Finnish Experiences in Information Society

Knowledge Economies in EU Accession Countries

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Etlatieto Oy is a subsidiary of ETLA,
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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.

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**Distinguishing 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

<table>
<thead>
<tr>
<th>Factor-Driven Economy</th>
<th>Investment-Driven Economy</th>
<th>Innovation-Driven Economy</th>
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</thead>
<tbody>
<tr>
<td>• Finland from mid-1800 to early 1900s.</td>
<td>• Finland from the end of WW II to 1980s.</td>
<td>• Finland since late 1980s.</td>
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<tr>
<td>• Abundant &amp; cheap wood raw material.</td>
<td>• Ability &amp; willingness to invest.</td>
<td>• Domestic knowledge generation.</td>
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<td>• Imported technology.</td>
<td>• Imported but improved technology.</td>
<td>• Ingenious innovations, own R&amp;D &amp; technology.</td>
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<td>• Standard products.</td>
<td>• Differentiated products.</td>
<td>• Products spanning completely new markets.</td>
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How was Finland was 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.

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**Finnish bust & subsequent boom**

- **Growth** (change of GDP volume, OECD/MEI)
  - From >5% growth to >5% decline: exploding public expenditure due to the extensive social safety net. Severe spending cuts.

- **Unemployment** (standardized unempl. rate, OECD/MEI)
  - At times nearly one fifth of the labor force was unemployed.
**Despite the bust, more money on R&D**

- **Overall R&D intensity (GERD per GDP, OECD/MSTI)**
  - Finland
  - OECD

- **Public finance of business R&D (gov't fin. BERD, OECD/MSTI)**
  - Finland
  - OECD

尽管有问题，但研发投入持续增加。

当时其他地方的开支被削减时，研发投入却增加了。

**Investment bears fruit – Structural shift**

- **Exports by branch**
  - 1960
  - 1970
  - 1980
  - 1990
  - 2000

- **Electronics & electrotechnics**
  - 14
  - 42
  - 27
  - 16

- **Metal & machinery**
  - 23
  - 40
  - 16
  - 19

- **Pulp & paper**
  - 4
  - 30
  - 26
  - 26

- **Mechanical wood**
  - 12
  - 31
  - 15
  - 18

- **Other**
  - 31
  - 24
  - 8
  - 6

来源：Etlia. 统计数据由海关提供。

在十年中，芬兰从以森林相关行业为主导转变为“双策略”，即同时发展森林和电信通信行业。
But the shift depends greatly Nokia & on its supplier network

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.**
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 result 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 came together in the recent boom.
  - Finnish growth performance & ability to "leap-frog" are rare exceptions.
  - "Accidental" factors have played a considerable role.
  - As such, national models 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.

Selected publications:


