

Tekes innovation research and the Green Growth program

- 'System level change and innovations'

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Topics

1. Tekes innovation research
2. 'System level changes and innovation'
 - Background
 - Theoretical frameworks
 - Funded projects
 - Some policy issues

1. Tekes innovation research



What is innovation research?

- Research with a focus on the determinants, patterns, commercialization and impacts of innovation broadly defined. Innovation research typically analyses processes and phenomena that contribute to industrial and socio-economic renewal and growth*
- Traditional definition of innovation:
 - “The introduction of new goods (...), new methods of production (...), the opening of new markets (...), the conquest of new sources of supply (...) and the carrying out of a new organization of any industry” (Joseph Schumpeter)
- ...but the nature of innovation is continuously changing and broadening

* See eg. Fagerberg J. and Verspagen . B. 2009. Innovation studies – the emerging structure of a new scientific field. Research Policy 38, pp. 218-233 for more

Innovation research at Tekes in a nutshell

- Close collaboration within Tekes and with other policy stakeholders and the research community
 - Planning, dissemination and utilization
- ~5 mill. euro/year, thematic focus (aligned with policy needs)
 - In 2010: (i) 'User and demand –driven innovation, (ii) 'Global value networks'
 - In 2011: 'System-level changes and innovation'
- Current selection-criteria strongly tied to utilization and internationalization aspects
- Development emphasis on:
 - Utilization, coordination with other stakeholders
 - Quality, international collaboration (at all levels)

Importance of innovation research in Finland

- Evidence-based policies
 - Learning from the past
 - New phenomena?
 - New indicators?
- Absorptive capability – cultivating a community
 - Policy stakeholders
 - Industry associations
 - Companies
 - Researchers
- Impact analysis
 - Identifying new issues and innovation pathways

2. System level changes and innovation



Background – policy challenges

■ Finland at crossroads?

- Global competition– new sources of growth are needed
 - From incremental towards radical/transformational innovation?
 - Renewal of traditional industries, enhanced utilization of ICT (bio and nano)
 - Growth entrepreneurship
 - Intangible assets
- Renewal of the public sector
 - Innovations
 - Productivity
 - Breaking silos
- Global challenges – new opportunities for Finland?
 - Climate change, healthcare, poverty, water, energy, demographics etc.

■ Implementation of broad based innovation policies

- Focus on value networks, user- and demand driven innovation, system level changes, business competencies (intangible assets)



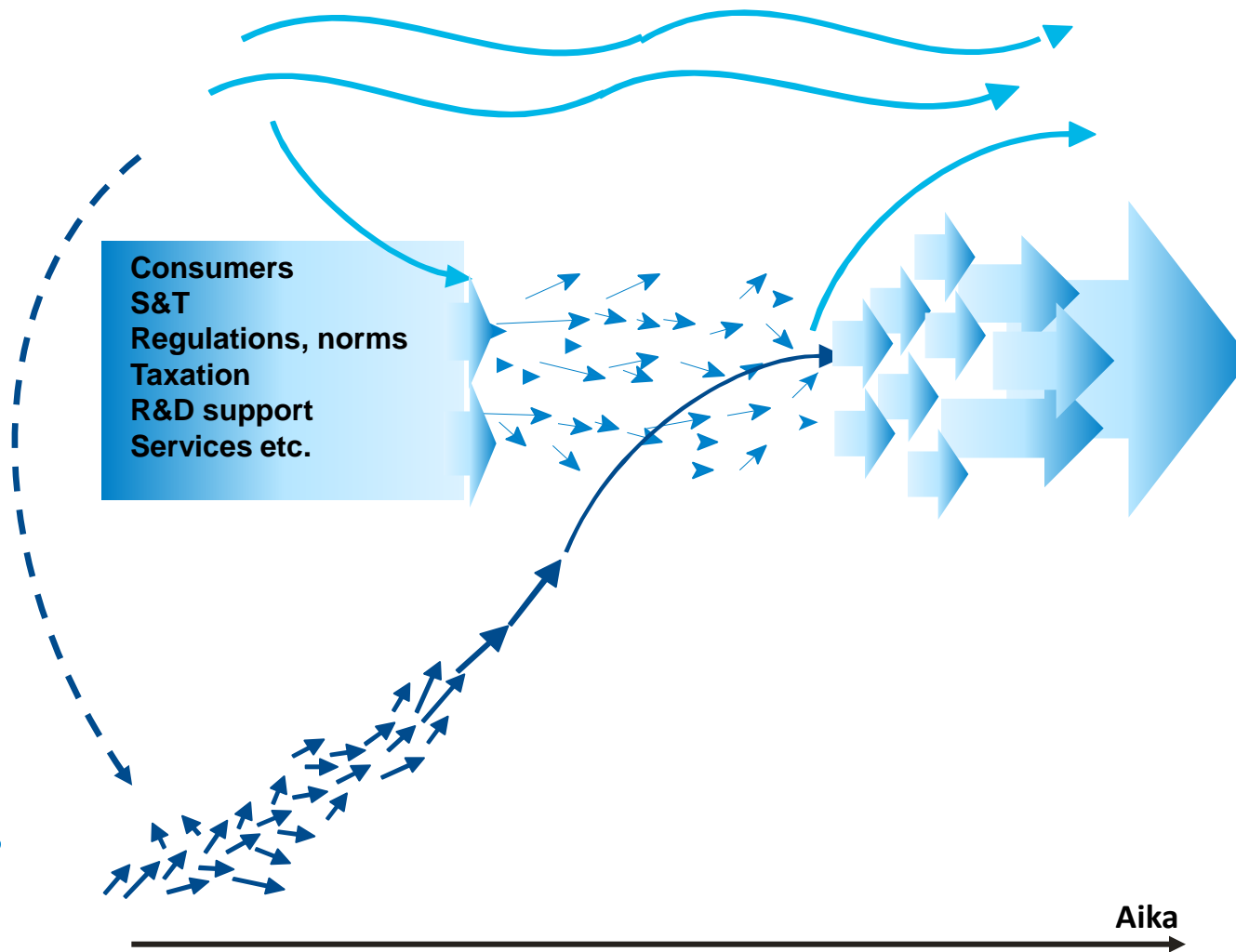
Tekes

System-level changes and innovations

Landscape

Regime

Local niche experiments



Source: Modified from Geels (2011)

Transition approaches for understanding system-level changes and innovation

(See <http://www.transitionsnetwork.org/>)

Approach	Key concepts	Policy view
Innovation systems (IS)	System failures, functions, innovation, diffusion, institutions, national and sector systems, supply chain, social, political and learning networks, user-supplier networks and industry-academia networks	Identify system failures and correct these with environmental regulation (correcting prices) and technology-specific policies
Multi-level perspective (MLP)	Multiple (competing) technologies, structural change, multiple levels (niche, regime, landscape), multiple phases, coevolution, networks, transformation, reconfiguration, technological substitution, de-alignment and re-alignment	Align technologies and user practices. Strategic niche management (SNM) – reflexive management of real world experiments
Complex systems	Variation, selection, attractors, feedback, emergence, coevolution, dissipative structures, punctuated equilibrium and self-organization	Transition management (TM) : transition experiments, focus on frontrunners, envisioning for sustainable futures
Evolutionary systems	Population, diversity (variety, balance, disparity), cumulative change, multiple selection factors, recombinant innovation, adaptation, group (multilevel) selection, path-dependence and lock-in, coevolution, selection as social learning, social and demand-side networks	Account for all selection forces (market, institutions, norms, regulation), foster status-character of green products, optimal diversity, stimulate recombinant and deviant innovations, and policies to escape lock-in



#3 basket: Green and sustainable growth

Utilization

Ministries of Environment,
Employment and the Economy,
Finance etc.

**Green growth
transitions:
policies and
experiences in
Finland and
emerging
economies**

**Future
policies for
sustainable
transitions:
case
transport**

Green Growth program

Low carbon
Finland
2050 –
Platform

Accelerating
transition
towards
sustainable
energy

International collaboration

University
of Sussex (SPRU)

India, Brasil,
Mexiko

OECD

Leeds
University

International advisory group

Policy tools in Finland – a need for a transition management approach...

Type of tool	Examples of instruments	Status
R&D support (supply-side)	R&D grants, tax incentives, education, support for commercialisation and growth entrepreneurship	Well established, are increasingly combined with demand-side schemes (e.g. procurement)
Demand-side schemes	Smart regulations and standards, public procurement	Introduced and strongly emphasized in new innovation policy strategy
System level changes and transitions - transition management?	<p>E.g. GG-program: promotion of new business models and value networks, disruptive sustainable innovations (at system-level)</p> <p>Promoting policy synergies and coordination, creation of cross-organizational transition arenas, roadmaps through backcasting etc.</p>	<p>Some attempts in early 2000s</p> <p>New momentum now:</p> <ul style="list-style-type: none"> -Global challenges -Emphasis on sustainable use of natural resources, green innovation and growth - Multiple initiatives introduced

Thanks!

