

# The Finnish research and funding reform – an international perspective

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**Paul Cunningham**

Manchester Institute of Innovation Research

# S&T advice...



Source: [www.kudelka.com.au](http://www.kudelka.com.au)  
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# A changing world?

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- National priorities/national concerns – society, health, environment, technology, transport, etc.
- Global issues – climate change, natural disasters, ozone hole, conflict, migration, environmental degradation, diminishing resources, epidemics/zoonoses, etc.
- Innovation and industrial competitiveness

## Require:

- Long-term information/understanding and rapid/emergency response
  - Multi- and inter-disciplinary capabilities
  - Dealing with funding constraints and consideration of potential business models
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# (typical) Government responsibility

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- Various (governance) approaches:
  - Advisory councils: high-level council for science (or science and innovation) policy (Japan, US PCAST, Australia)
  - Advisory committees: array of specialized scientific and expert committees (US, Japan, UK)
  - National academies, learned societies and networks: (Canada, China, Germany, Netherlands, South Africa, US, UK)
  - Chief scientific advisors: (US, UK, Australia, Cuba, Czech Rep., India, Ireland, Malaysia, New Zealand, EC) plus departmental CSAs (UK, NZ)
- Mission-oriented approach
  - Sector/disciplinary focus
  - Reactive
  - Pro-active – horizon scanning
- Increasingly cooperative – HE/private sector engagement
- New governance models (full/partial privatization, Government-owned/contractor operated (UK PSREs, NZ CRIs))
- New networks
- Engaging stakeholders
- Coping with complexity and ‘wicked’ problems

Note: Broad range of activities often covered by umbrella term of ‘scientific (and technological) advice’

# S&T advice: Canada: The Roles of Government in S&T

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STEPS Report, CSTA, 2001

(Australia, France, Germany, New Zealand, Sweden, UK, US)

Identified needs:

- Support for decision making, policy development, and regulations
- Development and management of standards
- Support for public health, safety, environmental, and/or defence needs
- Enabling economic and social development
  
- Research is characterised by:
  - **Originality:** creation of new knowledge (quality)
  - **Independence:** third party assessment
  - **Consistency:** on-going data provision
  - **Clients:** addresses variety of needs - government decision makers, internal and external stakeholders, and the public
  - **Scope:** from leading edge, fundamental research, applied research, strategic research, technological development and Related Scientific Activities (disease surveillance, monitoring, testing, S&T information services, archiving, and museum & media services)
  - **Time frames:** from short-term goals to very long-term data sets

# S&T advice: How to ensure excellence through the research continuum (Canada)

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1. Definition of scientific priorities and programmes:
    - reflect needs of diverse base of clients and stakeholders
  2. Proposal and project selection:
    - scientific merit, demonstrate independence, alignment with government and departmental mandates, stakeholder needs, transparency, openness, and ethics.
  3. Scientific inquiry:
    - originality, objectivity, rigorous methodology, repeatability, research integrity, and ethical behaviour (plus needs for RSA).
  4. Immediate results (outputs):
    - account for all potential applications/uses
  5. Ultimate impacts (outcomes):
    - account for all potential applications/uses
  6. Communications:
    - to entire set of stakeholders
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# S&T advice: Framework for Excellence in Government S&T (Canada)

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- **Foundation of Excellence**
  - Leadership
  - Management
  - Capacity to address current and emerging needs
    - Human Resources
    - Infrastructure and Equipment
    - Financial resources
  - Science/policy interface
- **Pillars of Excellence in Government S&T**
  - Quality
  - Relevance
  - Transparency and openness
  - Ethics
- **Mechanisms**
  - Review
  - Quantitative metrics and indicators
  - Benchmarking
  - Satisfaction and impact analyses
  - Balanced Approach
  - Communications

## S&T advice: The Public Value of Public Sector Research Establishments: Towards a set of principles and guidelines

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- PSREs:
  - diverse collection of public bodies carrying out research in support of a wide range of Government objectives (inc. informing Government policy making, statutory and regulatory functions and providing a national strategic resource in key areas of scientific research).
- PSREs are part of/directly sponsored by Government departments; or part of/directly sponsored by UK Research Councils.
- Over 140 PSREs falling broadly into four categories:
  - Cultural Institutions (DCMS) - art galleries, museums, arts and heritage organisations.
  - NHS ‘innovation hubs’ (DoH).
  - Departmental Research Bodies funded by other Govt. Departments.
  - Research Council institutes (centres and units): perform intramural research on behalf of the parent Councils. Various funding models.



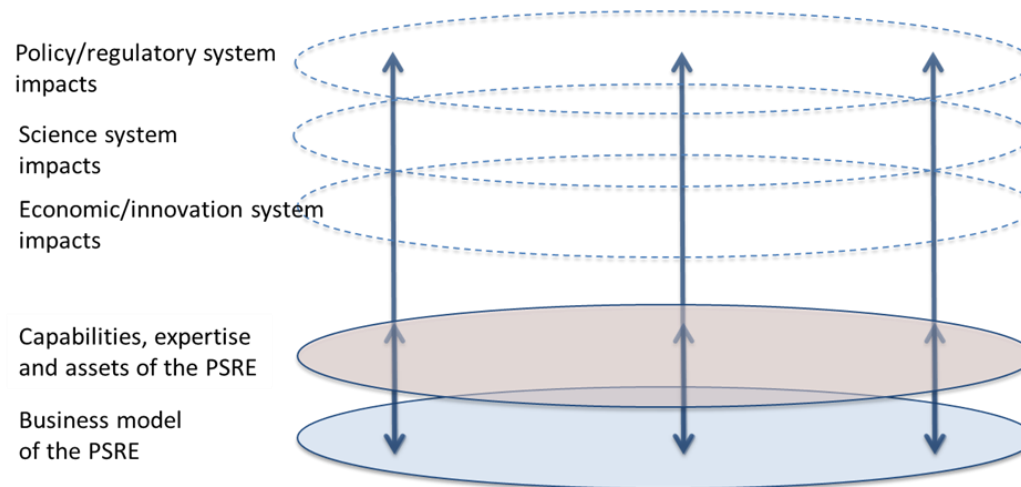
## S&T advice: UK PSREs: MIoIR guidelines for review process

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- Political pressure for partial or full privatization
- Remit: to undertake a study of the landscape of PSREs and help develop a set of principles to help inform their review in the future
- Key issues:
  - **Science capability:** how to assess the requirements or capabilities that Government needs and whether there are any constraints in terms of how and by whom these are delivered
  - **Impact:** How to assess a body's contribution to economic growth, along with a definition of the approaches to and scope of commercialisation that might be achieved, and wider impact e.g. on policy and society.
  - **System level considerations:** How to account for the aggregate effect on national science capacity and the innovation ecosystem of changes to a number of institutions when considering an individual proposal.
  - **Location:** how to assess the role of the body in its local economy.

# S&T advice: UK PSREs - findings

- No one size fits all approach to reform
- Identifying the roles thought to be most crucial will inevitably involve trade-offs: no business model will be likely to work equally well across all roles and all dimensions.
- Essential that departments and Government as a whole regularly review their policy and regulatory support needs and how they might best be met.
- Identified eight basic principles to be observed in any single institutional review



# Funding restructuring: Programme for Research in Third Level Institutions (1999-2001) (Ireland)

- To enable institutions to develop research capabilities on the basis of appropriate, long term, strategic planning; to promote excellent research by both individuals and teams leading to high quality graduate output; and to encourage collaboration within and between institutions
  - required institutions to demonstrate planning structures and research strategy appropriate to their circumstances;
  - concentrated on excellent research, not necessarily (or immediately) commercially exploitable
  - emphasised contribution research activities to quality of teaching
  - covered entire range of disciplines from humanities to natural sciences
  - funding heavily weighted towards capital expenditure to provide necessary research facilities
  - required assurances of matching funding (from private sector)
- Reviewed 2004
  - Investment in PRTLTI fully justified, should be continued
  - PRTLTI research funding strategically and effectively deployed on a priority basis
  - Institutions adopting more professional approach to research organisation, planning and management.
  - Research quality, scale of operations, and critical mass being achieved.
  - Strong evidence of an emerging collaborative culture
  - Impressive diversity of scientific disciplines, across all institutions, focused on common goals
  - Producing very highly skilled personnel for the national economy, and radically new scientific insights
  - Teaching and learning environments enhanced
  - Impressive general trends in PRTLTI publications, output and impact,
  - Promoting world-class research across all disciplines
  - Irish publication output increasing steadily
  - Bibliometric assessment showed impact of papers by PRTLTI researchers as higher than the national average.
  - Results achieved were remarkable, considering that PRTLTI still at relatively early stage of development

## Review: Typifying scientific advisory structures and scientific advice production methodologies” - TSAS, EC. 2001

- “Systematically mapped and characterised most significant scientific advisory bodies in 20 European states, plus overviews of US, Japan and Canada and transnational advisory bodies.
- Restricted to: Agriculture; Fisheries; Energy; Transport; Environment; Health & the consumer; Research
- Issue of scientific advice in government policy making gaining importance.
- High level of variation: cultural and national contexts play major determining role.
- Number of countries have undertaken some recent restructuring of their S&T advisory systems.
- Despite variation, still high degree of similarity in structure, many countries have hierarchical system.
- Major differences in terms of the level of formality or institutionalisation.
- Role of the national Parliament varies considerably.
- Shape and operation often determined by underlying national culture for openness, debate and social engagement.
- Most advisory bodies tend to engage in the provision of policy recommendations vs undertaking purely risk assessment type activities.
- Type of advisory system highly influenced by national S&T system and by topic under consideration.
- Different approaches to transparency and openness – with a trend to increasing these factors.
- Increasing engagement of stakeholder groups and general public in advisory process.
- Elements of Good Practice:
  - Openness and transparency;
  - The issue of independence;
  - Co-operation between advisory bodies;
  - Courses of action.

# Other approaches and reviews

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- Crown Research Institutes (New Zealand):
  - “Crown-owned companies that carry out scientific research for the benefit of New Zealand - each is aligned with a productive sector of the economy or a grouping of natural resources”: Four Year Rolling Reviews.
- Cooperative Research Centres (Australia):
  - link researchers with industry and government with a focus towards research application. Several economic impact studies.
- Network of Centres of Excellence (Canada):
  - focus research resources on social and economic challenges, commercialize and apply research breakthroughs, increase private-sector R&D, and train highly qualified people. Range of evaluation reports available.
- Danish ERAC Review:
  - Restructuring in response to an international peer panel review: advised merger of funding institutions along the innovation pathway – funding simplification.
  - Led to “Denmark - a Nation of Solutions”, followed by initiation of new public-private partnerships on innovation, and creation of The Innovation Fund Denmark replacing a number of previous funding bodies.

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- Cooperative Research Centres: <https://crca.asn.au/about-the-crc-association/about-crcs/>
- Network of Centres of Excellence: [http://www.nce-rce.gc.ca/index\\_eng.asp](http://www.nce-rce.gc.ca/index_eng.asp)
- Peer Review of the Danish Research and Innovation System: <https://ufm.dk/en/publications/2012/peer-review-of-the-danish-research-and-innovation-system-strengthening-innovation-performance>

# Annex – supplementary info

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## Principles of Science Advice to Government (from UK GO-Science)

- Preamble
  - ‘rules of engagement’ between Government and those who provide independent S&E advice. Provide foundation on which independent scientific advisers and government departments should base their operations and interactions...
- Clear roles and responsibilities
  - Respect and value academic freedom, professional status and expertise of independent scientific advisers.
  - Respect the democratic mandate of Government to take decisions based on a wide range of factors...
  - Government & its scientific advisers should not act to undermine mutual trust.
  - Chairs of Scientific Advisory Committees and Councils have responsibility to maintain open lines of communication with their sponsor department and its Ministers.
- Independence
  - SAs should be free from political interference with their work.
  - SAs are free to publish and present their research.
  - SAs are free to communicate publicly their advice to Government, subject to normal confidentiality restrictions, including when inconsistent with Government policy.
  - SAs have right to engage with the media and public independently...
  - SAs should make clear in what capacity they are communicating.
- Transparency and openness
  - Scientific advice to Government should be made publicly available unless there are overriding reasons...or not doing so.
  - Requirement for independent advisers to sign non-disclosure agreements...should be publicly acknowledged and regularly reviewed.

## Annex – supplementary info

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### New Zealand restructuring

- 1989-92, effectively disestablished Department of Scientific and Industrial Research (DSIR)
- created 10 Crown Research Institutes, with productive sector or natural resource focus.
- Simultaneously restructured govt. research arms (Meteorological Service, Forest Research Institute + some research activities of Ministry of Agriculture - incorporated within new CRIs.
- CRIs are government owned, but required to operate on commercial basis.
- Government established new Ministry of Research, Science and Technology (MoRST) (policy advisory department) and Foundation for Research and Technology (FRST) (statutory Crown agency to purchase S&T).



# S&T advice: UK PSREs: Key issues

## 1. Roles in national or international policy systems

- Ongoing input to policy making
- Ongoing regulatory or statutory roles (underpinning regulatory decisions or policies)
- Maintaining expertise, capabilities or facilities which might be needed in the future
- Maintaining expertise, capabilities or facilities which are required for emergency response
- Provision of other services to Government
- Contribution to Government capacity to act as ‘intelligent customer’ for evidence and research
- Contribution to organisational/corporate memory of Government in this policy area
- Cross-government capabilities
- International policy roles (e.g. participation in intergovernmental/treaty bodies, other contributions to international law/policy)
- Direct development of technology in support of the missions of the State

## 2. Roles in the national or global science system

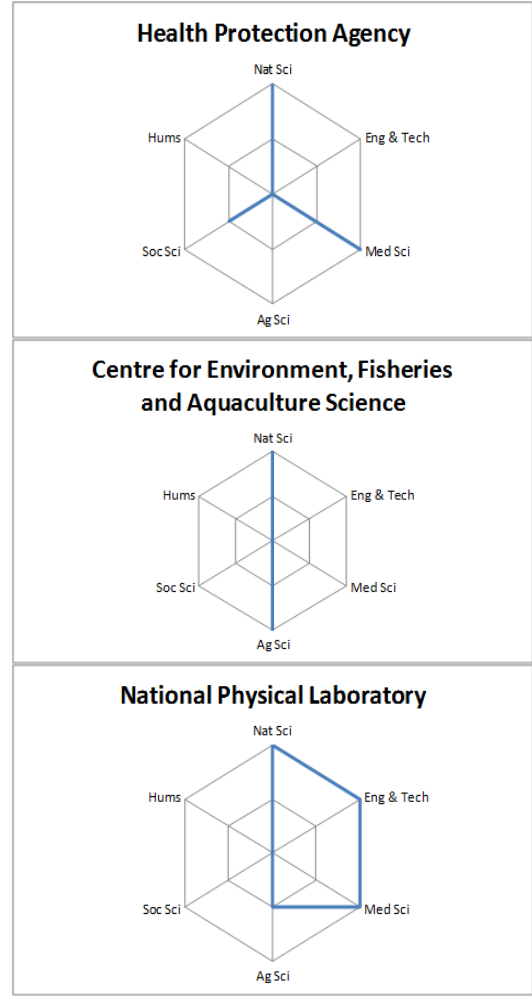
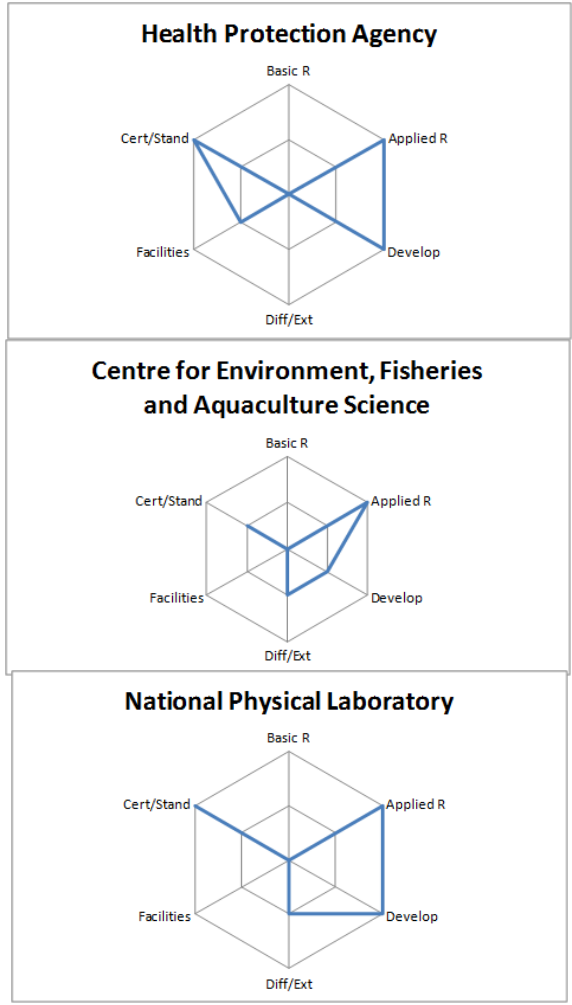
- Expertise in particular basic research fields/applied topics or problems, roles in major research networks/collaborations/communities
- Expertise in particular techniques, methods
- Holder of special resources: facilities, collections, datasets, etc.
- Role in advanced scientific training and education

## 3. Roles in local, national, sectoral or global innovation systems

- Knowledge transfer and commercialisation activity
- Important sectoral roles
- Important roles in a local economic cluster/zone, etc.
- Provision of advisory services, extension etc.
- Provision of other support services to economic actors
- Role in national standards, accreditation etc.
- International roles (e.g. participation in international standards setting activities)

# S&T advice: UK PSREs mapping

S&T activity profiles



S&T capability profiles