The role of innovation policies in regional development – the Finnish case

Innovations generate regional vitality
Knowledge, specialisation and networking determine success in international competition

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Preconditions for the success of regions in Finland

- Success of a region depends on the success of its companies in global markets.

- Companies’ success on global markets requires internationally competitive technology and know-how.

- Developing internationally competitive technology and know-how requires focusing and centralisation.

- Effective networking and co-operation is essential for two reasons:
  - Technology in-sourcing: access to multiple technologies from several sources is usually necessary.
  - Individual companies can also prosper outside the centres if they can access the knowledge and know-how they need through networking.
Competitiveness clearly correlates earnings growth, growth in employment, net migration and economic development.

A large part of the competitiveness is explained by human capital, innovation and R&D investment.

Index of competitiveness
Whole country = 100

- 100 - 134 (10)
- 90 - 100 (13)
- 80 - 90 (23)
- 70 - 80 (20)
- 59 - 70 (19)

Research and development costs and added value three years later by region

Average R&D costs per capita in 1995-1998, euros *

* Eastern Uusimaa 1997-1998

Added value per capita in 2000, euros

Source: Statistics Finland
Top areas of research in Europe

10 top areas represent a quarter of total R&D investment in EU

R&D investment in relation to GDP

- Braunschweig
- Stuttgart
- Oberbayern
- Tübingen
- Oulu Region
- Helsinki Region
- Mid-Pyrénées
- Rheinhessen-Pfalz
- Ile de France
- Berlin

Source: European Commission, 2002
Network of universities, polytechnics, public research organisations and science parks in Finland

- University
- University unit
- Polytechnic
- Polytechnic unit
- VTT, Technical Research Centre of Finland or other public research institute
- Unit of public research institute
- Science Park
Almost all projects funded by Tekes in large companies and more than 80 per cent of all R&D projects were networked. The figures include corporate R&D projects, but not smaller feasibility studies.
Networking by region in corporate R&D projects funded by Tekes

Average of networked projects in 2000-2003, %

- **Companies’ subcontracting from universities, polytechnics**
- **Large companies’ subcontracting from SMEs and research institutes**

<table>
<thead>
<tr>
<th>Region</th>
<th>Average Networked Projects (%)</th>
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<tbody>
<tr>
<td>EU subsidised regions</td>
<td>60</td>
</tr>
<tr>
<td>Other regions (growth centres)</td>
<td>60</td>
</tr>
<tr>
<td>Uusimaa</td>
<td>50</td>
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</tbody>
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Regional networking with partners from Oulu in electronics and telecommunications programmes

Includes partners who participated in at least three projects in Tekes Electronics and Telecommunications technology programmes.

Lappeenranta University of Technology (Lappeenranta)
Salcomp Oy (Kemijärvi)
CCC (Oulu)
Sonera (Helsinki)
Efore Oy (Helsinki)
National Semiconductor Finland Oy, former Fincitec Oy (Kemi)
Cybelius Software Oy (Oulu)
University of Oulu (Oulu)
Sonera (Helsinki)
Projekti-Insinöörit Oy (Helsinki)
NetHawk Oy (Oulu)
ABB (Helsinki)
Efore Oy (Helsinki)
JOT Automation Oy (Oulu)
Nokia Mobile Phones (Oulu)
VTT, Technical Research Centre of Finland (Helsinki)
Nokia Networks (Oulu)
VTT, Technical Research Centre of Finland (Oulu)
Nokia Mobile Phones (Salo)
Elektrobit Oy (Oulu)
Nokia Research Center (Helsinki)
Extrabit Oy (Oulu)
Polar Electro Oy (Oulu)
Nokia Research Center (Helsinki)
Vaisala Oyj (Helsinki)
Aspocomp Oy (Helsinki)
Elcoteq Network Oyj (Lohja)
Suunto Oy (Helsinki)
Ultraprint Oy (Oulu)
Picopak (Lohja)
Planar Systems Oy (Helsinki)
Elektrobit Oy (Oulu)
Teleste (Turku)
VTT, Technical Research Centre of Finland (Oulu)
ABC Telecommunications Oy (Oulu)
Tampere University of Technology (Tampere)
Helsinki University of Technology (Espoo)
Nokia Networks (Oulu)
Filtronic LK Oy (Oulu)
VTT, Technical Research Centre of Finland (Helsinki)
NetHawk Oy (Oulu)
Elektrobit Oy (Oulu)
Nokia Research Center (Helsinki)
Extrabit Oy (Oulu)
Elektrobit Oy (Oulu)
Nokia Mobile Phones (Salo)
Tekes’ corporate customers by region

Number of customers in 2000-2003

Helsinki Region

Other growth centres

Other regions

New corporate customers
Impact of Tekes activities

Boosting exports, broadening industrial and economic base, generating new jobs and improving well-being.

- Competitiveness, profitability and growth
- New businesses, start-ups
- Societal and environmental impacts

Projects and programmes

International cooperation

Enterprises

Research institutes and universities

Tekes
- provides expert services and R&D funding
- coordinates programmes

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Total Tekes R&D funding in 2003

Total 392 million euros and 2,196 projects

- Industrial R&D grants to companies: 156 million euros
- Research funding for universities and research institutes: 162 million euros
- Capital loans for R&D to companies: 34 million euros
- Industrial R&D loans to companies: 40 million euros
Tekes R&D funding per technology application areas in 2003

- Biotechnology
- Material technology
- Information and communications technology
- Applications of well-being
- Applications of sustainable development
- Knowledge intensive business services
- Business know-how of the networked economy
- Intelligent products, processes and systems

Each project may be targeted to several areas.
Technology programmes in brief

- 24 ongoing programmes in the beginning of 2004 with a total cost of 1.3 billion euros
- Each programme typically lasts 3-5 years
- 2,000 company participations annually
- 800 research unit participations annually
- Tekes usually finances
  - 60-80% of university projects
  - 25-50% of company projects

Effective utilisation of research results is ensured by scheduling the projects of research institutes and universities concurrently with company R&D projects, and by networking with them.
Innovation environment in Finland
Resources and funding

Private
- Private Business Angels: 387
- R&D at companies: 3,375
- Business development
- Marketing
- Internationalisation

Public
- Tekes: 386
- Academy of Finland: 177
- Universities: 926 (402)
- Ministries, TE-Centres, sectorial research: 311 (227)
- VTT: 219 (68)
- From abroad: 152
- Finnvera: 352 (34)
- Venture capitalists: Private 349
- Industry Investment Ltd 63 (42, additional state investment)
- Sitra 48
- Sitra 35 (20)
- Trevia 48

From abroad
- Venturers: 152
- From abroad 152

Public: Ministry, TE-Centres, sectorial research
- 311 (227)

Business development
- Marketing
- Internationalisation

The figures represent the total extent of each organisation in million euros in 2002. In parenthesis the share that is funded from the State budget. The funds of Tekes, the Academy of Finland and Innofin are funded entirely from the State budget.
Preconditions for the success of regions in Finland

- Success of a region depends on the success of companies on global markets
- A core is needed to ensure availability of skilled people and to create and disseminate knowledge: UNIVERSITY, RESEARCH INSTITUTE, POLYTECHNIC
- Effective interchange of information and knowledge between research units and companies: CO-OPERATION
- Low threshold and bureaucracy for start-ups: ENTREPRENEURSHIP and supportive, innovative environment: TECHNOLOGY PARKS AND CENTRES, INCUBATORS
- Pre-seed, seed, R&D and venture capital financing: FLEXIBILITY AND CO-OPERATION IN FINANCING
- Partners on regional, national and international level: NETWORKING, EXPERT SERVICES TO FIND PARTNERS
- Tools and incentives for risk taking and networking
  - TECHNOLOGY PROGRAMMES for technology development
  - TECHNOLOGY CLINICS for technology transfer
  - PRE-SEED INSTRUMENTS for searching ideas and preparing business plans
  - PARALLEL R&D- AND VC-FUNDING for growth and internationalisation of companies