

New Governance for Innovation

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Background

- Technology innovation becomes a major advantage in global economic competition
- Technology innovation focuses on generic technologies
 - Shorter time-span fundamental research – applied research – technological application
 - Need for direct collaboration between fundamental and technological knowledge > “context of application”; crossing borders of sectors, systems, institutions

Concepts

- Donald Stokes
 - Think interactive, not linear
- Mode 2
 - Problem-orientation
 - Transdisciplinarity
 - De-differentiation
 - Are we that far?

Concepts (continued)

- Systems of Innovation
 - Innovation is the result of a bundle of policies, structures, and institutions that are highly interdependent
 - Science and Technology Policy are shifting together
 - “*The new technologies are not a force originating from outside the economic system – they are created, developed and diffused in response to economic demands and constraints. Similarly, the impact of technical change is inseparable from other societal developments; its economic dimensions cannot be isolated from its social dimensions. What is involved is a set of interacting influences, in which history, culture, outlook and values carry just as much weight as economic factors*”

(Sundqvist Report, 1988)



Consequence

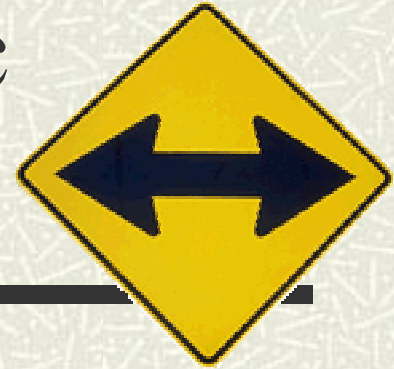
- New thinking about the value of knowledge for production
- System and interaction instead of linear transfer and linear causality
- Collaboration between basic research and technological trajectory
- Pressure on “mode 1” institutionalised systems to adapt institutions (“hardware”) and policy design (“software”). How to govern?

Problem Diagnosis



- Horizontal Cooperation: Organise the cooperation between science and industry
- Institutional fragmentation of the public-funded research system

Horizontal, inter-systemic cooperation



- *How to connect systems without losing functionality and autonomy? How to avoid “finalisation” and “instrumentalisation”?*
- Create a new category, “strategic research”?
- “Non-identical reproduction” instead of transfer
- Organise “encounters”
- Use networks and not permanent institutions
- Create interaction space
- Change attitudes and culture



Institutional Fragmentation

- Problem: Domains of competence built on mode 1
 - Path dependency
 - Domain struggles
 - Allocation of resources
- Problem: Obstruction of reflexivity and joint action
- Multi-level phenomenon: political, intermediary, operational



What do we need?

- Horizontal coordination
 - New Policy Design
 - Compatible legal infrastructure
 - Boundary organisations
- Overcoming institutional fragmentation
 - Implantation of strategic thinking in organisations
 - New Institutions
 - Reflexive capacities
- *Reminder: This is valid only in some scientific fields while others are maintaining their traditional logic of development. Consequence: Growing complexity of institutional arrangements; conflicting interests*

New Policy Design



- New paradigms in dealing with knowledge
- New paradigms in state intervention
 - Cooperative state
 - Monitoring, supervision, facilitating, enabling



“If you want to build a ship, don't drum up the men to gather wood, divide the work and give orders. Instead, teach them to yearn for the vast and endless sea” (Saint-Exupéry)

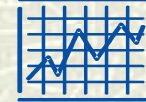
Policy-Design (continued)



- New Public Management: Efficiency, accountability, operational freedom
- Response to complexity of systemic governance
 - Lack of information
 - Too many variables
 - Loops, feedbacks, cycles
- Response: increase flexibility, responsiveness, reflexivity of systems
- By: organisation of interaction and networks and procedural regulation

Two ways to govern

- Thematic and outcome-oriented; “picking winners”



- Network and process-oriented
 - Open strategic direction
 - Flexible reaction
 - No direct intervention capacity
 - High uncertainty about results
 - Directly linked to user
 - Control by process indicators



Legal Infrastructure

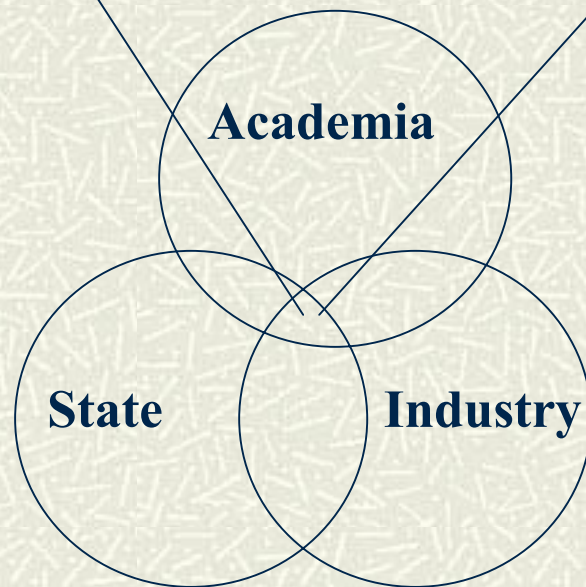
- Create favourable conditions of innovation
 - Property Rights
 - Career structures of researchers

Boundary Organisations

- David Guston (2000): “Institutions that straddle the apparent politics/science boundary and, in doing so, internalize the provisional and ambiguous character of that boundary”
- Examples: Incubators, Innovatienetwerk Groene Ruimte en Agrocluster (NL); Intergovernmental Panel on Climate Change; Top-Technological Institutes (NL)

Etzkovitz 2002: Triple helix model

Tri-lateral networks and hybrid organizations



Reforms of institutional fragmentation

- Three objectives
 - Responsiveness
 - Strategic thinking: contribution to innovation
 - Systemic thinking
- Change organisational culture
- How? By indirect steering
 - New public management
 - More directed funding

Reforms at the political level

- Problems
 - Domain interests of ministries; clientelism
 - Divide between political and intermediary funding of research; between scientific and technological funding of research
 - Interministerial committees failed
 - Different cultures
 - Research ministries weak and often new
- Solution: Austrian Council for Research and Technology Development

Reforms at intermediary level: funding agencies

- Decisive strategic function in the governance of innovation
- Often co-existence of technological and scientific funding
- Often part of scientific community
- How to make funding agencies think strategically and in terms of the system?
 - Example NWO (NL)
 - Example DFG (FRG)
- How to make them work together?
 - Research Councils UK

Reforms at operational level

- How to link research phases between extra-university research institutions?
 - Example Big Science Institutes in Germany
- How to introduce strategic thinking?
 - Example: the Netherlands
- *Reminder: All these measures introduce strategic thinking and not systemic thinking*



How to foster reflexivity

- Reflexivity is the capacity to think in terms of the whole, to think in terms of problems and solutions, to anticipate future
- Systemic evaluations
- National priority setting
 - Germany: Forum of Funding Organisations
 - Netherlands: Mediation System

Reflexivity (continued)

- Need for reflexive institutions
 - How to anchor these institutions in scientific, industrial, and political interests?
 - Model: Science Council in Germany
 - Model: Science Council in Switzerland
 - Model: Austrian Council for Research and Technology Development
 - Model: Sectoral Advisory Bodies in the Netherlands
 - Model: House of Lords in Great Britain