

NOKIA

CONNECTING PEOPLE

Globalization – A company perspective



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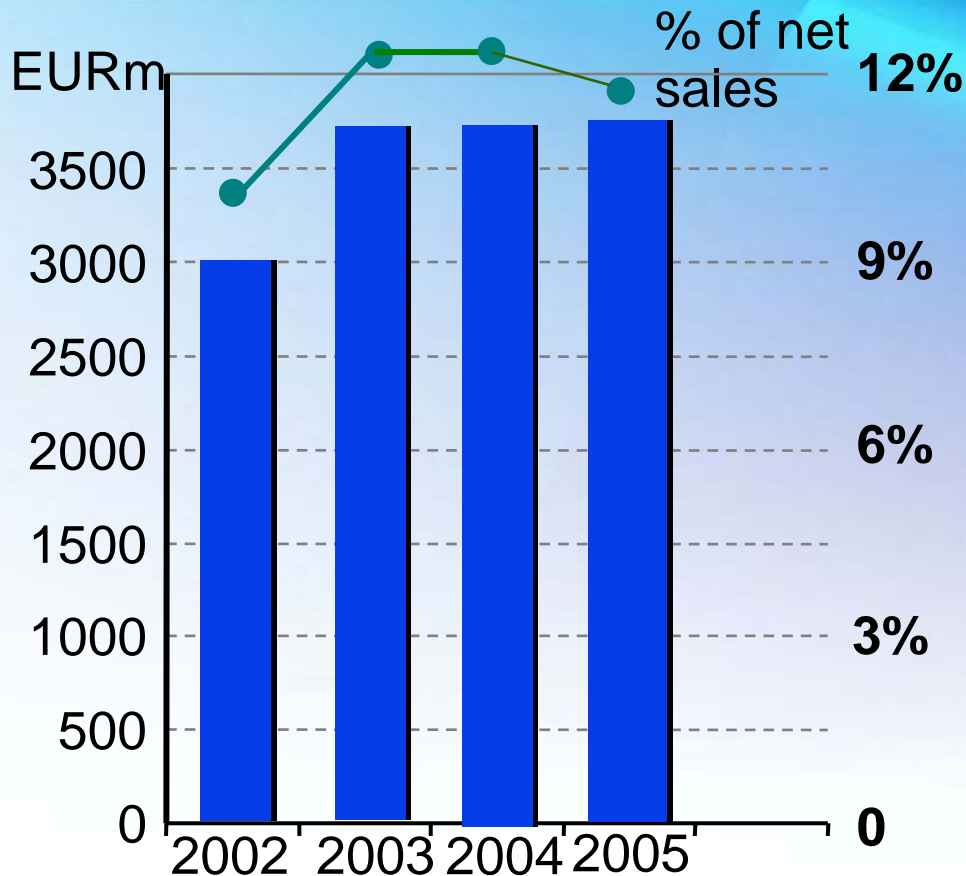
Nokia - a Global Company



- Infrastructure manufacturing facilities in China and Finland
- Mobile phone manufacturing facilities in Brazil, China, Finland, Germany, Hungary, Republic of Korea, Mexico, the UK and the US (India)

Strong Investments in R&D

R&D expenditure EUR 3825 million in 2005 (11,2% of net sales)

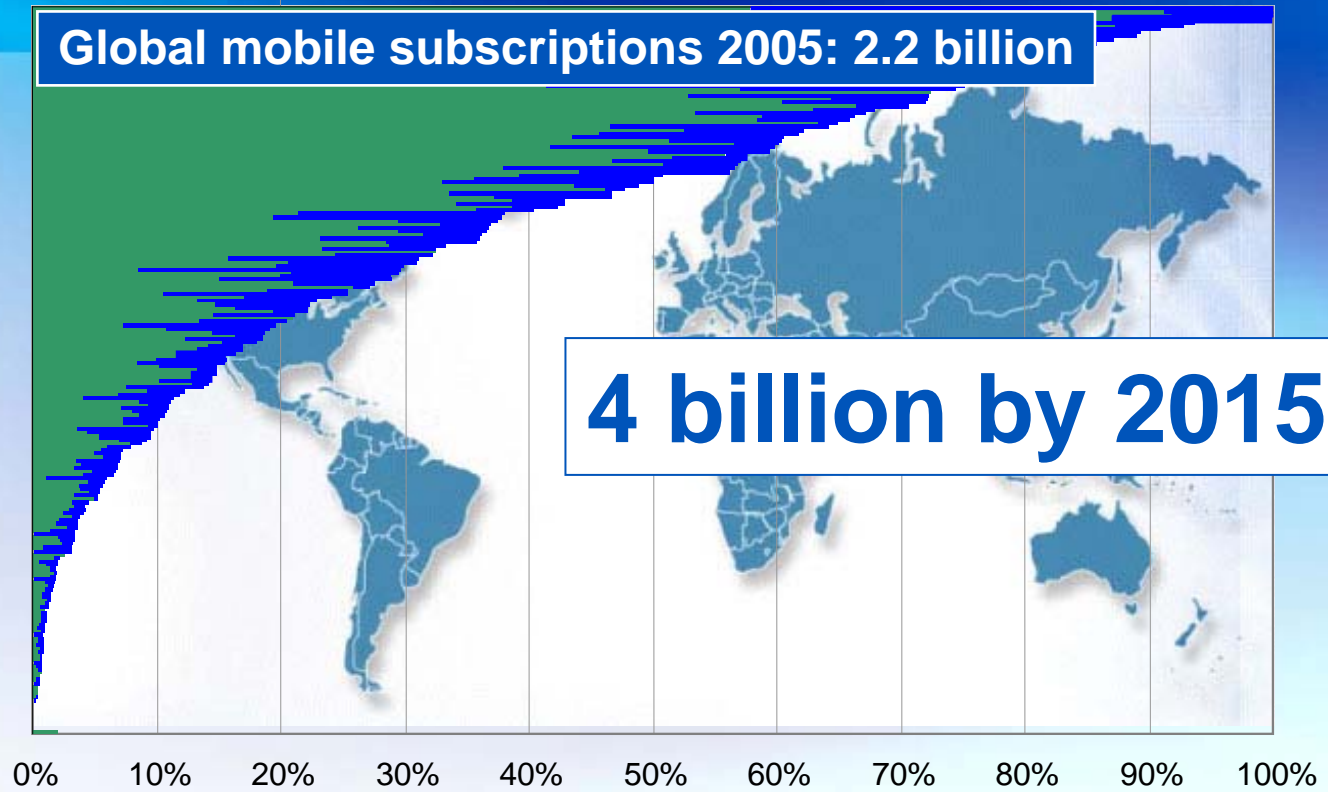


- Global network of R&D centers in 11 countries
- Over 20.882 people in R&D at the end of 2005 (35,5% of personnel)
- Collaboration with more than 100 universities globally

Going towards universal access

2 billion subscribers by
September 2005

Half the people of the
world can have access
by 2015



Digital Convergence



Nokia Developer Operations Mission

- Create sustainable profitable business opportunities for developers and accelerate the development of the mobile service markets

More than 2 million registered members!

www.forum.nokia.com



Globalization

- From global capital and material flows to
 - global use and competition of knowledge assets
 - global Web-enabled knowledge flows
 - global mobility of knowledge workers
 - flexible relocation of operations
- The emergence of knowledge networks and network orchestration



Key drivers

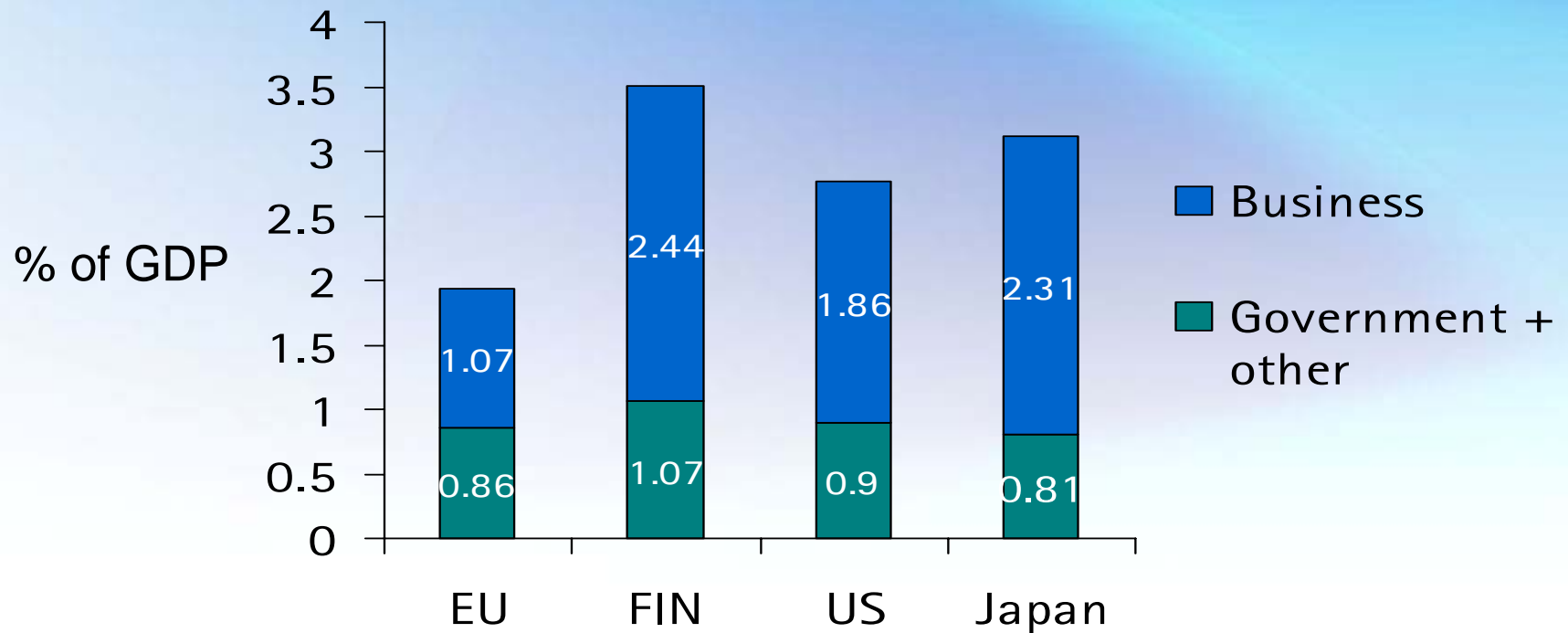
- Excellence in knowledge and skills
- Favorable innovation environment
- Cost/efficiency
- Access to markets; market conditions
- Ability to create clusters and capture value



Europe's R&D efforts are lagging behind

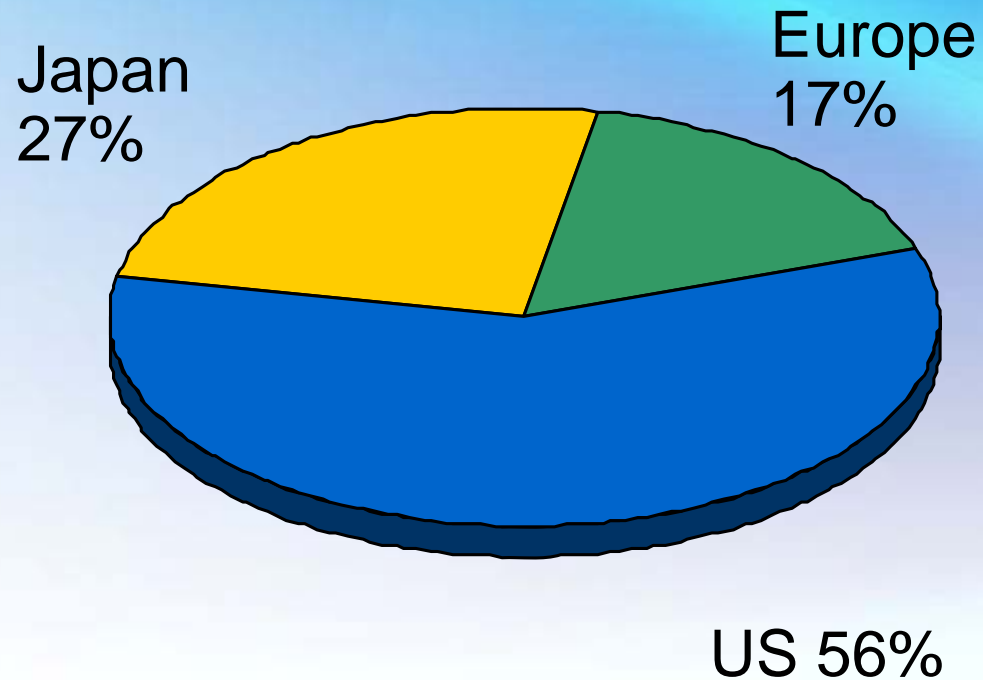
Europe spends less on R&D than its global competitors

2003 R&D expenditure

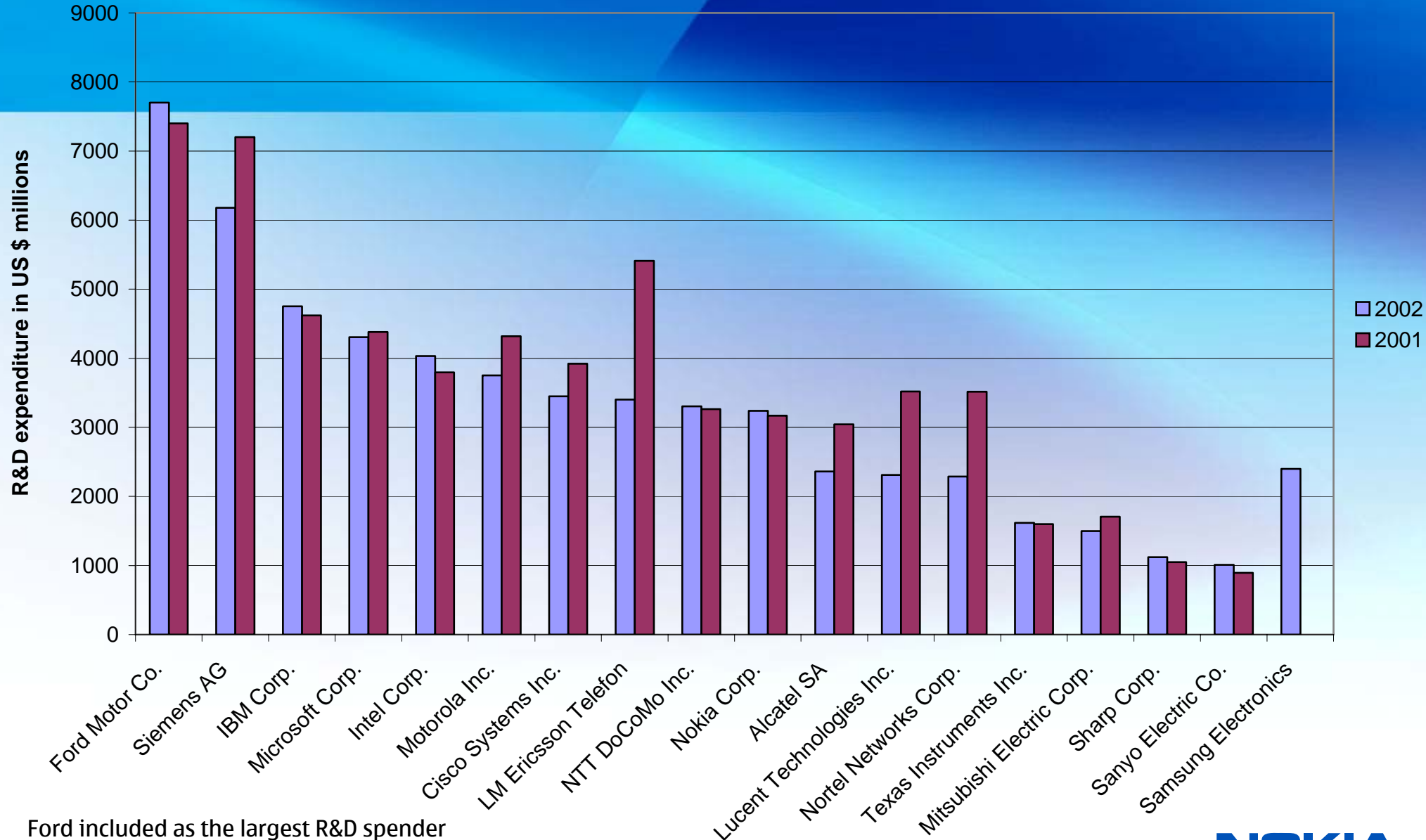


Source: Towards a European Research Area; Key Figures 2003-2004

ICT research in the US, Japan and EU 15

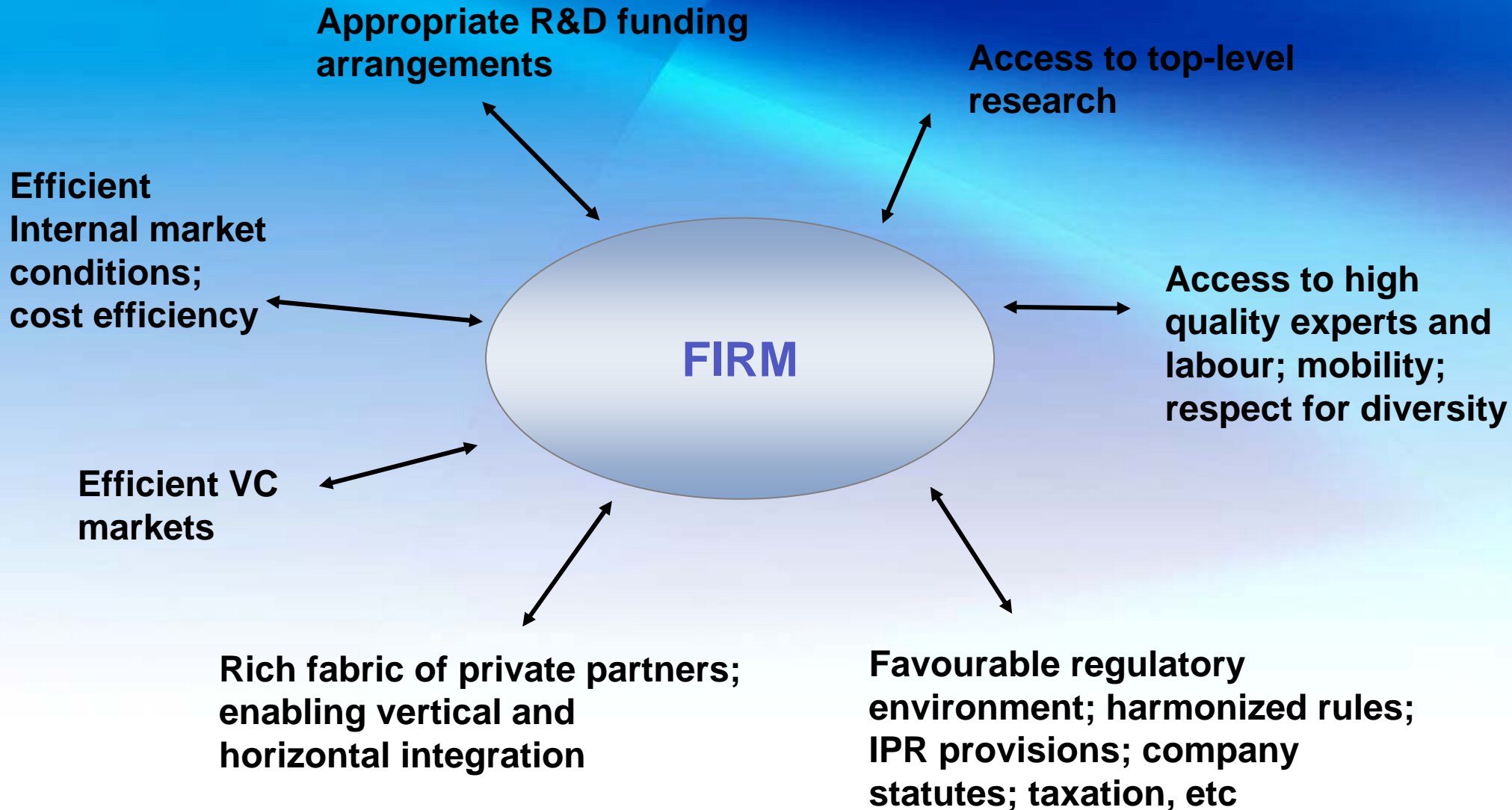


Top R&D Spenders in 'Our Domain'



Ford included as the largest R&D spender

Favourable Innovation Environment



New Competition

- China: over 400 000 new engineers per year
- Singapore: a new biomed hub in Asia
- Increasing importance of ICT and biomed: US dominance
- Cost competition; a software engineer; India € 6.7, China 13.9, US 43,8, Germany 54.1
- New players catching up in the competence game



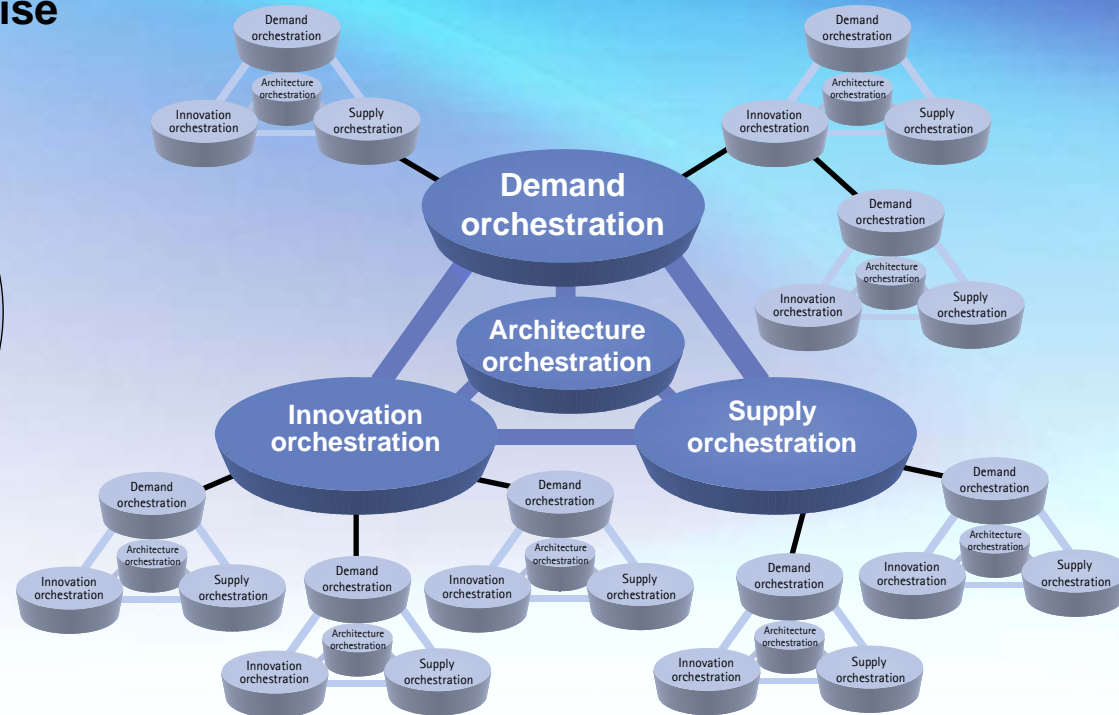
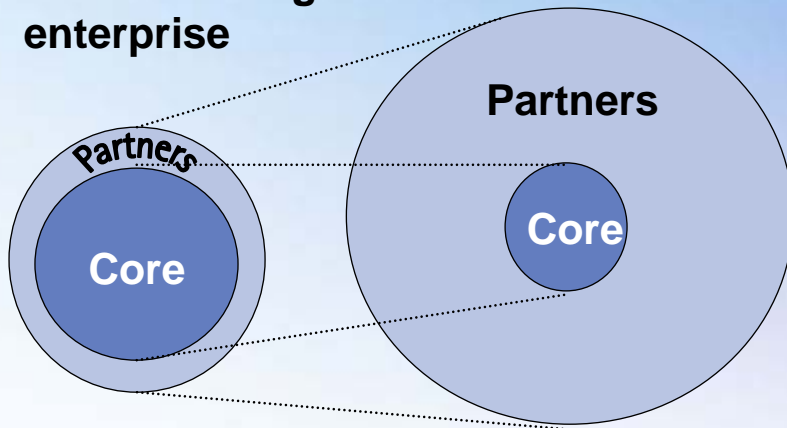
Innovation networks and ecosystems

enable new ways of knowledge creation and utilization

to extended enterprise

with orchestration capability

From traditional large enterprise



Technology Platform for ICT

**Networked European
Software and Systems
NESSI**

**Mobile and wireless
Communications techn.
eMobility**

**European robotics
platform**

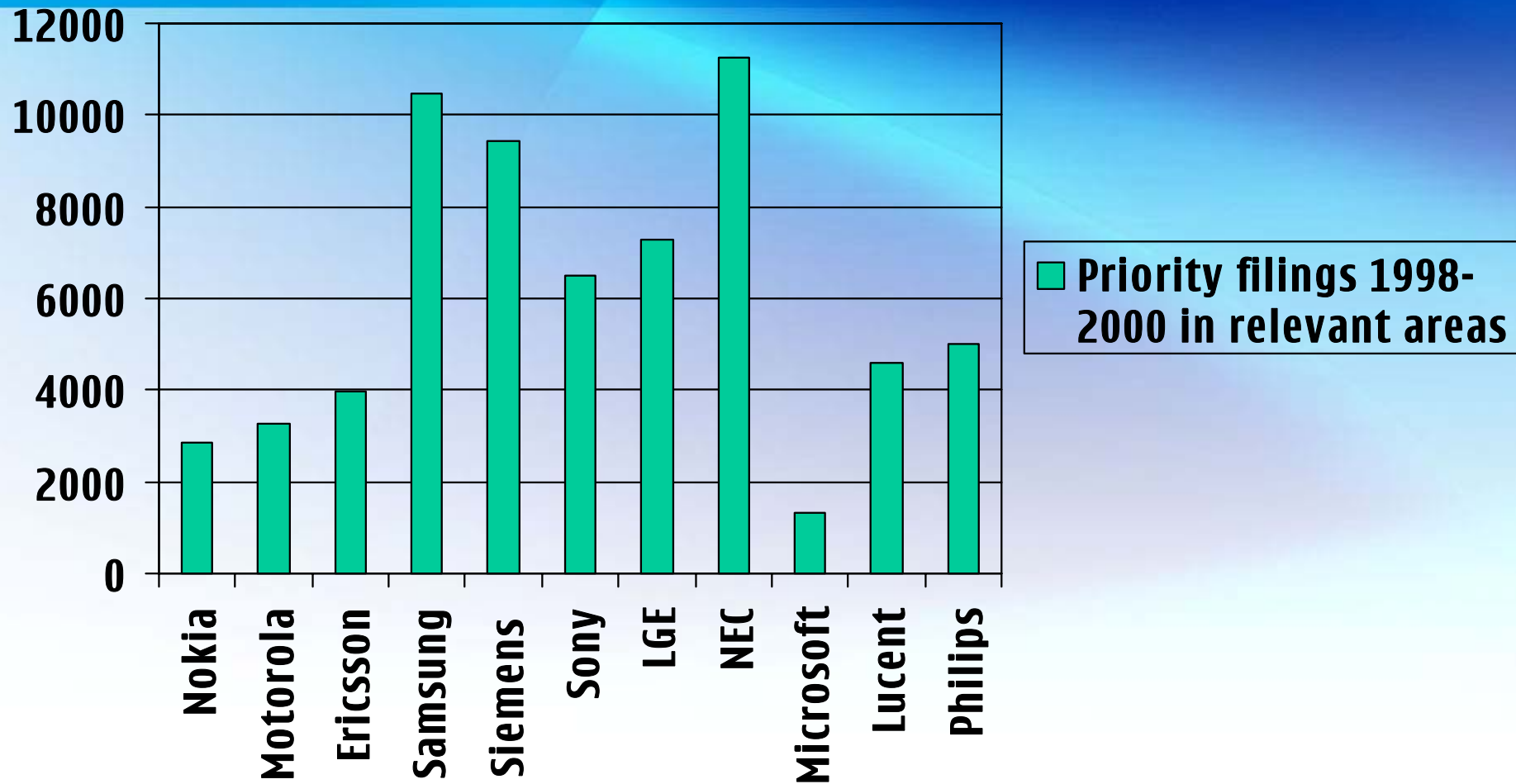
**Networked and
Electronic media
NEMI**

**European
Nanoelectronics
Initiative
ENIAC**

**Embedded Intelligent
Systems
ARTEMIS**

*Other possible themes to
be identified later...*

Competition in Patent Filing



New innovation and R&D policy

Develop leading knowledge centers and networks in partnership with industry

**Adopt systemic approach:
Support networks and industrial ecosystems
Mobilize all policy sectors to promote innovation
Enhance value generation in the network economy**



We should know more about:

- creation, composition and mobility of human capital,
- favorable innovation environments
- market and access conditions and
- ability to create value

In the context of global economic and social change



Thank you!