

Finland Back to the Leading Edge?

- a view on the past & current STI policies

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CHRONOLOGY OF FINNISH STI POLICY

- 1950-60s: Sectoral institutions strong
 - 1970s: Constructing the university network
 - 1980s: From technological lagger to catch-up mode
 - Early 1990s: Crisis management
 - Late 1990s: Riding the ICT wave out of the crisis
 - Early 2000s: Enjoying the leading edge
 - Mid 2000s: Defining national strategies - will they work?
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FINLAND IN THE 1980s

- Rapid growth in
 - High-tech exports
 - Value-added in traditional industries (Forestry, pulp & paper, industrial automation,..)
 - Productivity
 - R&D investments
 - Patenting in the U.S.
 - GDP
 - “Japan of the North”

 - Economic bubble in the late 1980s

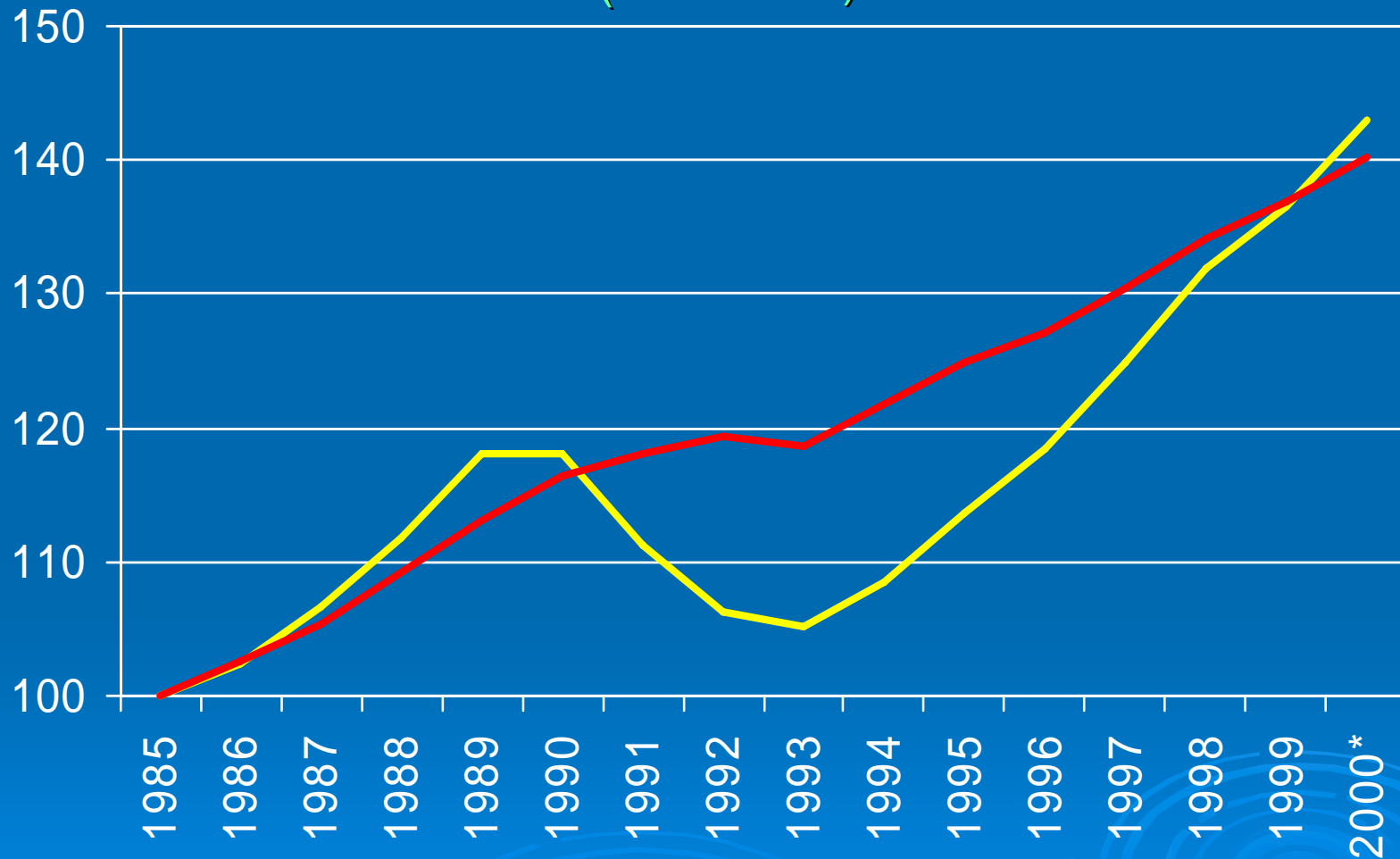
 - Focus on technology policy:
 - Establishment of Tekes & technology programmes
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FINLAND IN THE EARLY 1990s

- Deep recession in 1991-1993
 - Exports diminished
 - Bank crisis
 - Stock market collapsed
 - GDP declined 20 %
 - Value of FIM plummeted 40 %
 - Unemployment approached 20 %
- Traditional industries in crisis
- National System of Innovation adopted: holistic policy development started

DEVELOPMENT OF GDP

(1985=100)



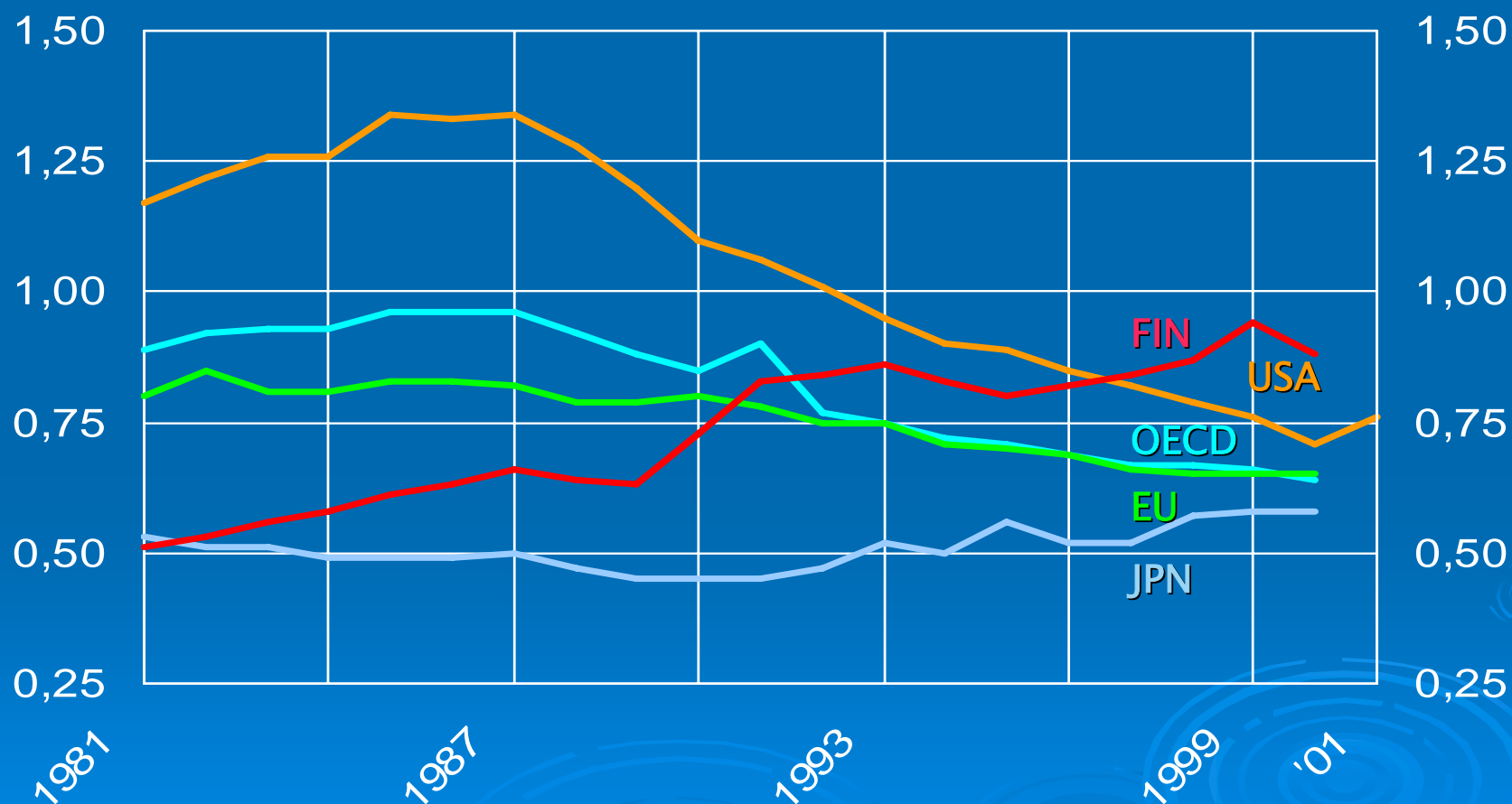
— Finland — EU countries

FINLAND IN THE LATE 1990s

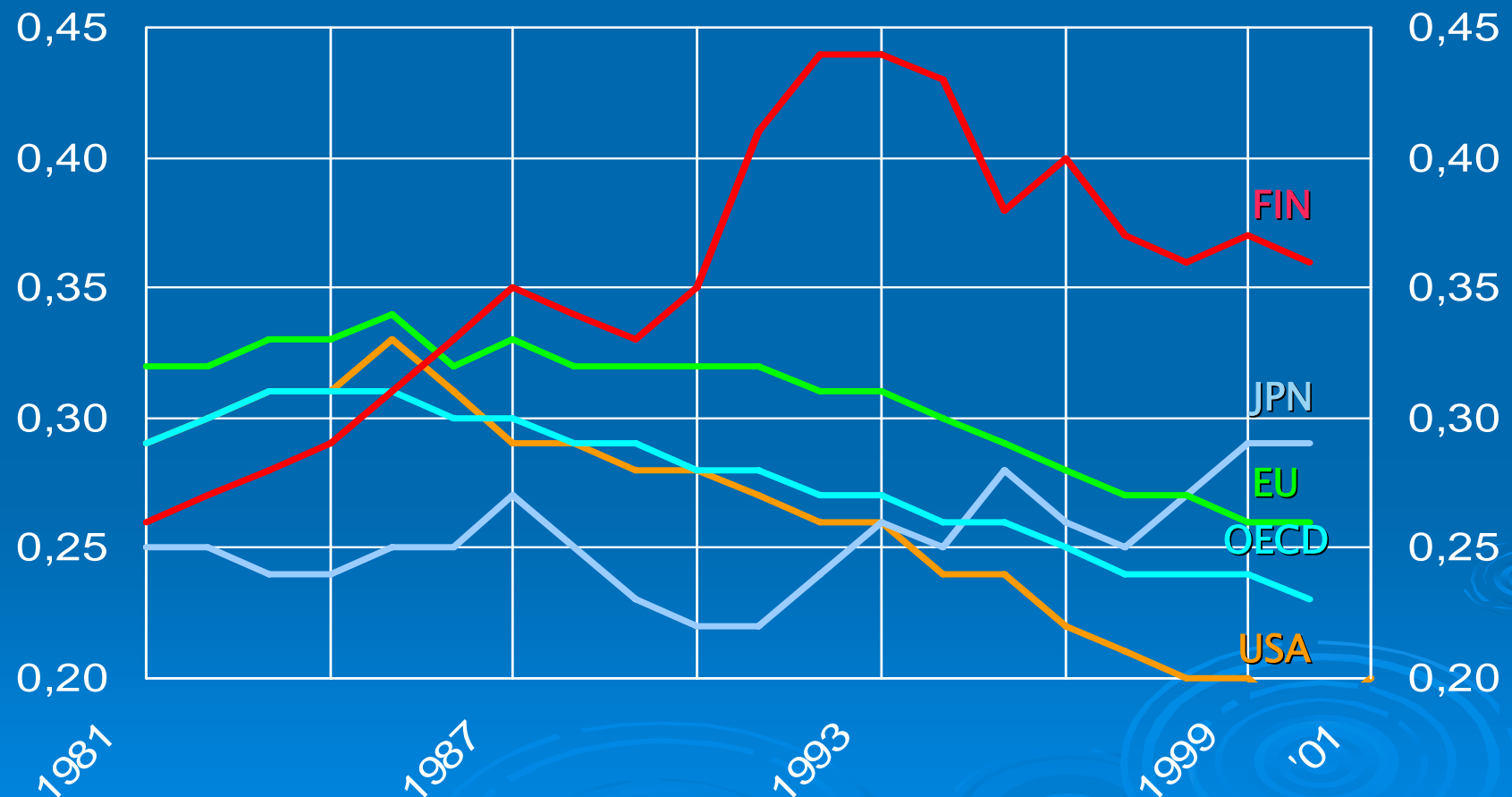
- Quick recovery from recession; growth in
 - Production and exports of the ICT cluster
 - Exports in traditional industries
 - Productivity (of some sectors)
 - R&D investments
 - Patenting
 - GDP
 - Slow decline in (structural) unemployment
 - Regional & social divergence

- 25% increase of government funds in R&D '97-'99
- Special increase programme for ICT education
- Attention on regional innovation policies (EU impact)

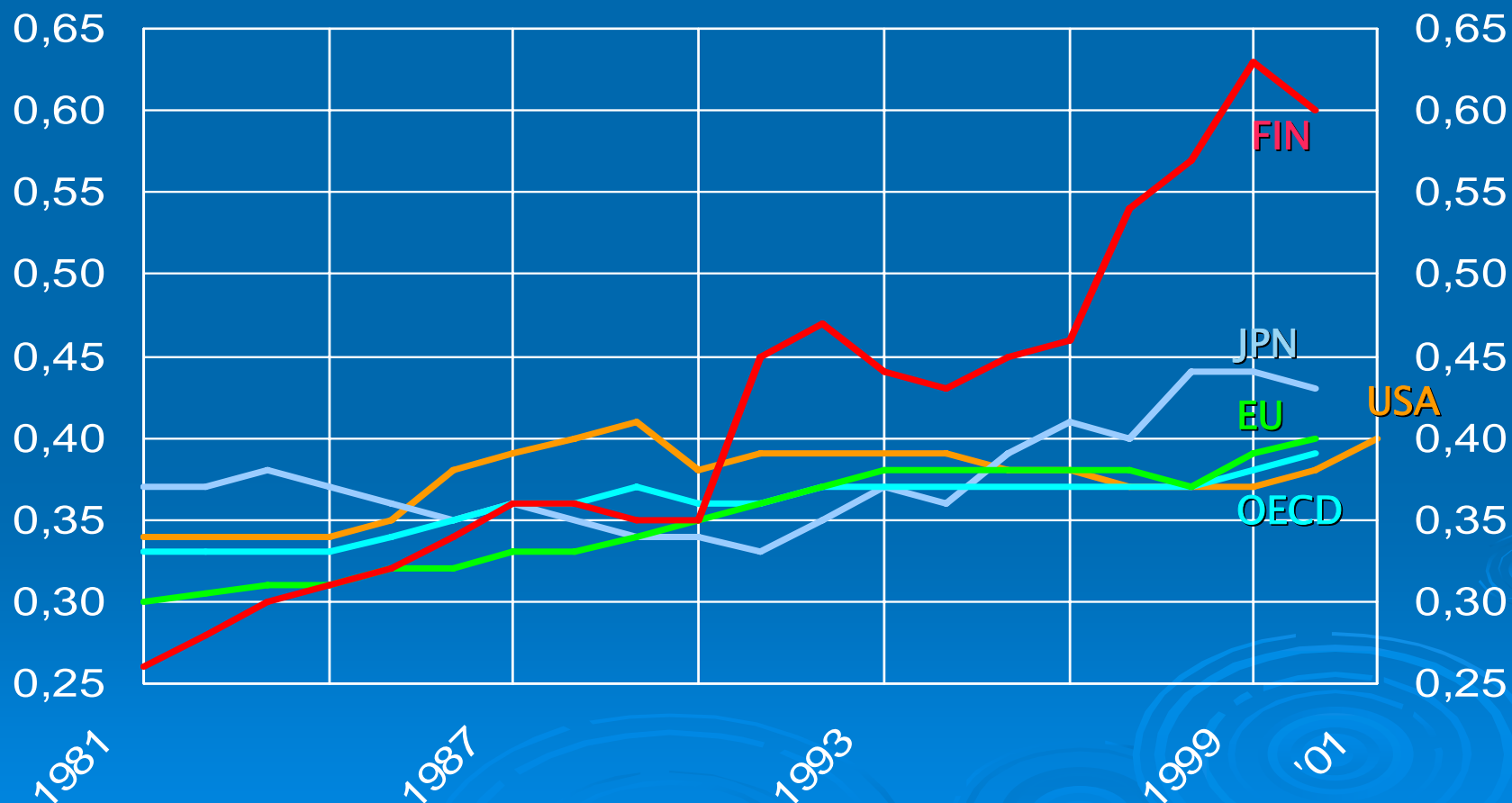
GOVERNMENT-FINANCED GERD as a percentage of GDP



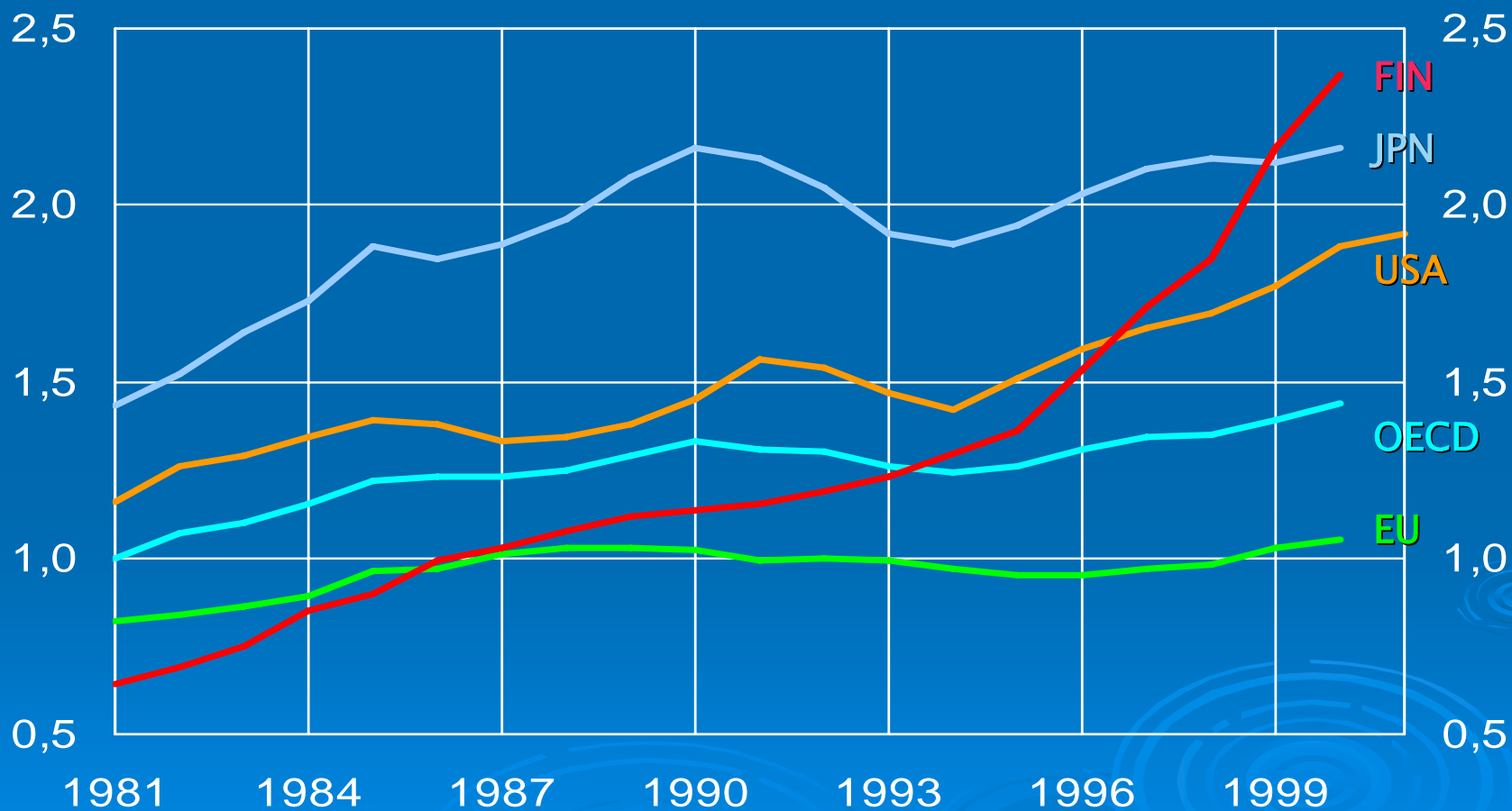
GOVERNMENT INTRAMURAL R&D as a percentage of GDP



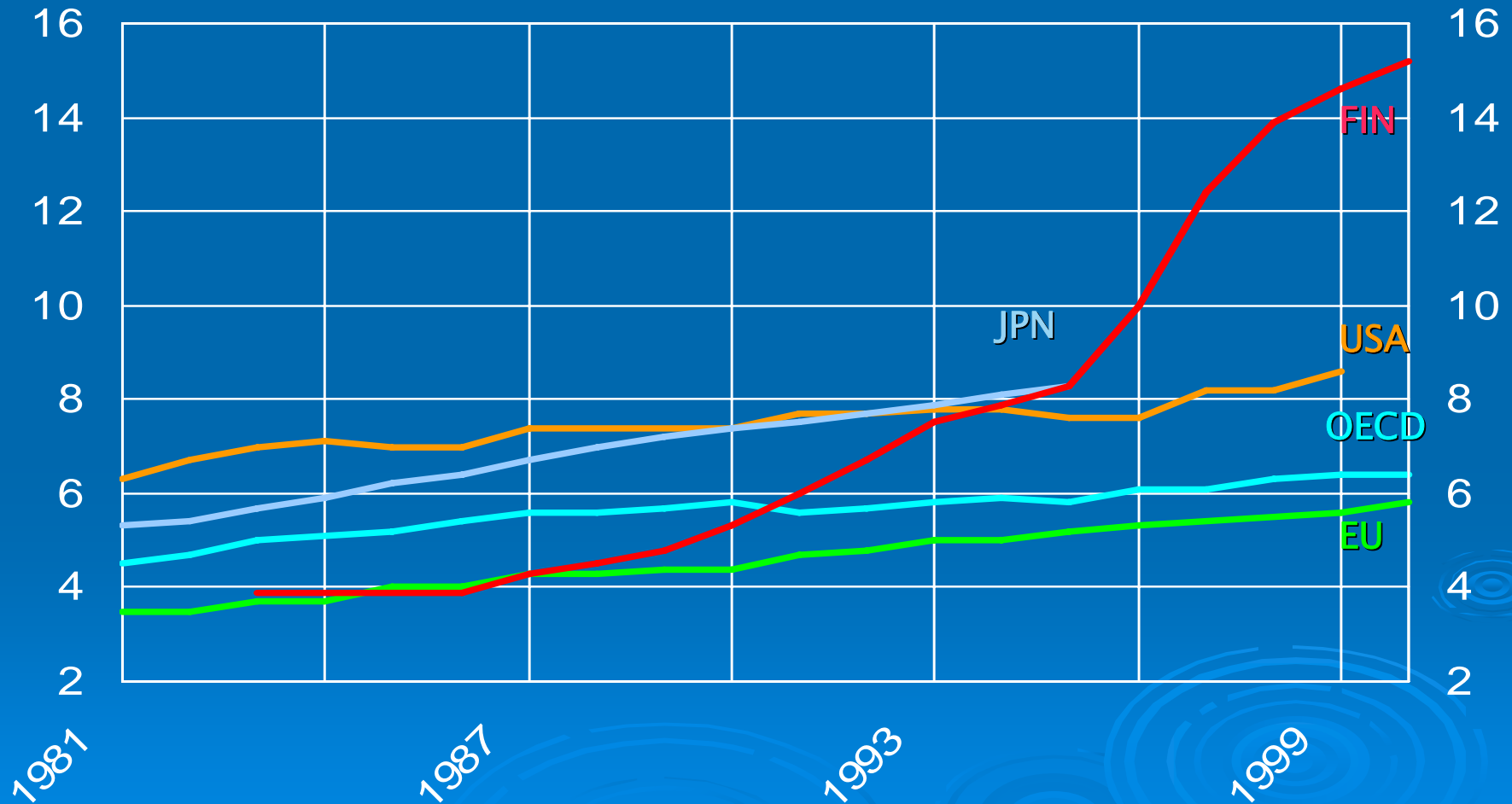
HIGHER EDUCATION EXPENDITURE ON R&D as a percentage of GDP



INDUSTRY-FINANCED GERD as a percentage of GDP

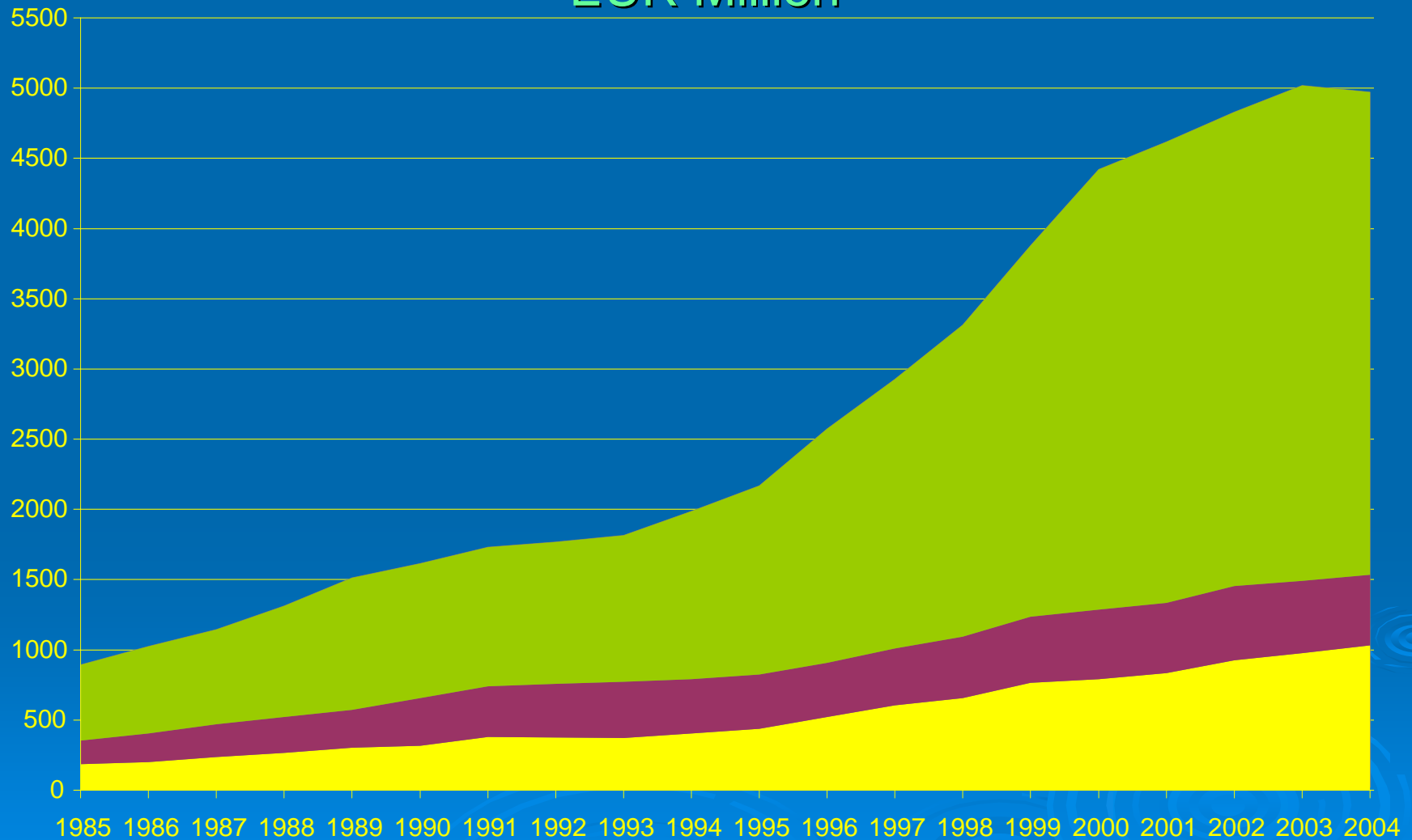


TOTAL RESEARCHERS per thousand total employment



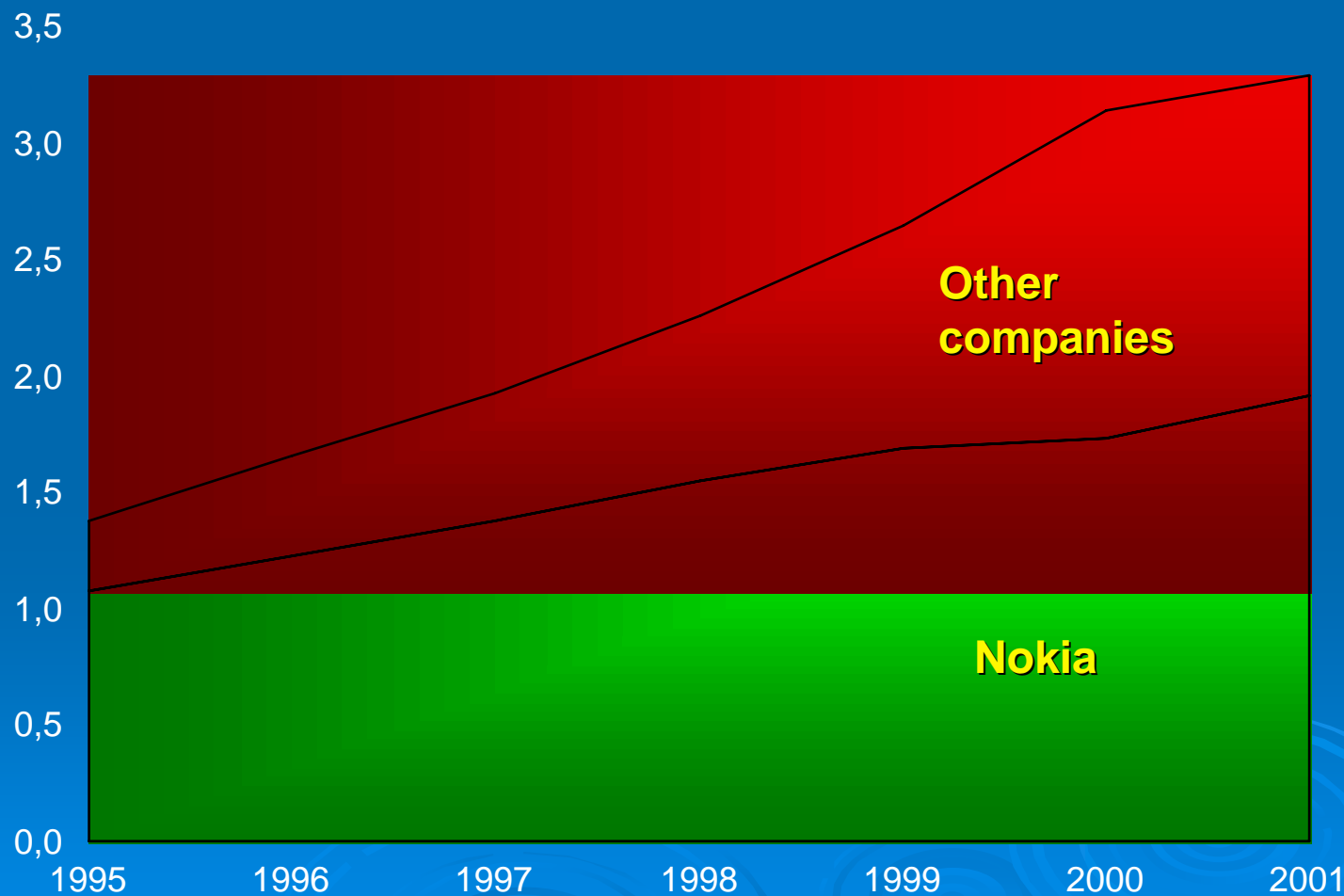
R&D EXPENDITURE BY SECTOR

EUR Million



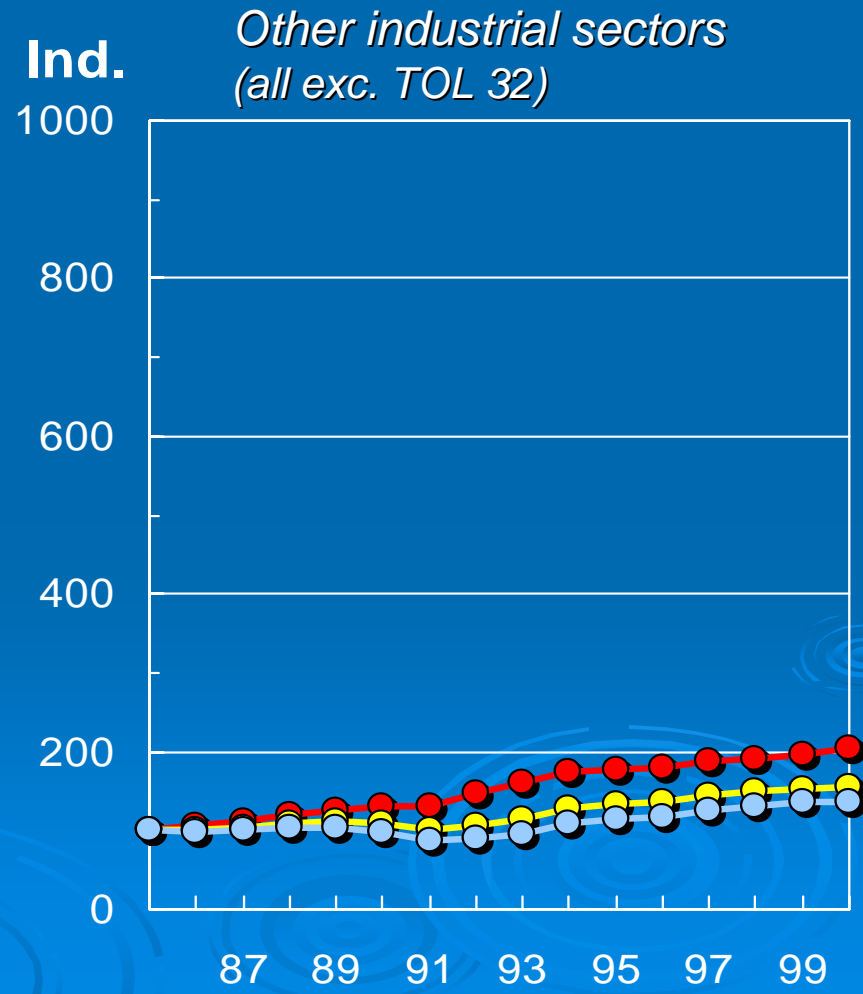
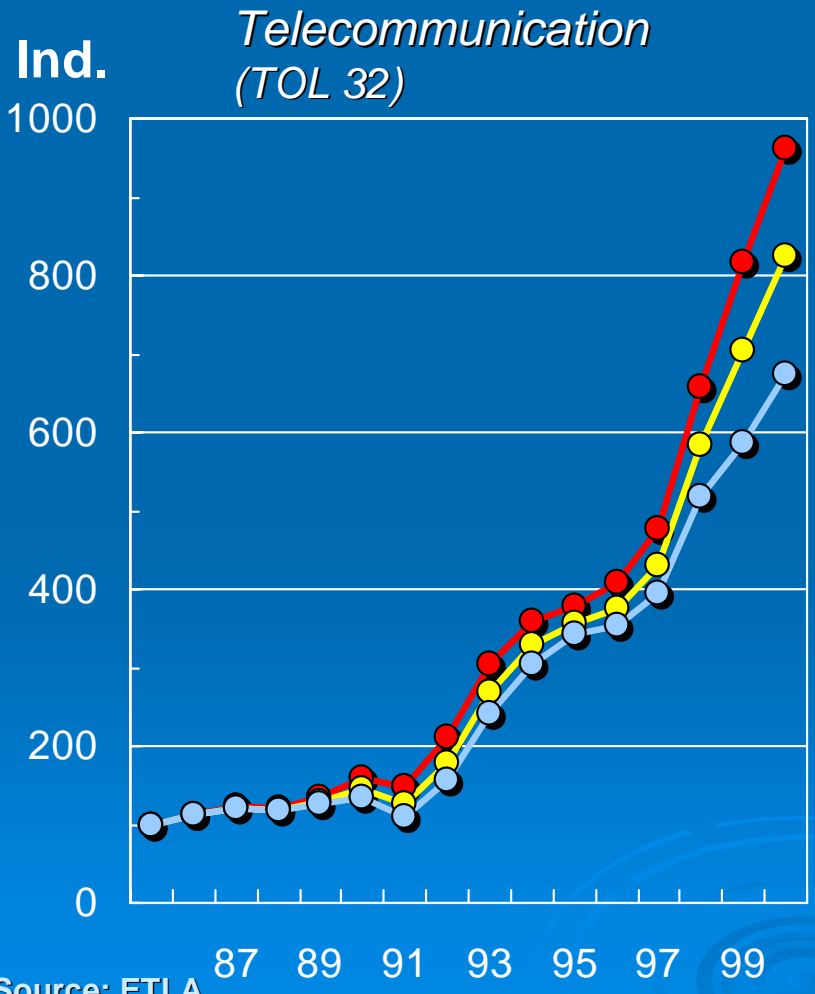
CORPORATE R&D AND THE ESTIMATED SHARE OF NOKIA

Billion euros



INDUSTRIAL PRODUCTIVITY 1985-2000

● Total productivity
 ● Labour productivity
 ● Capital productivity



Source: ETLA

FINLAND'S RANKING IN GLOBAL COMPARISON

World Competitiveness Scoreboard 2002/3/4 (IMD)	1 / 3 / 8
Environmental Sustainability Index 2001 (WEF)	1
Growth Competitiveness 2004 (WEF)	1
Business Competitiveness 2003 (WEF)	1
Technology Achievement Index 2001 (UNDP)	1
Networked Readiness Index 2003/4 (WEF)	1 / 3

Sources:

IMD = International Institute of Management Development IMD /Group II
WEF = World Economic Forum,
UNDP = United Nations Development Programme

FINLAND IN THE EARLY 2000's

- Reaching the leading edge came as a surprise and without a particular objective or effort.
- Many questions were raised of the validity of these comparisons, but the overall message was considered to be more or less correct - Finland appeared to be relatively competitive.
- There were structural factors explaining part of the competitiveness, together with significant impact of the ICT sector and Nokia.
- The prerequisites of competitiveness were essentially built by a long-term investment into knowledge and innovation system.

FINLAND IN THE EARLY 2000's

- The unexpected glory and attention was followed by an equally great **confusion** of the most beneficial way forward.
- Finland was facing a new situation, where it could not anymore benchmark leaders and implement their improvements - **policy-making at the leading edge was much more difficult**. It would require strategic vision, commitment, hard work and good luck, too.
- It was evident that staying at the leading edge would not last very long. A great effort was directed to analysing the state of Finnish innovation system and the ways sustaining its competitiveness. -> A series of studies and evaluations were launched!

'The million dollar question':

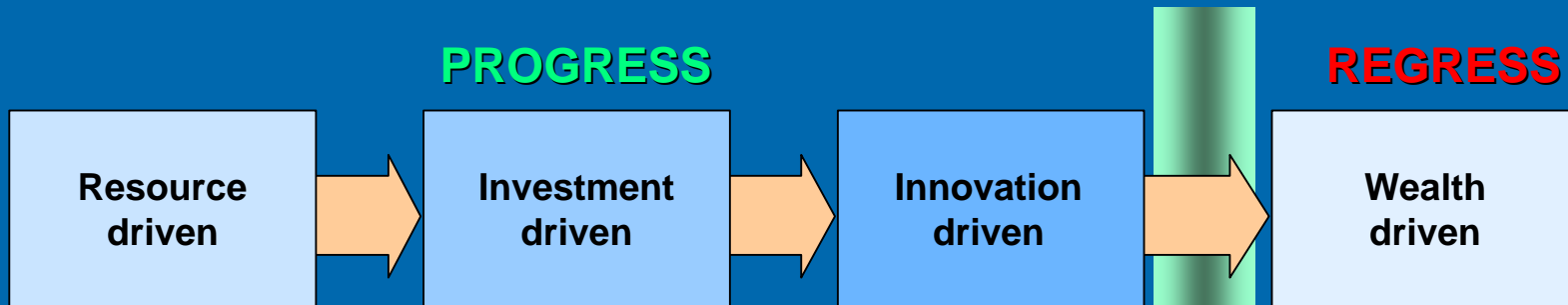
*With what kind of strategy could Finland
get back to the leading edge
and stay there?*



STAGES IN NATIONAL COMPETITIVENESS

PROGRESS

REGRESS



- Inexpensive basic resources
- little production of investment articles
- Technology import
- Few links to end users

- Ability & willingness to invest aggressively
- Application of best technology
- Economies of scale
- 'Bulk' end products
- B-to-B market.

- Significant domestic R&D
- Active competition
- Human capital basis of competitiveness
- Differentiated products
- Wide contents of services

- Exploitation of present wealth in expense of future
- Little motivation for change, entrepreneurship or innovation

SMALL COUNTRY OPTIONS

- **Geographically remote & scarcely populated**
- **Small domestic market**
 - ✓ Insufficient demand (market pull) & growth base for companies
 - ✓ Not lucrative for FDI, VC or skills immigration
- **Limited volume of education, research & innovation**
 - ✓ Critical mass only in niche areas
 - ✓ Few new openings in S&T (99,3 % done elsewhere)
- **From economies of scale to economies of scope:**
 - ✓ Focus & synergy -> managing scarcity, concentrating on skills
 - ✓ Active positioning - > foresight processes, agility
 - ✓ Intensive networking -> resource sharing, flexibility
 - ✓ Internationalisation -> competence development, access to openings

NATIONAL DEVELOPMENT CHALLENGES 2003

- Internationalisation (inward and outward)
- Expanding society-innovation interfaces
- Larger and closer cooperation between science and industry
- The university in the innovation system
- Dynamic structures & foresight
- Clustering of knowledge
- Constant development of intellectual resources
- Financing of innovation
- Knowledge-based regional development
- ***2003-2004: EVALUATION OF THE RESEARCH STRUCTURES!***

SOCIALLY RESPONSIBLE INNOVATION POLICY



STPC / GOVERNMENT DECISION 2005

All development efforts are to focus on increased prioritisation, profiling of research organisations and selectivity on the basis of future prospects.

➤ **System level:**

- More focus on national competencies
- Joining the forces of funding institutions
- Internationalisation of the innovation system

➤ **Decision makers:**

- Government STI statement to the Parliament
- Reinforcement of STPC: closer integration with Education and sectoral policies
- Strategy for enhancing national competencies and infrastructures

STPC / GOVERNMENT DECISION 2005

➤ **University system:**

- Will not be expanded, but grouped into larger units
- Juridical and financial autonomy increased

➤ **Sectoral research:**

- All sector strategies (to be) reviewed
- The role of VTT in innovation policy will be strengthened

➤ **Intermediary organisations:**

- Integrating Science parks into the innovation policy
 - MTI more involved in regional innovation policy
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Thank you!

For more information:

www.research.fi

