



Finland: state involvement in greening of industry and the emergence of new 'experimental culture'

Lund, 7 February, 2017

Paula Kivimaa, Senior Research Fellow,
SPRU, University of Sussex

Senior Researcher, Finnish Environment Institute (SYKE)



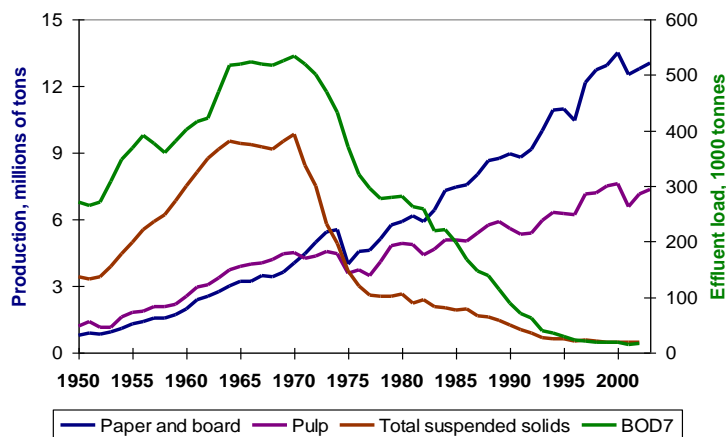
Historical example

GREENING OF INDUSTRY

Pulp and paper industry – water emissions

- Polluted local environments, waters
- Water Act 1962 (in Sweden already 1941)
- Initiated a period of innovation reducing water emissions & consumption
- Process changes to reduce water consumption (Kettunen 2002)
 - Biological effluent treatment (Hildén et al. 2002)
 - Chlorine-free pulping (Mickwitz 2003)
- Research cooperation between process technology companies and research institutes in publically funded research programmes

Water discharges and production of the Finnish pulp and paper industry



8.3.2017

Finnish Forest Industries Federation
& SYKE

Pulp and paper industry – air emissions

- Global attention in the 1970s
 - 1979 Convention on Long Range Transboundary Air Pollution
- National implementation of air pollution policy & active research programmes
 - Closing down sulphite pulp mills (Hildén et al. 2002)
 - Developing more efficient recovery boilers to combust by-product black liquor in 1980s (Kivimaa & Mickwitz 2003)
- Further development of biobased energy in the sector in 1990
 - following the rise of climate policy in the energy policy agenda & opening up of Nordic electricity market

Policy often creates markets for innovation

Technological change	Change in existing markets	New policy-created markets	Changes in other markets
Biorefinery innovations	Low profitability of existing products	Policies for transport biofuels, emissions trading	Increasing oil price, new vehicle types
RFID innovations	Low profitability of existing products	Extended producer responsibility for electronics	Complicated supply chains
BCTMP / CTMP	Intensifying competition	Extended producer responsibility in Germany	Anticipated increased electricity prices
Packaging from recycled material	Increasing price of woodfibre in Denmark	New policies for recycling of packaging	Increased oil and plastic prices
POM	Costs of paper making	(water emission limits in Spain)	



New direction

EXPERIMENTAL GOVERNANCE & SUSTAINABILITY?

Experiments as an emerging governance trend in academia

- Experimental governance culture
 - E.g. Sabel & Zeitlin 2012, Broto and Bulkeley 2013, Karvonen & van Heur 2014
- Policy, social and technological experimentation
 - What are the explicit and hidden agendas? Where does this lead to?
- Alternatives/complements to state-led governance
 - Community initiatives, living labs, public-private partnerships (e.g. Evans & Karvonen 2014, Seyfang et al. 2014, Voytenko et al. 2016)

Sipilä Government Programme, 29 May 2015: A culture of experimentation will be introduced

- “Finland’s competitiveness is built on high expertise, sustainable development and open-minded innovations based on experimentation and digitalisation. We encourage renewal, creativity and interest in new ideas. Failure is acceptable and we learn from our mistakes.”
- “Experimentation will aim at **innovative solutions**, improvements in services, the promotion of **individual initiative** and entrepreneurship, and the strengthening of **regional and local** decision-making and cooperation. “
 - will make use of **citizen-driven operating practices**.
 - An experimentation programme, including extensive trials and several smaller experiments, will be implemented.
 - Systematic experimentation will be introduced and a legal basis will be created to make the arrangement of experiments easier.
 - Experimentation will reduce response times and improve anticipation during the process of solving social problems, and the Government’s strategic aims will be promoted.

Implementation

- Aided by Prime Minister’s Office
 - Draws on ideas in Strategic Niche Management (expectations, learning, networks), behaviouralist approaches and policy-trial tradition
- A digital platform of experiments
 - Tool for funding small experiments, crowdsourcing of resources, enabling sharing of learning, and copying & scaling up
 - www.kokeilunpaikka.fi

The screenshot displays the 'Kokeilun Paikka' website interface. At the top, it features the logo and navigation tabs: 'Tutustu', 'Etsi kokeilupaikka', 'Alusta kokeilu', and 'Opi kokeilusta'. A central banner reads 'Kokeilut alkavat 16.1.' with a colorful grid of squares. Below this, several content blocks are visible:

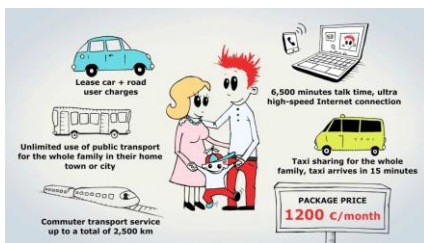
- Idea haastat**: A section for submitting ideas, with a sub-header 'Mitä haastat tehdä?' and a list of steps: 'EHDIDÄ TAI HAASTA', 'ALOITTA KOKKEILUN HAASKA SAHOTTOTIA', 'SEURATA KOKKEILIA', and 'OPPIA KOKKEILUSTA'.
- Ehdotus**: A section for submitting proposals, with a sub-header 'Ehdotus Kokeilun Paikalle' and a text box for 'Kun idea on kypsäsi, tee siitä ehdotus kokeiluksi.'.
- Blogi**: A section for news and updates, with a sub-header 'Kokeilun Paikan Tarina' and a text box for 'Tällä muut voivat osata kokkeilu edistymistä.'.
- Rahotuskampania**: A section for funding opportunities, with a sub-header 'Kun ehdotuksesi on saanut kannatusta, voit haakea sille rahoitusta.'.
- Kokeilu**: A section for ongoing experiments, with a sub-header 'Kokeilun paikka on palvelu, jossa me kaikki ommme ideasia ja kehittä yhteisiä kokeiluja sekä haake malle rahoitusta.'.
- Oppi**: A section for learning from experiments, with a sub-header 'Tallenna lopuksi nämä kokeilut oppi.'.

Experimental transport governance: System-level approach & experimentation

- In 2010, previously separated agencies for aviation, rail, road and marine transport merged → the Finnish Transport Agency and the Finnish Transport Safety Agency (Trafi).
- In 2014, a portfolio of experiments initiated by the Ministry of Transport and Communications and the Transport Safety Agency
 - E.g. Kutsuplus On-demand automated transport service, developed by a group of researchers, providing an on-call minibus service with non-fixed routes by the Helsinki Region Transport during 2012-2015 (Kivimaa, *et al.*, 2017; Mäkinen *et al.*, 2015).
- TransEco & TransSmart Programmes pooling together circa 20 projects and a range of actors
- In 2015, Government Programme:
 - to increase the share of renewable transport fuels to 40% by 2030, to build a digital business growth platform aiding mobility as a service, and to reduce unnecessary regulation across sectors
- Mobility as a Service (Maas) Concept launched on national and metropolitan levels

Source: Kivimaa & Temmes 2016

Mobility as a Service



'A transport service package to users that allows easy and reliable travel from door to door, which eventually allows the users to give up their own cars without a reduction in the level of service' (LiVi, 2015).

- MaaS considered a major transition by the Finnish Transport Authorities who see their role as enablers of this transition.
- Vision: services will be offered to users by 'mobility operators' with the help of modern digital solutions
- First such operator set up in 2016 – MaaS Finland Ltd.
 - Owners: transport service operators and technology providers
 - Received a significant loan from Tekes

Experimental transport governance: Niches countering path dependence & competition

- Difficulties, e.g. removing tax credits for commuting and introducing parking fees (Mäkinen et al. 2015)
- Policy instruments encouraging transport demand reduction & modal change through *entrepreneurial experimentation* and *market formation* largely missing (Kivimaa & Virkamäki, 2014)
 - the latest government programme from 2015 partly addresses these points.
- Intensifying competition between the electric vehicle and biofuels niches
 - “I don’t understand increasing electric vehicles. At least no tax euros should be spent on that. Tesla is a really cool car, but I forecast that the company will go bankrupt...” (Chair of ST1, biofuel company, 1 February 2017)

SMART ENERGY TRANSITION Database of 100+ pilot projects and field experiments

energiakokeilut.fi Etusivu FAQ

UUDEN ENERGIAN
pilotit, demonstraatiot, kokeilut.

Haku

Uusi energia mullistaa energiajärjestelmää, mutta miten, milloin, millä tavalla ja missä?

Smart Energy Transition -tutkimus viitoittaa, millä toimialoilla voi menestyä globaalissa energiamurroksessa.

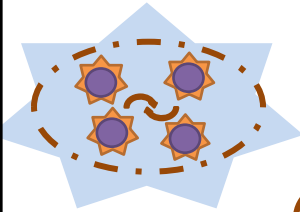
Katso sivustolta, mitä Suomessa tehdään uuden energian parissa.

kaupungit	rakennukset	liikenne	toimintamallit	yritykset
Alueelliset useiden teknologioiden kokeilut	Demonstraatio-rakennuksia ja	Liikenteen	Uudet hankinta- ja	Yritysten
Smart city district experiments	Demonstration buildings	Transport experimentation	Testing new organization models	Corporate pilots

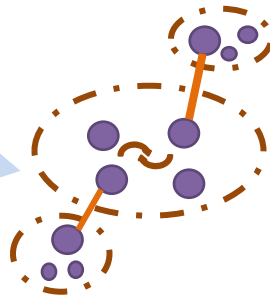


Finnish experimental culture in the case of smart energy?

(a) Embedding of local skills, commitment and confidence



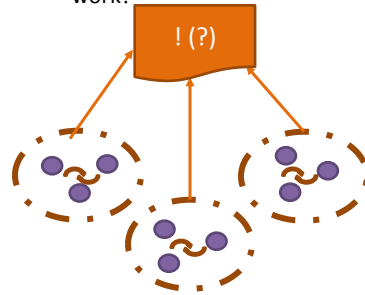
(b) Distributed learning and transfer of lessons to other sites



(c) Learning across pilots and experiments:

Commitment and confidence: we can do this!

Selection of solutions that work?



Slide by Eva Heiskanen (2017)

Tentative conclusions

- In the past state has been successful
 - supporting both research and placing market-creating regulations for environmental innovation
- New experimental culture
 - Related through encouraging networking and learning
 - Different approach to regulations, "relaxing unnecessary rules"
 - But more systemic approach
 - Combines a lot of on-the-ground activity to government steering of experiments

Definitions of experiments

- offer some flexibility & opportunity to test novel policy options on a limited scale; to some extent reversible (Tasseey 2014)
- *“a recursive process of provisional goal-setting and revision based on learning from the comparison of alternative approaches to advancing them in different contexts”* (Sabel & Zeitlin 2014)
- *“planned initiatives that embody a highly novel socio-technical configuration likely to lead to substantial (environmental) sustainability gains”* (Berkhout et al., 2010)