

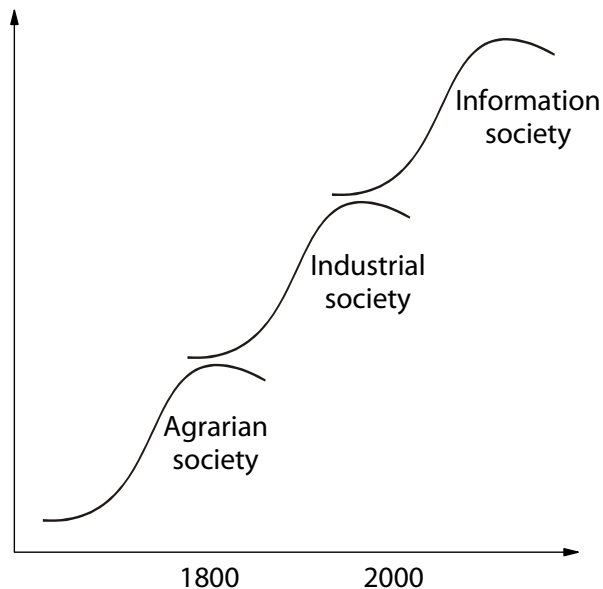
Finnish Experiences in Information Society

Knowledge Economies in EU Accession Countries
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Etlatieto Oy is a subsidiary of ETLA,
The Research Institute of the
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Information society – The next wave?



- Contemporaries see their own time as a major turning point in history – in retrospect these discontinuities are rare.
- The economic & social history is defined by *Darwinian selection / creative destruction*. Thus, change alone does not define a new *paradigm / long wave*.
- A new era emerges once the "rules of the game" are redefined.
- The so-called *information society* is widely believed to be the next paradigm or "long" wave.



Distinquishing factors of the new era

- Information has always been important. Currently, however, it is
 - Generated in a less centralized & less structured manner; more & faster...
 - Less privileged, *i.e.*, more readily & widely available.
 - Less embodied in physical goods, *i.e.*, more often in the form of (digitalized) "pure" information goods & services.
 - ➔ Tacit knowledge (non-coded information) remains as important as ever.
 - ➔ In some cases physical limitations are becoming irrelevant.
 - ➔ Additional emphasis on IPRs, standardization & network issues.
- The origins of the *information society* can be traced back to the microeconomic advances of the 1970s. *Information and communications technology* (ICT) has been the key driver, along with globalization & organizational changes.
 - In a few decades falling ICT prices have made transmission, storage & manipulation of an unit of data hundreds of times cheaper.
 - Convergence of communications, information technology & content enhanced the value of ICT.



Stages of economic development

Factor-Driven Economy

- Finland from mid-1800 to early 1900s.
- Abundant & cheap wood raw material.
- Imported technology.
- Standard products.

Investment-Driven Economy

- Finland from the end of WW II to 1980s.
- Ability & willingness to invest.
- Imported but improved technology.
- Differentiated products.

Innovation-Driven Economy

- Finland since late 1980s.
- Domestic knowledge generation.
- Ingenious innovations, own R&D & technology.
- Products spanning completely new markets.

How was Finland able to make the transition from an investment- to an innovation-driven economy?

Factors behind the Finnish transition

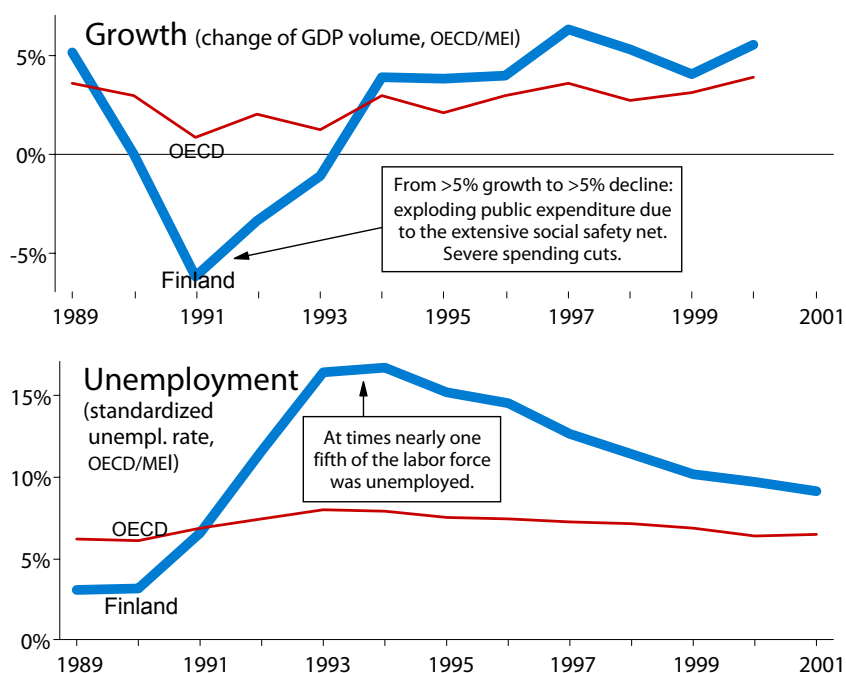
- Internal factors:
 - Raising educational level since the 2nd world war.
 - Raising investment in research & development (R&D) since the early 1980s.
 - Intangible investment.
 - Especially earlier high investments in infrastructure & production facilities.
 - Tangible investment.
 - Economic, social, political & legislative stability & predictability.
 - "Lutheran" work ethics; social cohesion & equality.
 - The "great depression" of the early 1990s created a sense of urgency: old economic structures proved to be unviable – political consensus that the "high road" (knowledge–skills–wages) was the desired alternative.
- External factors:
 - *Globalization*: Worldwide deregulation of key industries (telecom, energy), financial markets & considerable reduction of trade restrictions.
 - *Technology*: Speedy technological development & market growth in ICT in general & in mobile telecommunications in particular.

Actions promoting the transition

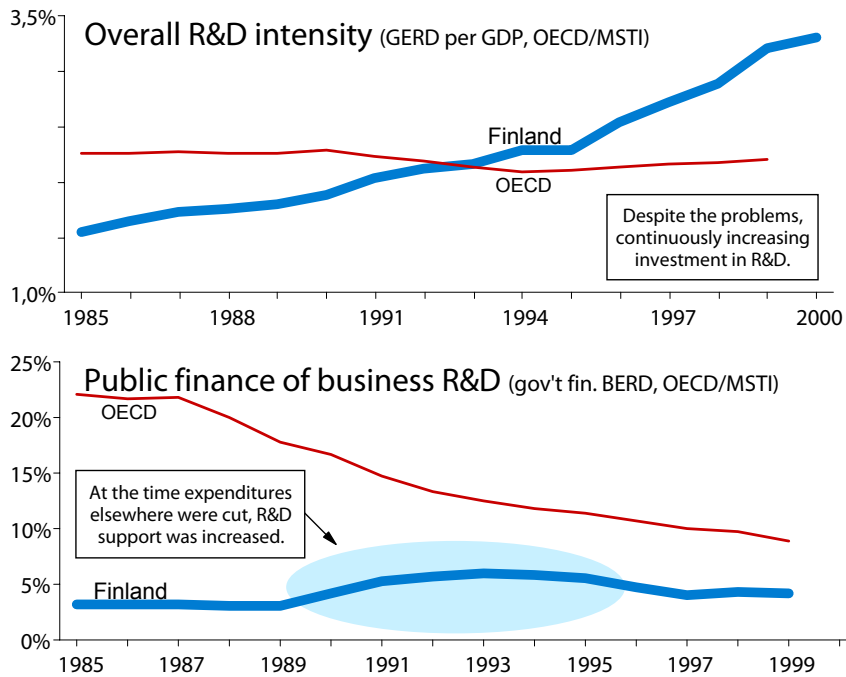
- Long-term & "holistic" approach to policy making:
 - Features of the national innovation system are not changed over night – some features of the Finnish system date back to several decades or even centuries.
 - All policy decisions have consequences on country's economic prospects.
- Refocus of policies on building an attractive operating environment & devising incentive mechanisms – avoiding direct business involvement.
- Rapid & complete opening up of the economy – participation, rather than insulation from, in the world economy (financial reform, foreign ownership, EU, €...).
- Liberalization & deregulation of domestic markets.
- Cluster-based policies, *i.e.*, society-wide understanding & dialog on national competitiveness.



Finnish bust & subsequent boom

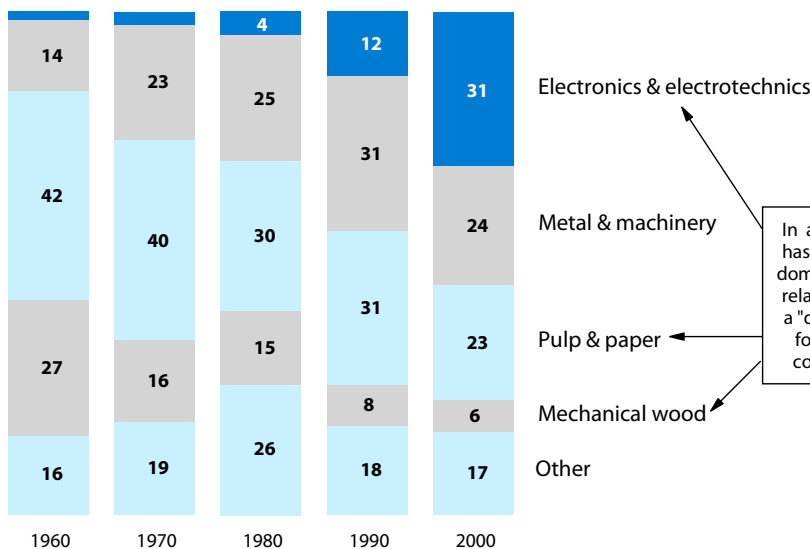


Despite the bust, more money on R&D



Investment bears fruit – Structural shift

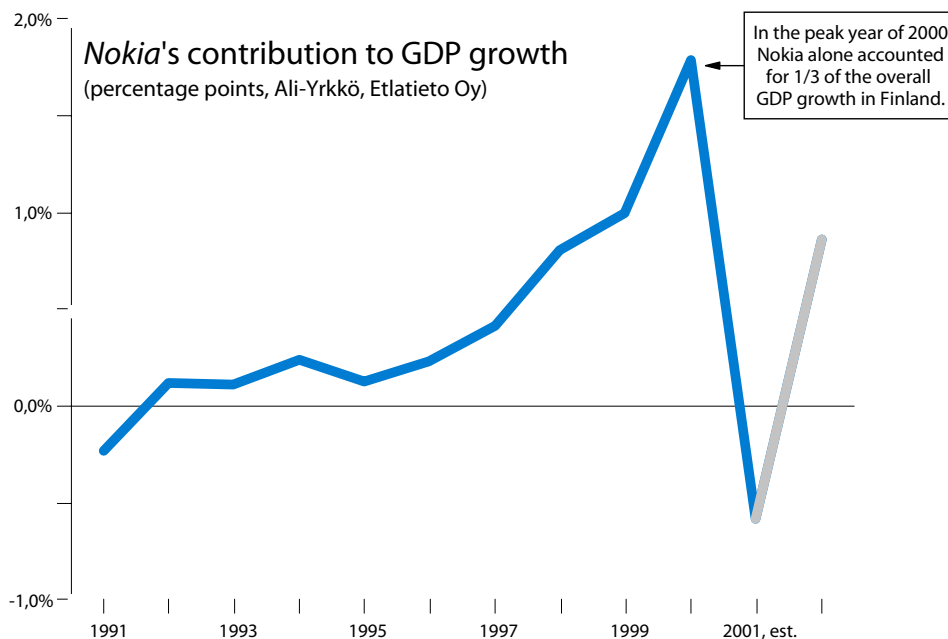
Exports by branch



Source: Calculations by Etna. Statistics by National Board of Customs.



But the shift depends greatly Nokia & on its supplier network



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Relative to its host country, Nokia is an incredibly large company

- *Nokia* alone accounts for
 - 60% of the Helsinki Stock Exchange market valuation.
 - 45% of business sector R&D in Finland.
 - 20% of Finnish exports.
- Nevertheless, *Nokia* accounts for "only"
 - 5% of industrial employment.
 - 3% of GDP.
 - 1% of total employment.
- Over 350 first-tier suppliers in Finland.
- *Nokia's* success embodied in the history of the *whole* sector.
- *Nokia's* role in Finland can hardly be overstated, but there is a wealth of other players in the Finnish ICT & other sectors as well.

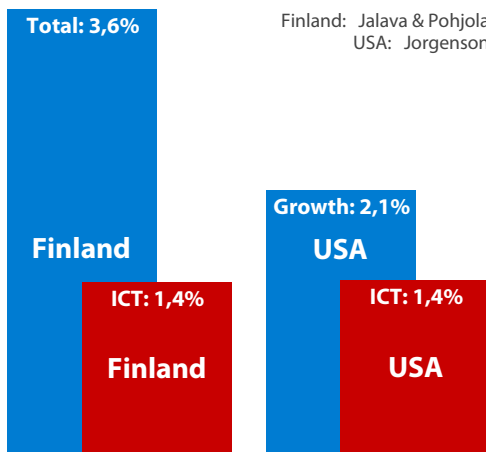
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Finland has succeeded in ICT provision; how about use?

- Analysis shows, that Finland is amongst the leading providers of ICT, but *not* equally advanced user.

Private sector labor productivity

Overall growth & the contribution of ICT, '95–9



- The **share** of the ICT in the overall productivity growth:
 - 2/3 in the US,
 - 1/3 in Finland.

- Of the ICT productivity growth contribution, to the ICT **use** can be attributed
 - 2/3 in the US,
 - 1/3 in Finland.



Conclusions (1/4) – Policy principles

- General principles of "virtuous" policies:
 - *Stability & predictability* in policy making.
 - Promoting *flexible & resilient* structures.
 - Providing *open, transparent & competitive* economic environment.
 - *Social cohesion & equality*.
 - Appropriate *incentive mechanisms* for self-achievement, participation in the society, wealth generation & entrepreneurship.
- Information society considerations:
 - Relatively few countries & companies have been success in ICT production: in the long run it is more important how ICT is *used* economy-wide.
 - Peculiarities of information needs to be accounted for in policy making:
 - Is knowledge creation viable (IPRs)?
 - Is knowledge exploited to the fullest (cooperation, spillovers)?
 - Benefitting from knowledge generated elsewhere (international coop, educ.)?
 - Producer- & user-side network effects (early adaption, standardization)?
 - Technology neutrality (not "out-guessing" the market?)
 - Some sector-based policies obsolete due to convergence?



Conclusions (2/4) – Finnish miracle

- The Finnish miracle is *not* directly related to policies or to the public sector: Finnish-based *firms* are behind the success.
- The public sector has nevertheless had a central role in laying the foundations of the recent success.
- Admittedly Finland has been lucky – it has been riding technology & globalization waves.
- The fact that it was *able* to realize the opportunity had nothing to do with luck – it is a results of decades of hard work.
- The "high road" strategy poses risks too, but
 - As compared to dependence on, *e.g.*, oil, knowledge might be more attractive because it can be readily used elsewhere in case of misfortunes of one sector & company.
 - Building an information society is costly – how does this compare to "race-to-the-bottom", *e.g.*, in taxes? The whole package matters!



Conclusions (3/4) – Imitating Finland?

- Can the Finnish case be replicated? – *No.*
 - A set of rather unique circumstances game together in the recent boom.
 - Finnish growth performance & ability to "leap-frog" are rear exceptions.
 - "Accidental" factors have played a considerable role.
 - As such, national model are difficult or impossible to replicate.
- Can the Finnish case be replicated? – *Yes.*
 - Sound policy making will contribute to a country's ability to realize the opportunity if & when it comes.
 - Upon designing the institutional structures, the catch-up economies can & should learn from others' experiences (benchmarking & "best practice").
- Can the Finnish case be replicated? – *Should one even try?*
 - It is stupid not to learn from others.
 - It is equally stupid *not* to acknowledge that every situation is different.
 - Different policies are needed in different stages of development.



Conclusions (4/4) – Food for thought

- Your *strengths* – what they are & how to capitalize on those?
 - Just imitating will not lead to success.
 - Avoiding "wishful thinking" policies.
 - Path dependence – success breeds success.
 - Policies should be targeted – this is especially true for small countries.
- Your *weaknesses* – can / should they be tackled?
- Reactions to *opportunities* & *threats* are already largely of private businesses domain.
 - Miserable track record of public attempts to capitalize on emerging opportunities.
- Technology & time evolve rapidly – people, institutions & organizations change slowly. Policy making is a long-run game.
- In capitalistic societies *creative destruction* is the way progress takes place – promote, don't fight against, it.



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