Finland as a Knowledge Economy
- Elements of Success and Lessons Learned

PRAXIS 25/08 2006

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The Knowledge Economy Index (KEI) in selected countries and regions

See [www.worldbank.org/kam](http://www.worldbank.org/kam) for more information
Structure of presentation

1. The Finnish path towards a Knowledge Economy (KE)?
2. How did Finland become a KE?
   • Role of industrial policies?
   • Successfulness, replicability?
3. Future challenges?
1. The Finnish path towards a KE?
Industrial transformation in Finland

Source: Statistics Finland
Seriousness of recession – Rapidness of recovery

Sources: OECD, Statistics Finland; ETLA.
**Heavy emphasis on education and R&D**

<table>
<thead>
<tr>
<th>Country</th>
<th>Science &amp; engineering grads, % of all ('98)</th>
<th>R&amp;D personnel per 1,000 employment ('03)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Korea</td>
<td>39</td>
<td>24</td>
</tr>
<tr>
<td>Germany</td>
<td>35</td>
<td>14</td>
</tr>
<tr>
<td>Finland</td>
<td>32</td>
<td>14</td>
</tr>
<tr>
<td>France</td>
<td>29</td>
<td>14</td>
</tr>
<tr>
<td>Switzerl.</td>
<td>28</td>
<td>13</td>
</tr>
<tr>
<td>Germany</td>
<td>27</td>
<td>13</td>
</tr>
<tr>
<td>Japan</td>
<td>26</td>
<td>8</td>
</tr>
<tr>
<td>USA</td>
<td>16</td>
<td>8</td>
</tr>
</tbody>
</table>

Source: OECD
2. How did Finland become a KE?
Shift in broader economic policy regime

**1950s - mid 1980s**
- Investment-driven industrialization
  - Standardized products
  - Capital-investments
- Taxation
  - Supporting firm growth rather than profitability
- Public governance
  - Transparency
  - Concensus-building
- Strong commitment to education
  - Equality
- Industrial policies – short-term macro stability
  - Regulated markets
  - Active exchange rate policy
  - State-owned firms
  - Infant-industry support

**Late 1980s - ?**
- Innovation-driven industrialization
  - Diversified and new products
  - R&D-investments
- Taxation
  - Neutralization through tax reform
- Public governance
  - Transparency
  - Concensus-building
  - New institutions
- Strong commitment to education
  - Equality
  - Rapid increase in ICT enrollment
  - Emphasis on vocational training, adult training etc.
- Industrial policies – longer-term conditions providing
  - Liberalization
  - Fusion of S&T and industrial policy
  - Partial privatization
  - Emphasis on R&D and innovation
Milestones in the reorientation of IP

- **1987**: founding of S&T Policy Council in 1987
- **1988**: first reference to 'NIS' in policy analysis
- **1990**: S&T Policy Council review takes NIS as cornerstone for policy - focus on R&D
- **1991**: reference to Porterian concept of 'clusters', large research project involving ETLA in background
- **1993**: MTI white paper 'National Industry Strategy for Finland'
- **1996**: S&T Policy Council review highlights importance of 'KE'
  - Increase in R&D expenditures in 1996 with aim to raise R&D/GDP to 2,9%
  - Cluster program, regionalisation of IP
- **2001**: MTI white paper 'Business Environment Policy in the New Economy'
- **2003**: S&T Policy Council raises concern over utilization of university research and globalization
  - Working group in 2005 for reforming the research system
- **2004**: 'Finland in the Global Economy' -strategies 2004-2006
Despite deep recession, more emphasis on R&D… …but still low public share
Successfulness, replicability?

- Policies mattered although in an indirect and responsive way. There was no master plan or magic recipe!!
  - Roots of industrial success date back to 1950s and 1960s – policies emerge in mid 1980s
  - Basic policy design copied from Sweden, OECD etc.
  - Increase in R&D etc. mainly due to private sector developments (Nokia is another story!)
• But there has been successful elements:
  – State-owned firms as industrialization strategy in 1950s and 1960s (national champions?)
  – Education always a high priority, flexibility and high absorptive capacity (density of networks)
  – Evidence of complementarities:
    • R&D and education
    • R&D in private and public sectors
  – Many relatively small-scale technology programs
    • Competitive funding in selected technology fields
    • Collaborative and application-oriented
  – Institutional preconditions:
    • S&T Policy Council, Sitra ⇒ concensus-building
    • Decentralized decision-making: Tekes, Academy of Finland
    • Deregulation, transparency, concensus-building public governance
  – Policies are implemented, not only formulated
3. Future challenges?
Globalisation...!
Some future challenges

- Finnish R&D-oriented strategy subject to increasing competition due to globalisation
  - Relocation of production...and R&D?
  - How should the R&D budget of 1,68 billion € be allocated?
    - Technology fields, types of activity...etc.
    - Ear-marked vs. tax reliefs
  - Sustainability of the welfare state - ageing of the population?
- Imbalances in FDI, sluggish entrepreneurship
- Productivity and renewal of traditional industries?
- What happens in the ICT sector – what happens to Nokia?
- Can we expect a ‘new Nokia‘ in another field? What about biotech, nanotech, bio-nano-ICT?
## Nokia in the Finnish economy

### Nokia’s estimated 2005 share in

<table>
<thead>
<tr>
<th>Category</th>
<th>Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>GDP</td>
<td>3%</td>
</tr>
<tr>
<td>% point contribution to GDP growth</td>
<td>0.5%</td>
</tr>
<tr>
<td>R&amp;D (GERD)</td>
<td>33%</td>
</tr>
<tr>
<td>Exports</td>
<td>20%</td>
</tr>
<tr>
<td>Employment, total</td>
<td>1%</td>
</tr>
<tr>
<td>Employment, manufacturing</td>
<td>5%</td>
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<tr>
<td>Market value at HEX</td>
<td>~40%</td>
</tr>
</tbody>
</table>

Source: Etla estimates
Thank you!

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