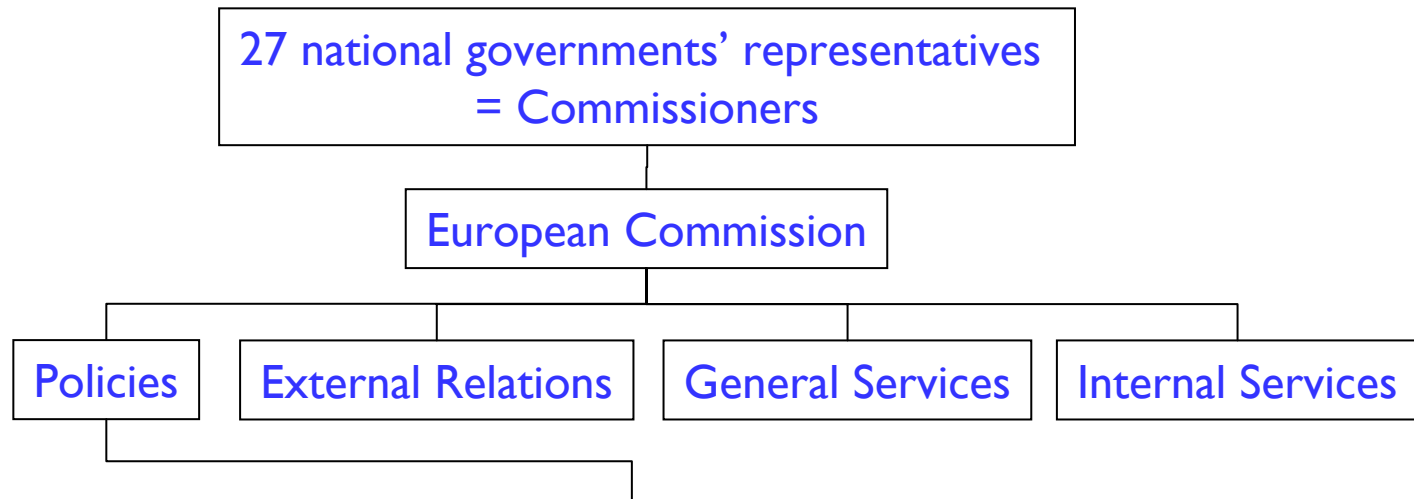


# Making research policy in the EU and the UK

Science for Labour AGM 2007

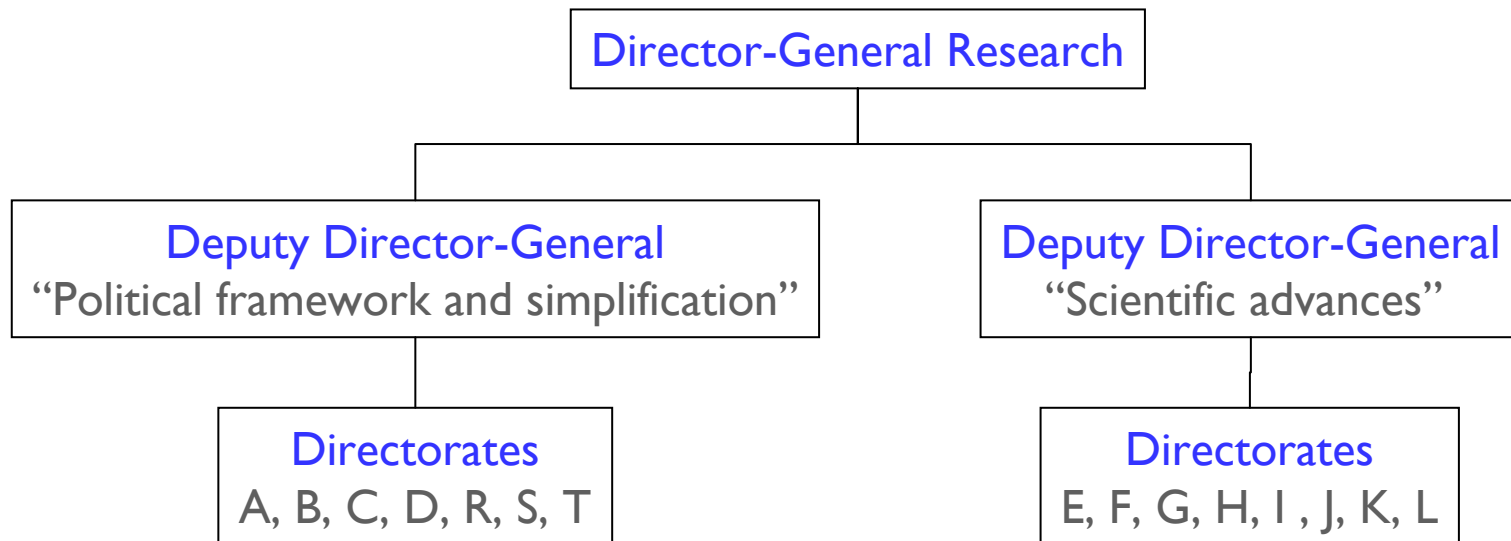
Martin Yuille

# Structures



**18 Directorates-General:** Agriculture; Competition; Economic and Financial; Education and Culture; Employment, Social Affairs and Equal Opportunities; Enterprise and Industry; Environment; Executive Agencies; Fisheries and Maritime Affairs; Health and Consumer Protection; Information Society and Media; Internal Market and Services; Joint Research Centre; Justice, Freedom and Security; Regional Policy; **Research**; Taxation and Customs Union; Transport and Energy

# Structures



Building the European Research Area; simplifying relationships (e.g. joint funding); establishing the 'fifth freedom' (freedom of movement of goods, services, people, capital – and knowledge)

Supporting European research by topic (biotechnologies, agriculture, food, health, industrial technologies, transport, energy, environment, science, economy and society)

- Political framework and simplification
  - Directorates
    - A Inter-institutional and legal matters
    - B European Research Area - Research programmes and capacity
    - C European Research Area - Knowledge-based economy
    - D International cooperation
    - R Resources
    - S Implementation of 'Ideas' programme
    - T Outsourcing

- Scientific advances
  - Directorates
    - E Biotechnologies, agriculture, food
    - F Health
    - G Industrial technologies
    - H Transport
    - I Environment
    - J Energy (nuclear)
    - K Energy
    - L Science, economy and society

## Directorate B: European Research Area

- **B1** Coordination of national research programmes – major European initiatives
- **B2** Relations with European research organisations
- **B3 Research infrastructure**
- **B4** Regions of knowledge and research potential
- **B5** Administration and finance

Horizontal issues

Substantive

Policy development

Internal

## Directorate F - Health

- **F1** Horizontal aspects and coordination
- **F2** Medical and public health research
- **F3** Infectious diseases
- **F4** Genomics and systems biology
- **F5** Health biotechnology
- **F6** Administration and finance

Horizontal issues

Substantive

Internal

# Functions - 'Research' as a directorate-general



- to develop EU policy in research and technological development
- to coordinate European and national research activities
- to support other EU policy areas (eg health, energy, regional development)
- to promote a better understanding of the role of science

EC has had a clean slate, allowing it to go back to first principles.

It questions the distinction between 'basic' and 'applied' (subjective, technocratic).

It proposes a distinction between researchers' agenda and society's agenda (objective, democratic)

- Research is the motor of the knowledge economy ∴
  - Society has a duty to fund research
  - Society has a right to set a research agenda
  - Researchers have a
    - duty to advise on society's agenda
    - duty to implement society's agenda
    - right to devise own agenda

# Framework Programmes implement themes

- FPI (1984) to FP6 have funded cooperative activities and multidisciplinary research in Europe and internationally
- FP7 runs 2007 to 2013 Budget: €532 billion (largest allocation yet)
- Research Directorate-General works closely with other Directorates-General eg Information Society; Energy and Transport; Environment; Enterprise; Fisheries; Health and Consumer Protection; Joint Research Centre\*

\* scientific and technical support for the conception, development, implementation and monitoring of EU policies

# Functions: supporting four themes

- Capacities
  - research infrastructure
- Ideas
  - European Research Council grants (1<sup>st</sup> call: 9167 proposals)
- People
  - post-doctoral fellowships
- Cooperation
  - specific collaborations between EU research groups



# Capacities in FP7: top facilities for top scientists

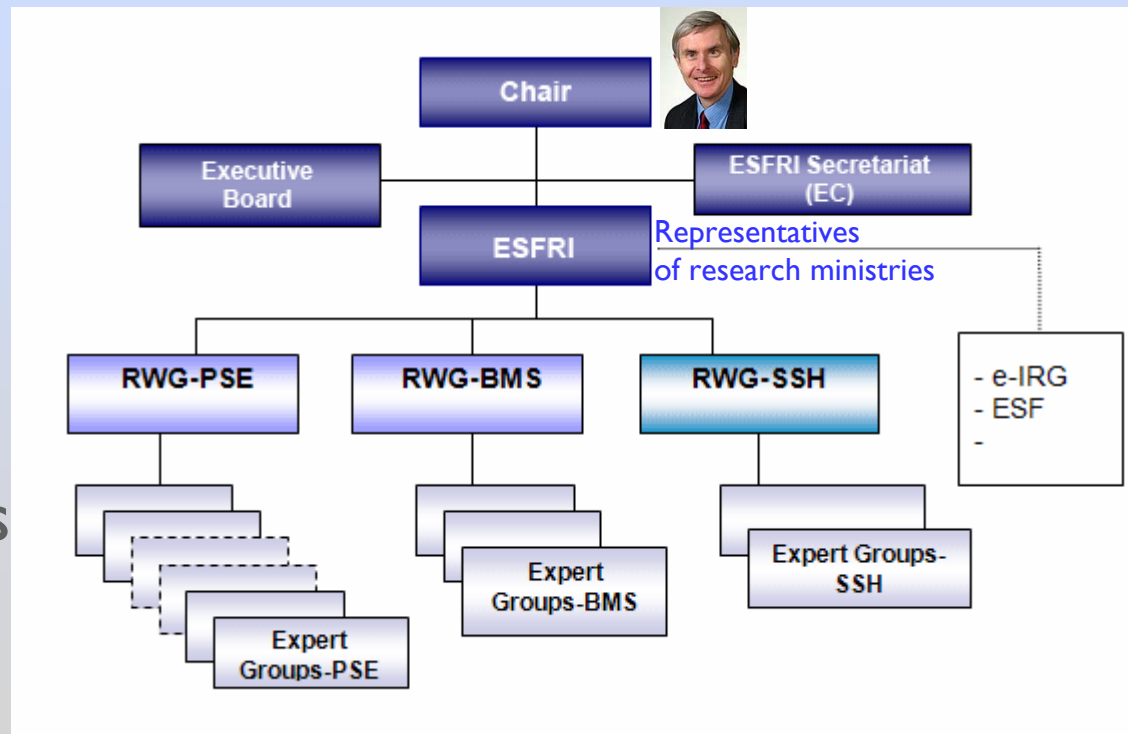
- Budget: €4 billion (2007 - 2013)
- Capacities will operate in seven areas:
  - Research infrastructures
  - Research for small and medium sized enterprises
  - Development in new member states
  - Development in ‘convergence region’
  - Science in society
  - Policy development
  - International co-operation



# Research infrastructure

- How to get a plan – a Roadmap - for upgraded or new RIs?

European  
Strategy  
Forum on  
Research  
Infrastructures  
(ESFRI)



RWG: Roadmap Working Group; PSE: Physical Science and Engineering;  
BMS: Biological and Medical Science; SSH: Social Science and Humanities

# Research Infrastructure Roadmap 2006

- Biomedical and life sciences
- Social sciences and humanities
- Environmental sciences
- Computer science
- Energy
- Material sciences
- Astronomy and particle physics
  - Expensive kit
  - Data links
  - Resource sharing
    - Projected budget: €27 billion



# Research Infrastructure Roadmap 2006

- **Biomedical and life sciences**
  - European Biobanking and Biomolecular Resources Infrastructure
  - European Advanced Translational Research Infrastructure in Medicine to link clinical and basic scientists and industrial partners
  - INFRAFRONTIER for the phenotyping, archiving and dissemination of mouse models
  - European Clinical Research Infrastructures Network to provide access to clinical research projects
  - Integrated Structural Biology Infrastructure for Europe for protein production, NMR, crystallography, microscopy
  - European Life Sciences Infrastructure for Biological Information

# Research Infrastructure Roadmap 2006

- **Social sciences and humanities**
  - Facility to provide and facilitate access of researchers to high quality data for social sciences
  - Research Infrastructure to make language resources and technology available and useful to scholars of all disciplines
  - Digital infrastructure to study the sources in cultural heritage institutions
  - Central and distributed facility to promote and ensure cooperation and integration of data, technologies and policies
  - Upgrade of the European Social Survey (set up in 2001 to monitor long term changes in social values)
  - Data infrastructure for empiric economic and social science analysis of the on-going changes due to population ageing

# Research Infrastructure Roadmap 2006

- Environmental sciences

- European Polar Research Icebreaker
- Multidisciplinary Seafloor Observatory (5 sites)
- Long Range Tropospheric Aircraft (options: C130 or Airbus 400M)
- Ocean Observing buoy system (deployment over 12 years)
- Climate Change Observation from 20 commercial aircrafts (deployment)
- Integrated Carbon Observation System (deployment/operation over 20 years)
- Infrastructure for research on the protection, management and sustainable use of biodiversity

# Research Infrastructure Roadmap 2006

- Computer science
  - Integrated European High Power Computing Service (2 - 4 high-end centres)

# Research Infrastructure Roadmap 2006

- Energy

- High Power long pulse Laser for “fast-ignition” Fusion
- International Fusion Materials Irradiation Facility
- High flux reactor for Fission Reactors Materials Testing

# Research Infrastructure Roadmap 2006

- Material sciences

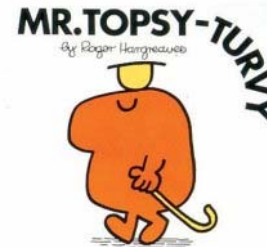
- Extreme Light intensity short pulse Laser
- Upgrade of the European Synchrotron Radiation Facility (in 7 years)
- European Spallation Source for neutron spectroscopy
- Hard X-ray Free Electron Laser in Hamburg
- Upgrade of European Neutron Spectroscopy Facility (in 2 phases)
- Infrared to soft X-rays complementary Free Electron Lasers (in 5 users facilities)
- Pan European Infrastructure for Nanostructures and Nanoelectronics

# Research Infrastructure Roadmap 2006

- **Astronomy and particle physics**
  - European Extremely Large optical telescope
  - Facility for Antiproton and Ion Research
  - Underwater Neutrino Observatory (in design phase)
  - Square Kilometer Radiotelescope Array (in two phases)
  - Production and study of rare isotope Radioactive beams (toward the future facility EURISOL)

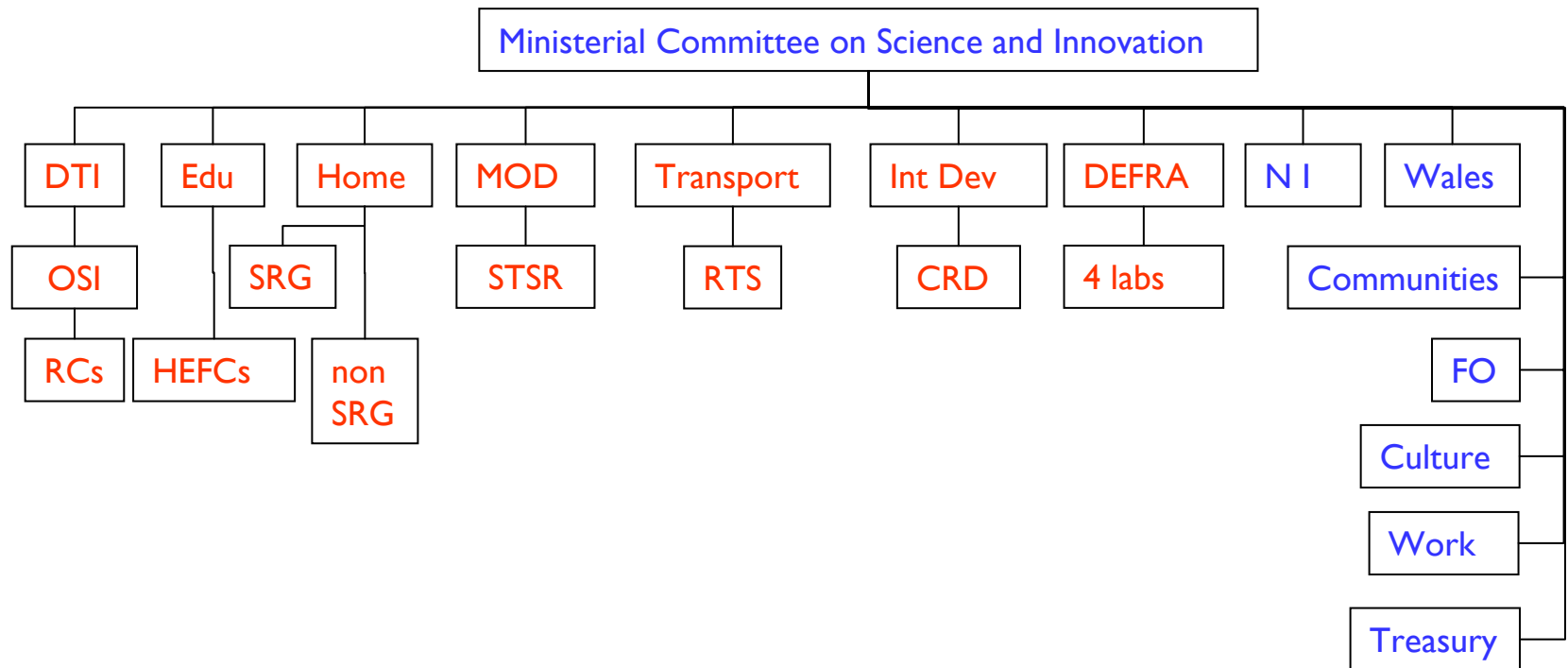
# Making UK research policy

Topsy becomes Topsy-turvy



# Cabinet level coordination

'To determine and oversee the implementation of the Government's policies in relation to science, innovation and wealth creation'

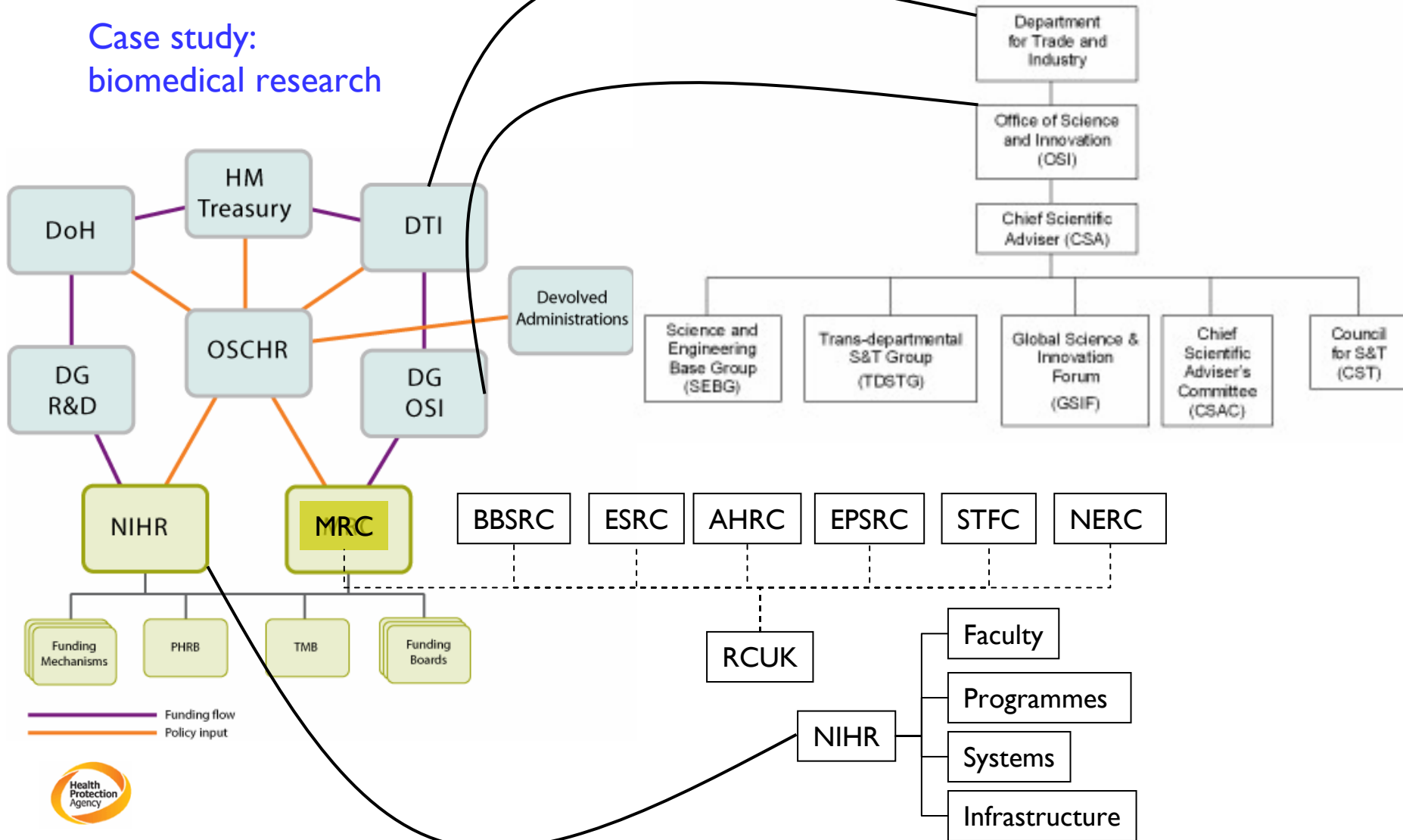


# PM - level coordination

- Council for Science and Technology
  - Terms of reference
    - To advise PM on the strategic policies and framework for:
      - sustaining and developing science, engineering and technology (SET) in the UK, and promoting international co-operation in SET
      - fostering SET as an integral part of the culture of the UK
      - promoting excellence in SET education
      - making more effective use of advice
      - promoting SET-based innovation for the UK economy, health, quality of life, global sustainable development
  - Members
    - David King; John Beringer; Geoffrey Boulton; Peter Davies; Janet Finch; Alan Gilbert; Wendy Hall; Hermann Hauser; Alan Hughes; Sue Ion; Paul Nurse; Keith Peters; Raj Rajagopal; Philip Ruffles; Michael Sterling; Kathy Sykes; Mark Walport

# Who does what?

Case study:  
biomedical research



# Ministry of Research: a blueprint

The Minister

A	Horizontal issues
B	Capacities (research infrastructure)
C	Knowledge-based economy
D	EU and international cooperation
E	Biotechnologies, agriculture, food
F	Health
G	Industrial technologies
H	Transport
I	Environment
J	Education
K	Energy
L	Science, economy and society
M	Intermediate technologies
N	Outsourcing
O	'Ideas' programme

## • Role

- to develop UK policy
- to coordinate UK and European research activities
- to support other UK policy areas (eg health, energy, regional development)
- to promote a better understanding of the role of science

# A Ministry of Research

- Research (in science and humanities) is the motor of the UK knowledge economy

<u>Occupations</u>	<u>'84</u>	<u>'94</u>	<u>'04</u>
Knowledge workers	31%	36%	41%
Personal services etc	25%	28%	28%
Skilled/unskilled etc	44%	37%	30%

- Source: Working Futures 2004-2014, Work Foundation

# MoR: Pros and cons

- **Pros**

- Bridges the ‘two cultures’
- Recognises research as driver of the knowledge-based economy – not just an add-on to large ministerial briefs
- Recognises horizontal nature of research (Teflon, www, ethics)
- Enables full debate on the societal agenda for research
- Permits rational resource allocation for societal agenda and researchers’ agenda
- Replaces an over-complex, contradictory structure
- Much more flexible (e.g. OST in DTI or DIUS? debate superceded)
- Facilitates stated goal of 2.5% GDP by 2010
  - cf 0.55% UK GDP (OECD 2003 )
- Enables better UK input into and benefits from EU
- Fulfils 1993 John Smith pledge

- **Cons**

- It ain’t broke, don’t fix it
- Might disrupt dual support system
- We just want more £ - not reorganisation
- Special cases (defence, forensics)

# Department for Education and Skills

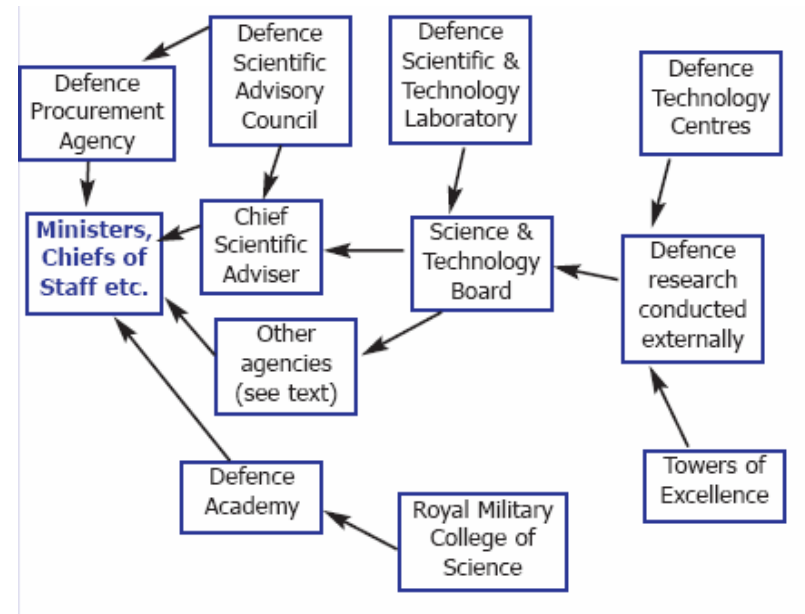
- HE Funding Councils in England (HEFCE) Scotland (SHEFC), Wales (HEFCW), Northern Ireland (DHFETE)
- Underpins research capability of universities
  - Selective distribution of funds based on Research Assessment Exercise
- Funding stream to Research Councils was provided via DTI and OST (“dual support” system)

# The Home Office

- Science & Research Group strengthens the strategic focus, co-ordination and quality assurance
  - Animal (Scientific Procedures) Division
  - Home Office Scientific Development Branch
  - Research Development and Statistics
  - Science and Research Group Support
  - Science and Technology Reference Group
- Units outside of the Science and Research Group include:
  - Forensic Pathology Implementation Team
  - Forensic Science Service
  - Information and Communications Technology Unit
  - Immigration and Nationality Directorate
  - Police Information Technology organisation
  - Science Policy Unit
  - Youth Justice Board

# Ministry of Defence

- Under Secretary of State and Minister for Defence Procurement has responsibility for Science and Technology Strategy and Research
  - civilian applications
  - defence research
  - Defence Science and Technology Laboratory (DSTL) - 3000 staff
- Chief Scientific Adviser for MOD supports Defence Scientific Advisory Council (DSAC)



# Department for Environment, Food and Rural Affairs

- Under Secretary for Farming, Food and Sustainable Energy has responsibility for science issues and research facilities
  - Central Science Laboratory
  - Kew Royal Botanic Gardens
  - Warwick, Horticulture Research International
  - Veterinary Laboratory Agency
- Science priorities:
  - Climate change and energy
  - Natural resource protection
  - Sustainable consumption and production
  - Sustainable rural communities
  - Sustainable farming and food
- DEFRA Science Directorate
  - led by the Chief Scientific Advisor
  - supported by a Science Advisory Council

# Department for Transport

- Research and Technology Strategy Division (RTS)
  - Provides central, strategic guidance on Research Programme Management
  - Represents DfT interests in Science, Engineering and Technology policy
  - Coordinates research needs across the department
  - Links Research Programmes with national and international programmes
  - Organises scientific advice in new policy areas and techniques
  - Works to integrate research into DfT strategy for evidence based policy
  - Develops the roles of science professionals within DfT

# Department for International Development

- Advice from a Chief Economist and a Chief Scientist (CSA)
  - CSA identifies “where new S&I can contribute to poverty reduction and the achievement of the Millennium Development Goals”
- Central Research Department (CRD)
  - seeks to influence the international and UK research agendas
  - manages long-term research initiatives
  - funds activities with a significant impact on poverty
  - works closely with CSA to maintain external links