

The role of S&T policy in upgrading traditional industries

**From forestry to ICT in 15 years?
- Interpreting the Finnish case**

PRAXIS-seminar, February 18, 2005
Tallinn, Estonia

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Structure of presentation

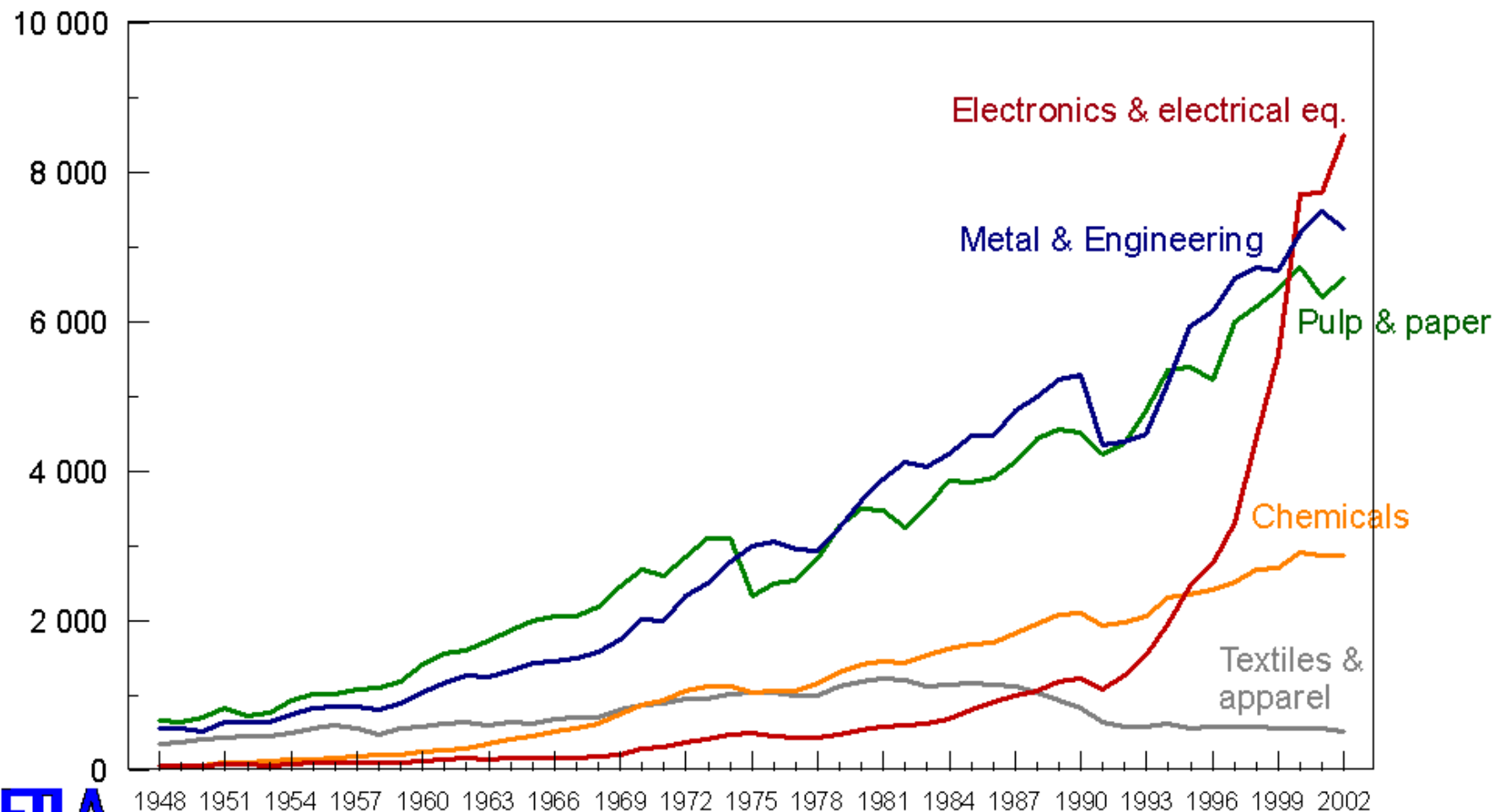
1. From forest-based industries (via electronics) towards ICT
 - The bigger picture
 - Forest sector – electronics – ICT linkages
2. Traditional industries & S&T policies
 - Finland is the most forest *and* ICT dependent country in the world
 - Merging new services to traditional industries
 - Boosting service innovations (KISA – knowledge intensive service activities)
3. Present challenges and synopsis
From Forest to ICT and further to NBIC?

1. From forestry (via electronics) towards ICT

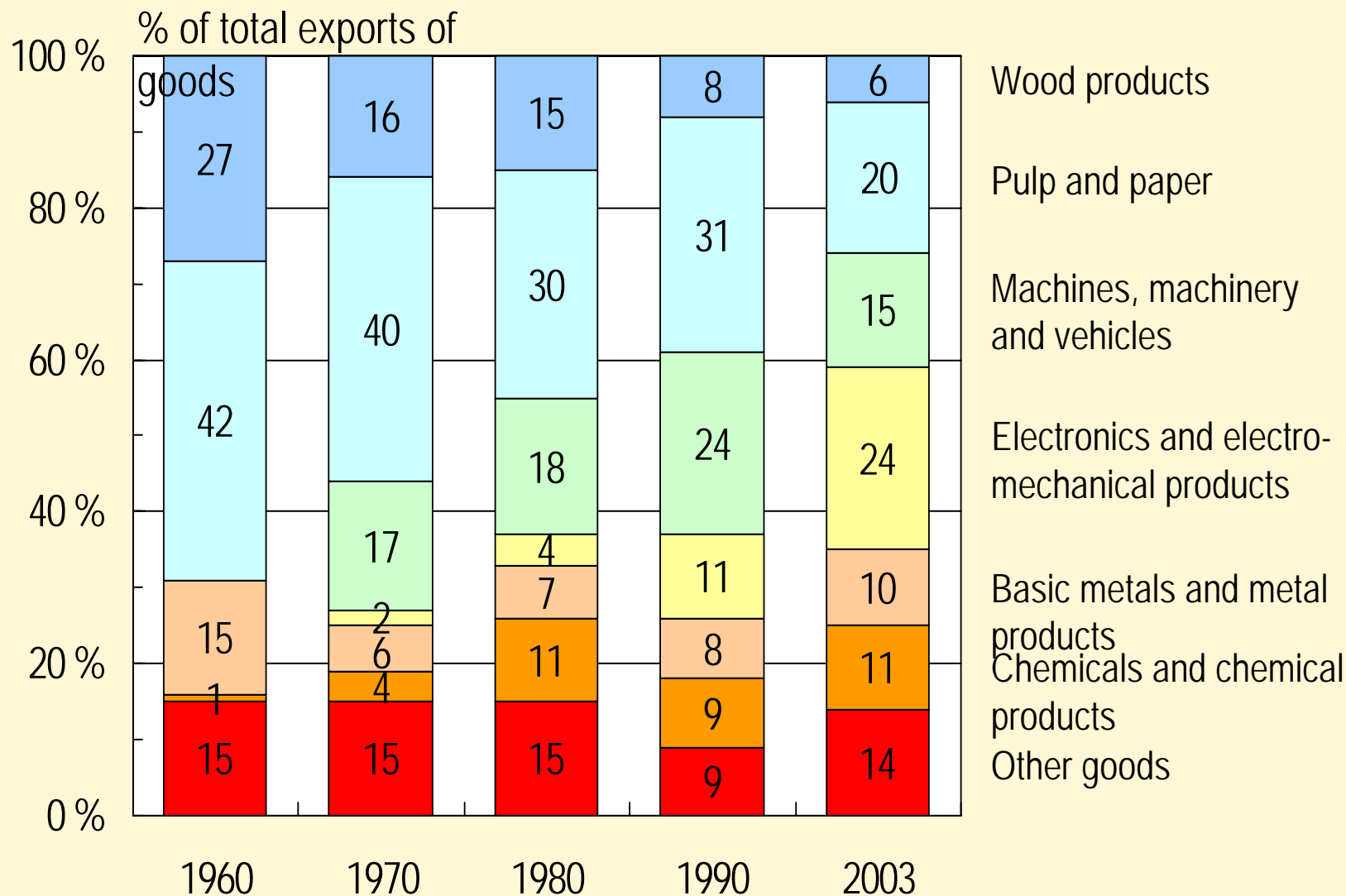
Manufacturing Production Volume

In 2000 prices

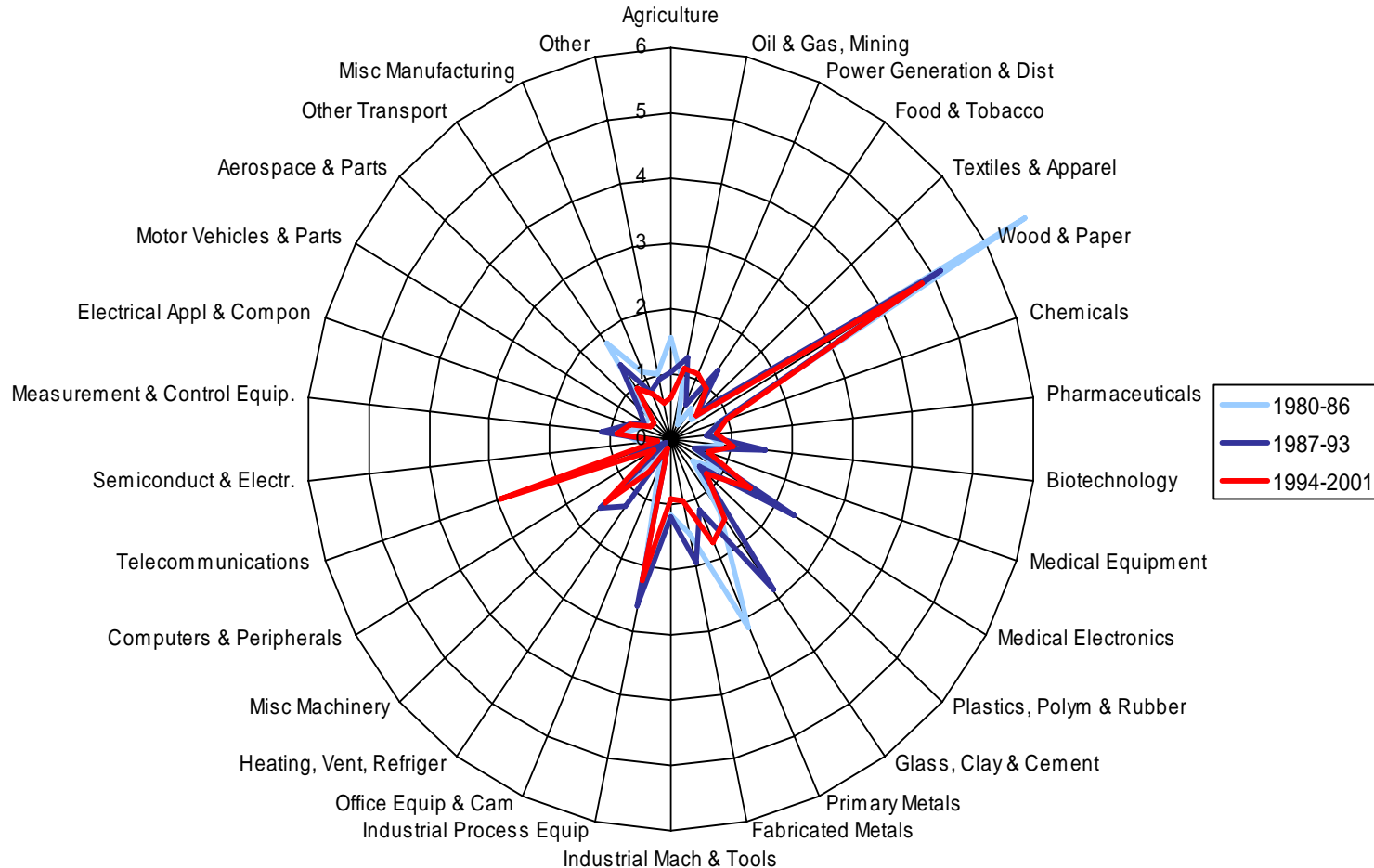
billion euros



Finnish exports of goods by industry 1960-2003 (%)



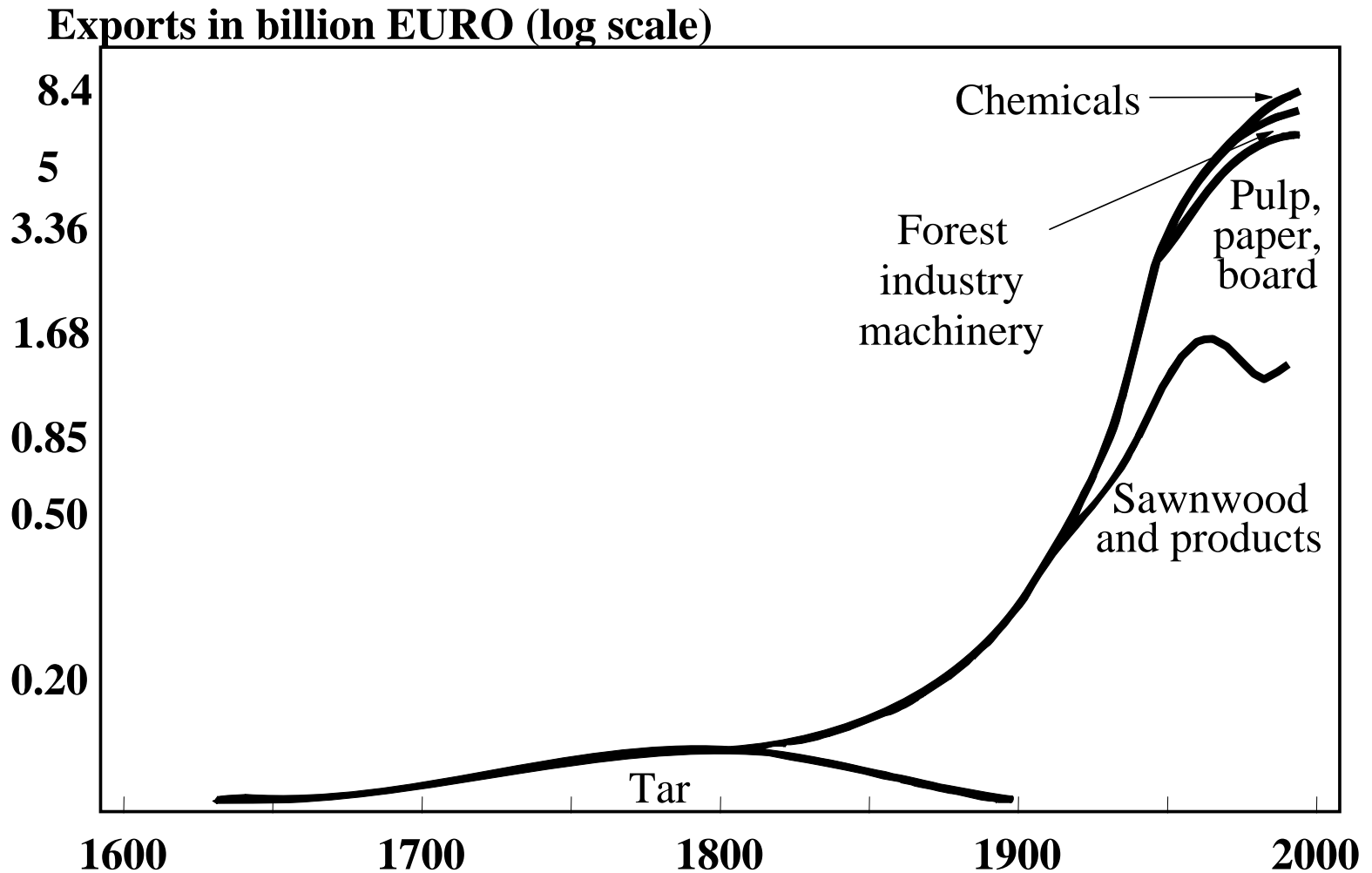
Revealed technological advantage (RTA) of Finland



(Source: Balaguer & Tsai 2004)

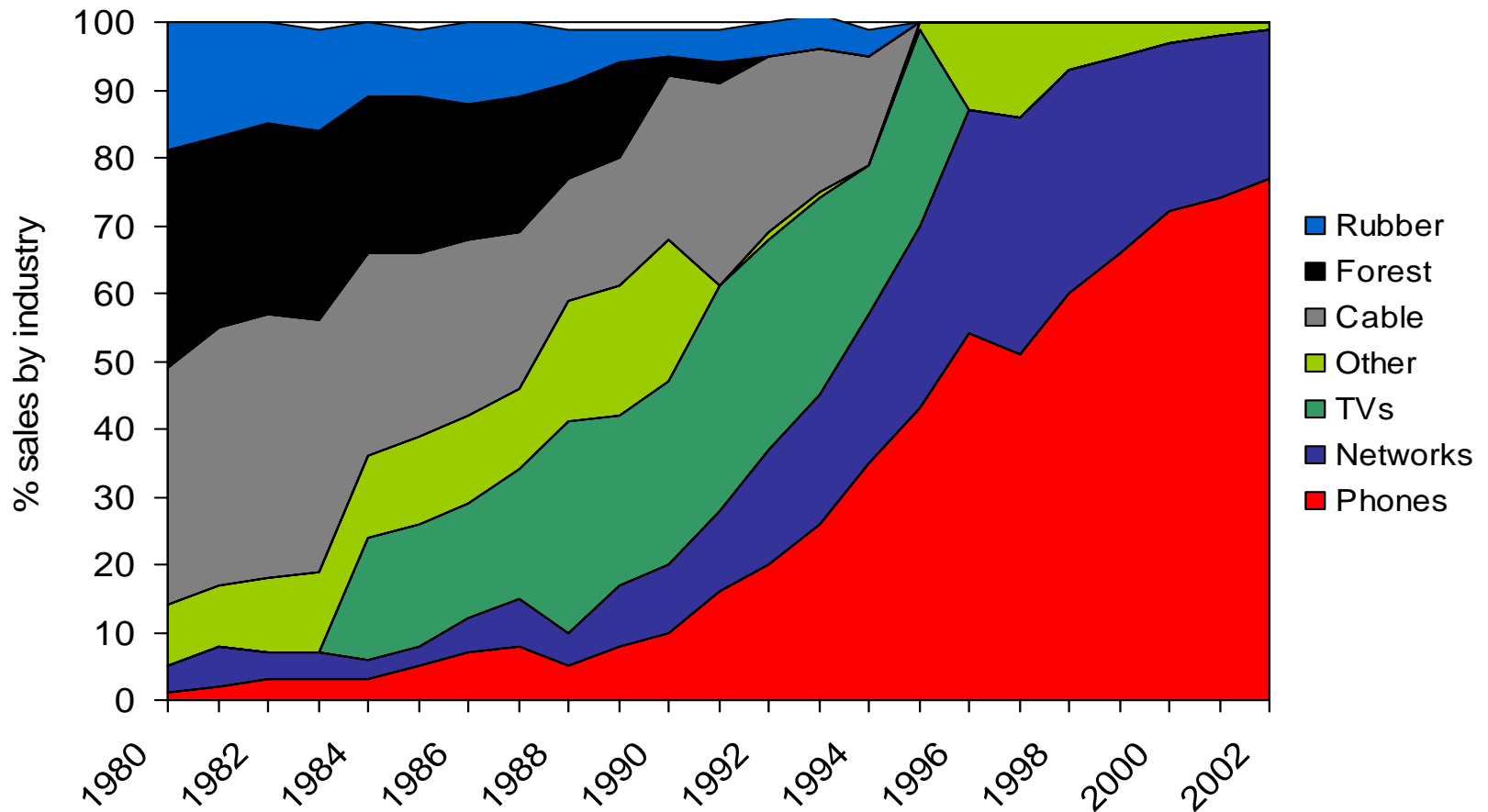
(RTA=relative share of US patents in class X in Finland/relative share US patents in class X for the world)

500 years old – And still going strong



(Source: Lammi 1994)

Nokia focuses on ICT and wireless telecom



(Source: Rouvinen & Ylä-Anttila 2003)

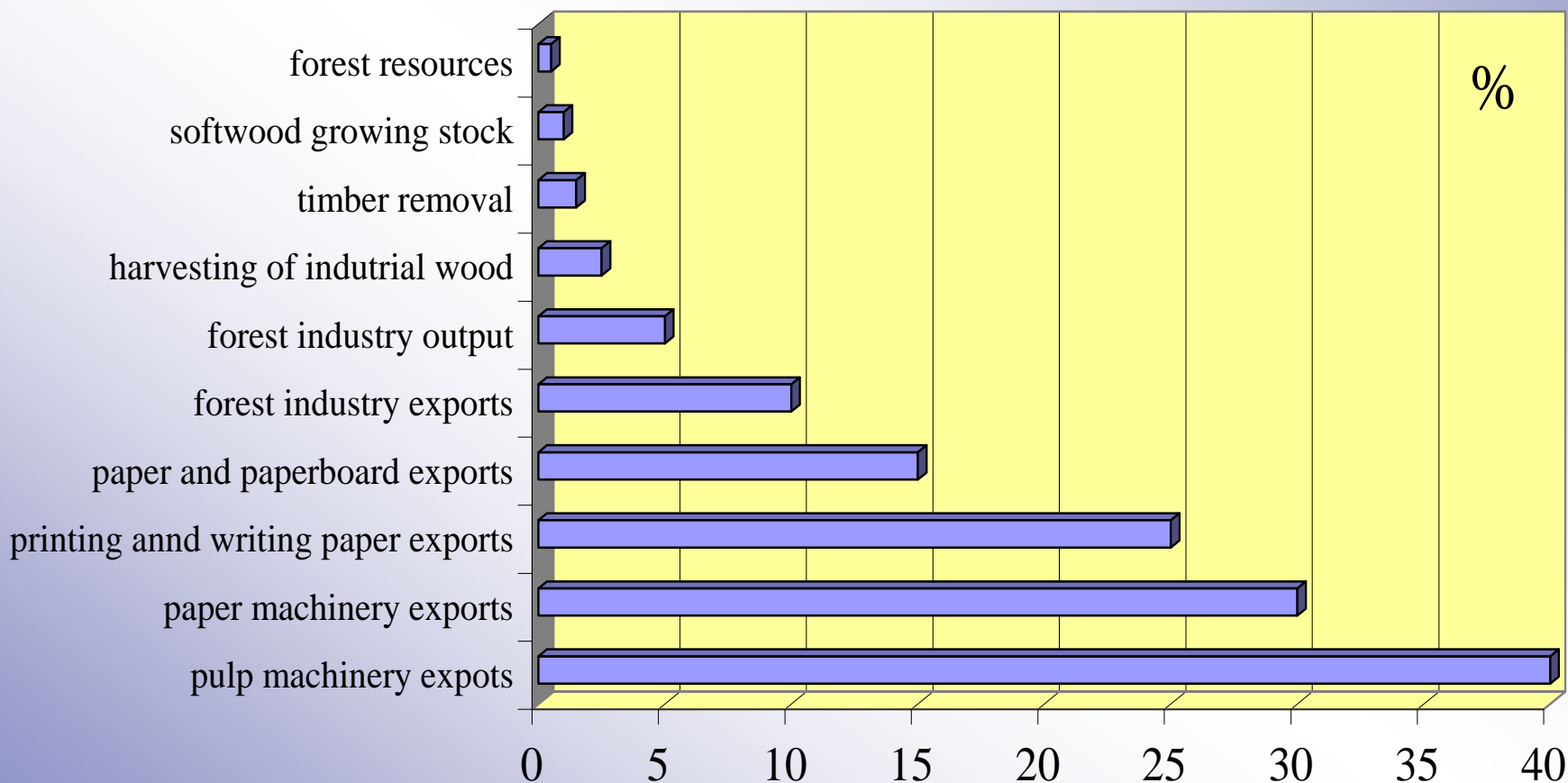
2. Traditional industries and S&T policies

Europe (and Scandinavia & Baltic States)

- Is strong and often innovative in
 - Furniture
 - Clothing & textiles
 - Food processing
 - Pulp and paper
 - Timber products
 - Mechanical engineering
 - Services (tourism, cultural services etc.)
 -which are **large** industries and in many cases knowledge-intensive
 - **Policy issue**: how to combine traditional industries with new knowledge and innovation?
 - **HOW** about the Finnish case?



Finland's Share of the World's...



Cluster Chart – where developed countries can be competitive? In services, related industries, enhancing user-producer relations (networking)

Speciality inputs
industries



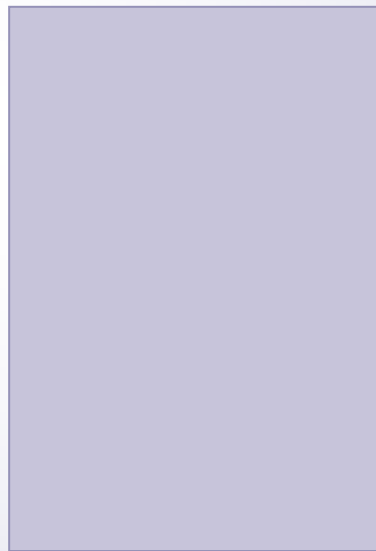
Machinery



Associated services



Primary goods



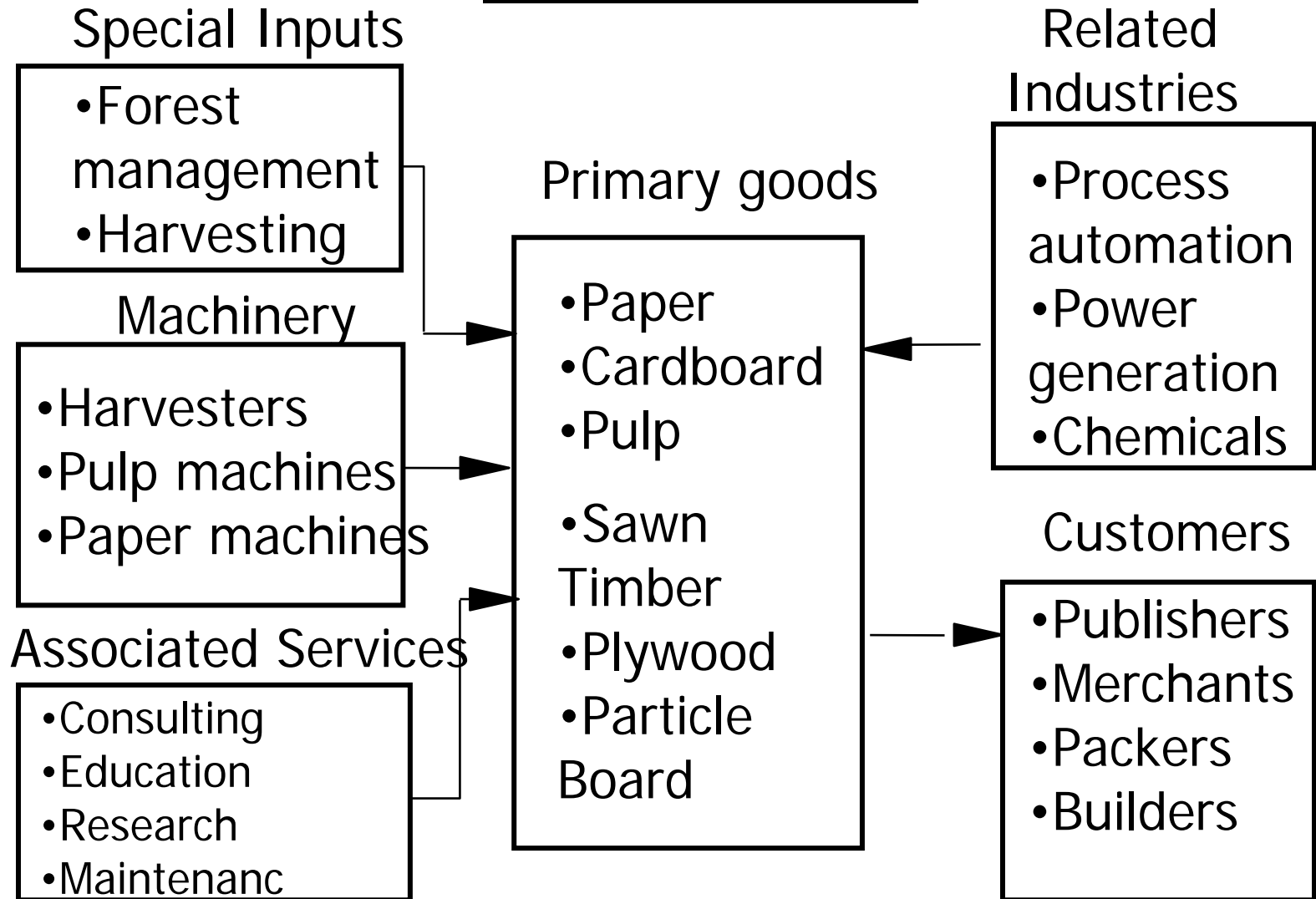
Related



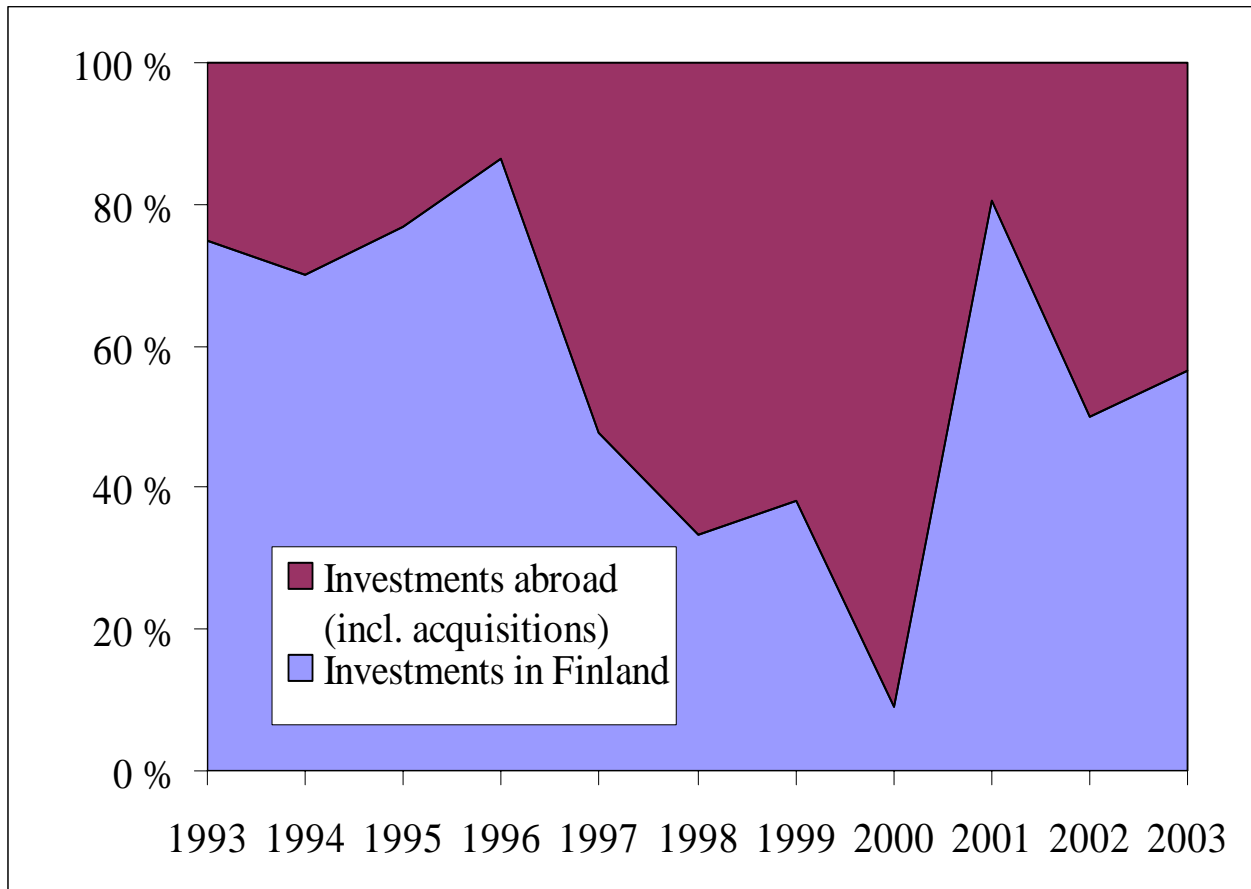
Buyers



Cluster Chart: Structure of the Finnish Forest Cluster



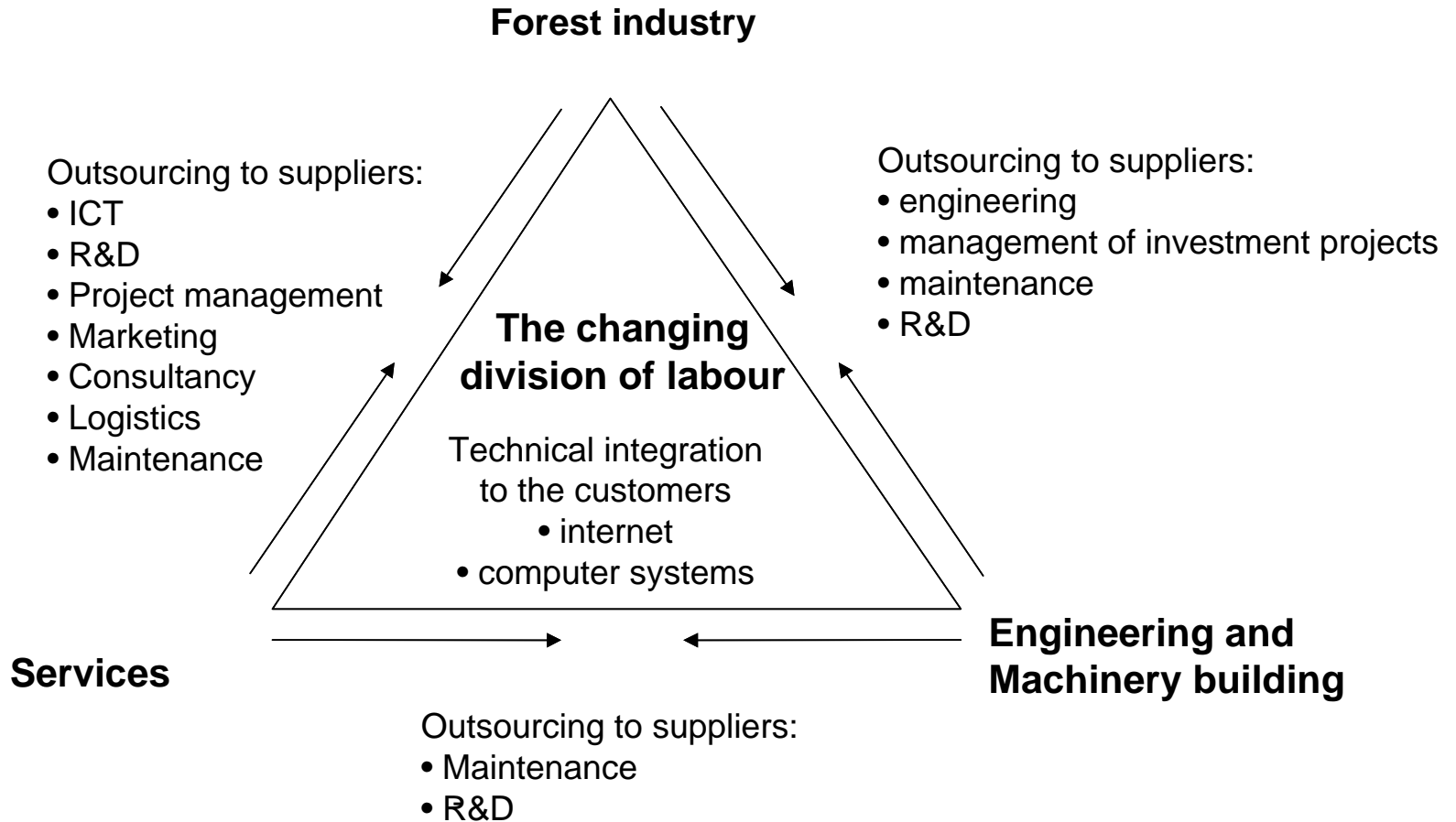
Production is becoming global - Capital Investments of the Finnish Forest Industry Companies



Source: Finnish Forest Industries Federation

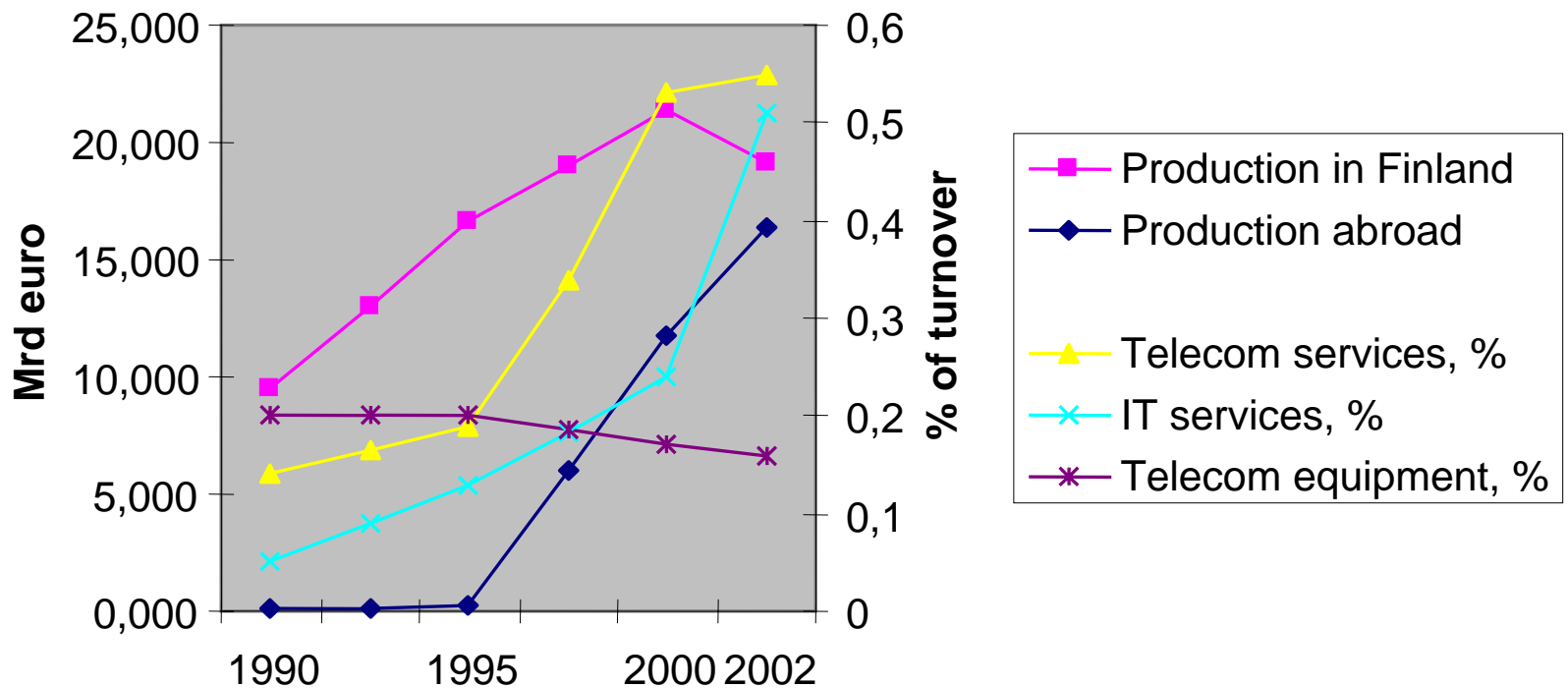
Changing Division of Labor in Forest Industry cluster -
New Role of Knowledge-Intensive Service Activities

KISA-Triangle



Forest industry becomes global and integrates to customers – ICT costs increase

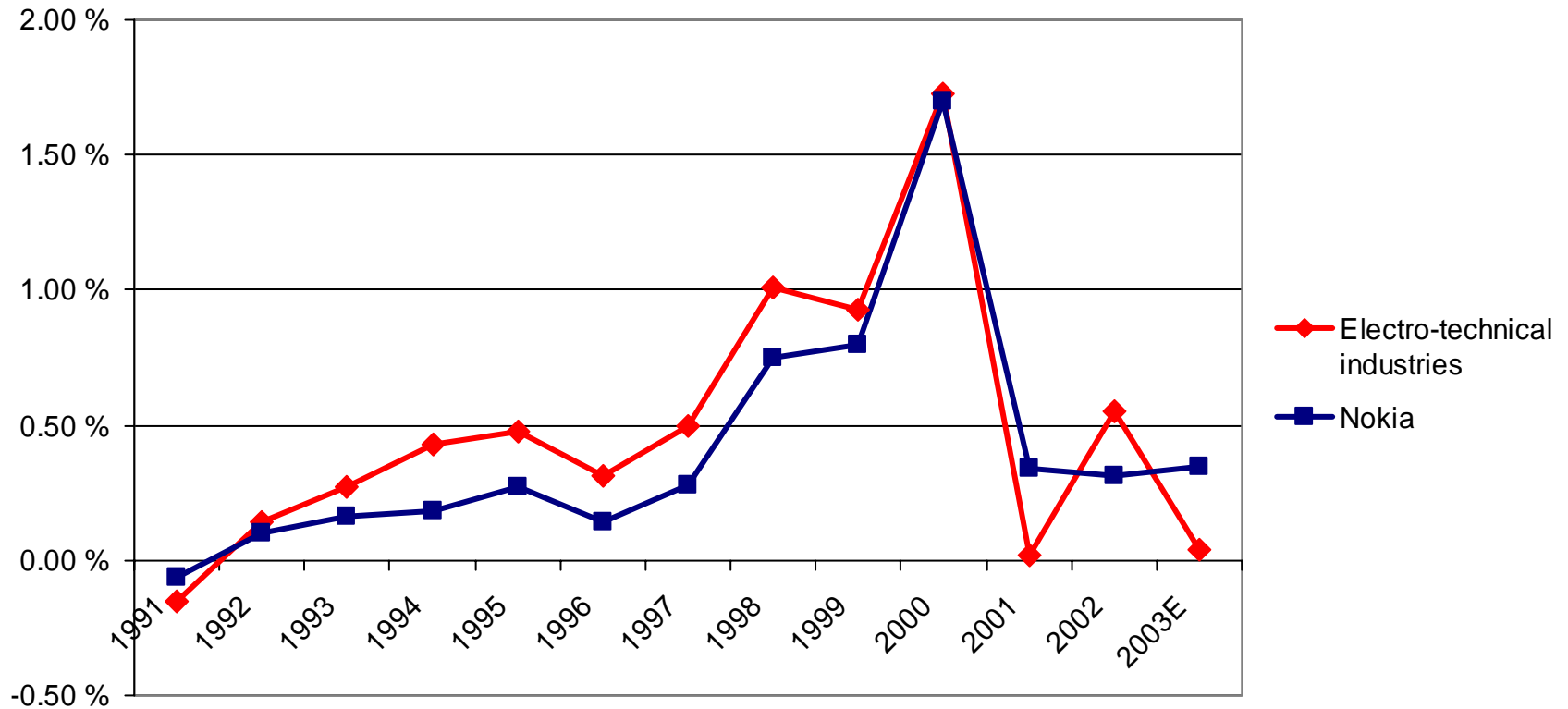
Turnover/production of the Finnish forest industry and cost of IT services and equipment purchases



3. Present challenges and synopsis

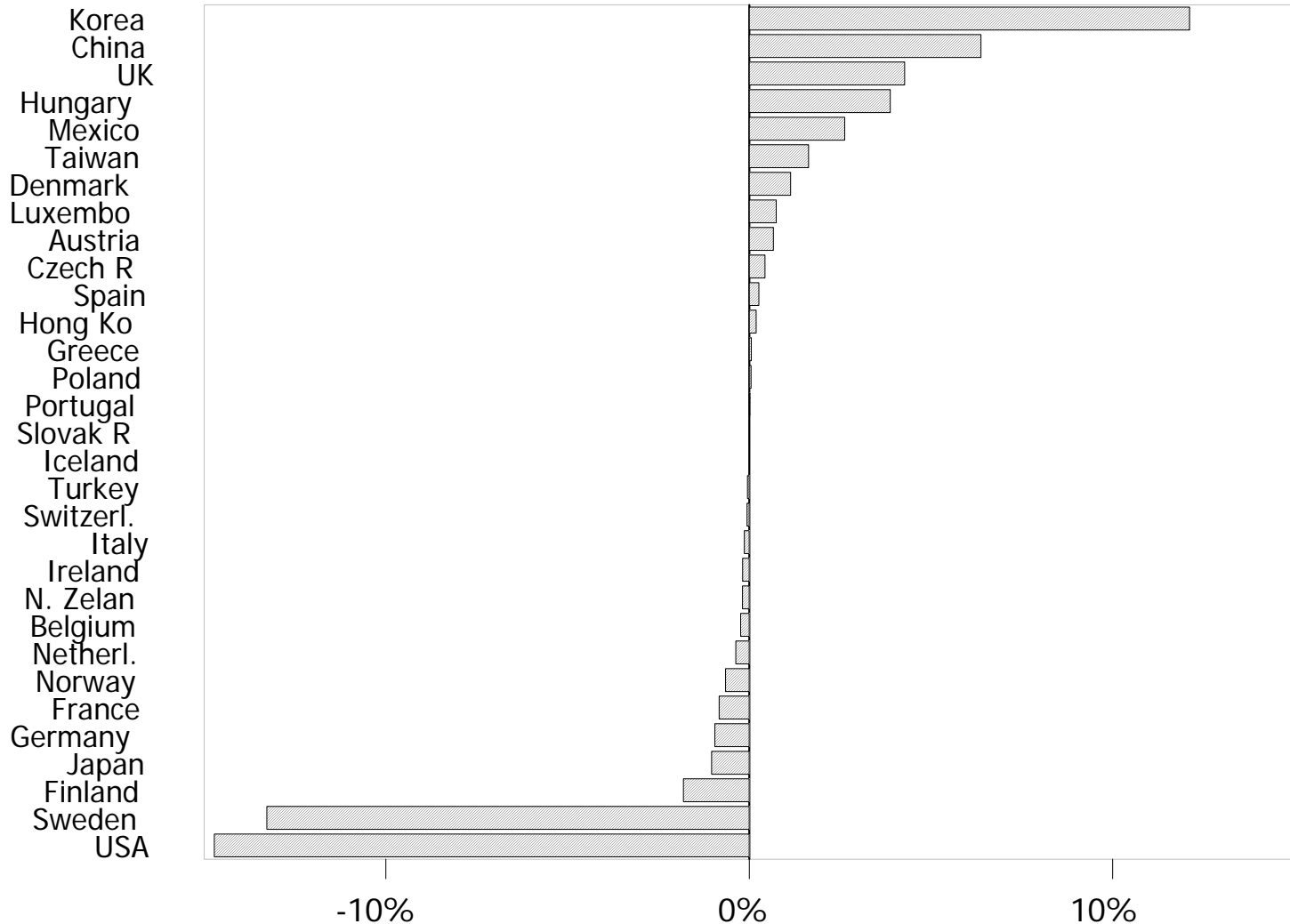
Challenge 1: The growth contribution of ICT is slowing down

Contribution to GDP growth

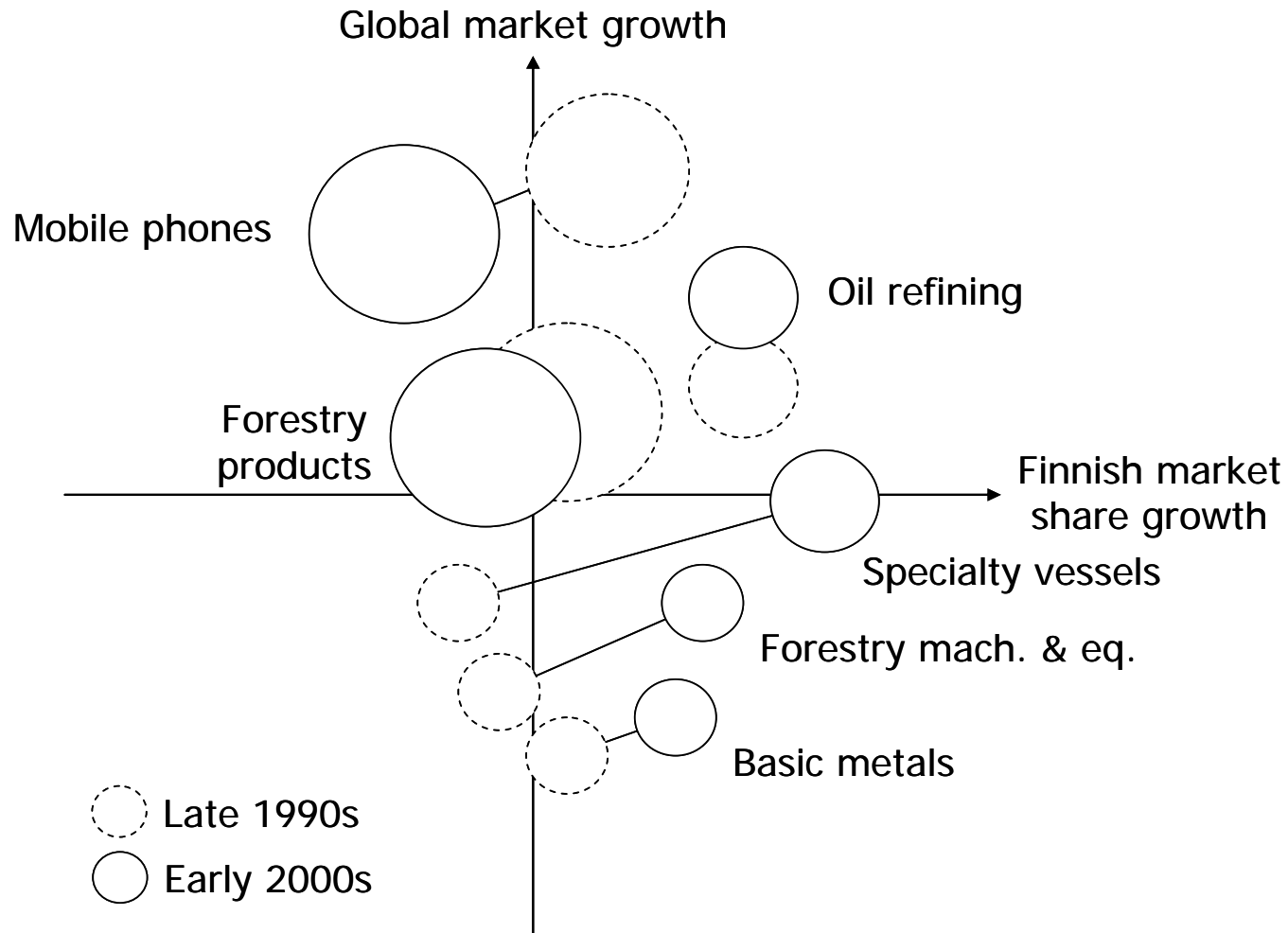


(Source: ETLA's calculations/2003 estimate)

Challenge 2: Manufacturing moves to cost competitive locations. The 1996–2002 changes in the countries' global mobile phone export market shares



Challenge 3: How to restore the competitiveness of the traditional industries? Stylized global market growth and Finnish market shares in some key products



Synopsis

- Competence building takes time
- Creating new competitive industrial clusters in a decade is exceptional (Can we have another Nokia?? Probably not)
- New competitive industries are often linked to competitive traditional industries
 - Cf. ICT and Bio in Finland
 - ICT strong linkages
 - Bio weak industrial traditions, lack of competent industrialists
- Globalization of business
 - Manufacturing of ICT moving to most competitive countries
 - What is left for Finland? – knowledge intensive services linked with traditional industries?
 - Policy reactions: Innovation policies towards services sector, end user applications, and business skills