A major innovation policy programme of the recent past - a case in point

The Finnish Strategic Centres for Science, Technology and Innovation (SHOK) (2006-2016)

Informed by cluster and innovation system frameworks

- Non-profit limited-companies with research programmes
- Concentrated funding scheme
- Dialogue between companies and research institutions
- Established and run by leading firms, universities and other stakeholders

Expectations

- Industry will become more committed into 5-10 year R&D -programs
- Increased co-operation between major partners
- New more efficient way of funding R&D
- Renewal of existing strongholds of the Finnish economy

Strategic Centres for Science, Technology and Innovation (2006 - 16)

A cluster-flavored innovation policy programme

- The Forest Sector's Strategic Centre (Forestcluster Ltd)
- Finnish Metal and Engineering Competence Cluster (FIMECC Ltd)
- ICT cluster (Tivit Ltd)

Bottom up clusters

- Cluster for Energy and Environment (CLEEN Ltd)
- Strategic Centre for Health and Wellbeing (SalWe Ltd)
- Built Environment Innovations (RYM Ltd)

Top down clusters

Criticism towards SHOK -programme

- backward looking, based on the 90’s
- university and government dominated
- focus too much on process innovation
- not delivering new and revolutionary changes
- play a conserving role in the economic structure

Steps towards ERIS and mission-oriented innovation policy in Finland

Photo by Jamie Haughton on Unsplash

@Sotarauta.bsky.social
www.sotarauta.info

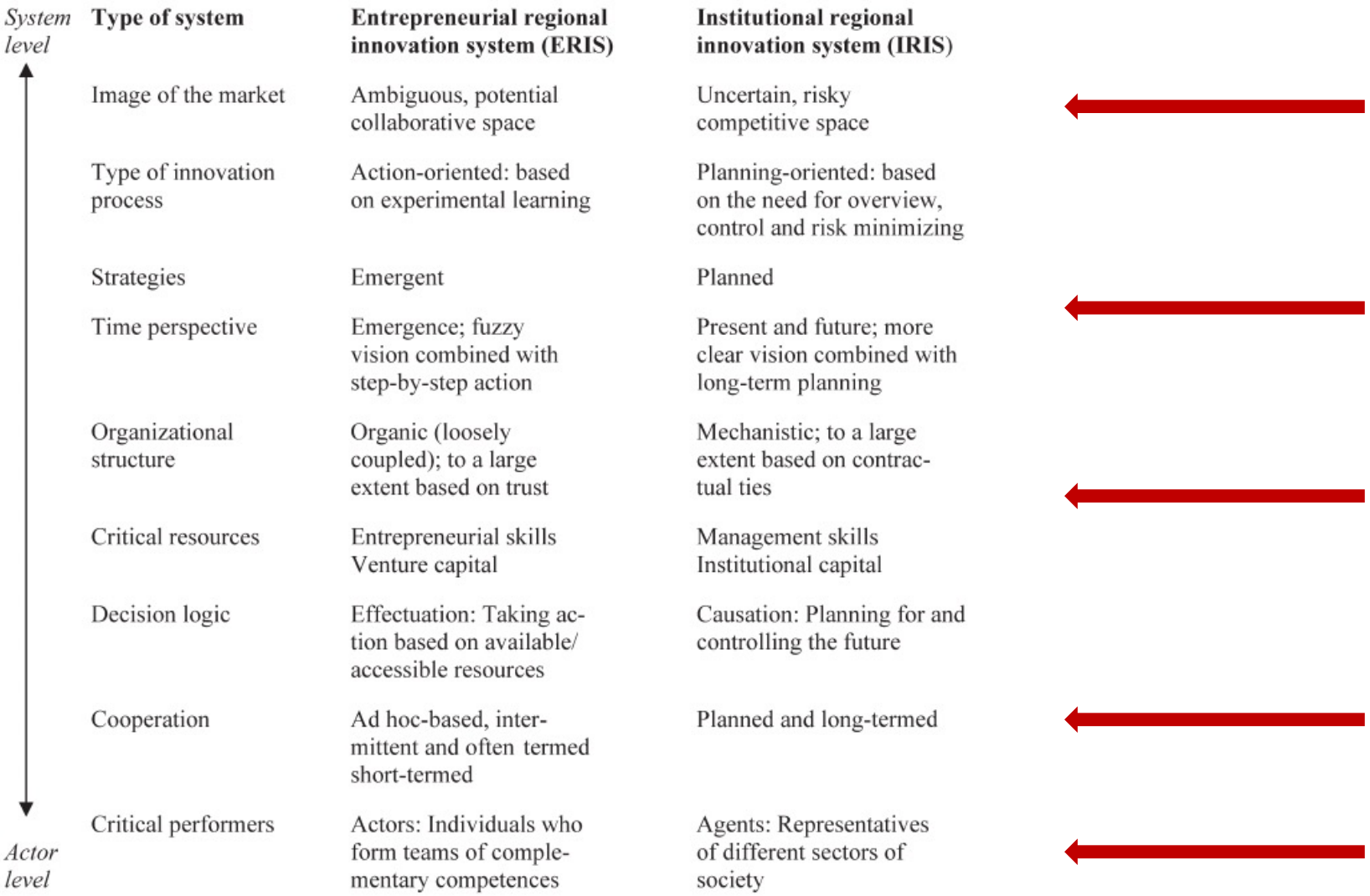


Figure 2. Contrasting entrepreneurial and institutional regional innovation systems

(Cooke & leyesdorf, 2006; Ylinenpää, 2009)

The World Economic Forum's Global Competitiveness Report highlights Finland, Denmark and Sweden, and declares these three countries as being 'among the best-prepared […] for an economic transformation'

This assessment is based on the institutional, social and political capacity, not entrepreneurial capacity

Denmark has selected four national missions focusing on the green transition

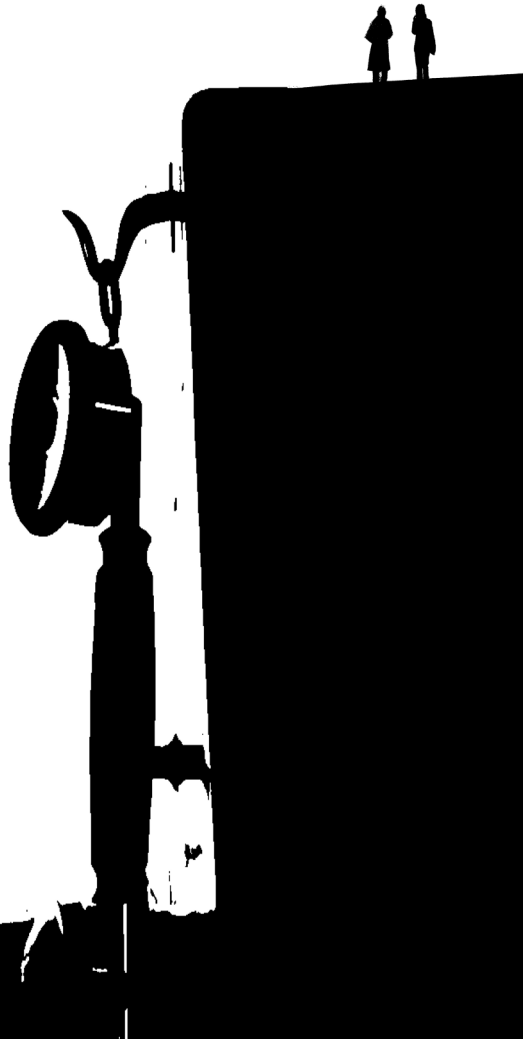
- Carbon capture and storage or utilisation
- Green fuels for transportation and industry (power-to-X, etc.)
- Climate- and environment-friendly agriculture and food production
- Recycling and reduction of plastic waste (later expanded to ‘plastic and textiles’)

Sweden and **Finland** have no nationally declared missions

- But - they do not lack transformative processes in their respective innovation systems
- Sweden and Finland have long traditions of (transformative) innovation policy
- In Finland, transformation is party led by the private sector

No lack of strategies and programmes, for example

- A roadmap for implementing Agenda 2030 (Valtioneuvosto 2022)
- National Roadmap for Research, Development and Innovation (Valtioneuvosto, 2020; Kansallinen tutkimuksen…, 2021)
- R&D funding law 2023 and the multi-annual plan for the use of research and development funding (Valtioneuvosto, 2023)
- Circular economy programme (Ministry of Employment and the Economy, 2021)
- Keys to Sustainable Growth (2018–2023) – Research Council of Finland
- Digital Waters Flagship (DWA) – Research Council of Finland
- Carbon-Neutral Future and Circular Transition for Zero Waste – Business Finland
- . . .



Two programmes as higlights

- Strategic research programmes (Research Council of Finland)
- Growth Engines of Business Finland

Strategic research – research-based knowledge for society (The Strategic Research Council (SRC))

https://www.aka.fi/en/strategic-research/

Examples

- Keys to Sustainable Growth
- Demographic Changes – Causes, Consequences and Solutions
- Environmental and Social Links to Biodiversity Loss
- Pandemics as a Challenge for Society
- The Changing Role of Public Authority and the Potential for Steering Society

2025 calls

- Labour Supply and Migration in Future Finland (SKILLS)
- Economy and Welfare in an Era of Strategic Competition (WELEC)

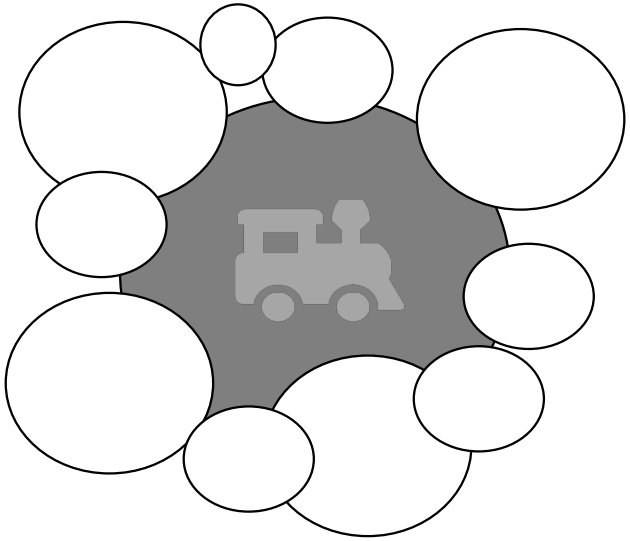
A highlight from the previous period - Keys to Sustainable Growth (2018–2023)

- The programme's objective was to generate strategies for how society, communities and individuals can employ innovative and sustainable methods to effectively utilise, cultivate and consolidate their resources and assets.
- It included six projects, all with extra-academic beneficiaries:
  - Educational Transformations for Facilitating Sustainable Personal, Social and Institutional Renewal in the Digital Age (Growing Mind) (the University of Helsinki and the University of Turku)
  - All Youth Want to Rule their World (ALL-YOUTH) (Tampere University, the University of Helsinki and the University of Eastern Finland)
  - Sustainable Drug Discovery and Development with End-of-Life Yield (SUDDEN) (the University of Helsinki, the Finnish Environment Institute, the Demos Research Institute Oy, Aalto University, the University of Eastern Finland and LUT University)
  - Circular Economy Catalysts: From Innovation to Business Ecosystems (CICAT2025) (Tampere University, Turku University of Applied Sciences, the University of Eastern Finland, the University of Jyväskylä, Tampere University of Applied Sciences and the University of Turku)
  - New Packaging Solutions for People, Planet and Business (Package-Heroes) (VTT Technical Research Centre of Finland, Ltd; the Finnish Environment Institute; LUT University; the Natural Resources Institute Finland; and the Åbo Akademi University)
  - Healthy Lifestyles to Boost Sustainable Growth (STYLE) (the University of Jyväskylä; the Finnish Environment Institute; the University of Turku; the VTT Technical Research Centre of Finland, Ltd; and the UKK Institute)

In 2024, there were 15 ongoing programmes, comprising 64 projects

The Growth Engine programme (ongoing)

(Business Finland)



Leading companies

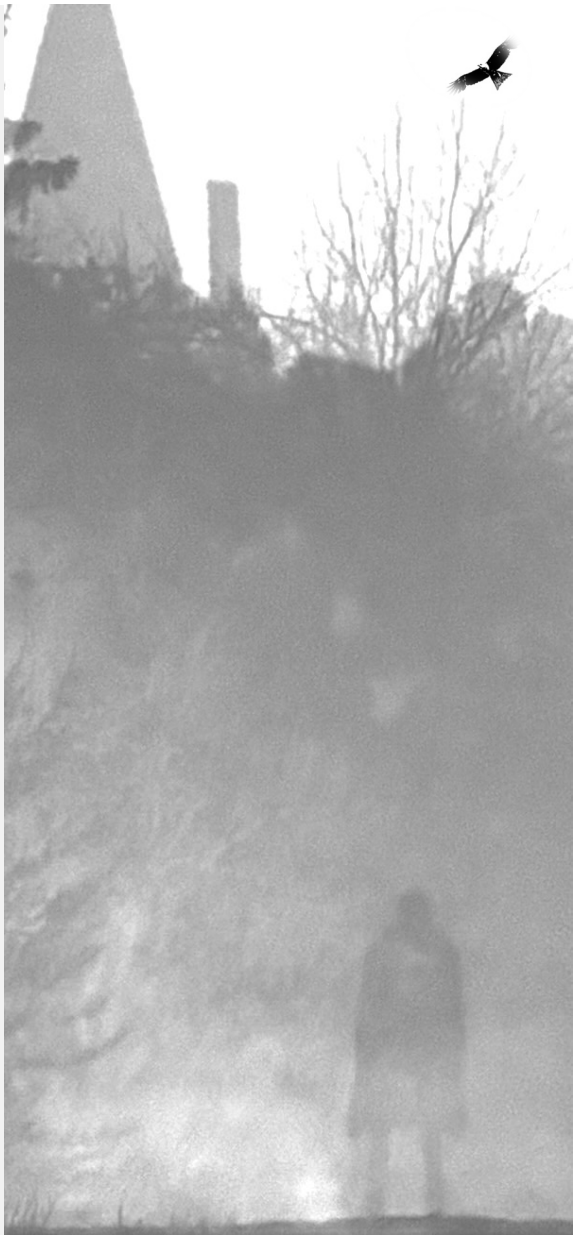
- **NESTE:** Sustainable and globally scalable solutions for the R&D of raw materials that reduce the use of crude oil.
  https://www.businessfinland.fi/4a9cd1/globalassets/finnish-customers/01-funding/06-ecosystems/neste_veturi_tiekartta.pdf
- **ABB:** Platforms for the optimal generation and consumption of electricity in a carbon-neutral society.
  https://www.businessfinland.fi/492bb4/globalassets/finnish-customers/01-funding/06-ecosystems/abb-green-electrification-2035-veturi-roadmap.pdf
- **FORTUM & METSÄ GROUP:** New fibre-based products for consumer markets to reduce the carbon footprint.
  https://www.businessfinland.fi/49a764/globalassets/finnish-customers/01-funding/06-ecosystems/expandfibre_ecosystem-roadmap_may-2023.pdf
- **KONE:** Mobility solutions for urban environments in line with the principles of sustainable development.
  https://www.businessfinland.fi/49073c/globalassets/finnish-customers/01-funding/06-ecosystems/kone-the-flow-of-urban-life-veturi-roadmap.pdf
- **NOKIA 5G:** Making Finland a pioneer in 5G networks and industrial 5G (ended).
  https://www.businessfinland.fi/suomalaisille-asiakkaille/palvelut/rahoitus/veturiyritysten-ja-ekosysteemien-rahoitus
- **SANDVIK:** Globally competitive electric and digital solutions for heavy machinery.
  https://www.businessfinland.fi/492bb4/globalassets/finnish-customers/01-funding/06-ecosystems/sandvik-veturi-roadmap.pdf
- **TIETOEVRY:** Trust-based digital services.
  https://www.businessfinland.fi/494766/globalassets/finnish-customers/01-funding/06-ecosystems/20220221_tietoevry_veturi_public_roadmap.pdf
- **KONECRANES:** Zero4 material flow.
  https://www.businessfinland.fi/499c0b/globalassets/finnish-customers/01-funding/06-ecosystems/konecranes-zero4.pdf

Challenger companies

- **BITTIUM:** Seamless and secure connectivity.
  https://www.businessfinland.fi/4904f7/globalassets/finnish-customers/01-funding/06-ecosystems/bittium_seamless-and-secure-connectivity-2024.pdf
- **PONSSE & EPEC:** Unlocking sustainability in off-road and commercial vehicles.
  https://www.businessfinland.fi/49bbc4/globalassets/finnish-customers/01-funding/06-ecosystems/ponsse_epec_forward27_roadmap.pdf
- **DANFOSS:** Fossil-free future.
  https://www.businessfinland.fi/49c1e1/globalassets/finnish-customers/01-funding/06-ecosystems/danfoss_fossil-free-future_roadmap_2023.pdf
- **MIRKA:** Shaping the green transition.
  https://www.businessfinland.fi/494803/globalassets/finnish-customers/01-funding/06-ecosystems/mirka_shape-02-2024.pdf
- **KEMPOWER:** Heavy electric traffic ecosystem.
  https://kempower.com/news/heavy-electric-traffic-ecosystem-program-boosted-by-10-million-euros/
- **VALIO:** Food 2.0
  https://www.businessfinland.fi/491a86/globalassets/finnish-customers/01-funding/06-ecosystems/food-2.0-roadmap.pdf

Connected to EU RRF

- **BOREALIS POLYMERS:** Sustainable plastic industry.
  https://www.businessfinland.fi/49542b/globalassets/finnish-customers/01-funding/06-ecosystems/borealis-spirit-veturi-roadmap-20220318.pdf
- **MEYER TURKU:** Climate-neutral cruise ship and shipyard.
  https://www.businessfinland.fi/494cb5/globalassets/finnish-customers/01-funding/06-ecosystems/meyer-turku-2022-03-18-necoleap-veturi-roadmap.pdf
- **VALMET:** Circular economy technology.
  https://www.businessfinland.fi/4a5208/globalassets/finnish-customers/01-funding/06-ecosystems/beyond-circularity-roadmap-valmet-september-2023.pdf
- **NOKIA EDGE:** Energy-efficient edge-computing.
  https://www.businessfinland.fi/494a77/globalassets/finnish-customers/01-funding/06-ecosystems/nokia-veturi_competitive-edge_roadmap_2601_2022.pdf
- **WÄRTSILÄ:** Zero-emission marine.
  https://www.businessfinland.fi/494cf9/globalassets/finnish-customers/01-funding/06-ecosystems/wartsila-zem-leading-company-ecosystem-roadmap.pdf



Whatever the scheme, at best innovation policy creates interpretive spaces

Sheltered spaces for collective search, experimentation and interpretation

- where fears of the risk of private appropriation of information do not disrupt the open-ended futures-oriented conversations (Lester & Piore 2004)
- where collective sense-making is possible (learning new vocabulary, thinking, partners, etc.)
- where one is not only learning to innovate or detecting system failures but is enabled to seek futures with relevant partners (and to find relevant partners)

Geography of innovation

Why geography of innovation - 1980s

- Empirical observations about regions that adapted best to the crisis
- New insights on economic growth and the forces driving it

- **Knowledge and expertise sharing locally** >>> adaptation by quickly reacting to changing markets
- **Innovation >>>** quickly reacting to changing markets

Industrial districts with networks of SMEs

- Mobile labour force – internal transmission of expertise and know-how
- Division of labour between SMEs
- Flexible SMEs (in terms of labour force but also shared machinery)
- Coordination of network of small firms - compensated smallness with networks in global markets

1980's ideology (Richard Shearmur)

- Changing focus of economic geographers and development economists
  - Move away from 'top-down' and 'data-driven' approaches
- Economic discourse turned away from Keynesianism and role of government

- In local/regional development two opposing ideological streams both supporting the turn
  - **Neo-marxism:** localities must resist growing pressures of globalization, the de-localization of jobs and the closing of factories.
    - Solution: embed economic activity >> help enterprises to value local know-how, local community, local suppliers etc
  - **Rise of neo-liberalism:** localities need to become self-sufficient, compete for themselves.
    - Solution: Go for high road and focus on quality, innovation and avoid low road (cost competition)

Localized / regionalized innovation policy

- Localized and/or regionalized innovation policies may have some advantages in solving specific issues
- National innovation policies have a regional impact - intended or not

- Differentiated strategies and instruments are needed both to serve the specific regions and to achieve national-level goals more effectively.
- Regional differences…
  - in the quantity and quality of innovation activity
  - in the performance of the entire regional innovation system
  - in the institutions/practices framing the action and choices made in the region

90s / 2000s

- Cities allow the clash of different ideas – **diversity**
- Innovation occurs in cities and/or dense clusters
- Cities also allow specific sectors to attain critical mass – **specialization**
- **Diversity and specialisation are not opposites**
  - In cities they can occur simultaneously
- Cities and clusters must be connected to other clusters around the world

Huiwen Gong: Buzz and tranquility, what matters for creativity?

https://youtu.be/mkFR4lbvnVE

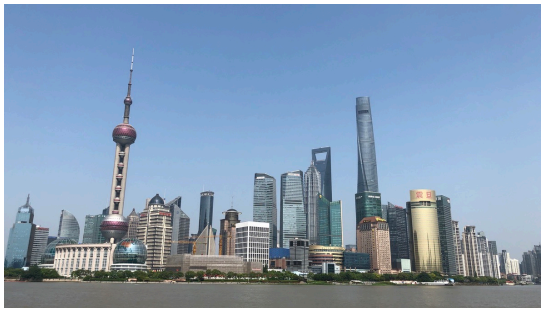
Urban bias in innovation studies

Richard Shearmur

"A pervasive, yet not always explicit, idea underpins the study of innovation and its geography: innovation occurs more readily in clusters or cities."

- "The city . . . has long since been recognized as the birthplace of innovation and creativity" (Camagni, 2011)
- "[C]ities speed innovation by connecting their smart inhabitants to each other . . . [They are] the places where their nation's genius is expressed" (Glaeser, 2011)

All this rests on observation and theory – still a biased view



BUT

- There exist different types of innovation - for many types of innovation, different innovators will operate in different ways
- What type of innovators can successfully operate in isolated areas?
  - Local innovators/entrepreneurs adapt to their local context and seek partners from elsewhere
  - Innovators may locate in isolated areas by choice
  - Innovators seek to solve problems typical for non-urban regions

- NOT a lower variety of interlocutors (MacPherson, 2008; Shearmur & Doloreux, 2015; Tierlinck & Spithoven, 2008), but lower frequencies of interaction (McCann, 2007).
- Innovators in peripheral regions tend to seek out strategic information sources and partners rather than relying upon informal contacts and serendipity

Rune Dahl Fitjar: Nothing is in the air

https://youtu.be/NKAxxMlv0Ic