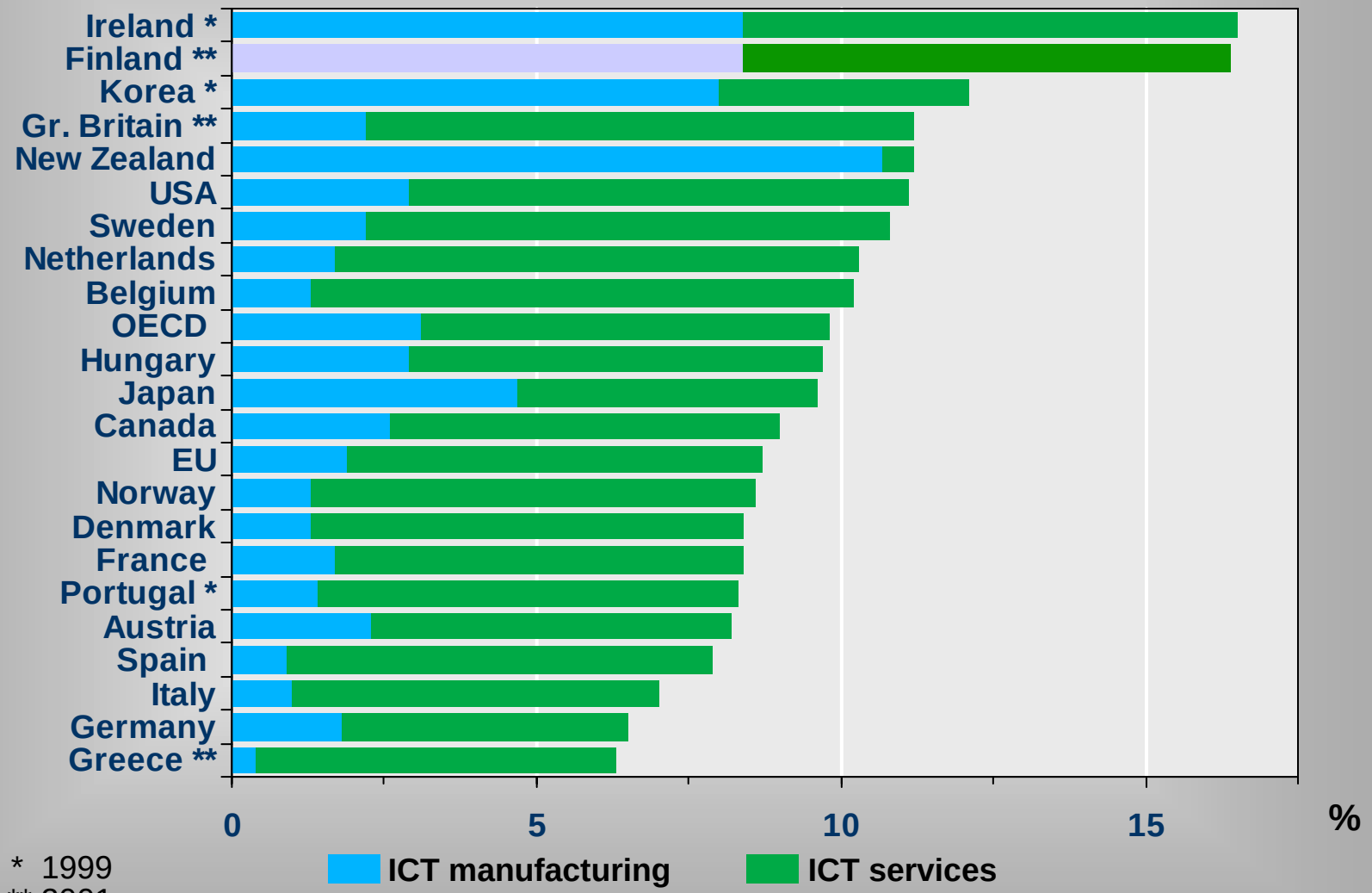
in 2002



Source: Statistics Finland.

Size and Growth of the ICT Sector

Share of ICT value added in business sector value added in 2000

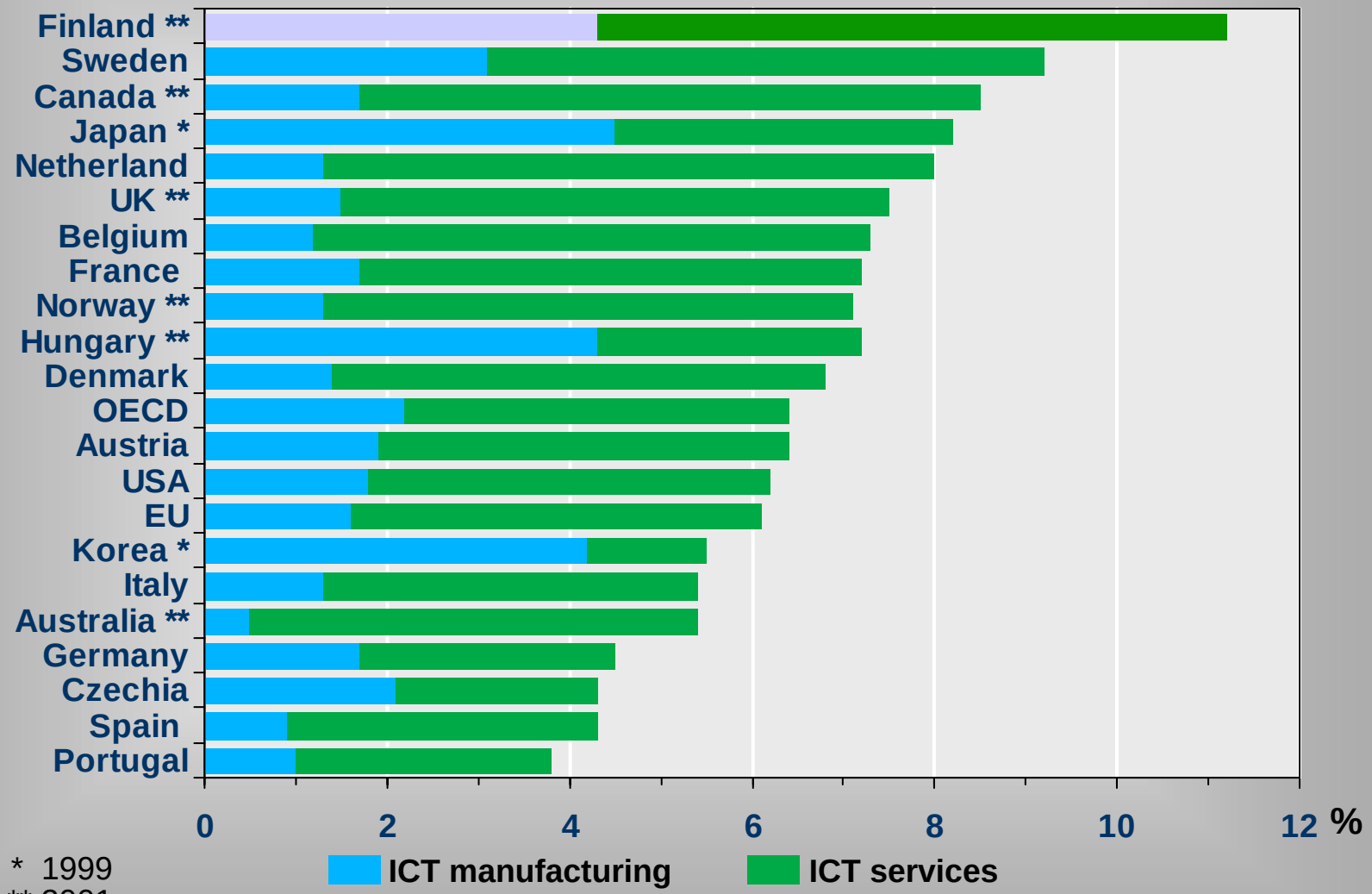


* 1999
** 2001

Source: OECD, Technology and Industry Scoreboard 2003

Share of the ICT Sector in Business Sector Employment

in 2000

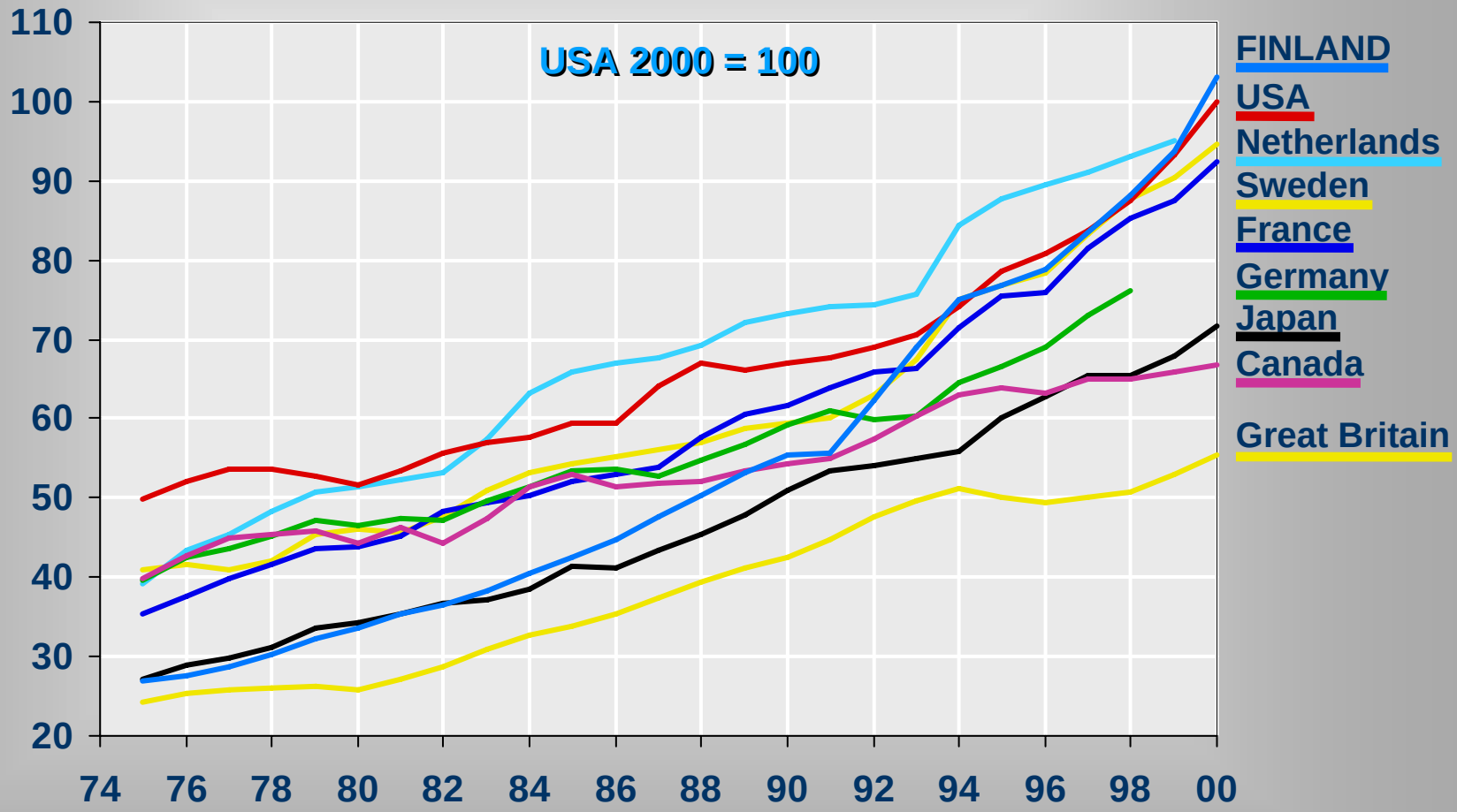


* 1999
** 2001

Source: OECD, Technology and Industry Scoreboard 2003

Labour Productivity in Industry

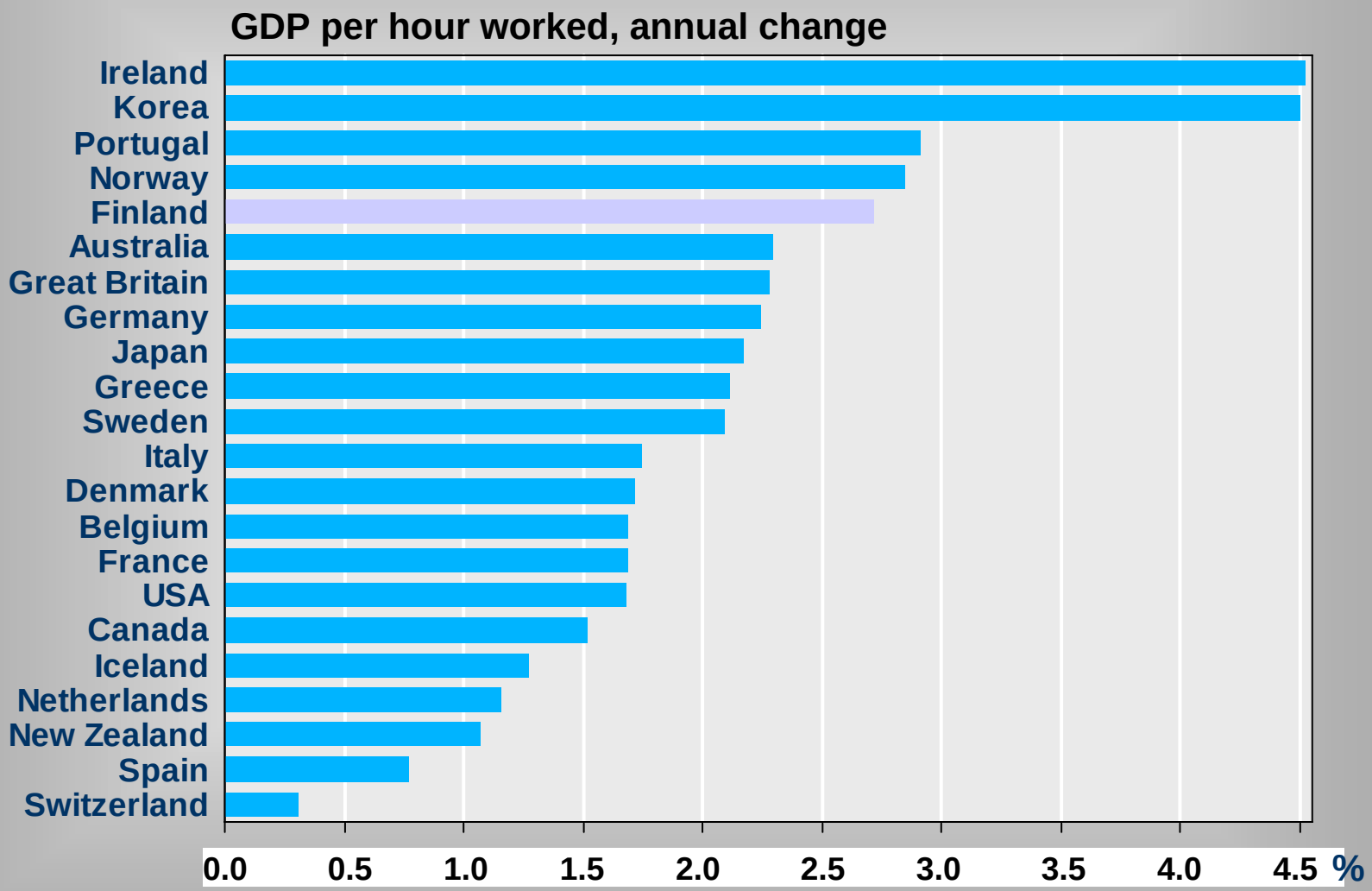
Value added per hour worked



Source: University of Groningen

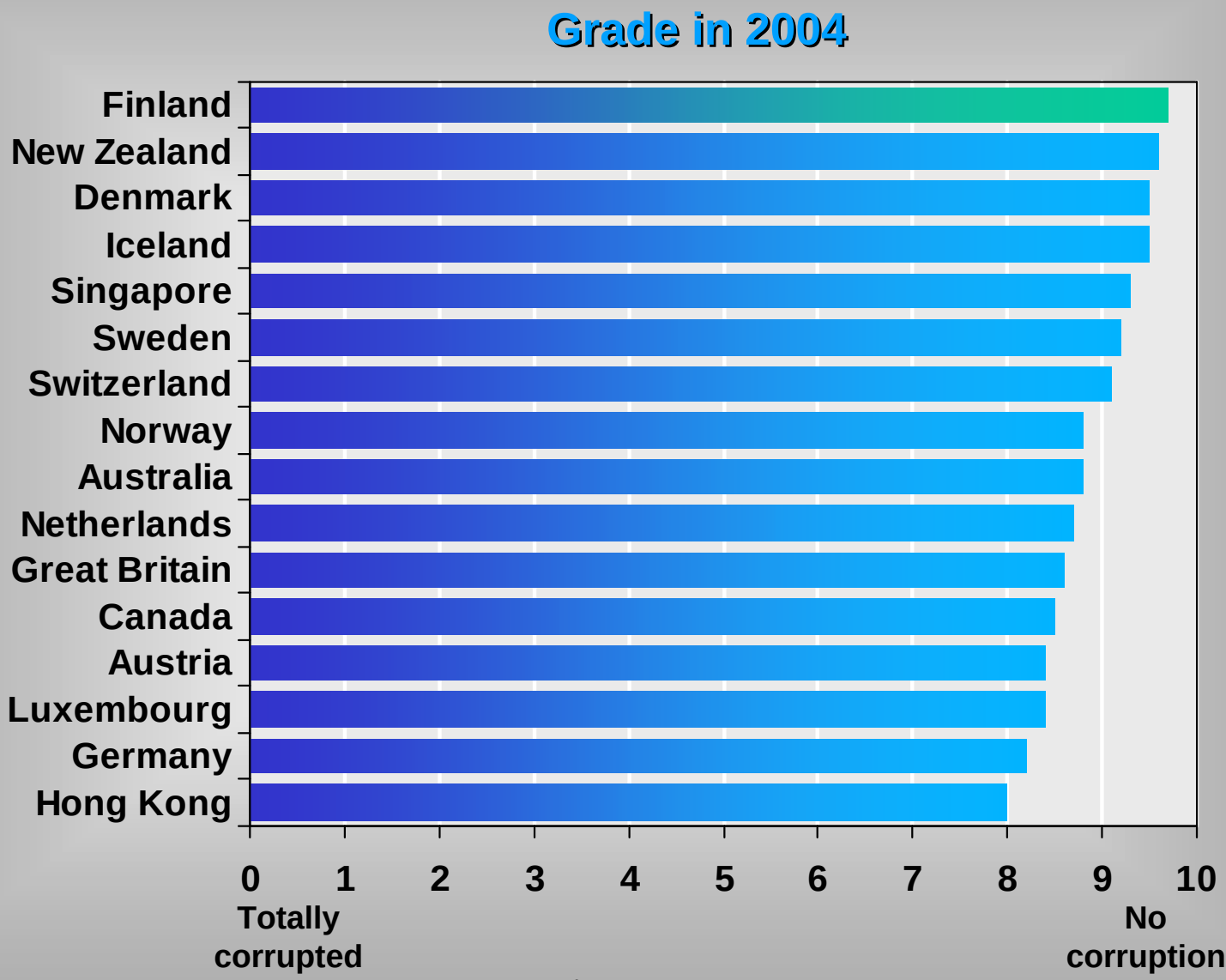
Growth in Labour Productivity 1990-2002

The whole national economy



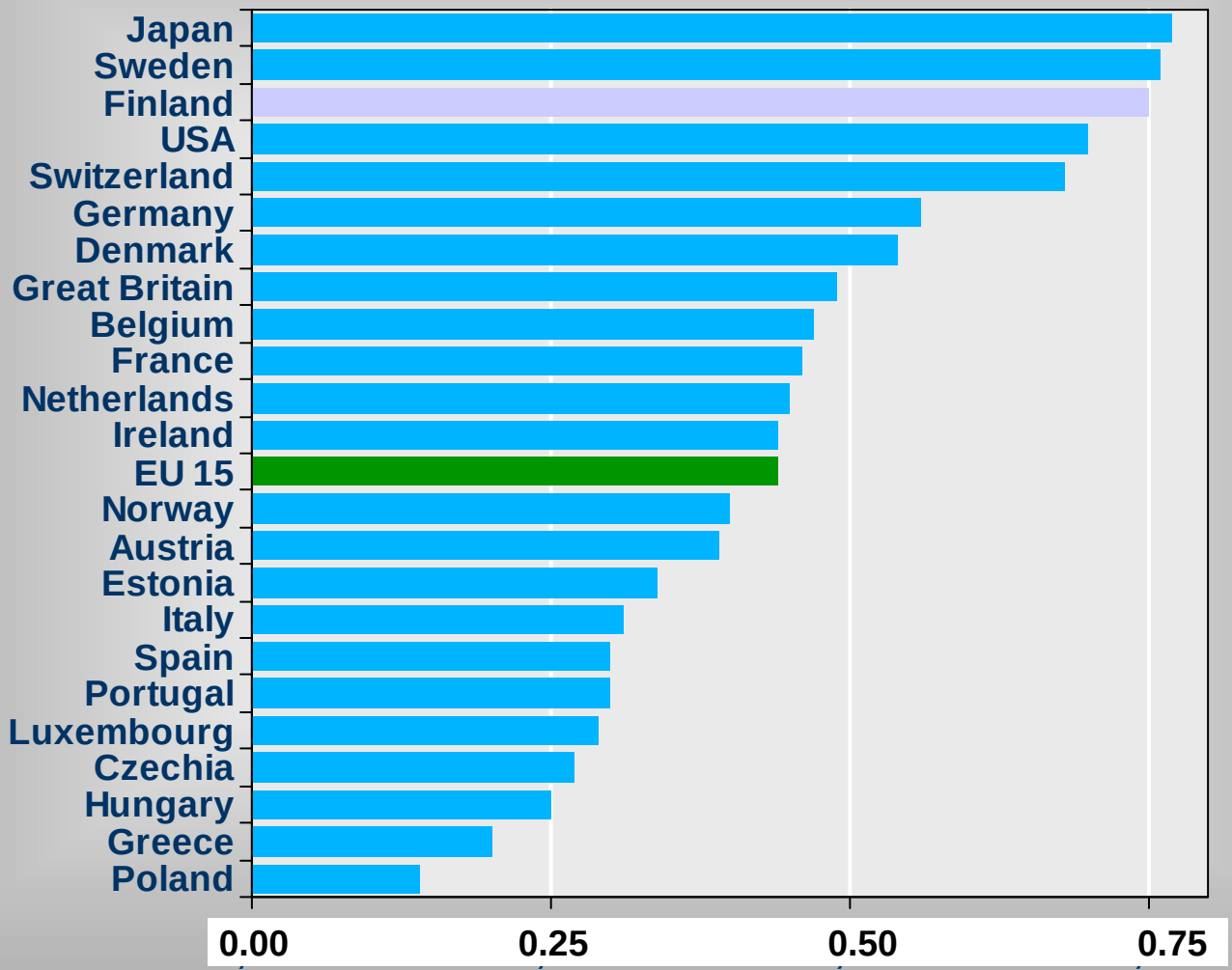
Source: OECD Science, Technology and Industry Scoreboard 2003

Countries with the Least Corruption



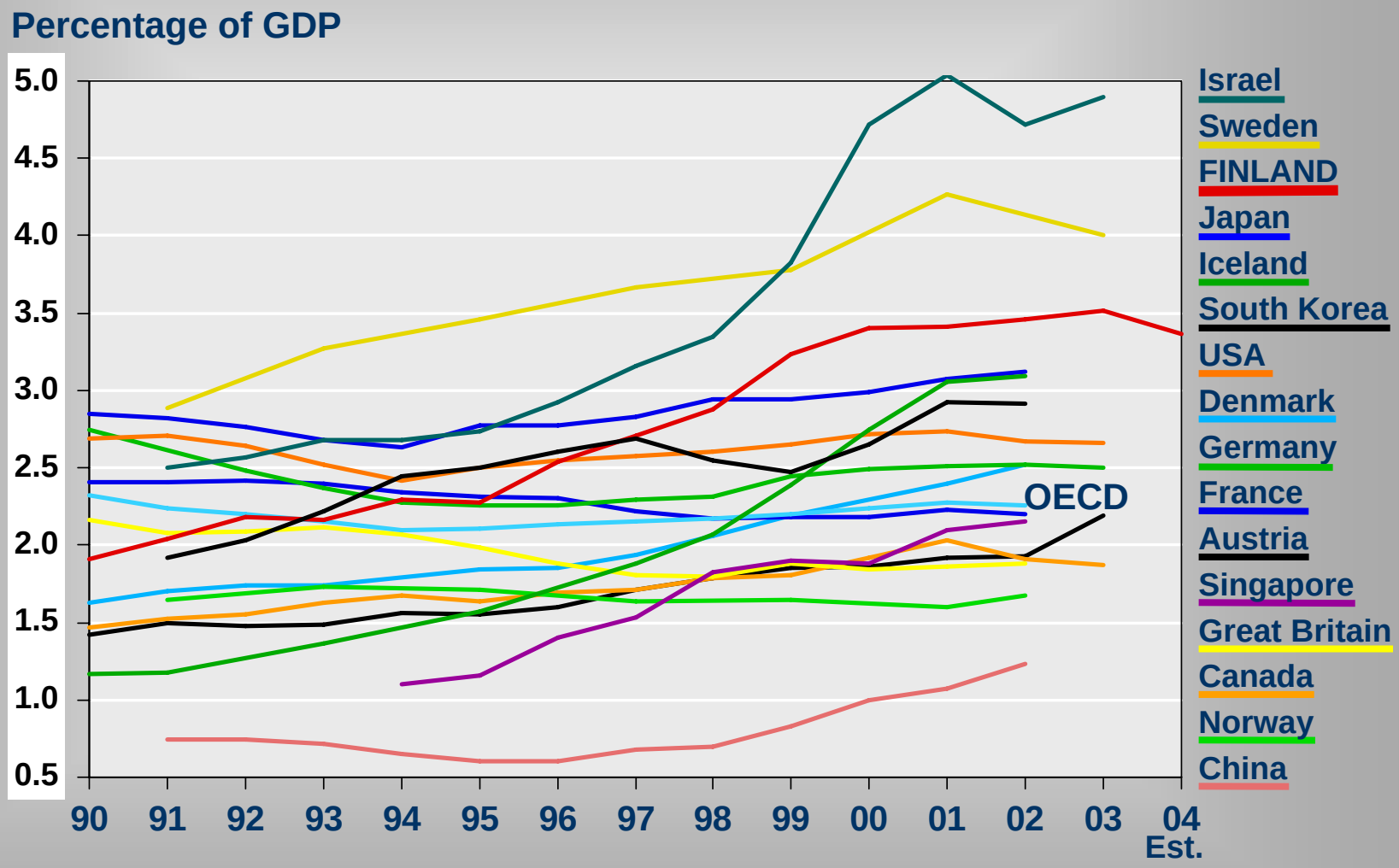
Source: Transparency International Corruption Perceptions Index 2004

EIS 2004 - Summary Innovation Index



Source: European Innovation Scoreboard 2004

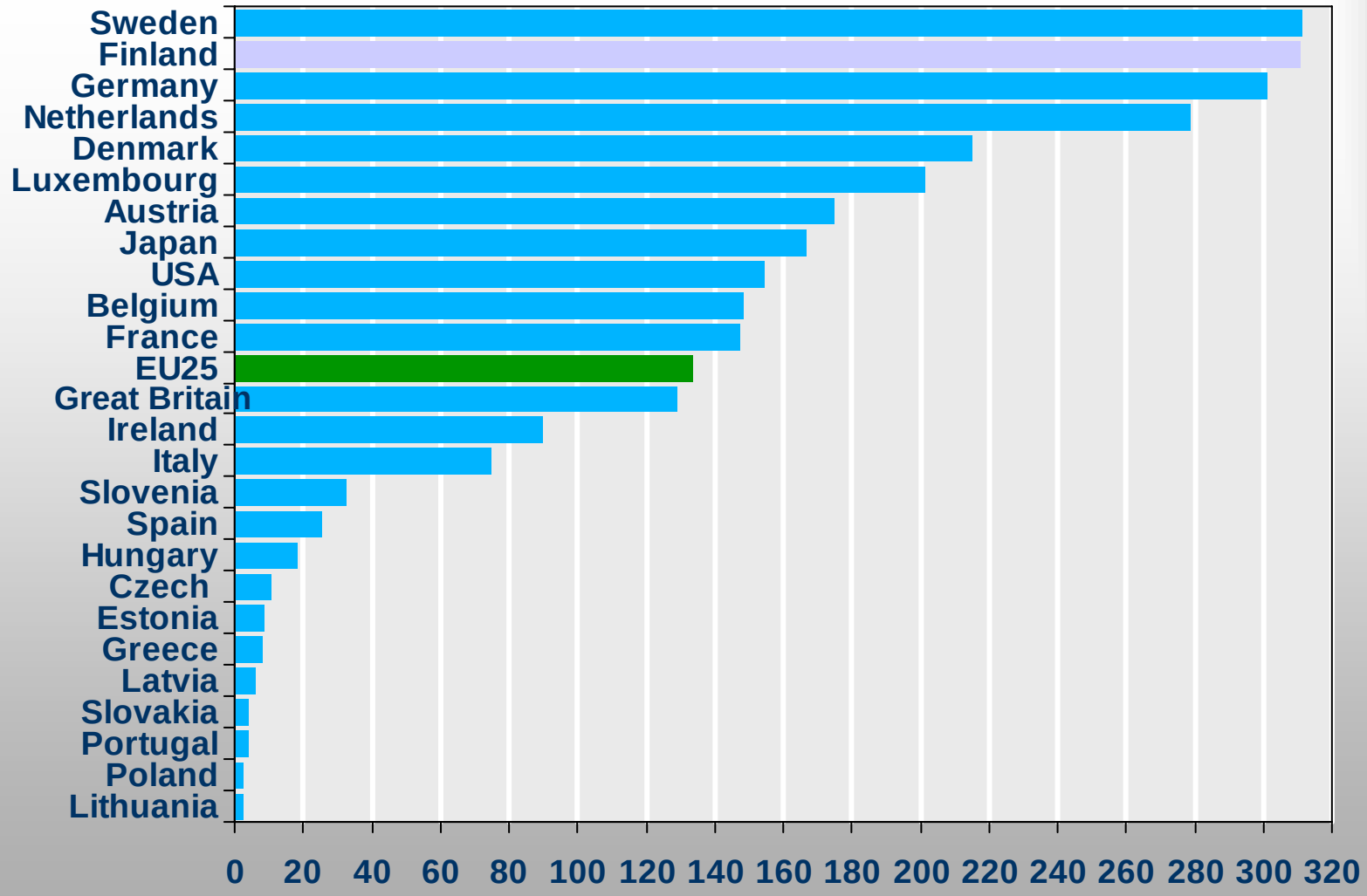
R&D Input in Some OECD Countries



Sources: OECD, Main Science and Technology Indicators and Statistics Finland.

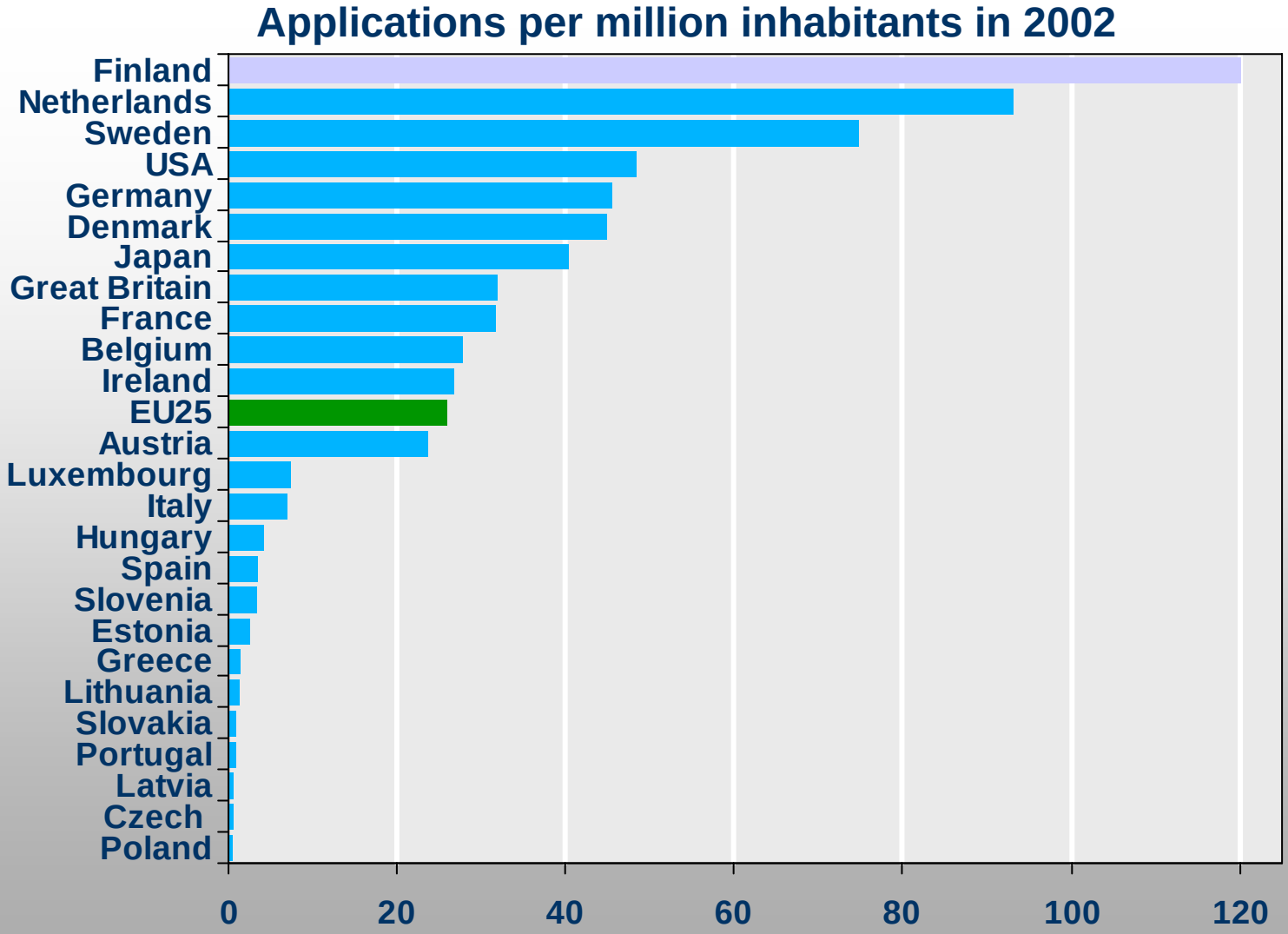
European Applications for Patents (EPO)

Applications per million inhabitants in 2002



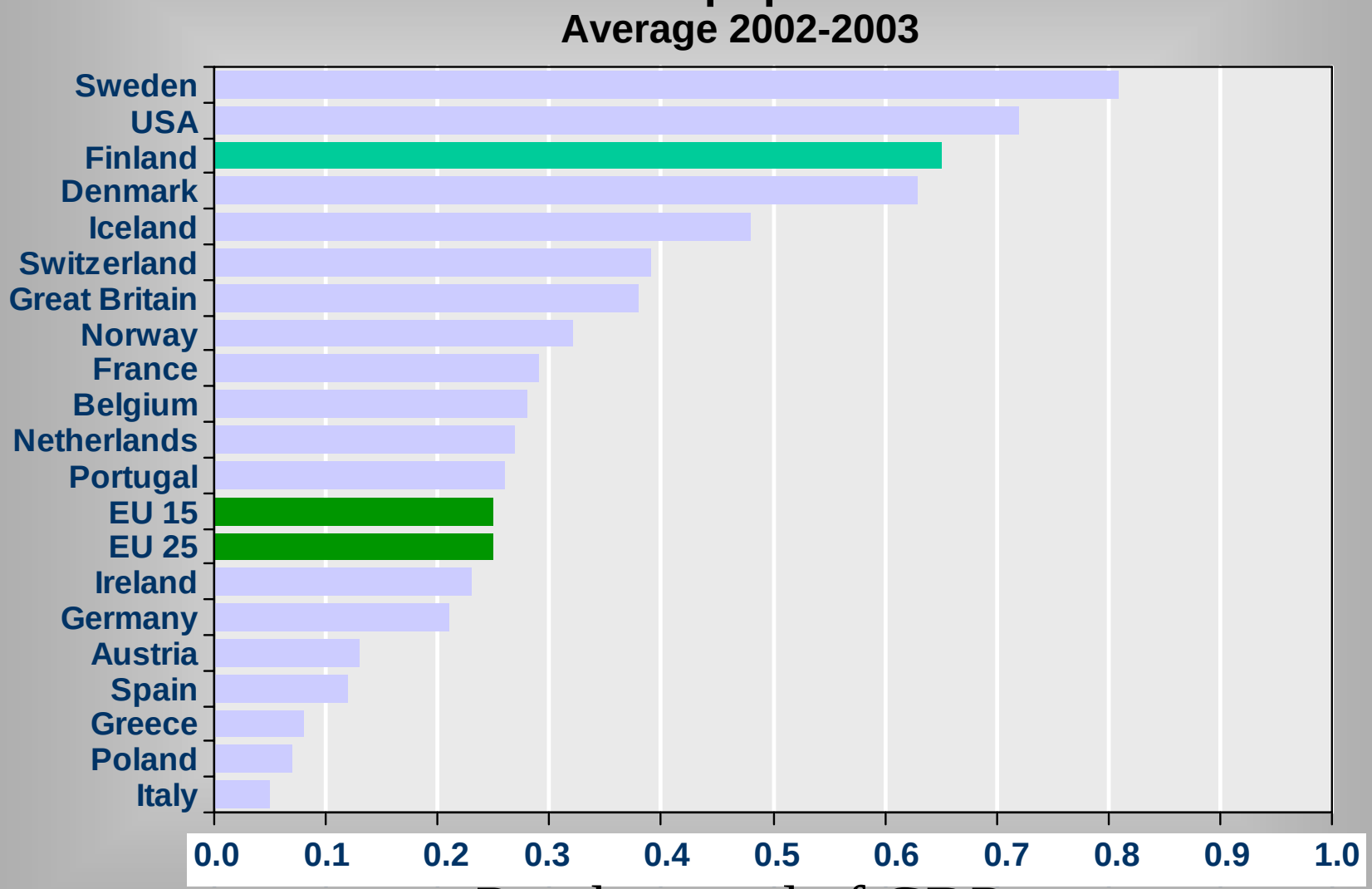
Source: OECD, Eurostat 2002

Applications for High Technology Patents in Europe



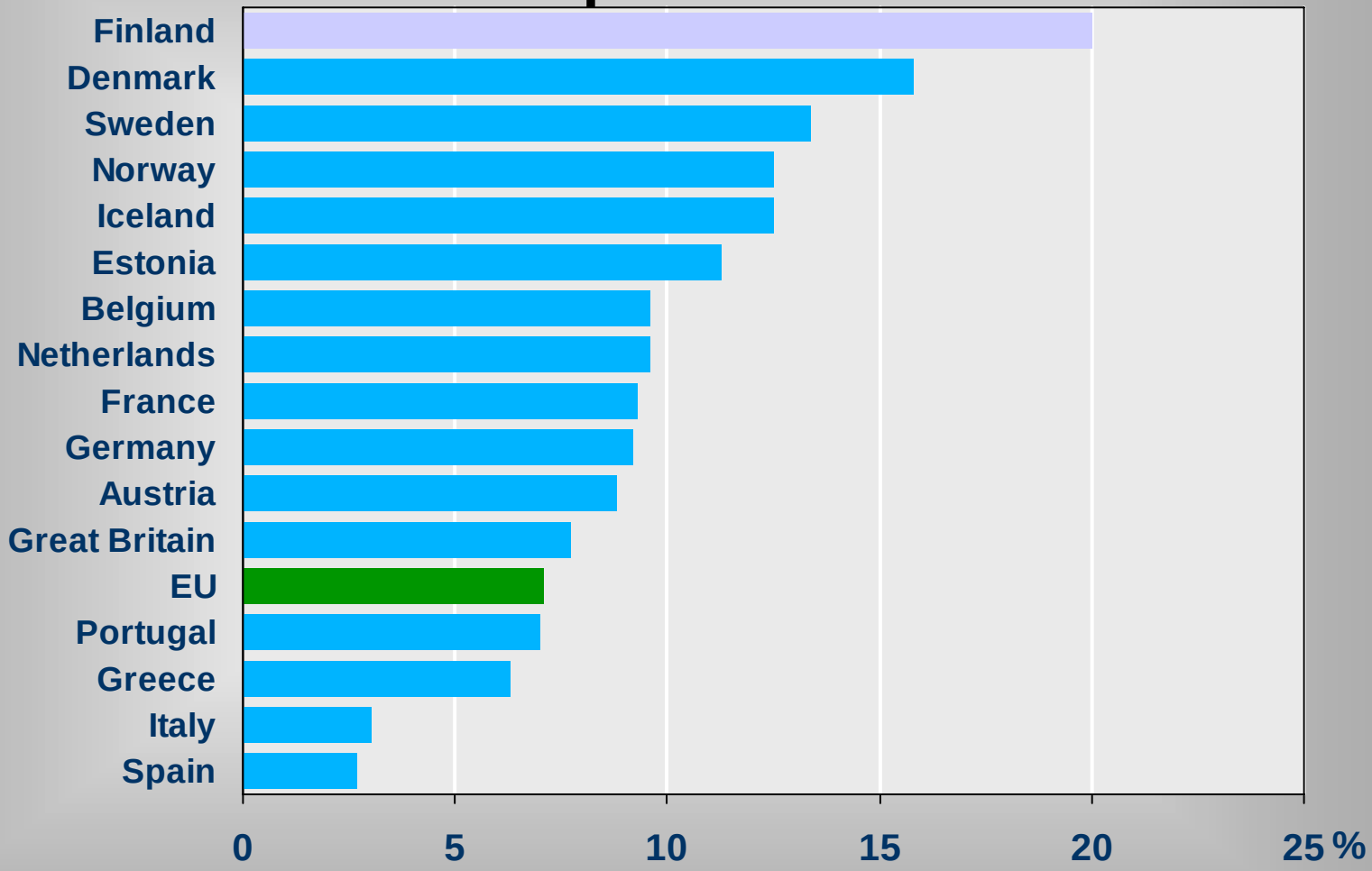
Source: OECD, Eurostat 2002

Venture Capital Investments in Seed and Start-up phases



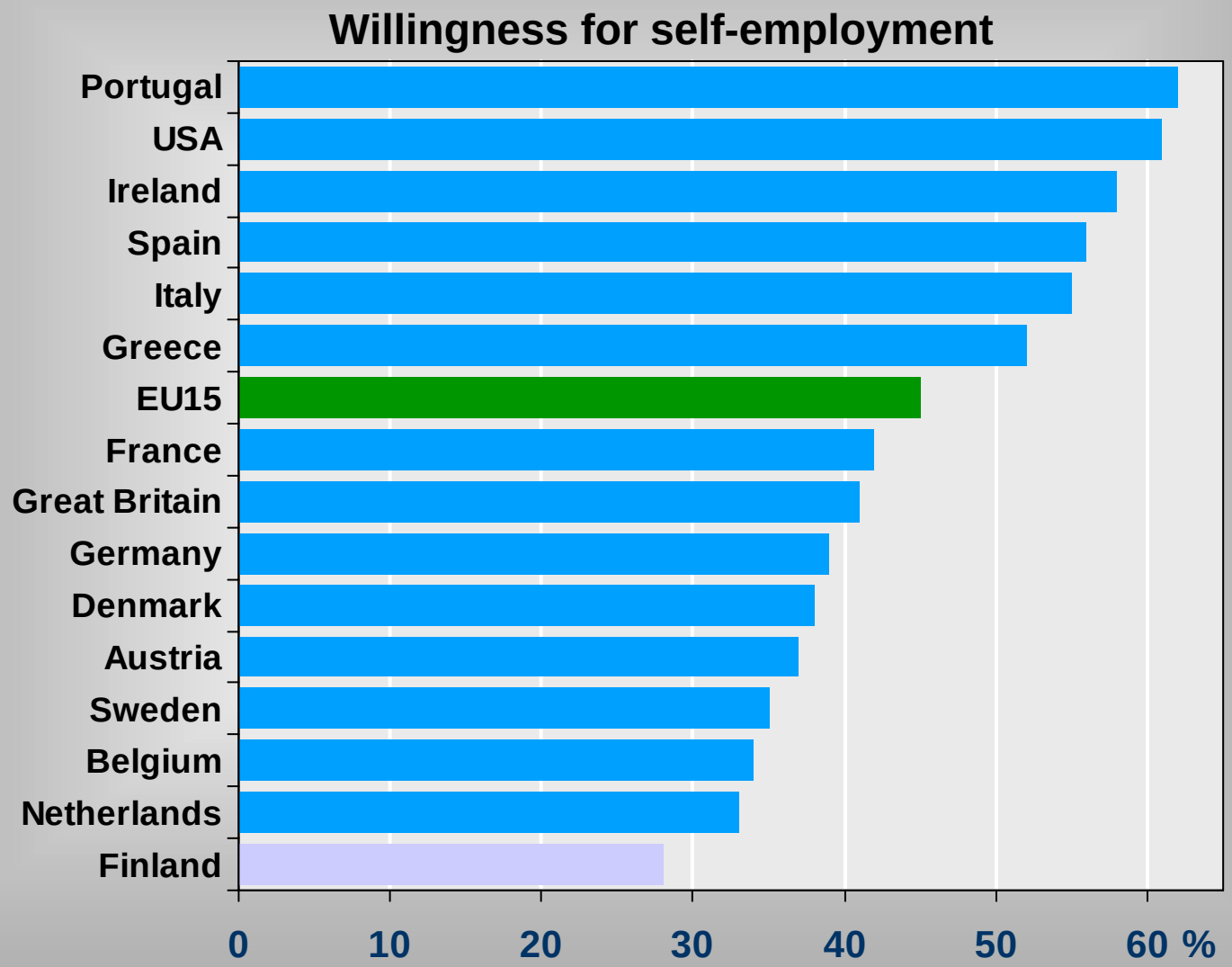
Source: European Innovation Scoreboard 2004

SMEs Participating in Innovation Cooperation



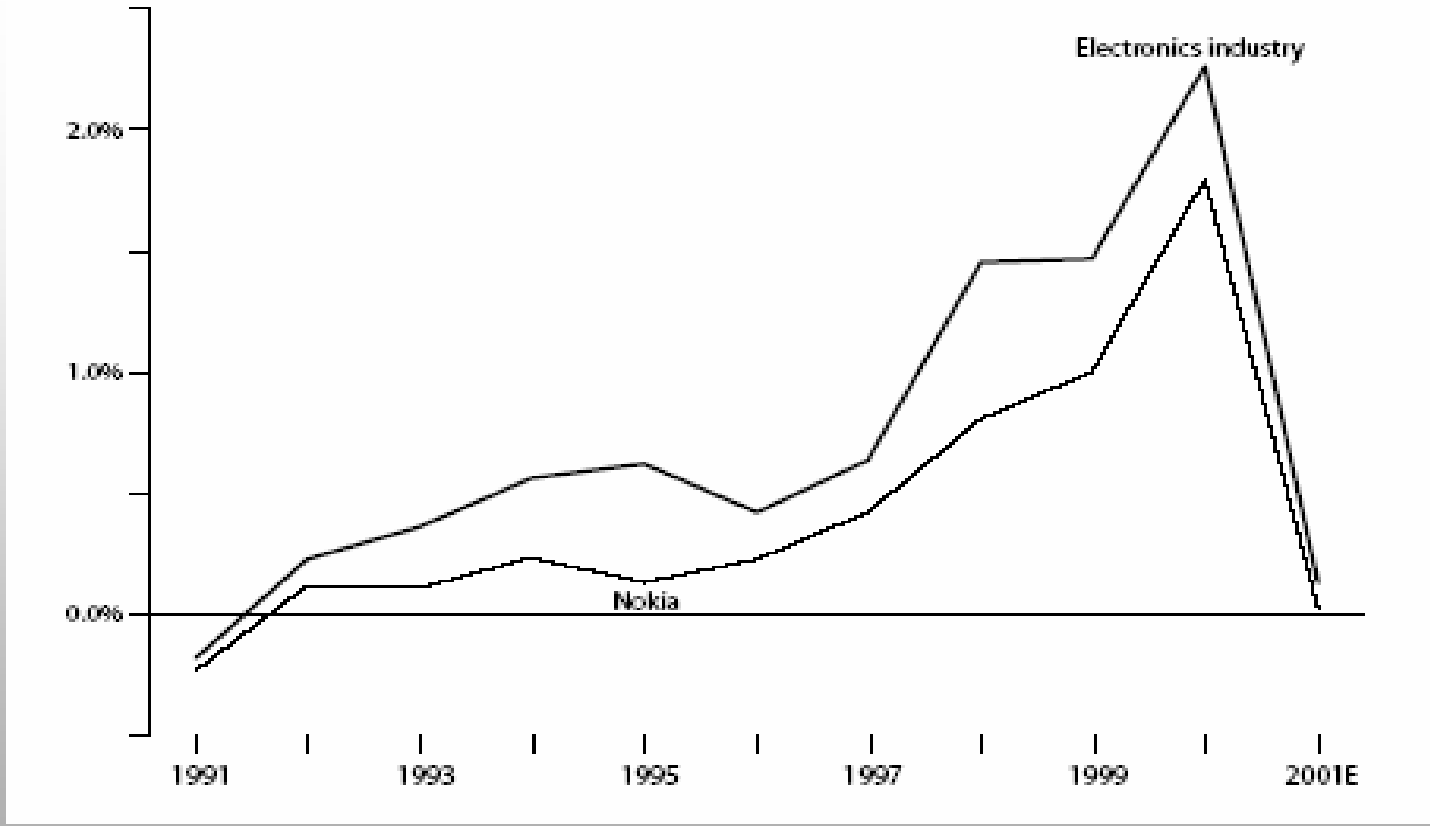
Source: European Innovation Scoreboard 2004

Inclination for Entrepreneurship



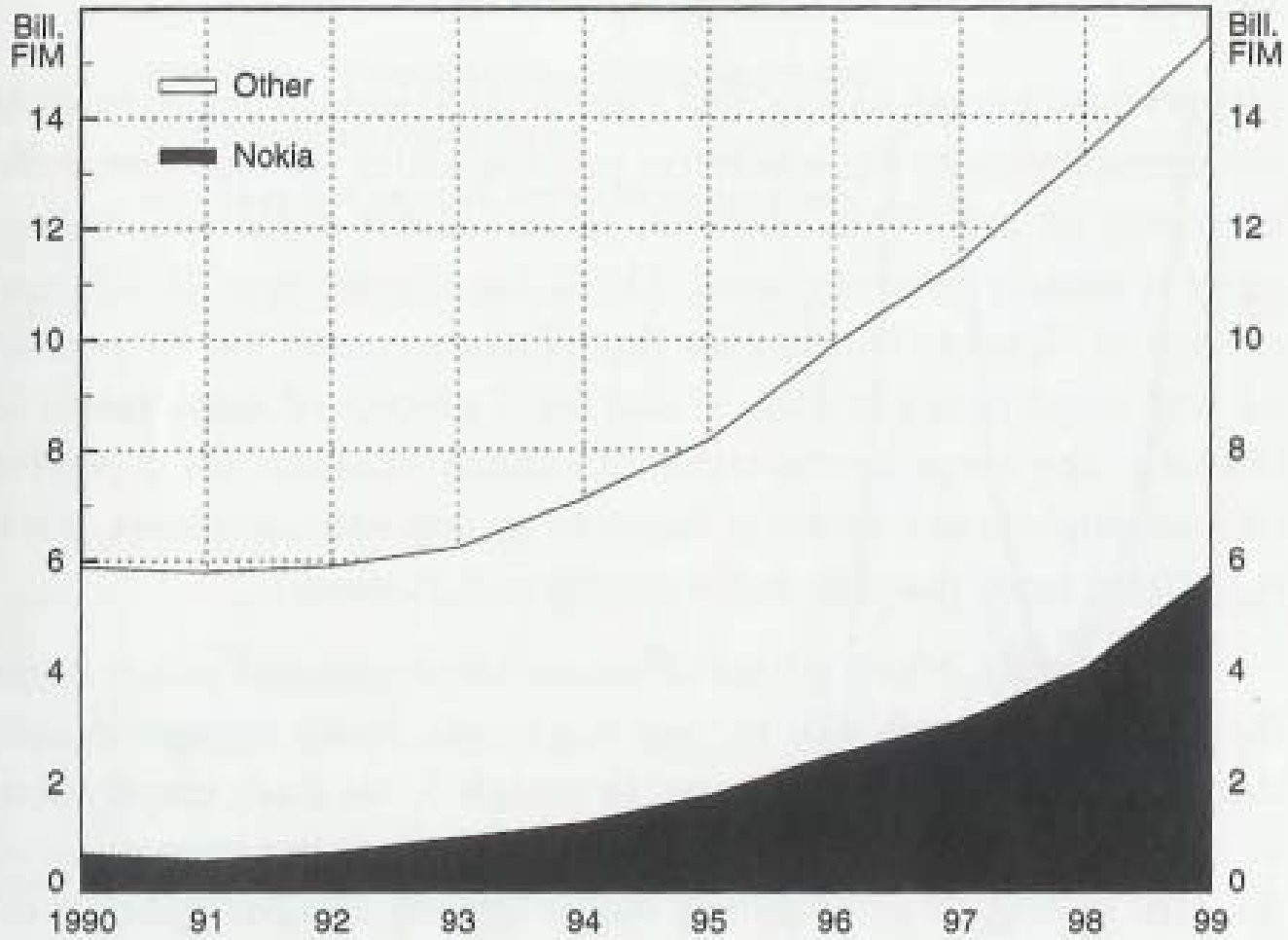
Source: Flash Eurobarometer 160, 2004

Effects of Nokia and the Electronics Industry on the Finnish GDP Growth



Sources: Nokia Oyj, Statistics Finland, National Board of Customs

Figure 2.3 R&D expenditure by private enterprises in Finland, 1990-1999



(Ali-Yrkkö et. al., 2000, 13)

Figure 2.1 Nokia as a share of exports and GDP

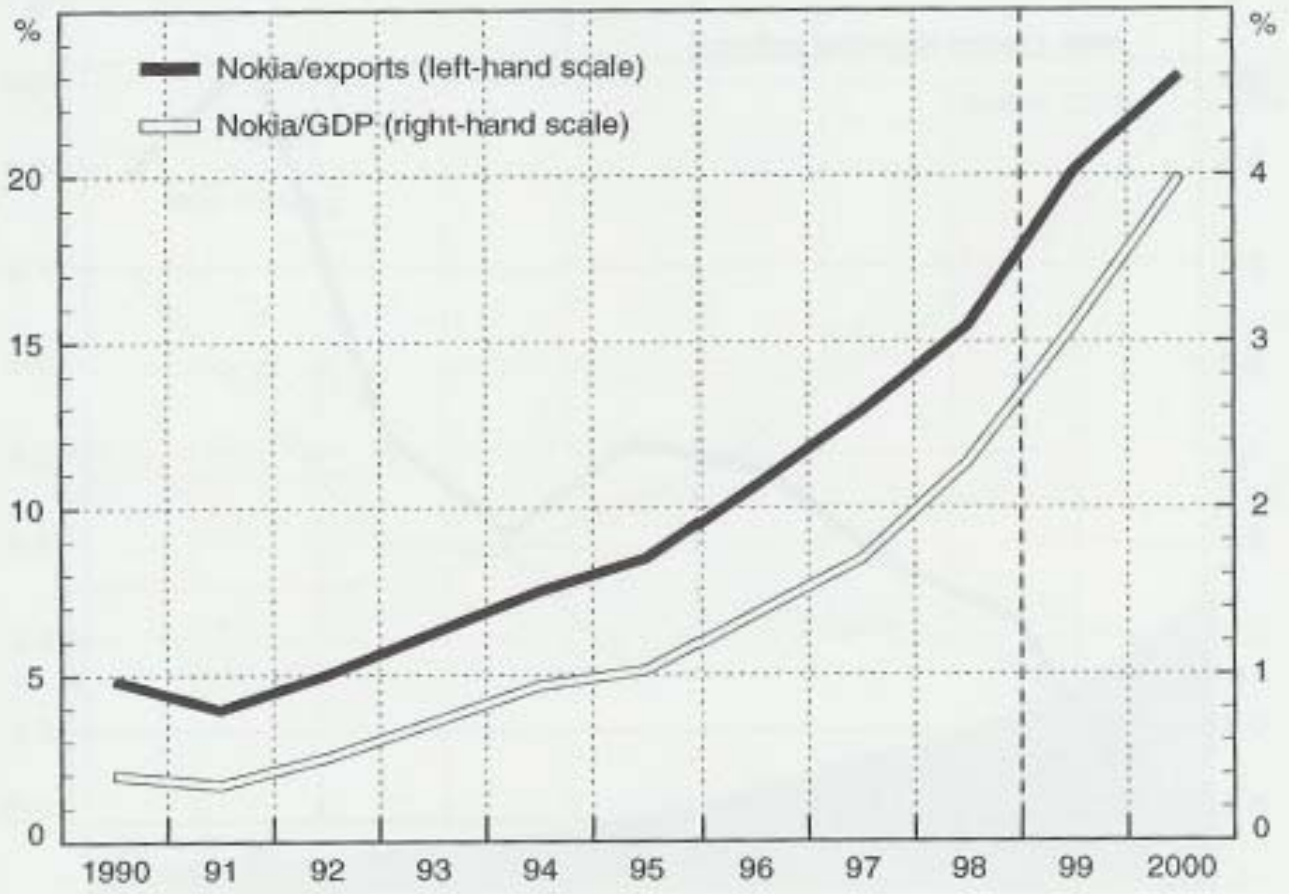
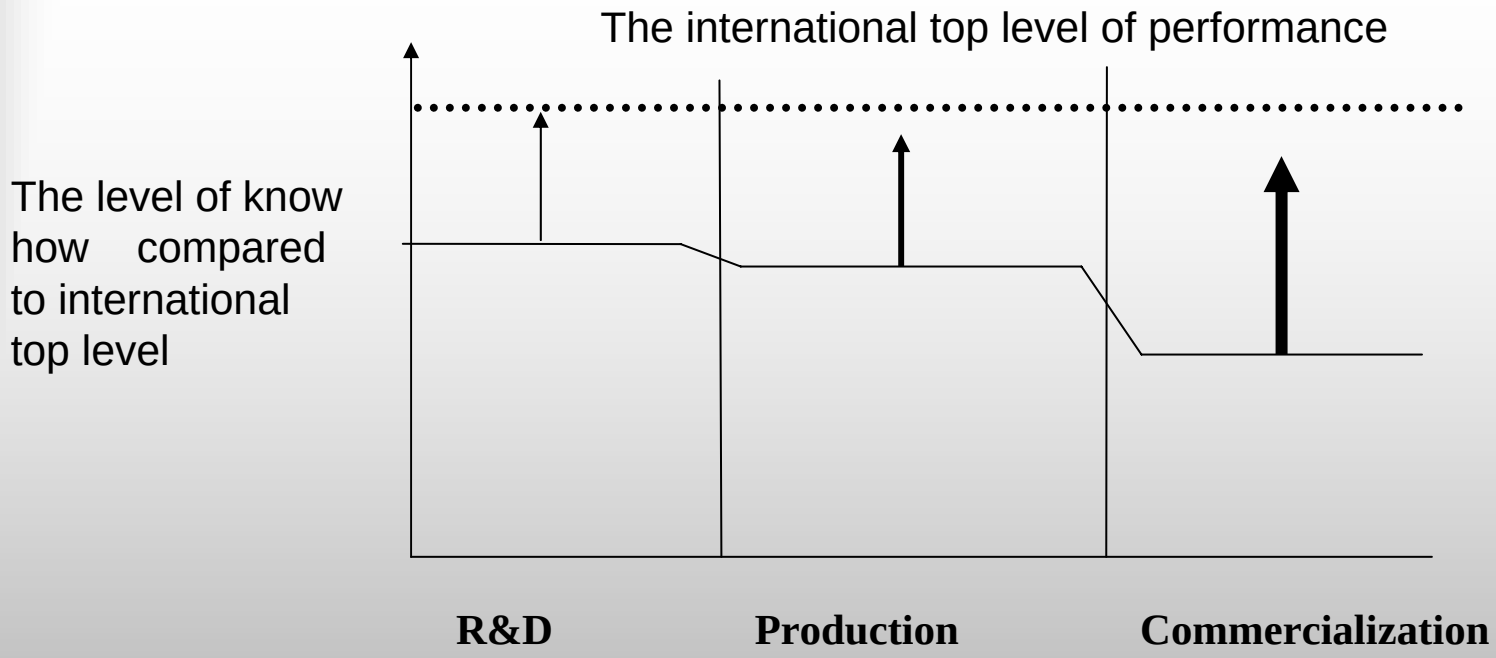


Table 5.3 Nokia in the Finnish economy 2002

Share of GDP	2,70 %
R&D	35 %
Exports	21 %
Employment	1 %
Market value of HEX	60 %

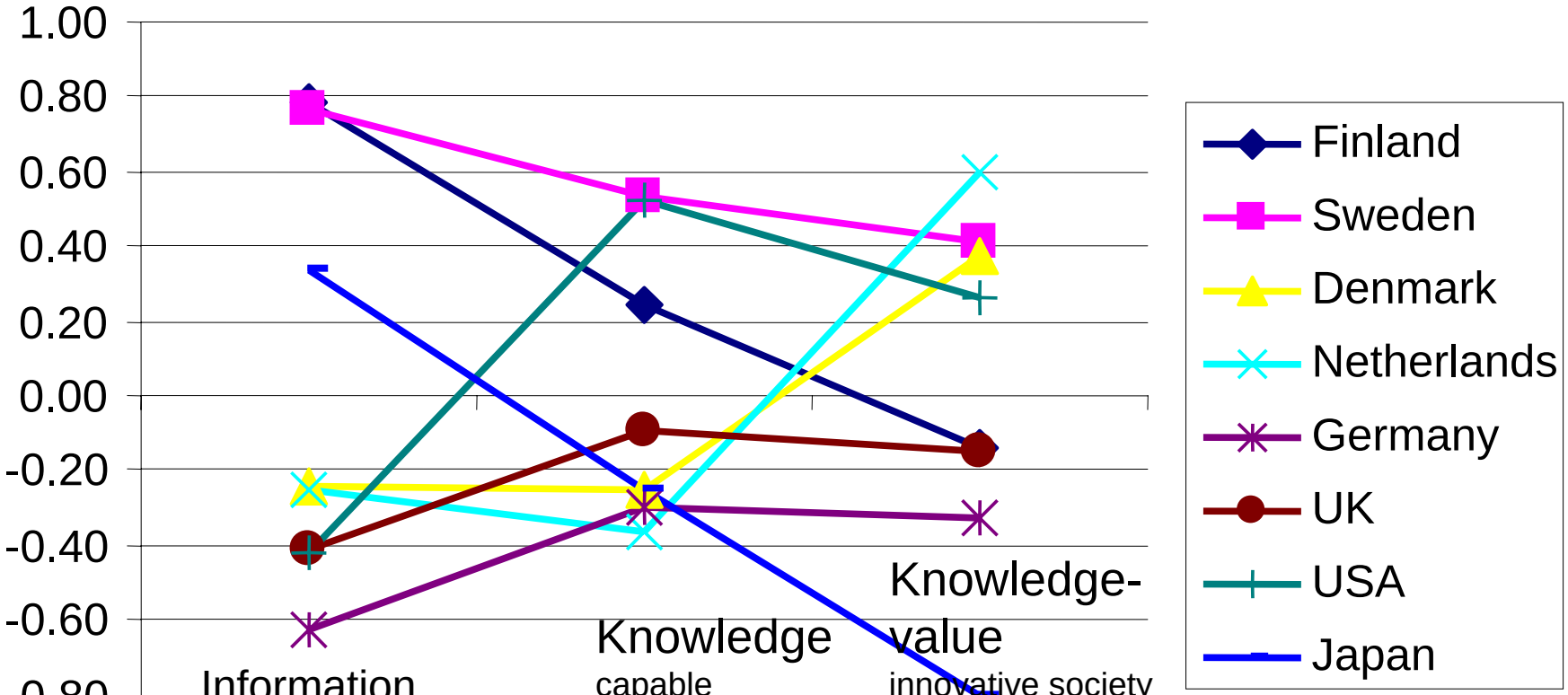
Source: Rouvinen & Ylä-Anttila, 2003

Finland's Challenge on Some Crucial Areas of Competitive Edge



Source: Sitra 2005

From Information Society to Knowledge-value Society

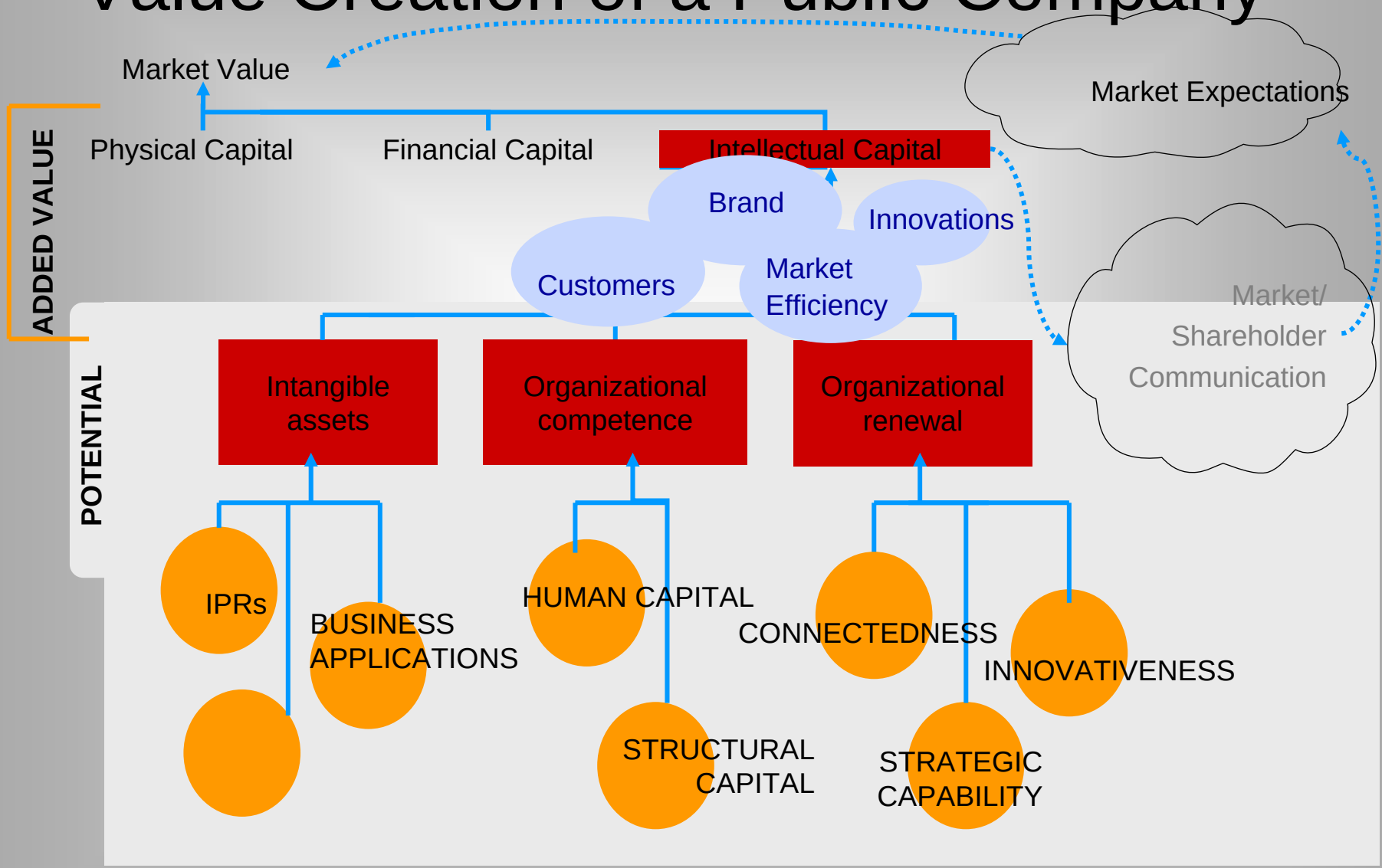


Naumanen, 2005

IC for Finland

- The potential of national intellectual capital extremely high
- Nokia has been a major driver, as well as the whole ICT sector
- Weaknesses in mastering the knowledge based value chain -> to realize the IC potential
- No new nokias in sight, the only possibility is to support innovativeness further and to learn how to extract value from it

Value Creation of a Public Company



The Forgotten Dimensions of IC

- the meaning of strategic capability
  - competitiveness is context dependent -> strategic capability and renewal capability are crucial
  - (high political and citizen based consensus on national knowledge society strategy in Finland)
- renewal capability needs to be better operationalized
  - relationship and overlap of competitiveness and IC need to be clarified ->potential and realized IC
  - clear conseptualization -> better indicators from forsight perspective
  - (development going on in Finland)

The Forgotten Dimensions of IC (2)

- the meaning of systemic features
  - drivers (Nokia)
  - global connectedness: links to global flows of knowledge and financial capital (difficulties for Finland to attract foreign investments, as well as using foreign licensing)
  - cumulation of know-how