

Systemic Policy Measures and Processes: Research and Innovation Governance



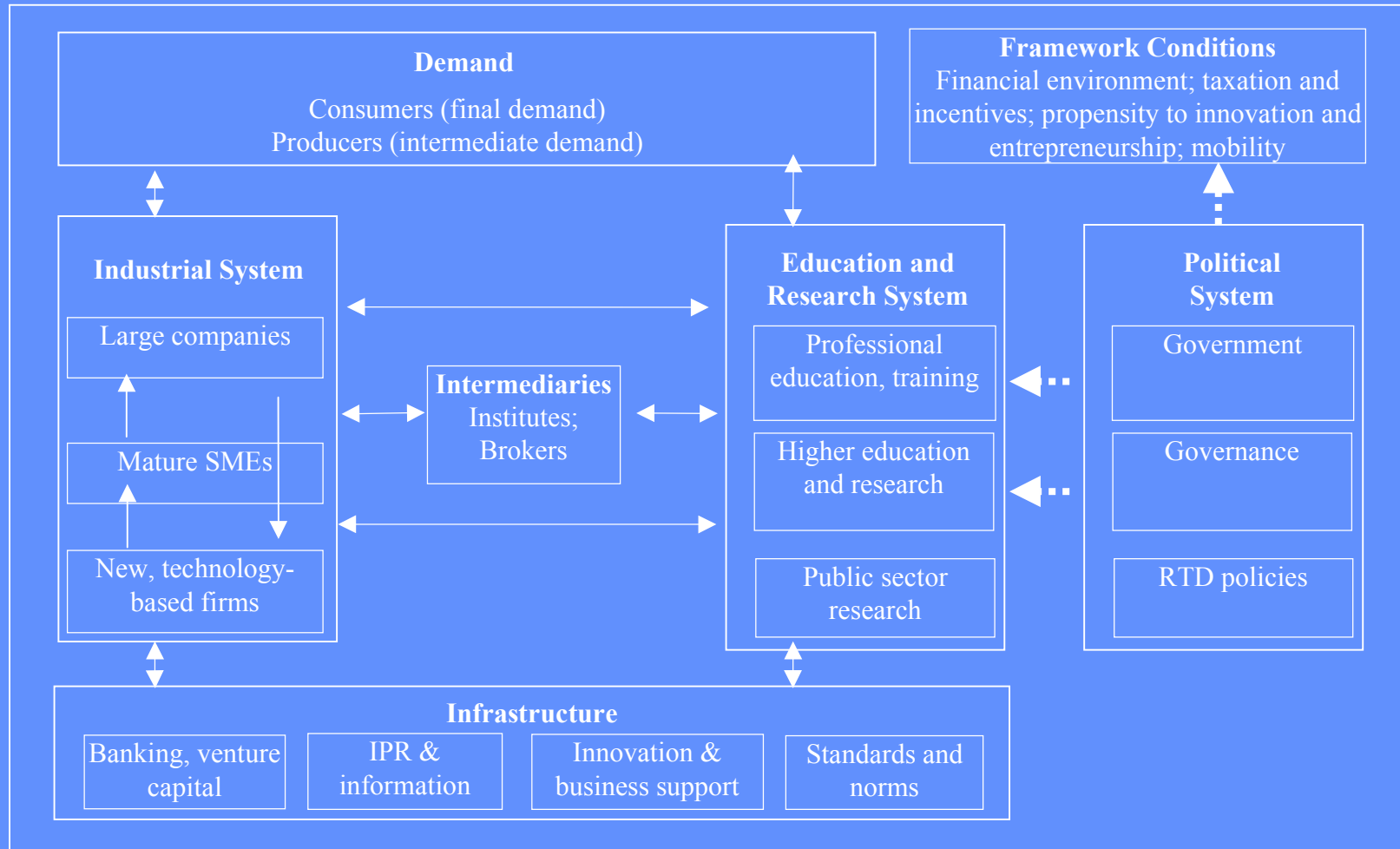
6 Countries Programme
Karlsruhe
15 November 2002

Road Map

- Nailing some theoretical colours to the mast
- Countries considered
- Findings on governance
- Some (tentative) conclusions

N(R)IS


(What's in a name?)



Capability - and presumably governance needs - change with development

TYPES OF KNOWLEDGE-BASED CAPABILITY	Acquisition and Assimilation of imported technologies	Technology deepening and upgrading	Closing in on the International Technological Frontier	Generating Core Advances at International Frontiers
	Profile 1	Profile 2	Profile 3	Profile 4
<u>Knowledge and skills for acquiring, using and operating technologies</u>	***	***	****	****
<u>Design, engineering, and associated managerial capabilities to acquire and improve technologies</u>	**	***	****	****
<u>Research capabilities to underpin technology acquisition, implementation and development</u>	*	**	***	****

Some implications

- **Bounded rationality**  **Path dependence**
- **Knowledge, learning and institutions become key**
- **Inter-dependence between the firm/institution and its environment**
- **Unit of analysis shifts from individuals to networks and clusters**

New intervention rationales

Market failures (mostly about research)

- **Indivisibility**
- **Inappropriability**
- **Uncertainty**

Systems failures (more about innovation)

- **Capability failures**
- **Institutional failures**
- **Network failures (including various forms of lock-in)**
- **Framework failures**

Challenges

Drivers

- Growth in Mode 2 production
- Changes in the nature of technologies
 - ‘Hyphen-technologies’
 - Dematerialisation
 - Appropriation via intellectual property
- Changed industrial organisation of knowledge production
 - Globalisation
 - De-integration
 - Acceleration: concurrent science
- Changed social contract
 - Increased relevance
 - The state as a growing user

Trends

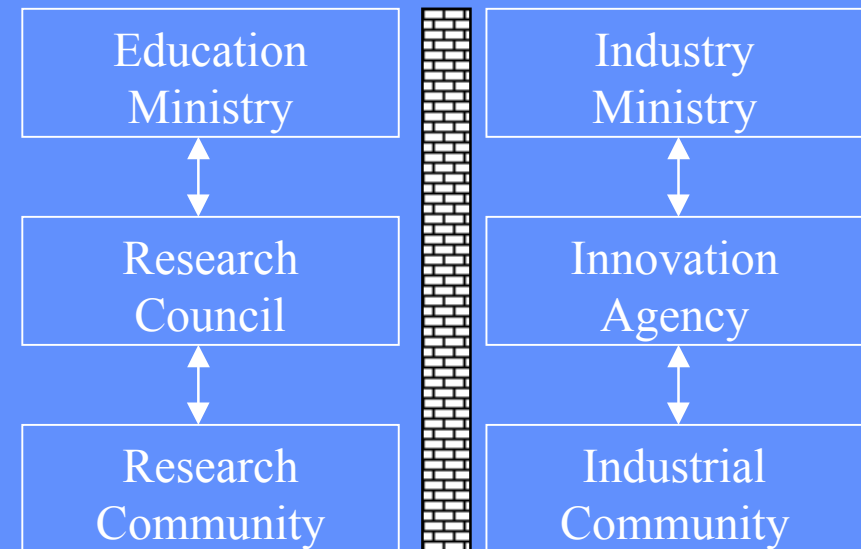
- Global knowledge markets
- Emergence of superuniversities
- Reorganisation of the Research Institute sector
- End of the ‘3-hump model’
- Industrial ‘observatories’ and new PPPs at the university/industry interface
- IPR as a constraint as well as an income generator

Innovation/research governance failure

Structural issues

- **Cultures** Contested nature of the social contract
- **Sectoral principle and organisation**
- **Few convincing examples**
 - Integrated approaches
 - Change agencies

Capture of principal-agent systems by client communities

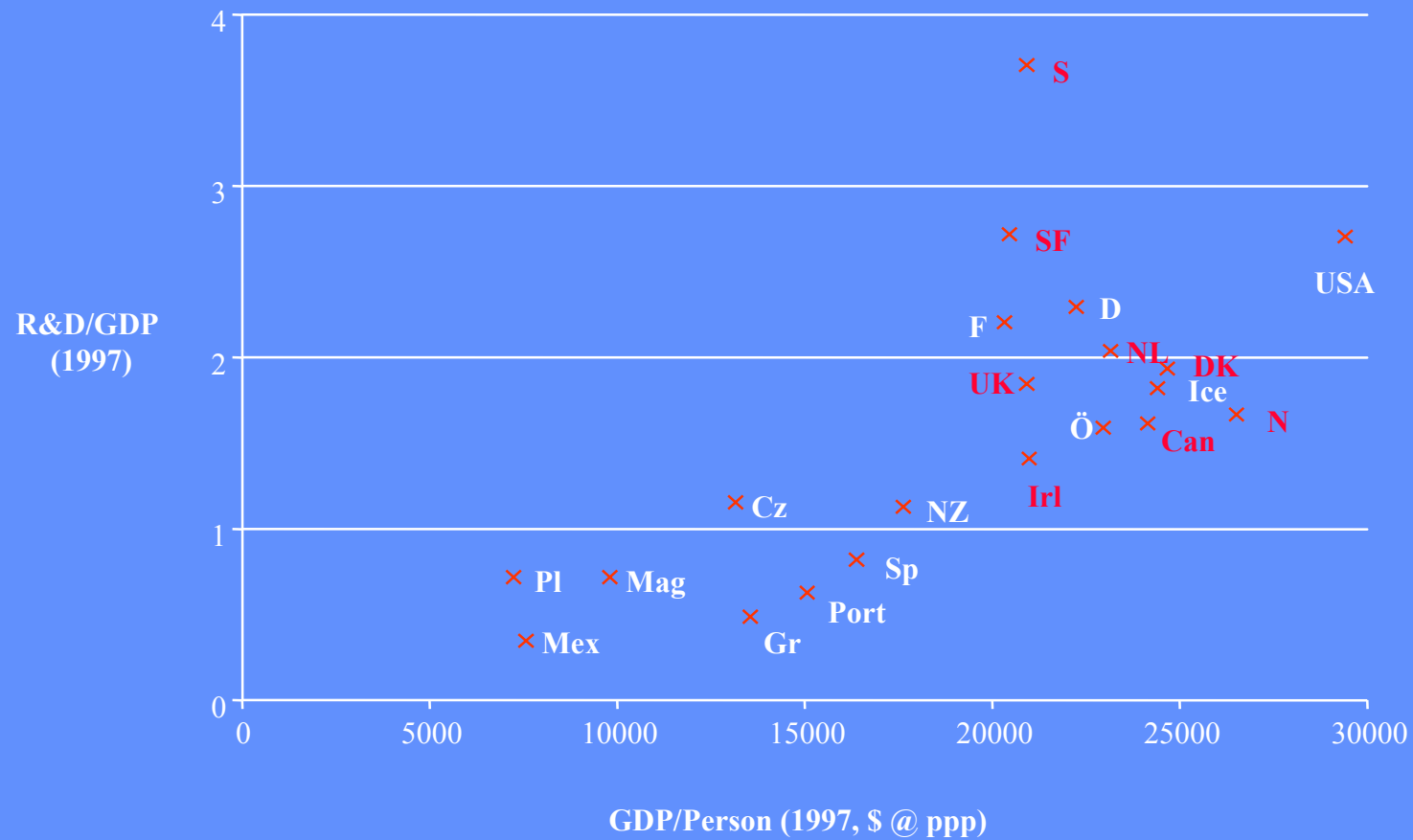


See Dietmar Braun, 'Who governs intermediary agencies? Principal-agent relations in research policy making,' *Journal of Public Policy*, 13 (2), 1993, pp135 – 162

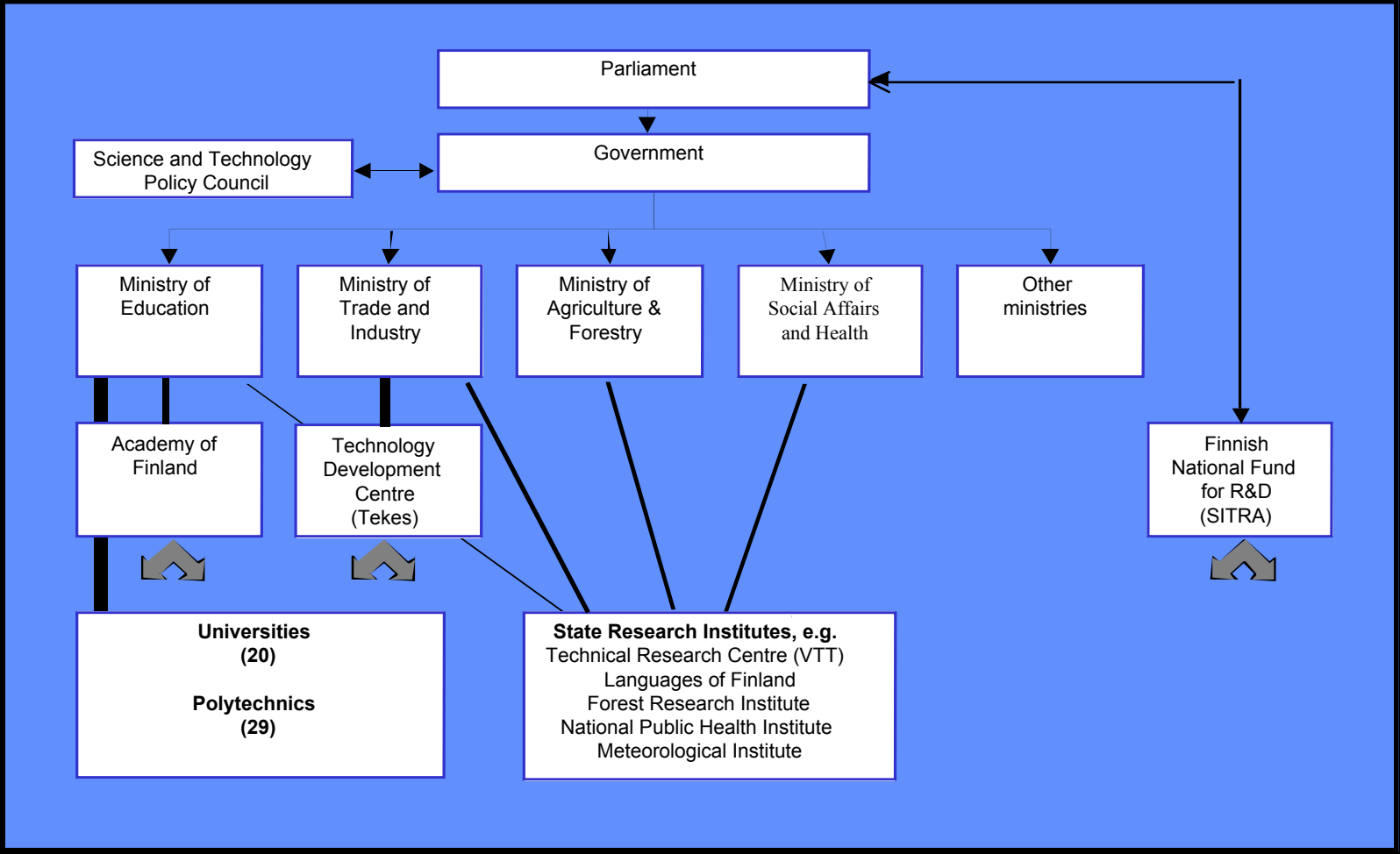
Countries considered

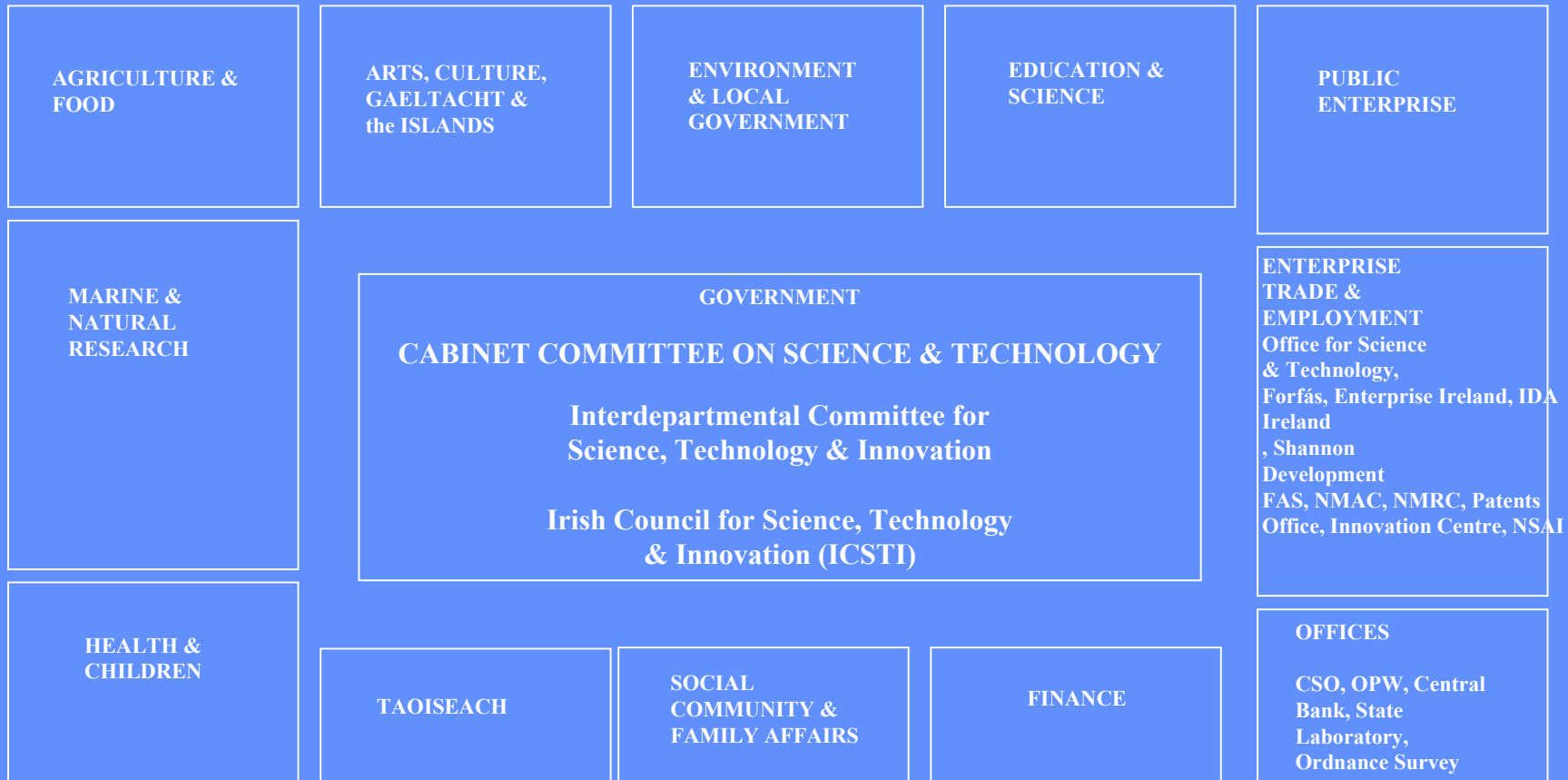
- Canada
- Denmark
- Finland
- Ireland
- Norway
- Netherlands
- Sweden
- UK

Governance isn't everything ...

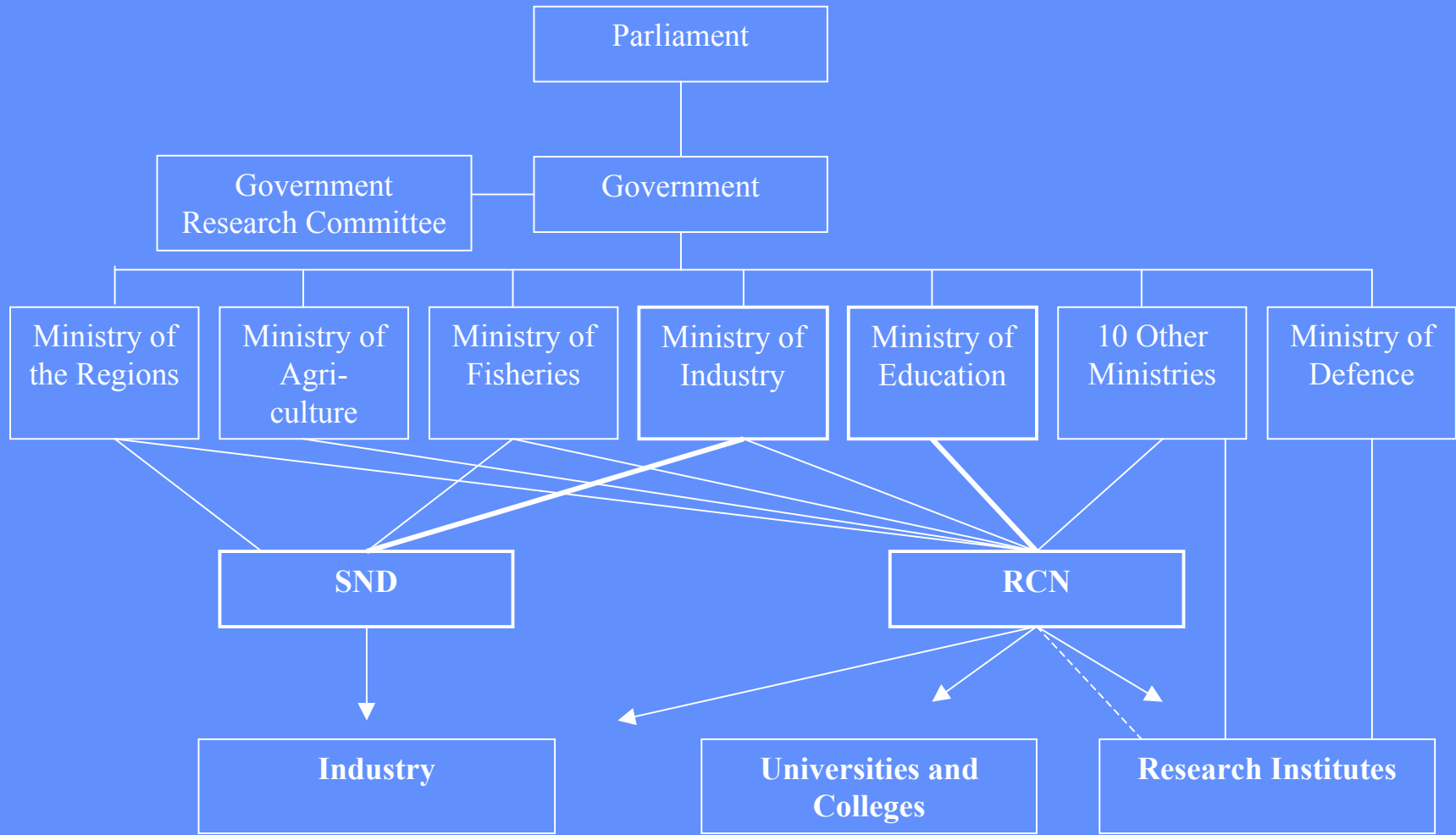


Finland's Science and Technology Policy Council

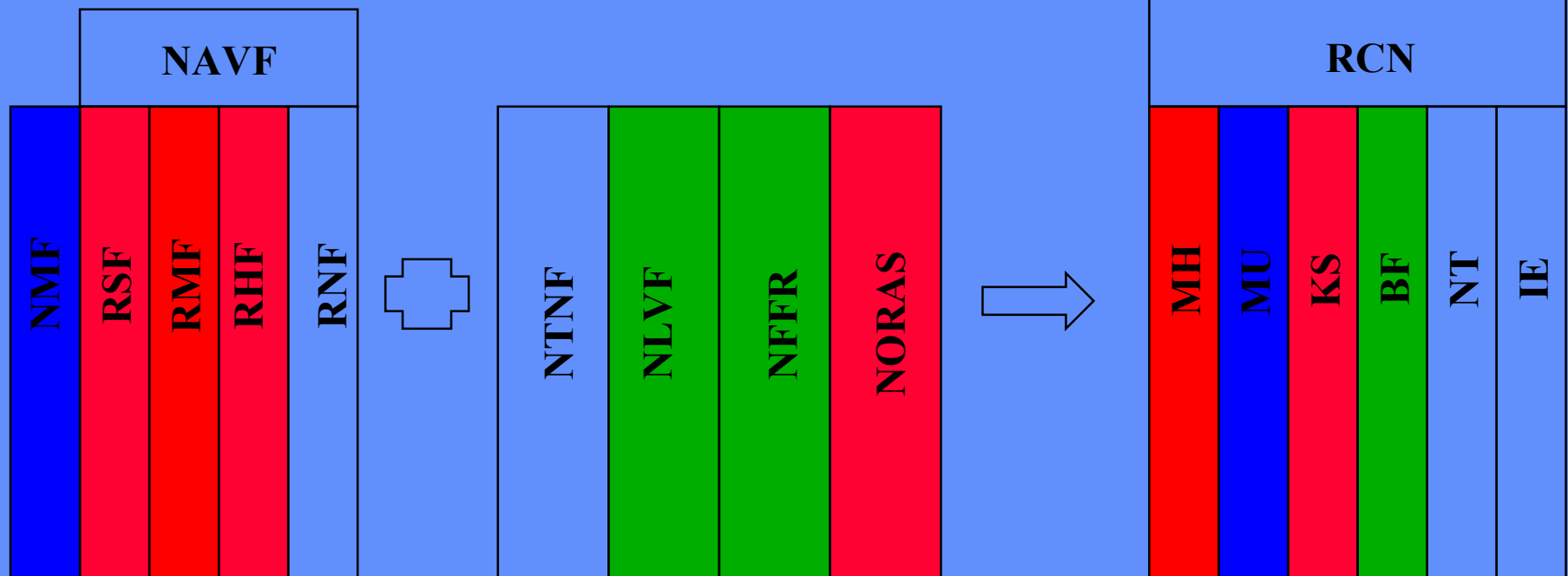




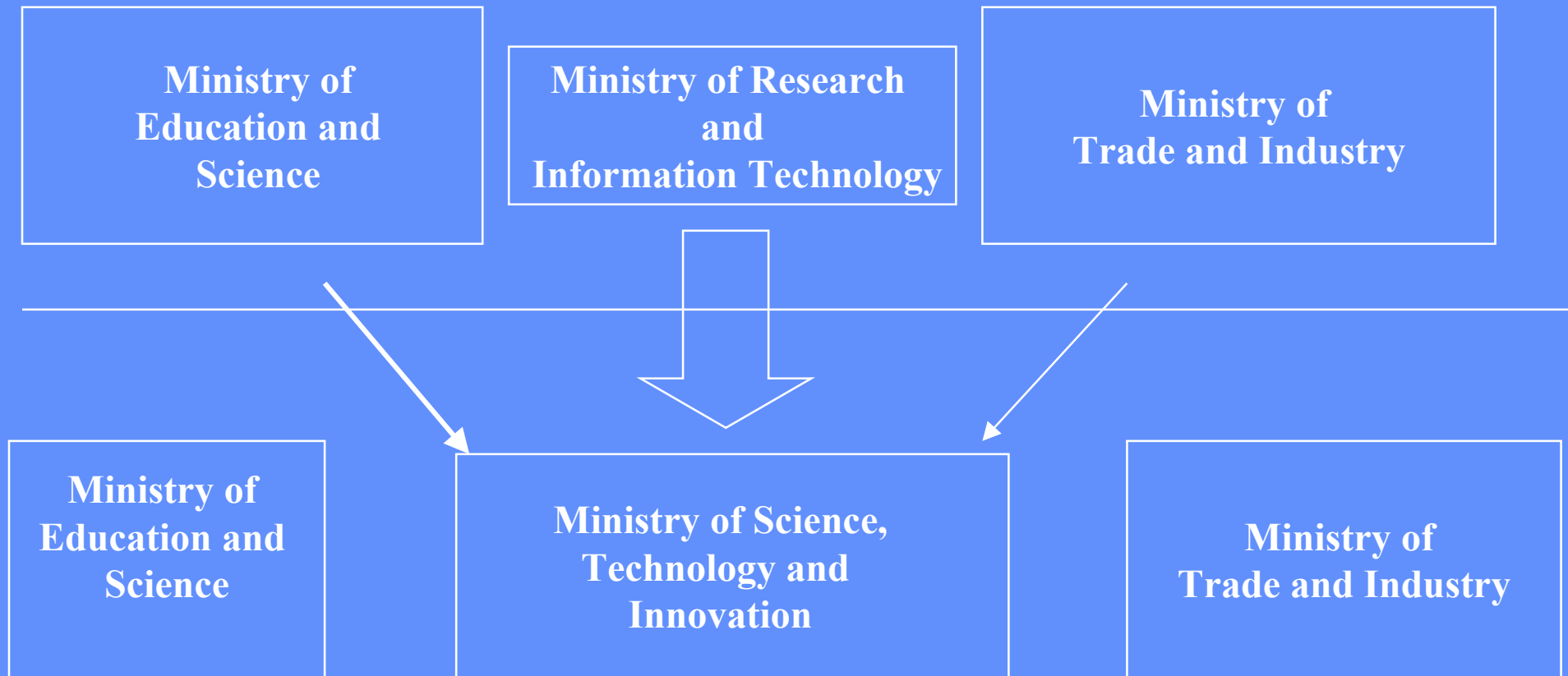
The Norwegian System



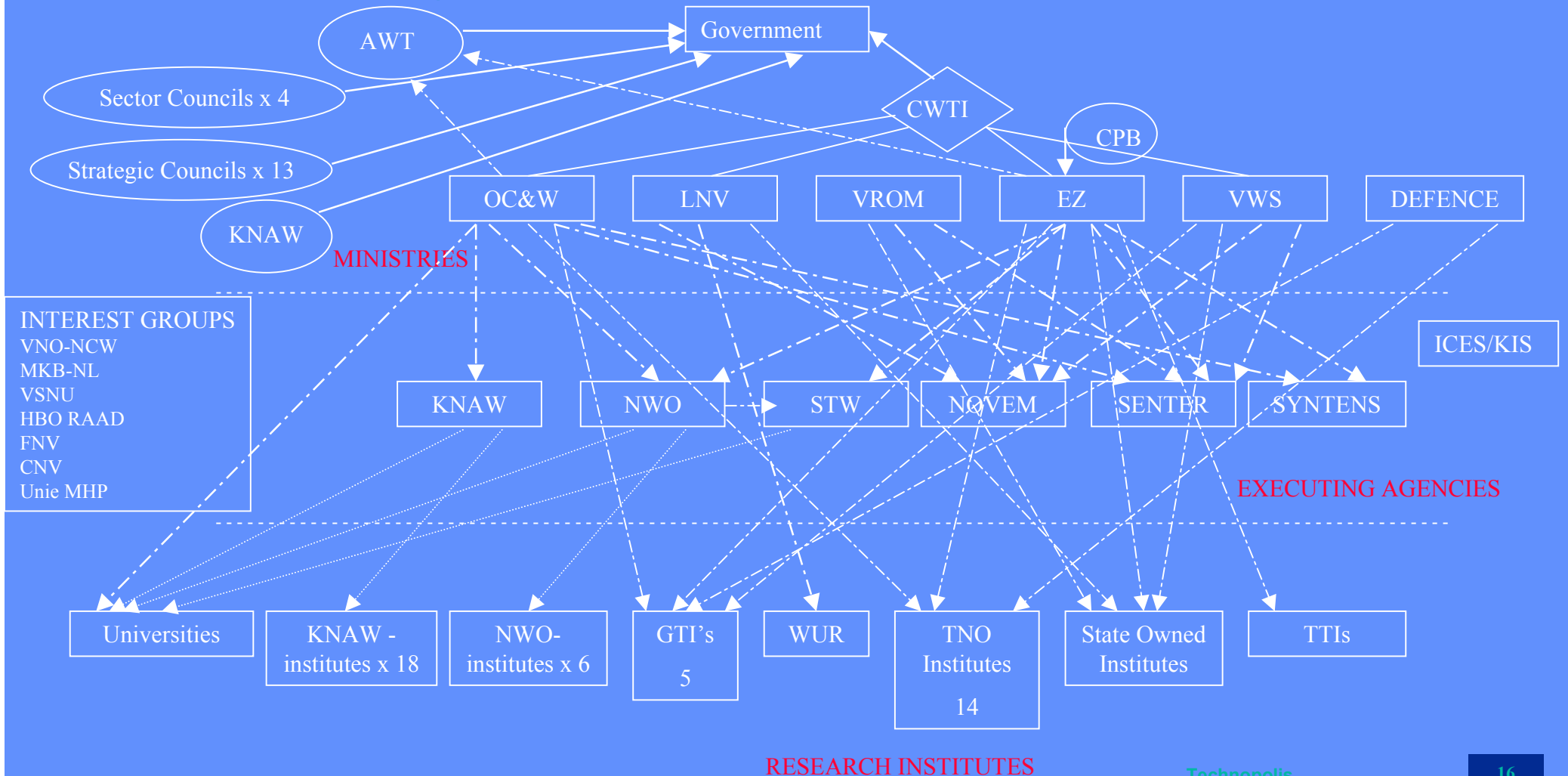
Undermined by implementation and framework conditions



The 'Super Ministry' in Denmark



The Dutch System



Integration issues

- **Knowledge integration**
 - Integration of knowledge creation and use for innovation. In policy terms, integration of science, research and innovation policies
 - Co-ordination and attuning of different social goals of research and innovation
 - Combination of knowledge from different disciplines to tackle opportunities and problems
- **Integration and co-ordination across institutions**
 - Minister level
 - Ministry level
 - Agency level
 - Performer level

Governance responses for policy integration

Country	Integration of science, research and innovation policy	Co-ordination between departmental sectors
Canada	The Council of Science and Technology Advisors	The Science-based Department and Agency Assistant Deputy Minister's Committee
Denmark	Launch of one Ministry responsible for science research, innovation and IT	Slightly more powers to central ministry in total SRI budgets
Finland	Science and Technology Policy Council	
Ireland	Cabinet Committee on Science and Technology	Interdepartmental Committee for Science Technology & Innovation
Netherlands	Interdepartmental Committee for Science, Innovation and Informatics (CWTI)	
Norway	Creating a single Research Council, including the national innovation agency (formerly NTNF)	Government research committee (RFU). Discussions are ongoing about extending the remit to include innovation
Sweden	Education minister leads on research issues in government Interdepartmental Committees	
UK	Cross-departmental programmes Cross-departmental organisations such as the Office of Science and Technology One integrated Science and Innovation White Paper	

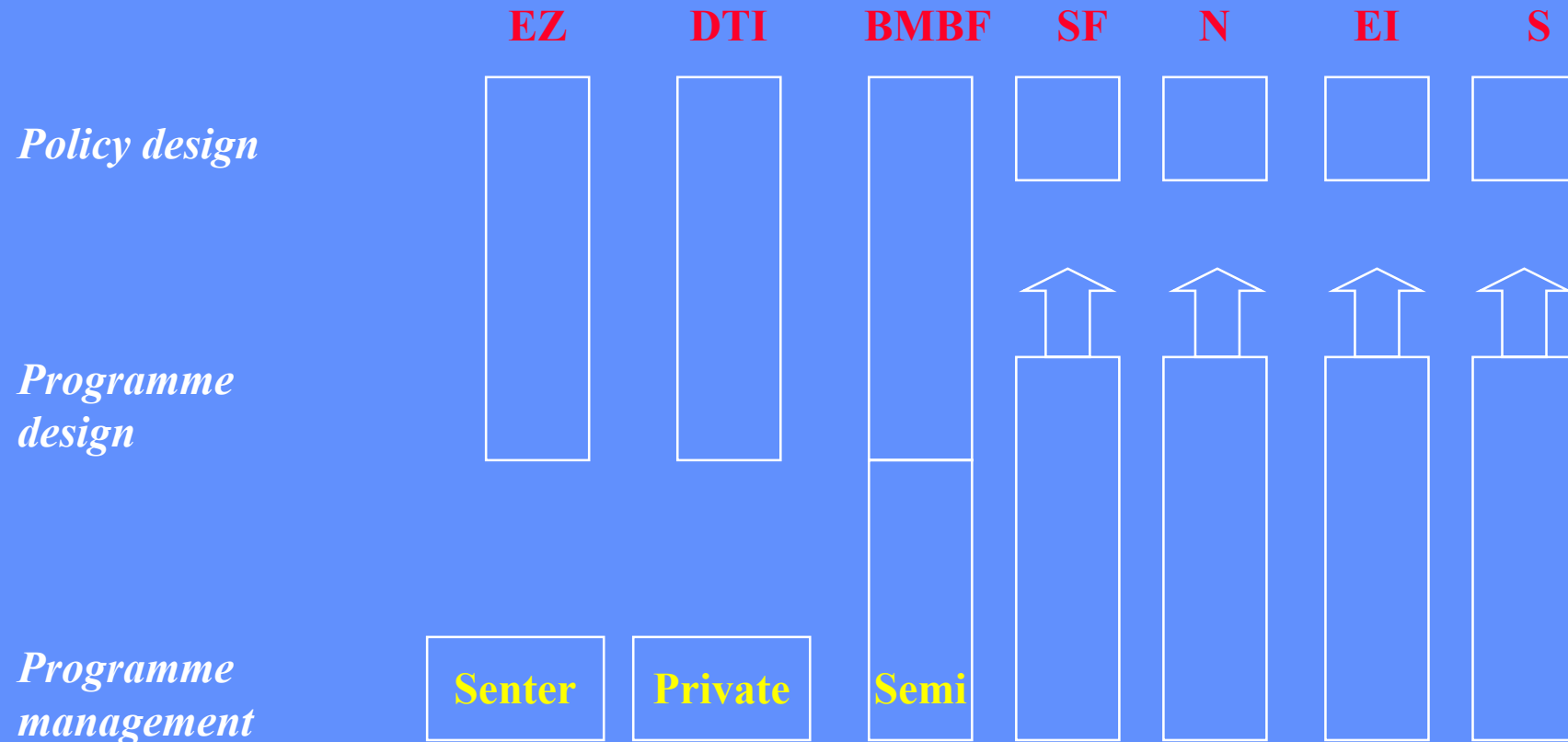
Research, Innovation and Business Development Funders

Country	Basic/ applied Research	R&D/Innovation	Business Development
Canada	4 Research Councils	Foundation for Innovation	Industry Canada, local actors
Denmark	6 Research Councils Danish Research Agency	MSTI (No separate agency)	Min Economic & Business Affairs (EFS?)
Finland	Academy of Finland	TEKES	TEKES/KTM
Ireland	2 Research Councils Science Foundation Ireland	Enterprise Ireland	Enterprise Ireland IDA Ireland
Norway	RCN	RCN	SND
Netherlands	NWO	STW, SENTER	SENER
Sweden	Research Council	VINNOVA	NUTEK/ALMI
UK	Seven Research Councils	No separate agency*	No separate agency*

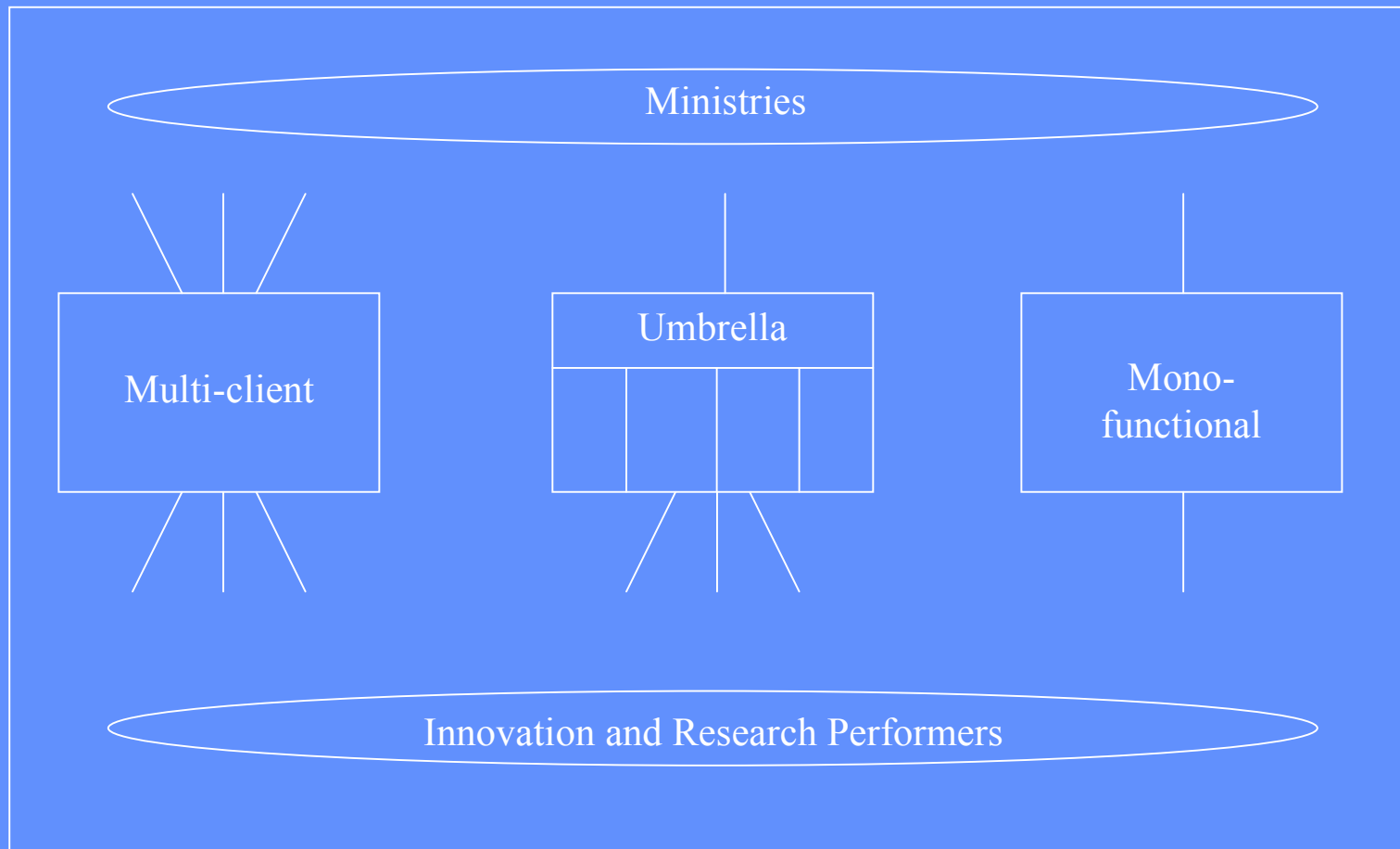
Advisory bodies on Research and Innovation

	Advisory Body	Comments
Canada	ACST	Ten members in private capacity from industry, academia and an NGO Outputs are reports on broad themes Has not met in more than a year
Denmark	Danish Council for Research Policy	Members in private capacity from industry and academia Reports to both Minister and Parliament Central in debates on system reform Secretariat run by Ministry
Finland	Science and Technology Policy Council	Government (include Prime Minister), science and industry members Quite influential due to high level representation
Ireland	Irish Council for Science, Technology and Innovation (ICSTI)	Members in private capacity from industry and academia Advises the Minister for Science and Technology Intended to have large influence on prioritisation of ST&I
Netherlands	CWTI	Members are senior civil servants from Ministries with R&D portfolio Prepares policy decisions for the Cabinet
Norway	Research Council of Norway	Executive Board is required by statute to provide advice to government on research and innovation policy
Sweden	Forskningsberedningen	Academic and industrial stakeholders in private capacity Advise the Education Minister
UK	Council for Science and Technology	Advises the Prime Minister and cabinet Members are Minister for Science, the Chief Scientific Advisor and senior representatives of academia and industry

Where's the intelligence?



Organisational innovation



Some general conclusions

- **Be cautious about ‘best practice’**
- **The influence of the New Public Management is (mostly) positive, and is increasing**
- **‘Horizontal’ concerns are often, but not always, important**
- **Systems robustness requires distributed intelligence across policy making and implementation organisations**
- **Multi-client and umbrella organisations are becoming more common - but are complex and difficult to govern**
- **Principal-agent relations can be a significant source of lock-in - especially at the first and second steering levels**
- **It all gets easier when budgets are going up**

Integration of research and innovation policy

- Need for solutions which respect differences in cultures and prioritisation between science and innovation communities
Convergence on need for high-level referee/arena
- Only effective if there's an interested listener in government
- Structural integration - Denmark, Norway, Netherlands (NWO)
- Co-operation cultures and practices - Finland, (Sweden)
- Few good examples of inter-ministry co-ordination - mix of ad hoc and structural solutions

Practices

- **Multidisciplinary challenges - generally ad hoc; experiments with structural solutions (DK, NL, N)**
- **Making big changes - usually involves going outside the system**
- **Research institutes - increasingly brought into common evaluation frameworks, amid some confusion about the right role and structure for institutes**
- **Ministry - agency relations - very different governance traditions give very different results**

Systemic thoughts from a cold place...

