

# Merging the Interests of Business, University, and Government into Innovation Breakthroughs

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# Nokia as a global company

Research and development centers in 11 countries,

Manufacturing facilities in 8 countries

Sales and marketing offices in almost every major market



# Innovation is enabled by high level of education

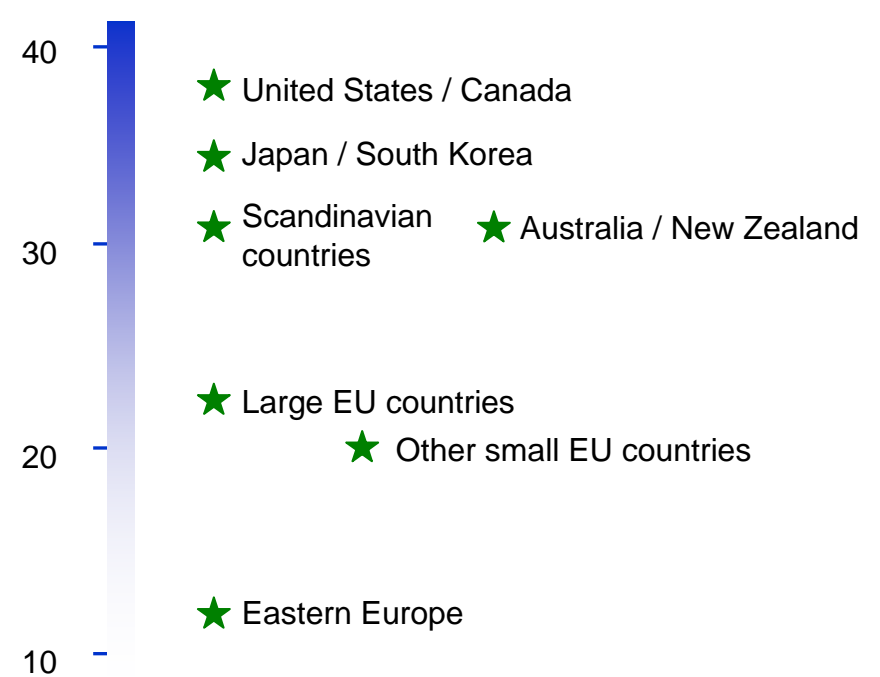
Thousands of dollars



North America Spends a Huge Amount on College and University Students

(Expenditures per student for college/university in thousands of purchasing parity dollars)

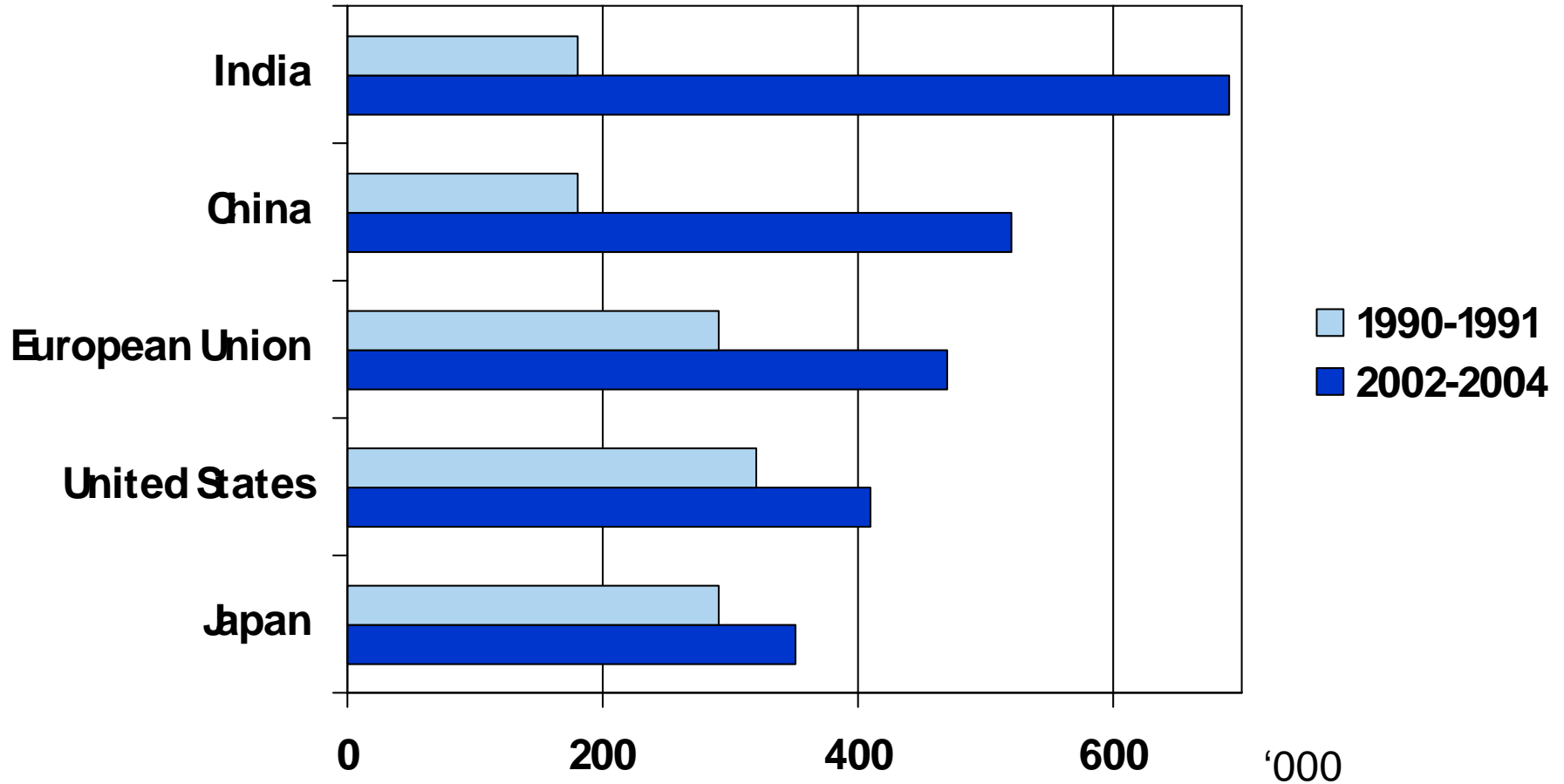
Percent



North America Leads the Way in University Achievement

(Percent of those over 25 with a college degree)

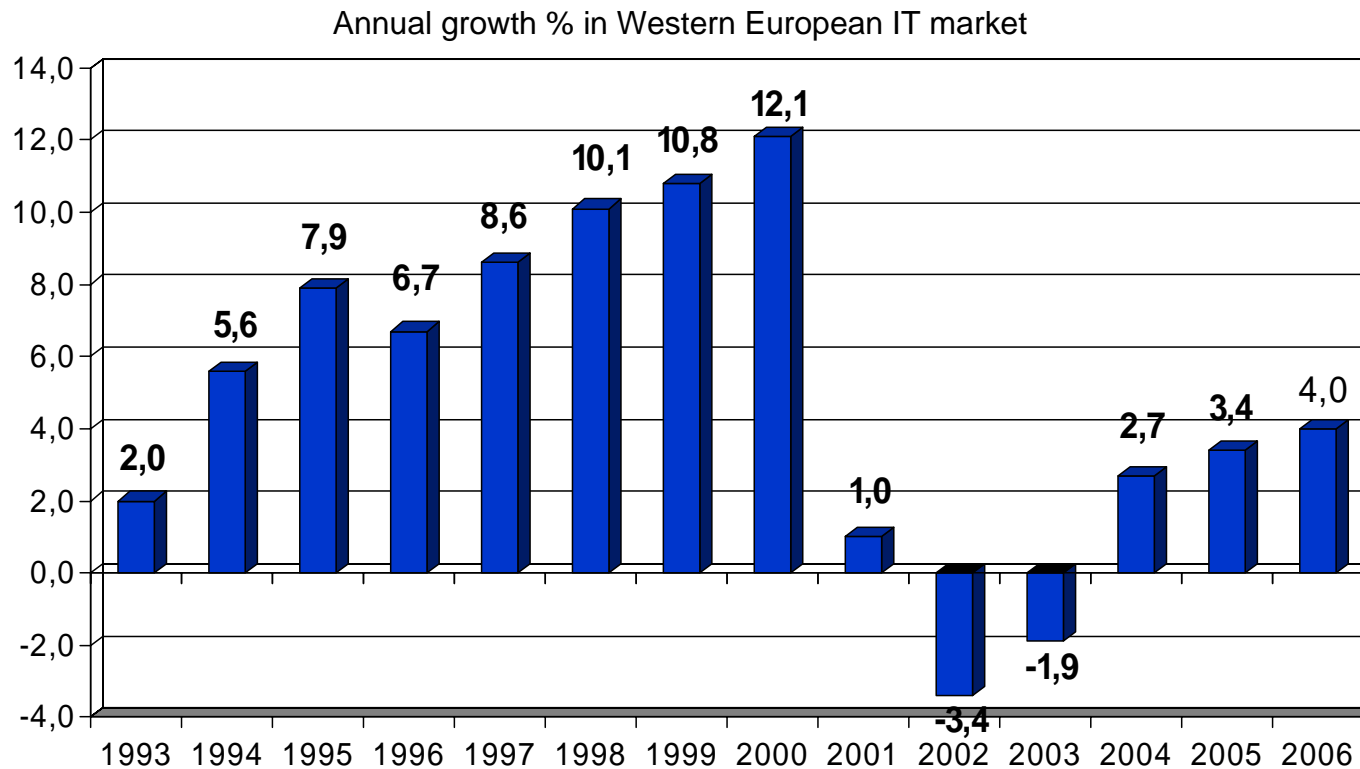
# University students graduating in science and engineering



Source: Morgan Stanley / Economist Sep 16<sup>th</sup>-22<sup>nd</sup> 2006

# Usage of and investment in ICT in Europe is small

- In research EU is using 85€/capita in ICT where as Japan and US are investing 350-400€/capita
- EU is not a single market, but fragmented



Source: EITO Update in 2005 in co-operation with IDC

Market size 2005: 296mrd €

# China's 11<sup>th</sup> Five-Year Program (2006-2010)

## Top goals and objectives in the five years

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**Economic Growth** – Annual 7.5% GDP growth and 6.6% per capita GDP increase to US\$2,400 by 2010; Income of urban and rural residents to increase by 5% annually.

**Role of R&D** – Share of R&D spending to increase from 1.3% of GDP in 2005 to 2% in 2010. Incentives to boost corporate R&D spending.

**High-Tech** – Numerous high-tech projects are earmarked, including those in integrated circuits and software, digital TV networks, NGN mobile and internet networks, advanced computing, satellite applications.

# China's 11<sup>th</sup> Five-Year Program (2006-2010)

## Top goals and objectives in the five years

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**Services** – The service sector's share of GDP is to increase to 43.3% by the end of the Program with a similar increase in employment across the sector.

**Efficiency** – Promotion of energy efficiency, resource-saving, and an environmentally friendly society. Energy consumption per unit of GDP to decrease by 20%; Main pollutant discharges to be reduced by 10%

**Rural** – Significant projects and investment are focused upon the rural communities – including initiatives to improve the medical coverage system for rural areas from 23.5% coverage in 2005 to over 80% in 2010.

# Technology Platforms and Joint Technology Initiatives

# ARTEMIS – The European Technology Platform dedicated to Embedded Systems

- **Develop and drive a joint European vision and strategy on Embedded Systems**
- **Estimated figures related to embedded systems:**
  - **R&D Expenditure in Europe : 20 Billion €**
  - **World wide R&D population: 460 000**
  - **Annual growth rate R&D population: 10 %**

# Impact of Embedded Systems: Automotive Example

- **European automotive sector turn over 500 Billion €p.a.**
- **Employs 2.7 million people in the EU**
- **Embedded electronics represent 20 % of the car value**
  - **Expected to be 35 – 40 % in 2015**
  - **This will create 600 000 new jobs in Europe**

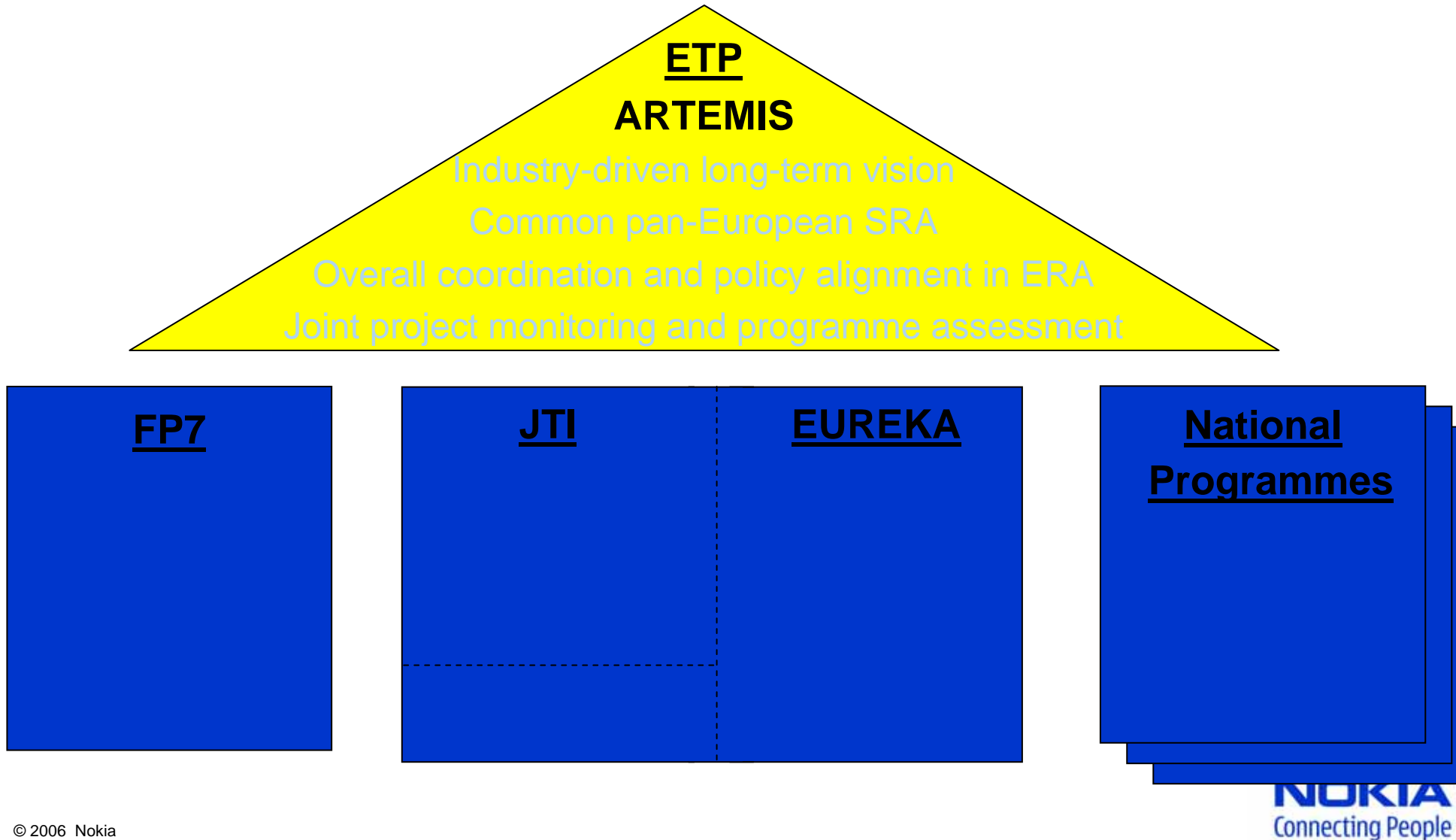
# ARTEMIS Steering Board



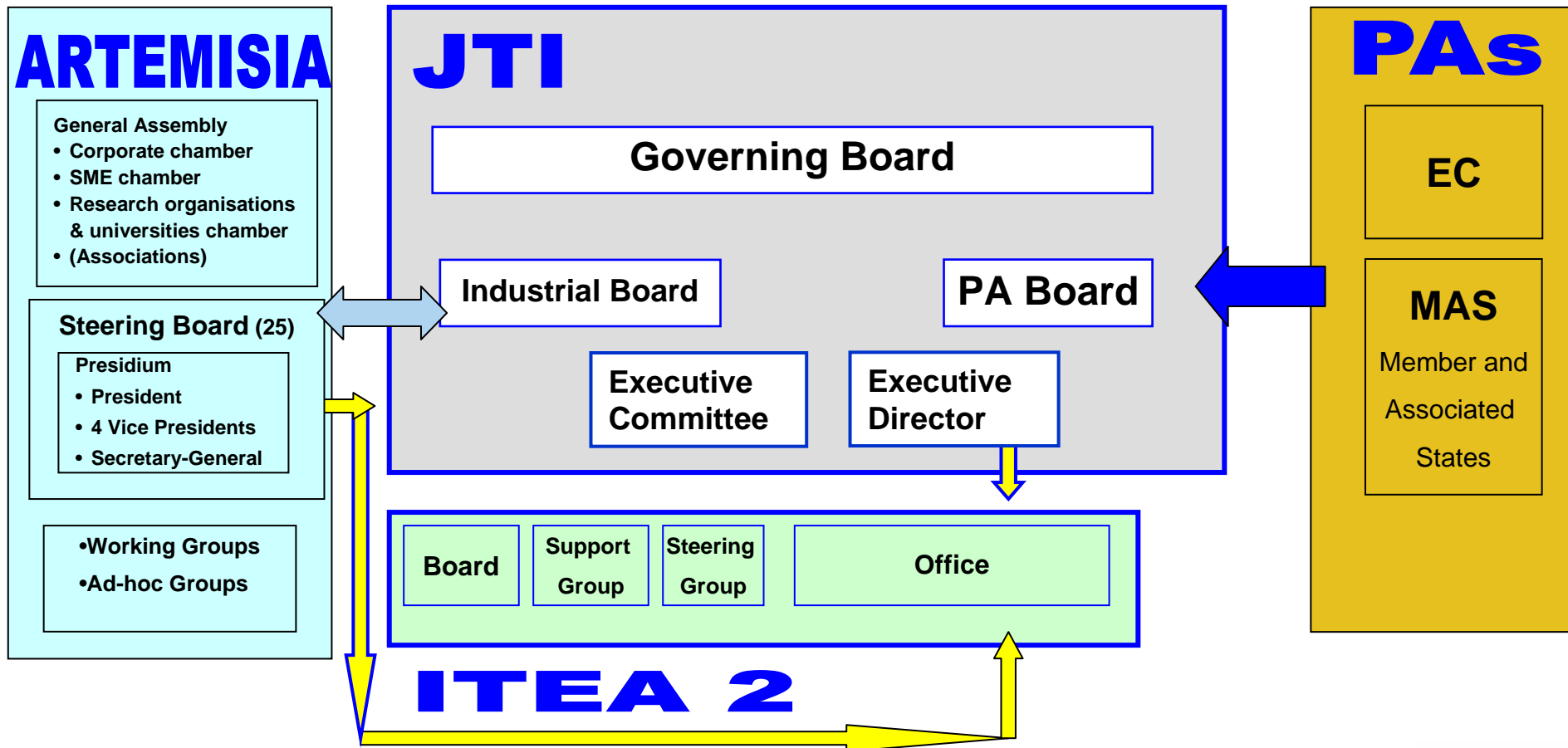
# ARTEMIS: ETP for Embedded Systems

- **Interoperable & cost-effective embedded systems**
  - **R&D and innovation environment: IPR, open source software, standards, research, education,**
- **Industry, academia, SME federation, ITEA, MEDEA+**
  - **10 of the top-25 EU companies in terms of global R&D**
- **20 countries + EC in Mirror Group**
  - **18 of the 25 countries involved in ITEA**

# Synergetic approach for executing the SRA on Embedded Systems

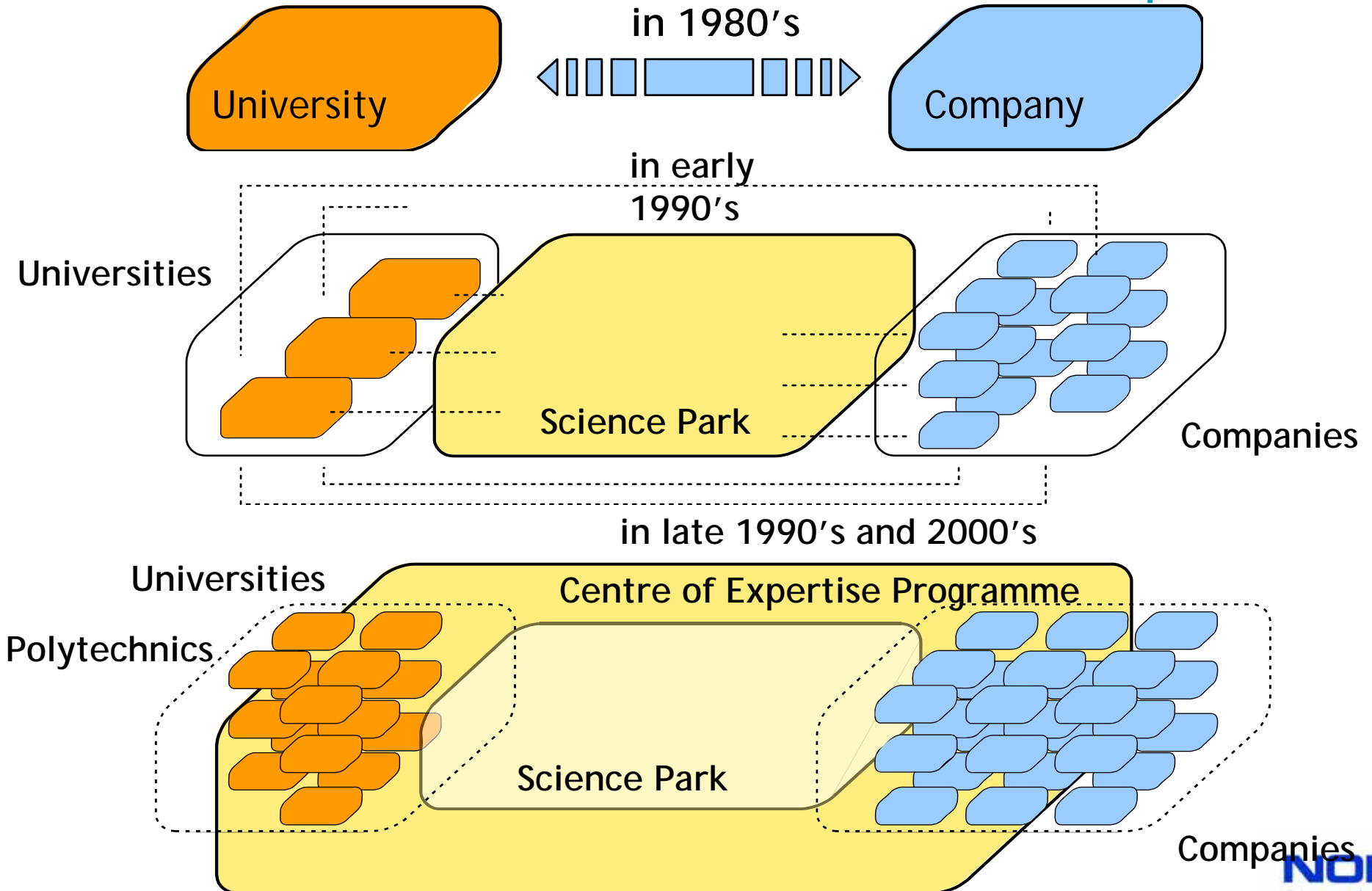


# Tentative overview of governance structure



# Centre of Expertice Programme

# Science Parks in 1980 - 2000 and CoE concept



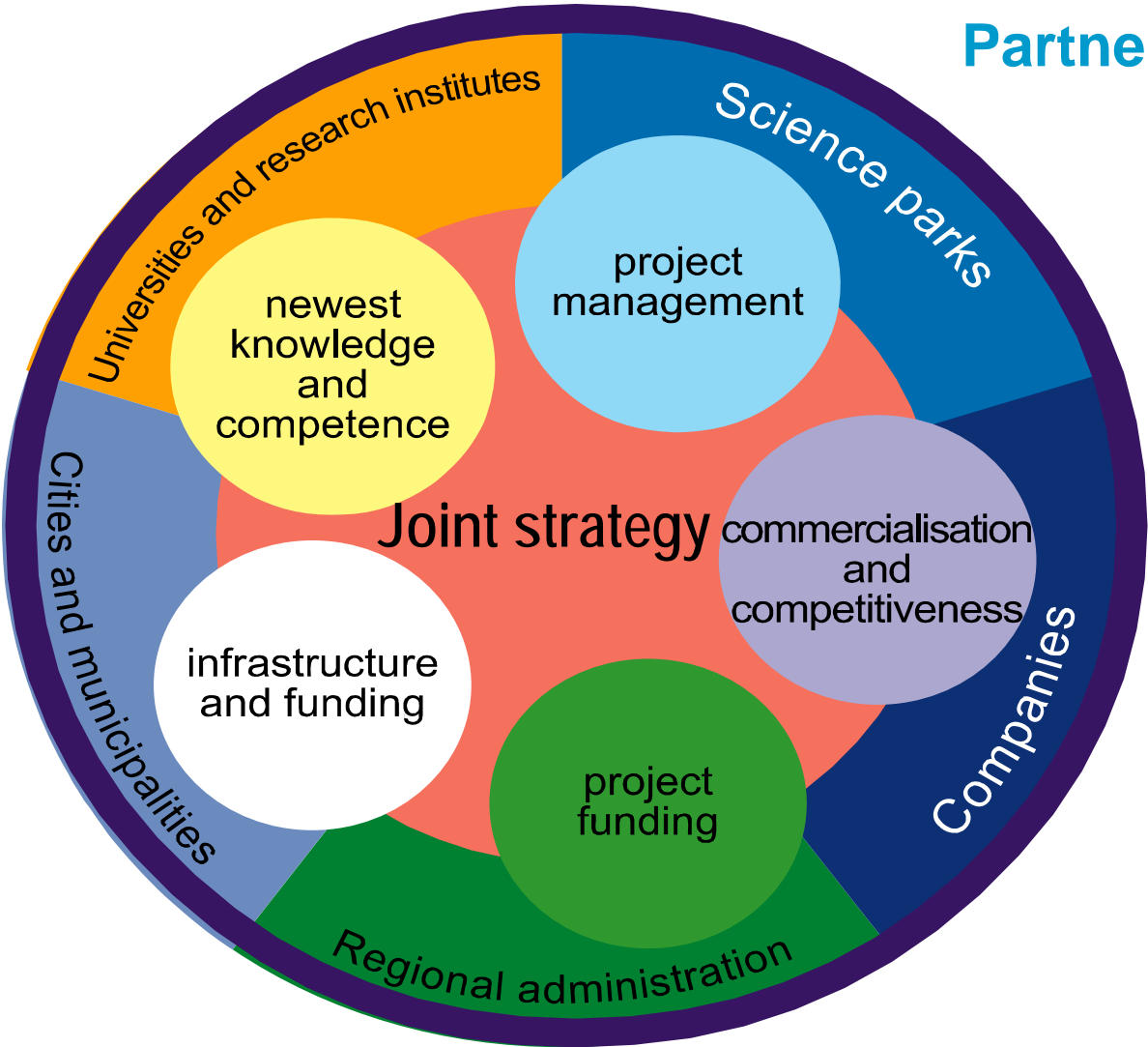




## Aims of the CoE Programme

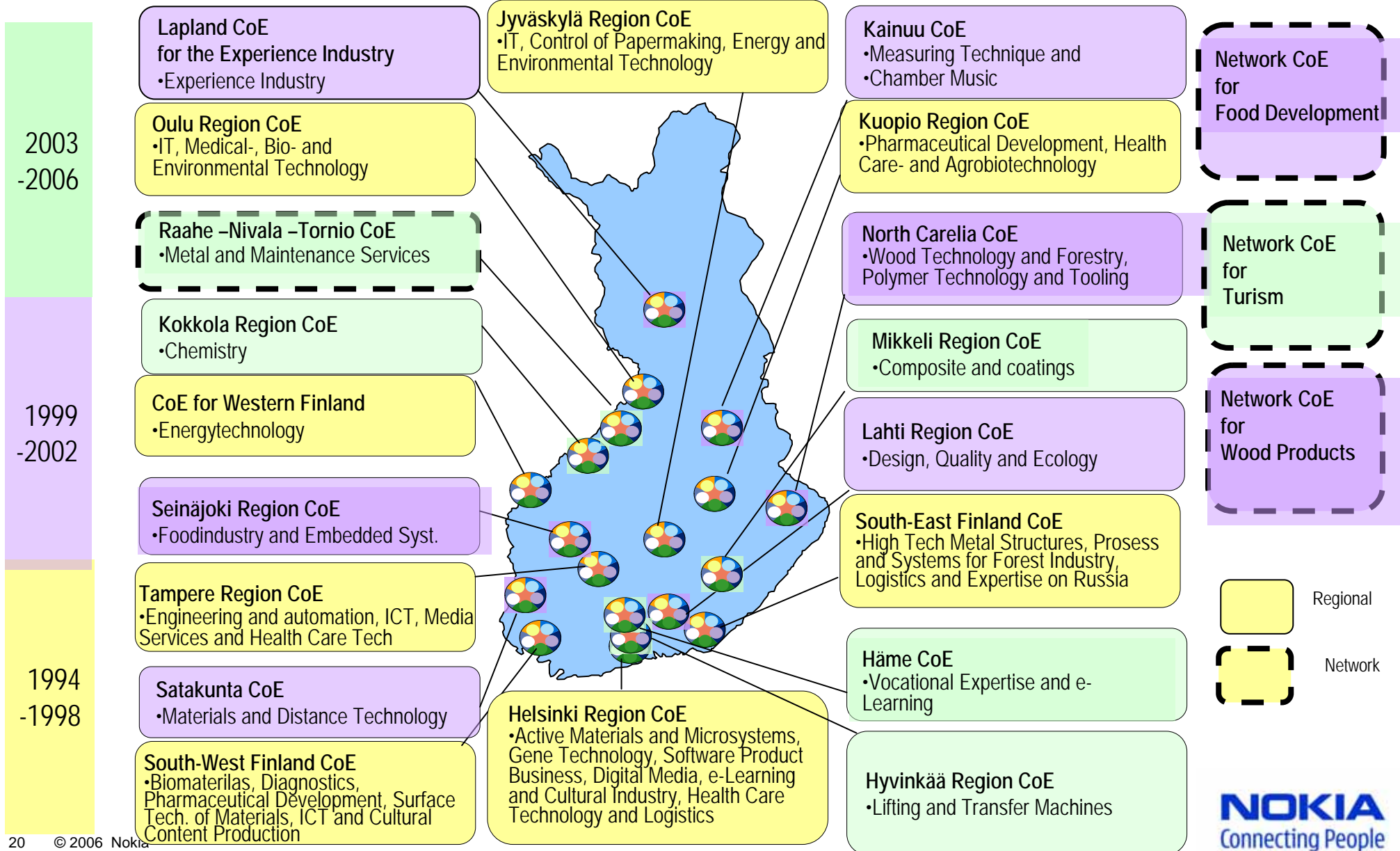
- To identify regional strengths, reinforce and regenerate regional expertise
- Increase the number of competitive products, services, enterprises and jobs based on the highest expertise
- Create economic growth
- Attract international investments & leading experts

# Partners at regional level

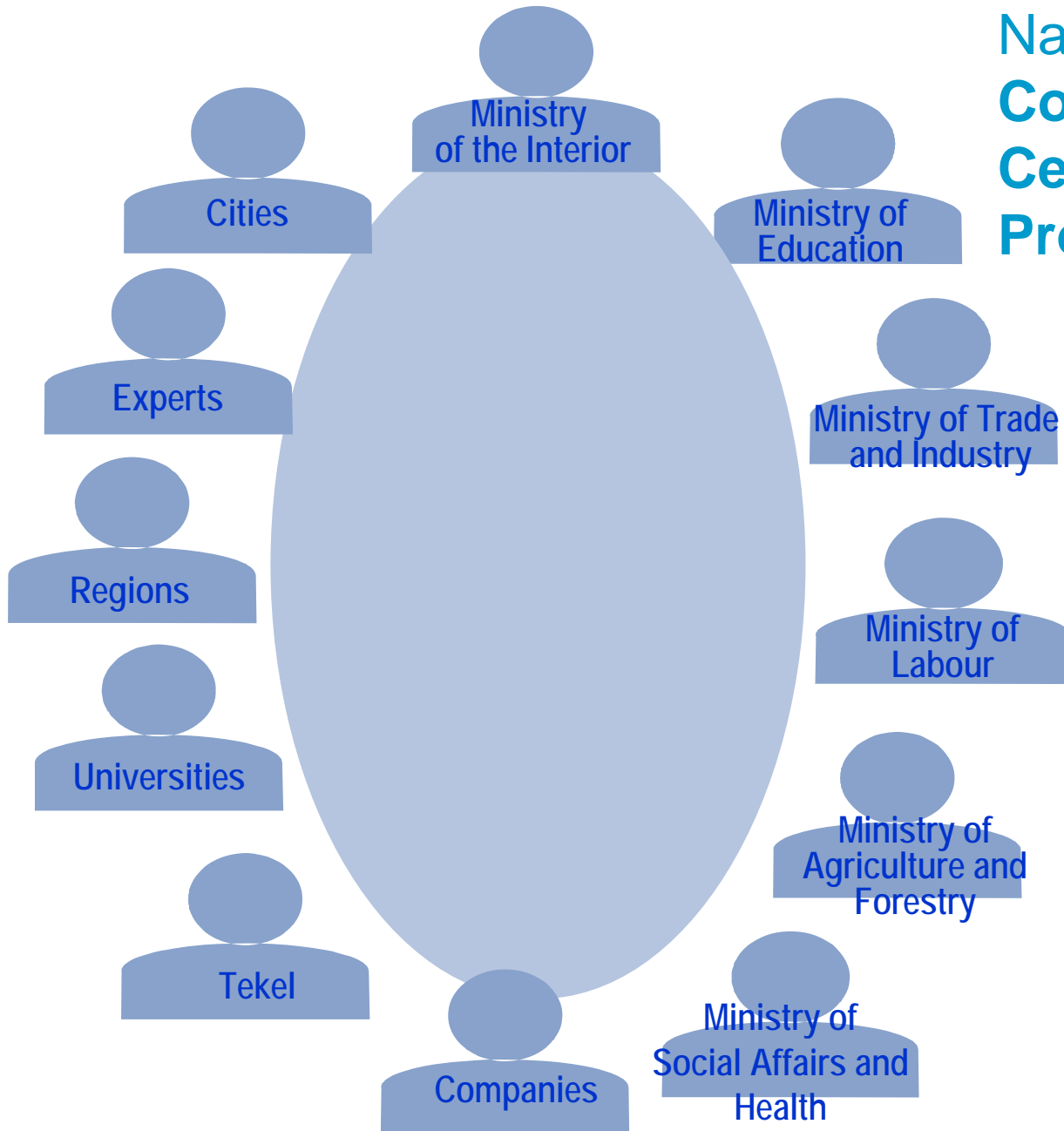


Period

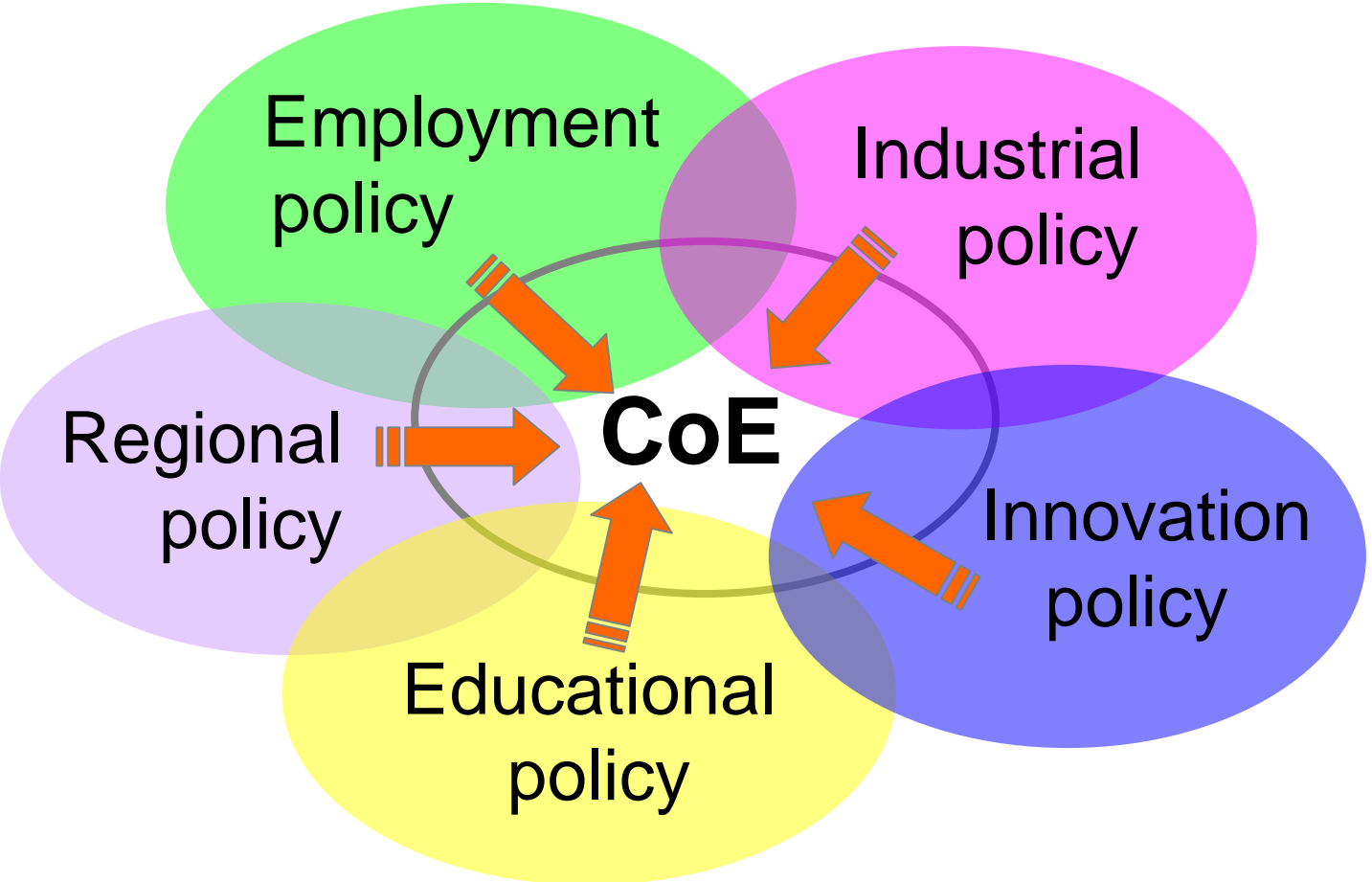
# Centres of Expertise 1994-2006



# National co-ordination: **Committee for the Centre of Expertise Programme**

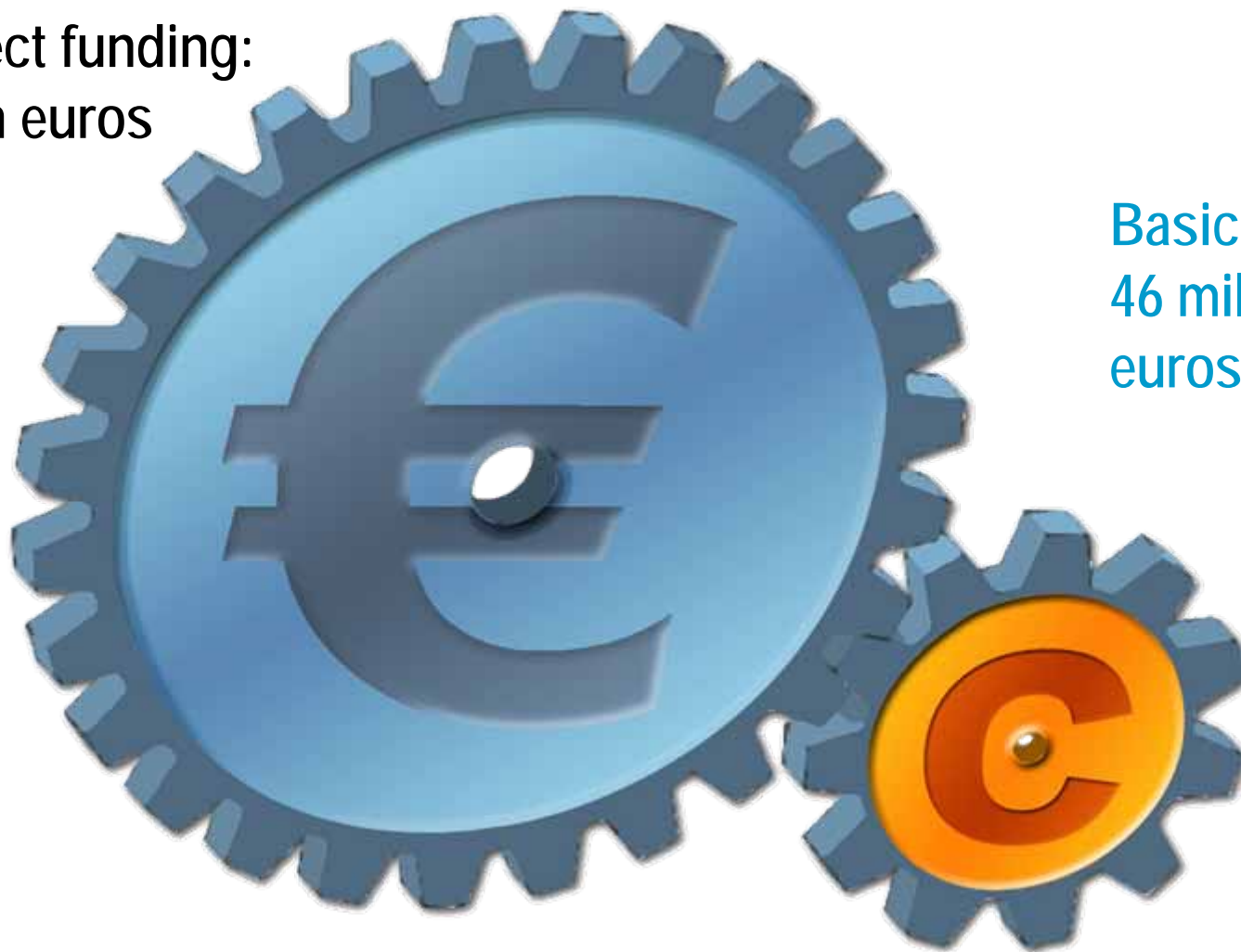


# Sector Policies & CoE Programme



## Government's catalytic basic funding 1999-2005

**Total project funding:  
450 million euros**



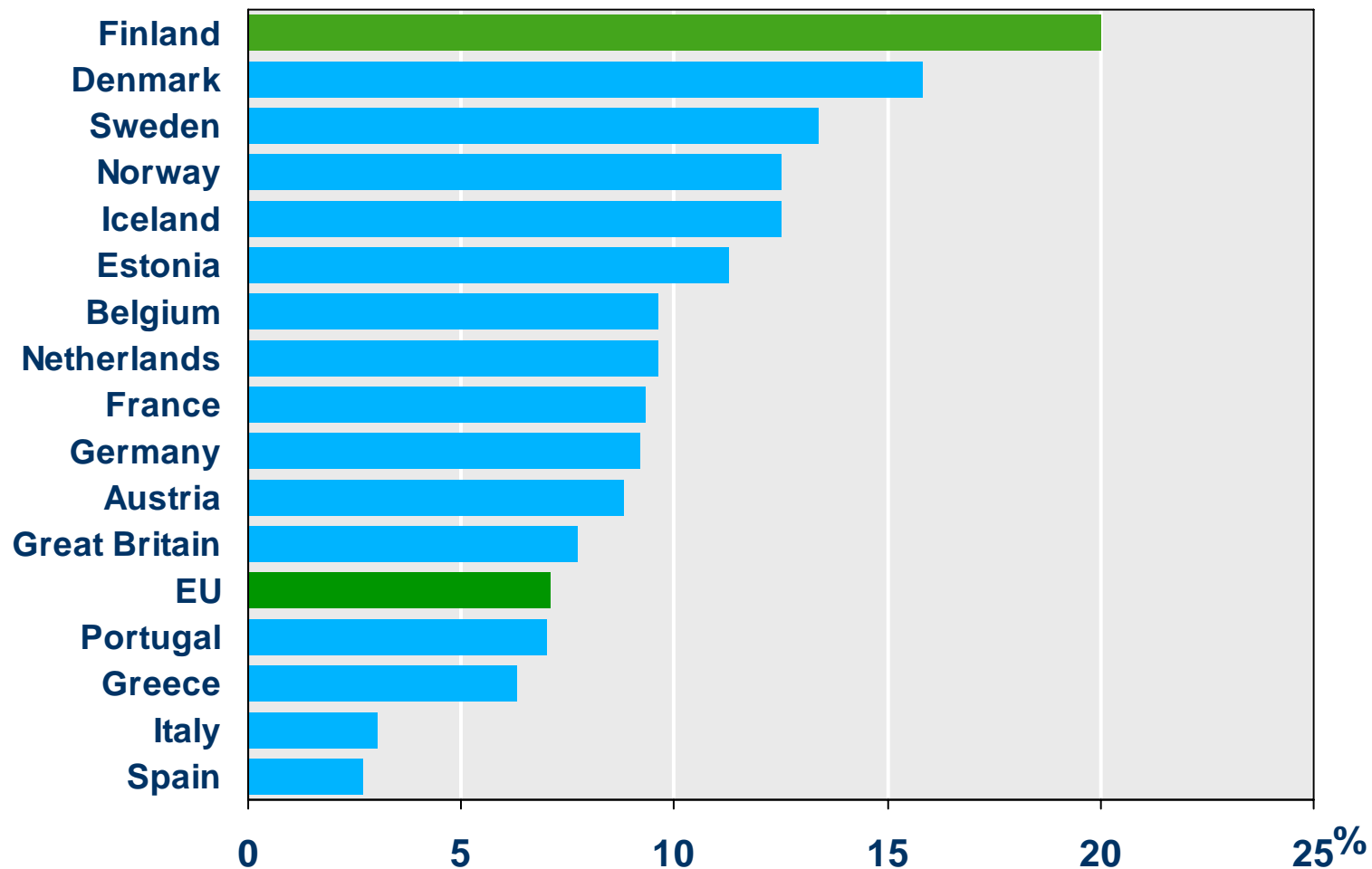
**Basic funding:  
46 million  
euros**



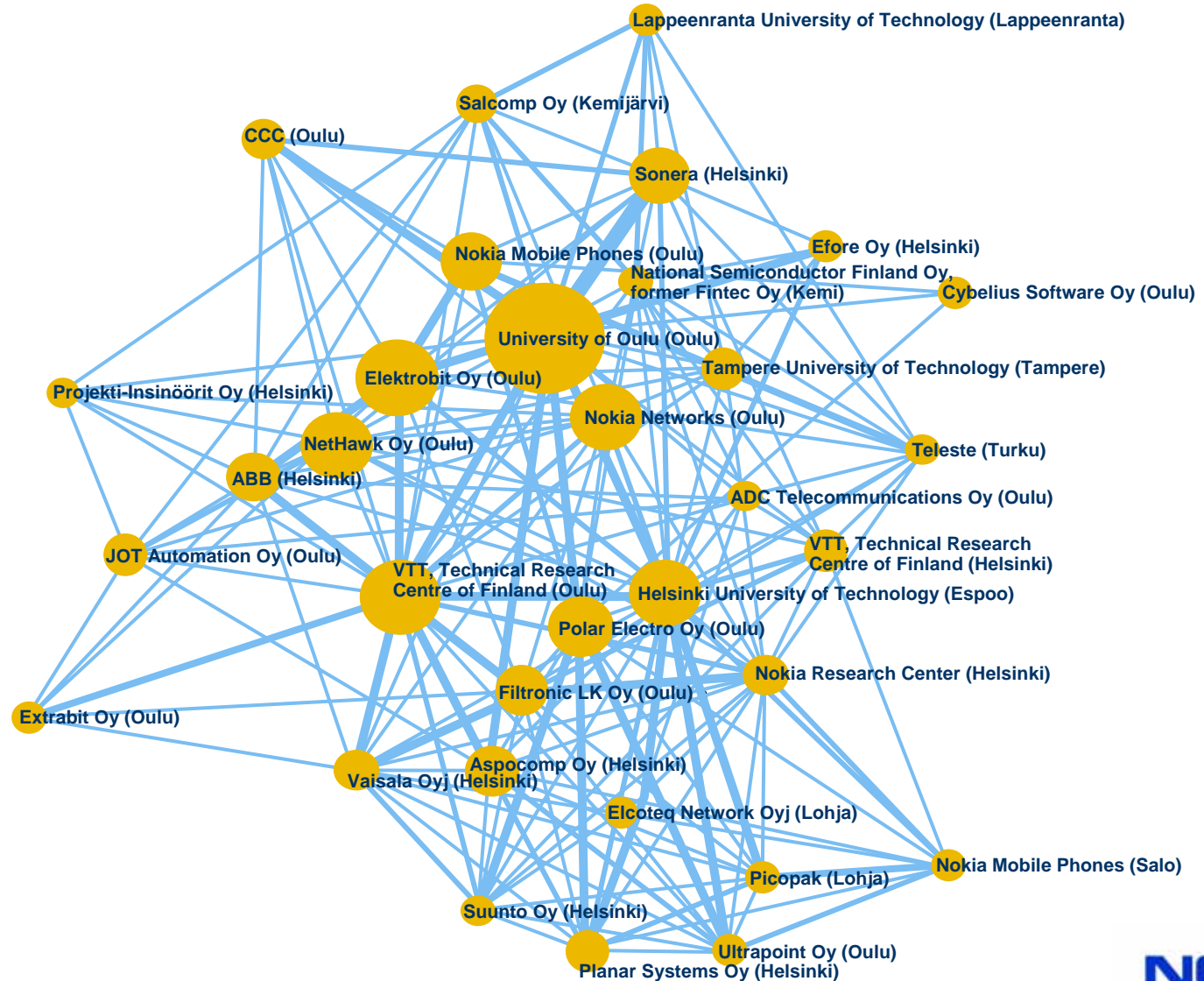
## Direct project impact 1999-2005

<b>New high-skill jobs</b>	<b>12100</b>
<b>Jobs maintained</b>	<b>23500</b>
<b>New high-tech businesses</b>	<b>1100</b>
<b>New innovations (products, concepts)</b>	<b>3400</b>
<b>Number of people trained</b>	<b>80600</b>
<b>Total funding of projects (Meur)</b>	<b>490</b>
<b>State basic funding (Meur)</b>	<b>46</b>

## SMEs participating in innovation cooperation



# Regional networking with partners from Oulu in electronics and telecommunications programmes



# Concluding Remarks

- Global View
- Common Strategy
- Public – Private Partnerships
- Exploring New Ways of Cooperation
  - Open Innovation Model
  - Lead Markets
  - SME – Large Corporations
  - Regulatory Measures
  - Standards