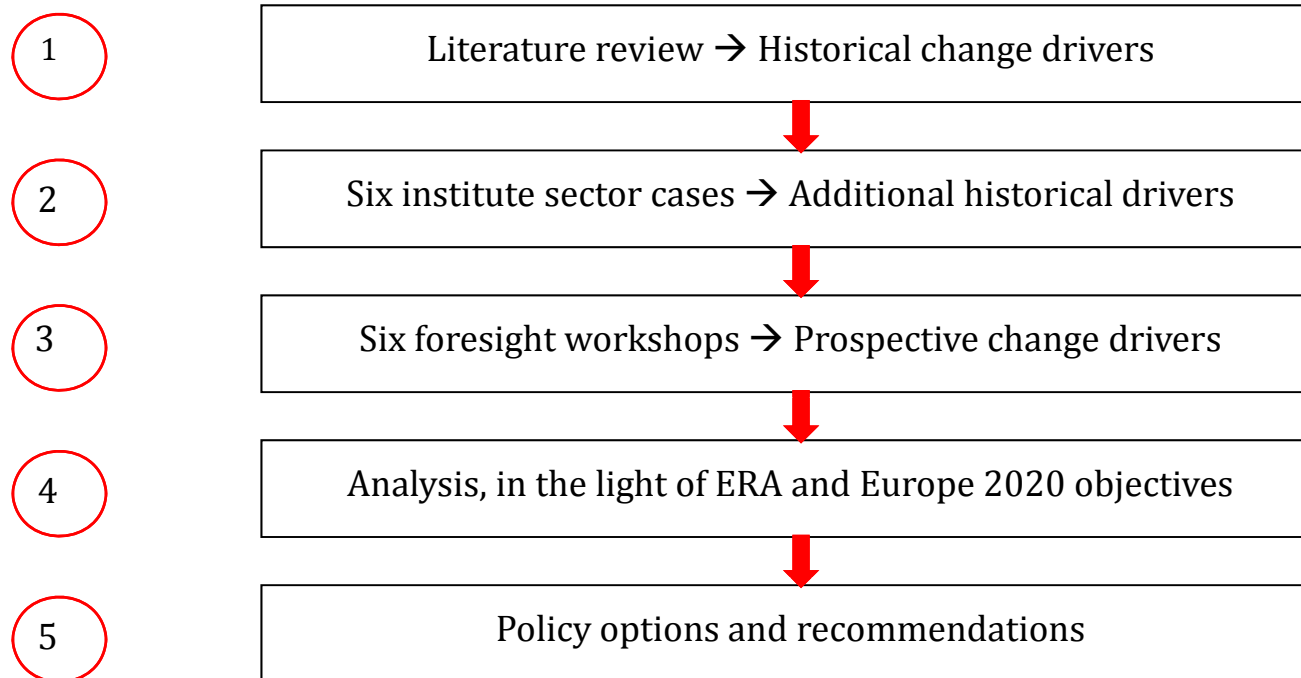

Policy and Governance for Research Institutes

Eu-SPRI

Erik Arnold, Kate Barker

Karlsruhe, 12 June 2012

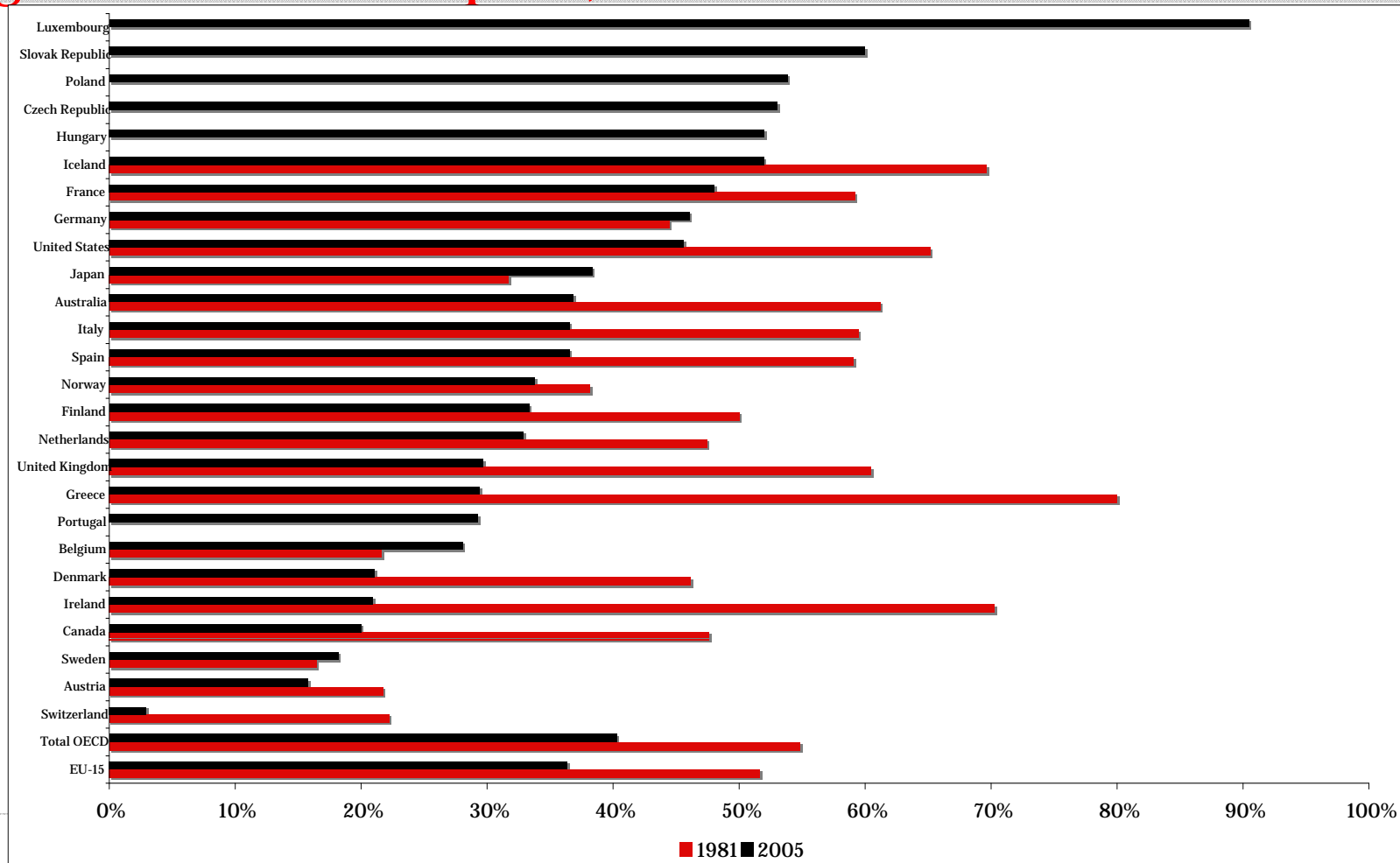
What we did



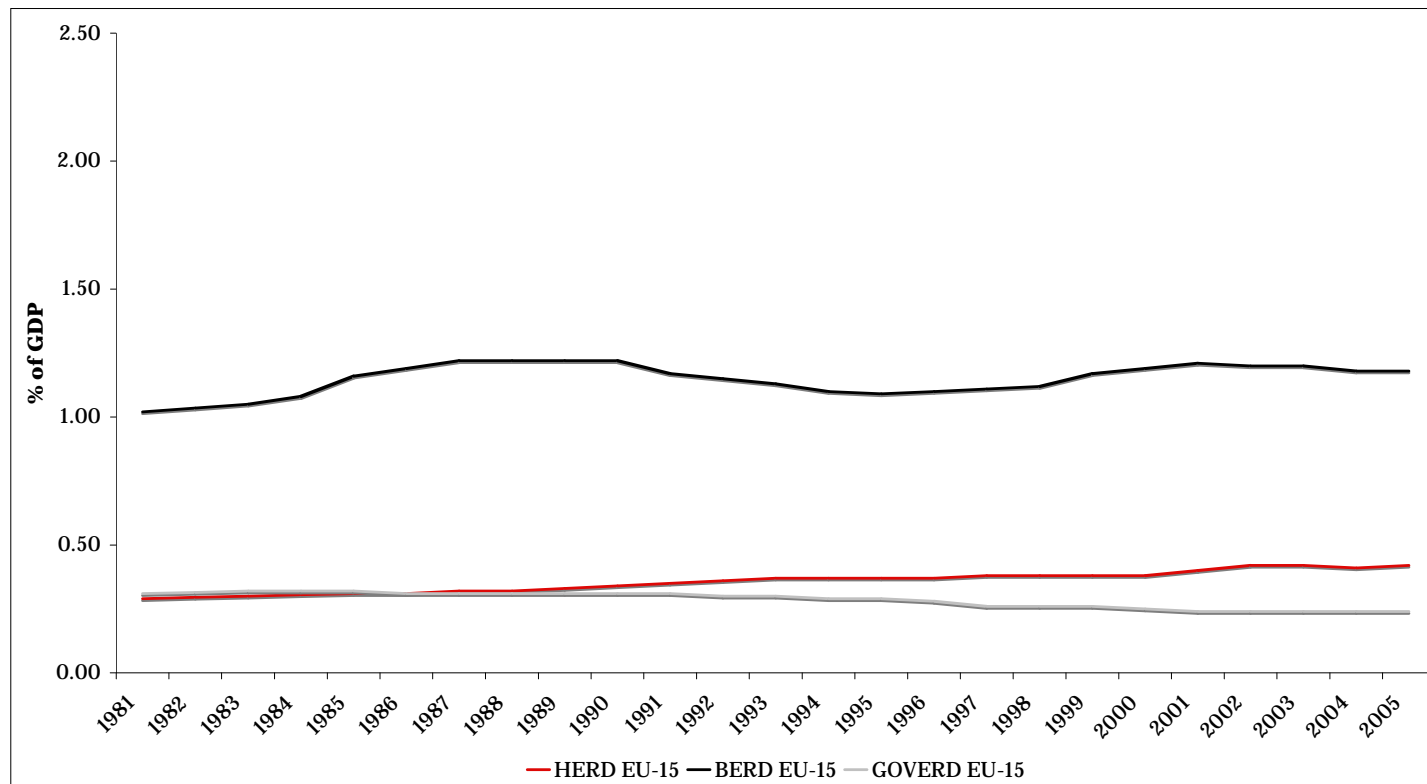
Three types of research institutes

- **Scientific research institutes**, such as the Max Planck, CNRS or the institutes of the national academies of science. These largely do the same kind of research as universities and correspondingly get a high proportion of their income in the form of block grants
 - **Government laboratories**, generally owned by the state and which normally deliver services and policy-relevant information to government. Examples include nuclear research, marine institutes (which mix counting fish stocks with more fundamental work in marine biology). Generally, the bulk of their income comes from the ministry, whose policy mission they support
 - **Research and Technology Organisations (RTOs)**, like VTT, the Fraunhofer Society or TNO. Their origins are often as testing laboratories, product and process developers for industry or branch-based research associations but they focus on user- or problem-orientated research for the benefit of society and normally win a large part of their funds competitively. Their role is to assume some of the risks of industrial innovation, helping companies to go ‘one step beyond’ what they would normally be able to do
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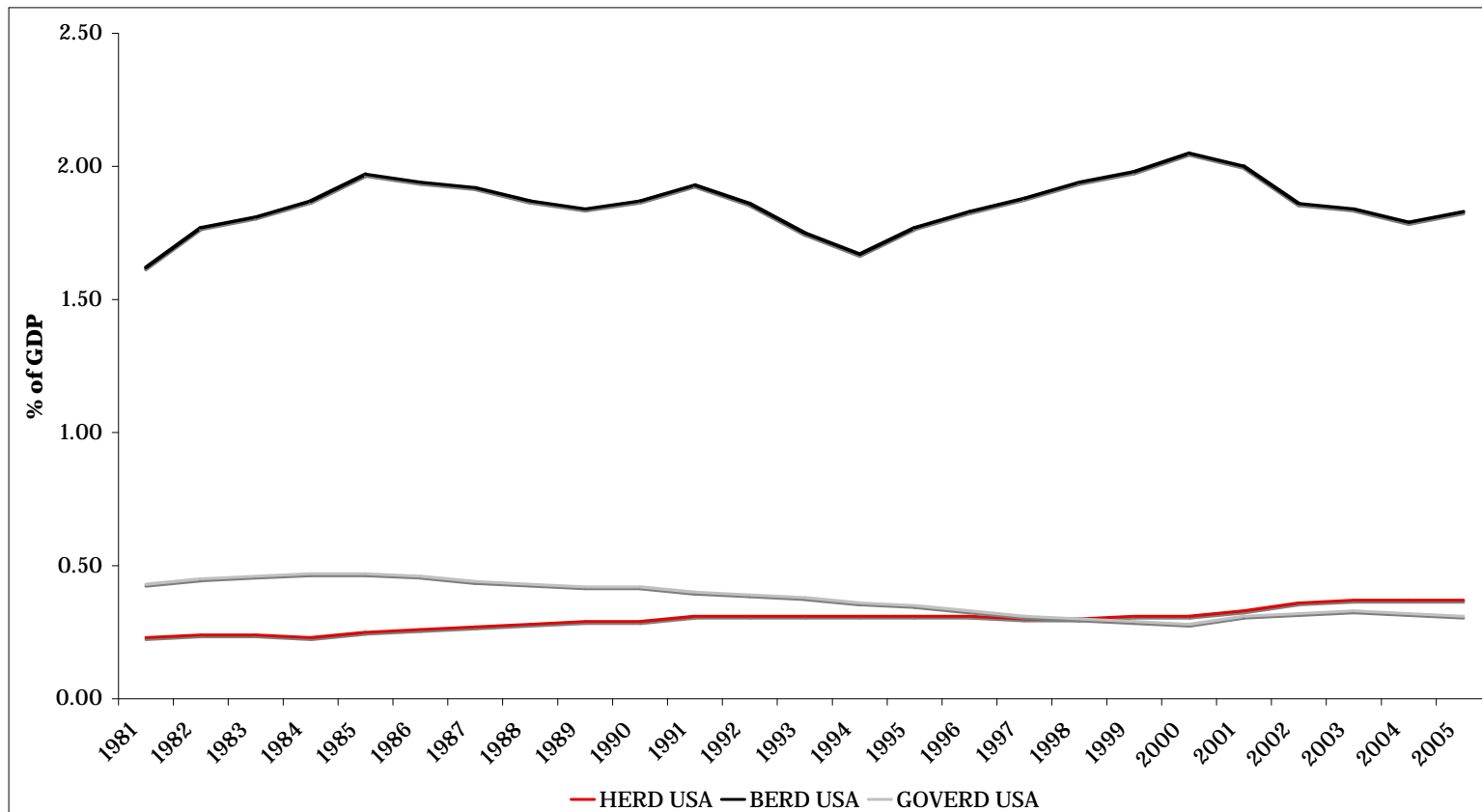
The institute sector is stagnating (GovERD/Total government R&D spend)



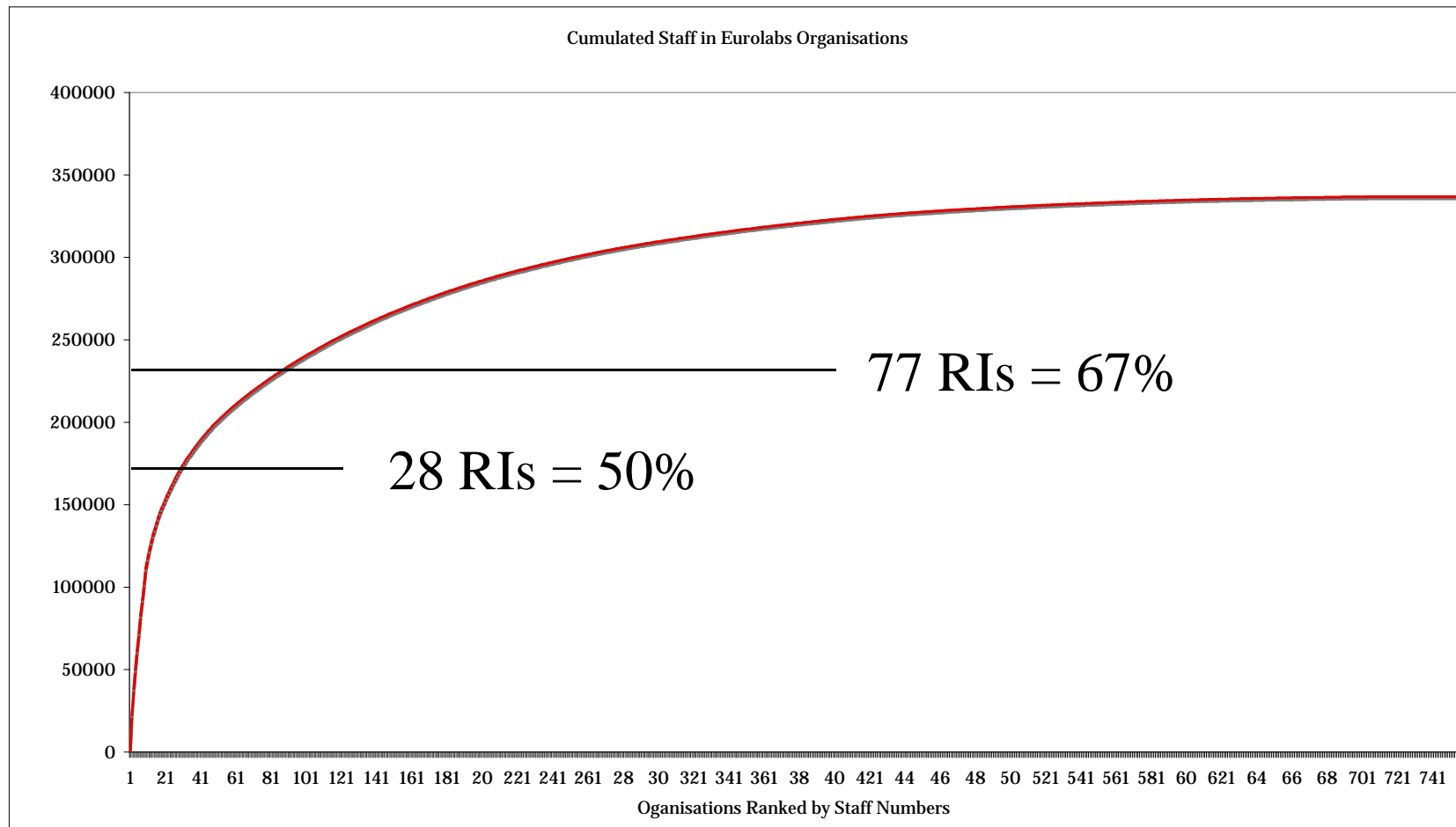
HERD has overtaken GovERD in the EU-15



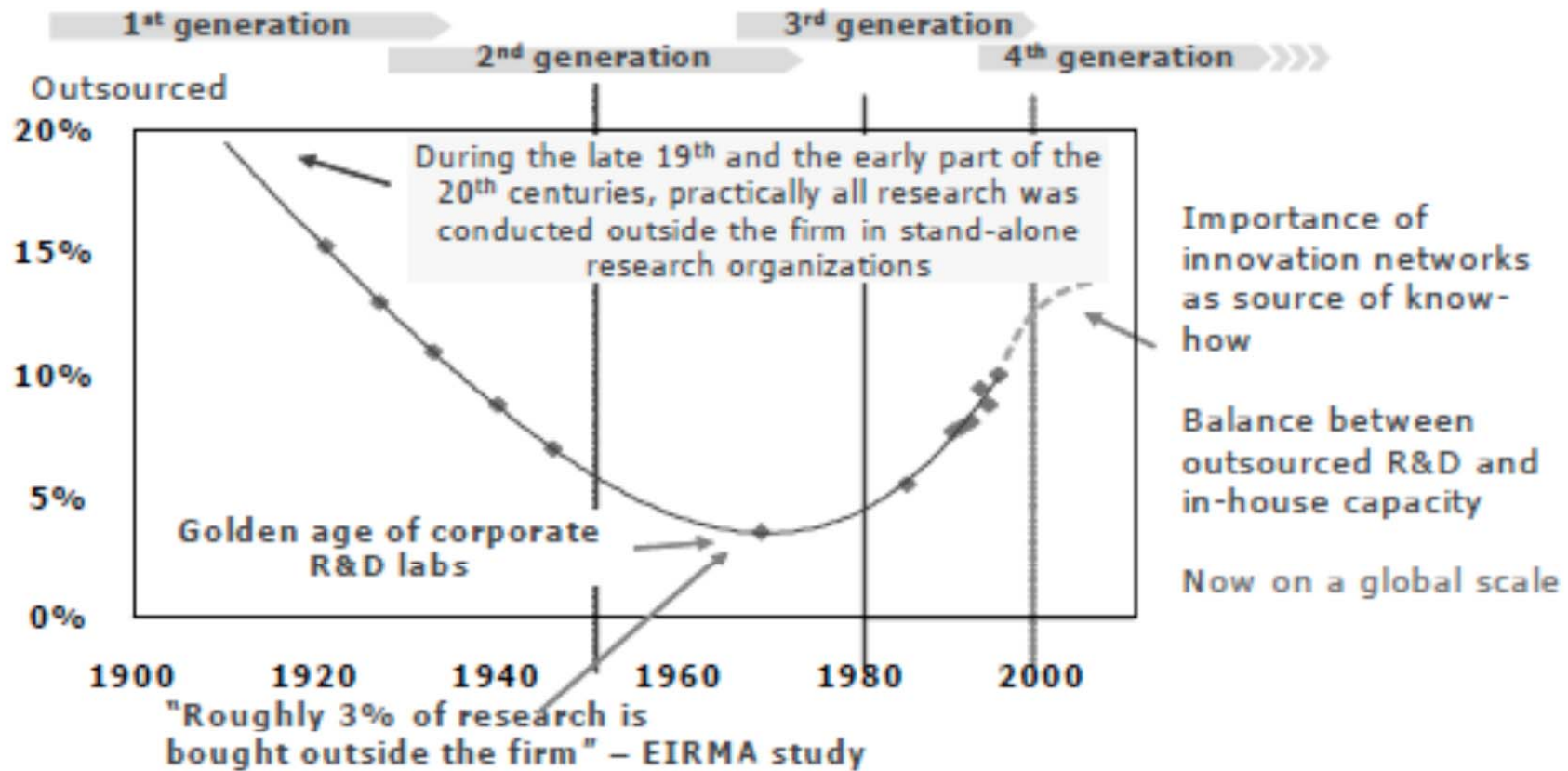
There is a similar but slower pattern in the USA



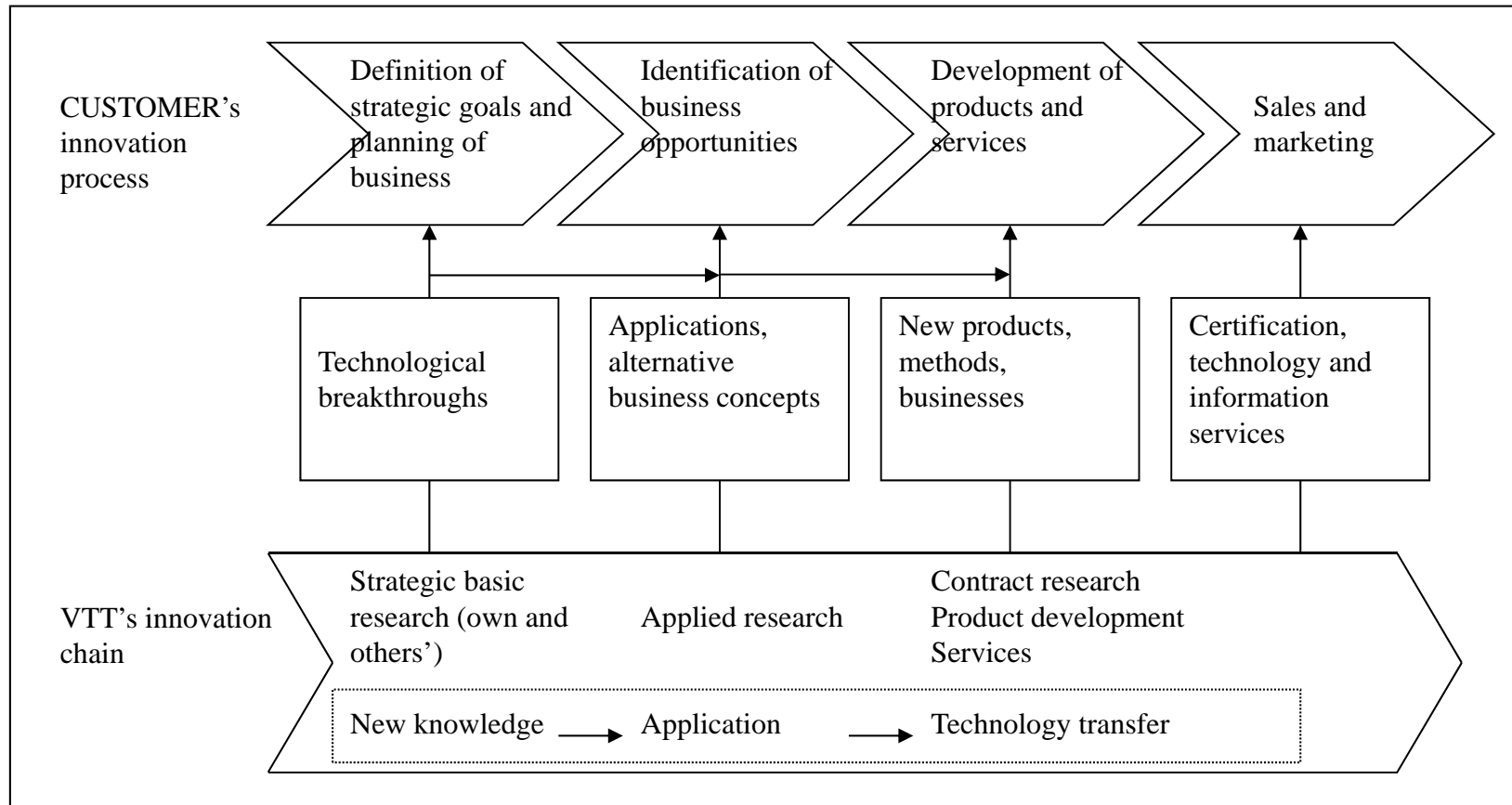
EUROLABS employment data show a fairly concentrated but still quite fragmented picture



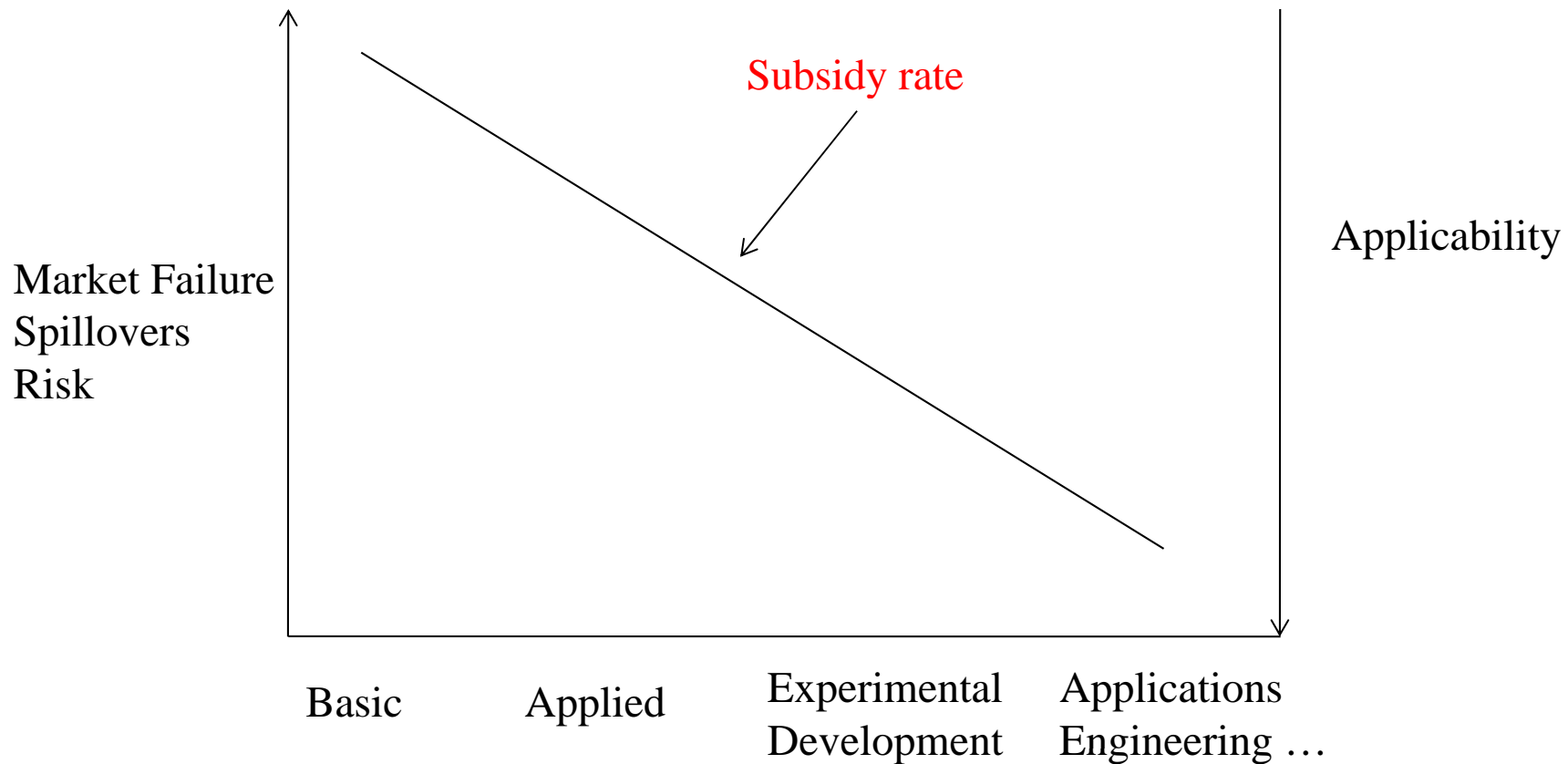
Resurgence of R&D outsourcing an opportunity - probably for all three types of institute



The RTOs' innovation dynamic gives a basis for more general understanding of institutes' functions

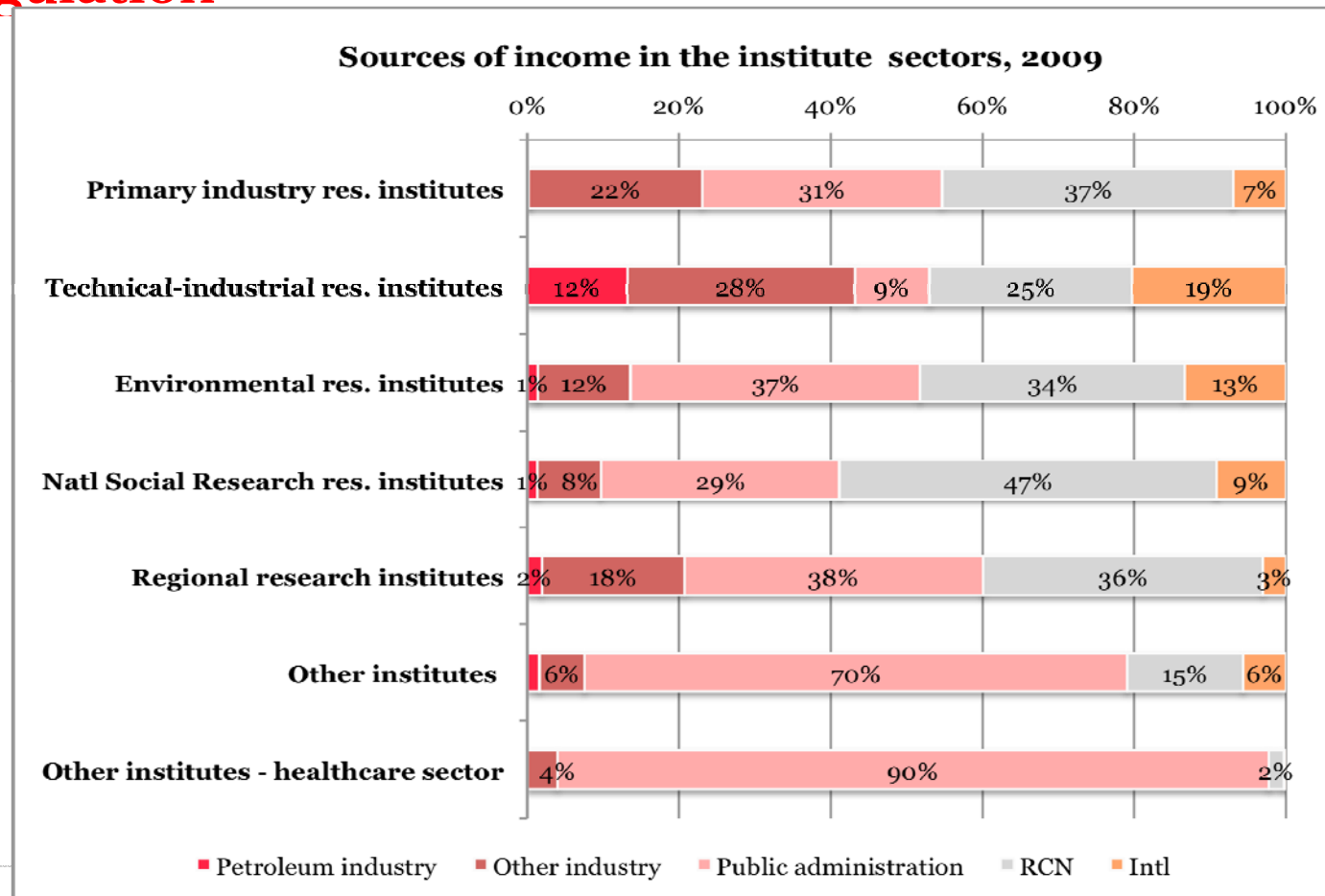


In principle, the rate of core funding is consistent with degree of spillover



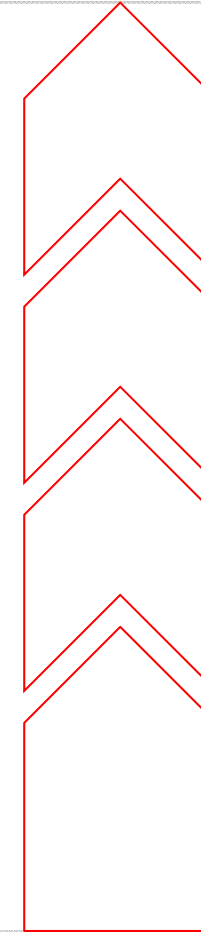
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As in Norway, this is overlaid by 'government labs' funding – typically for very applied work supporting regulation



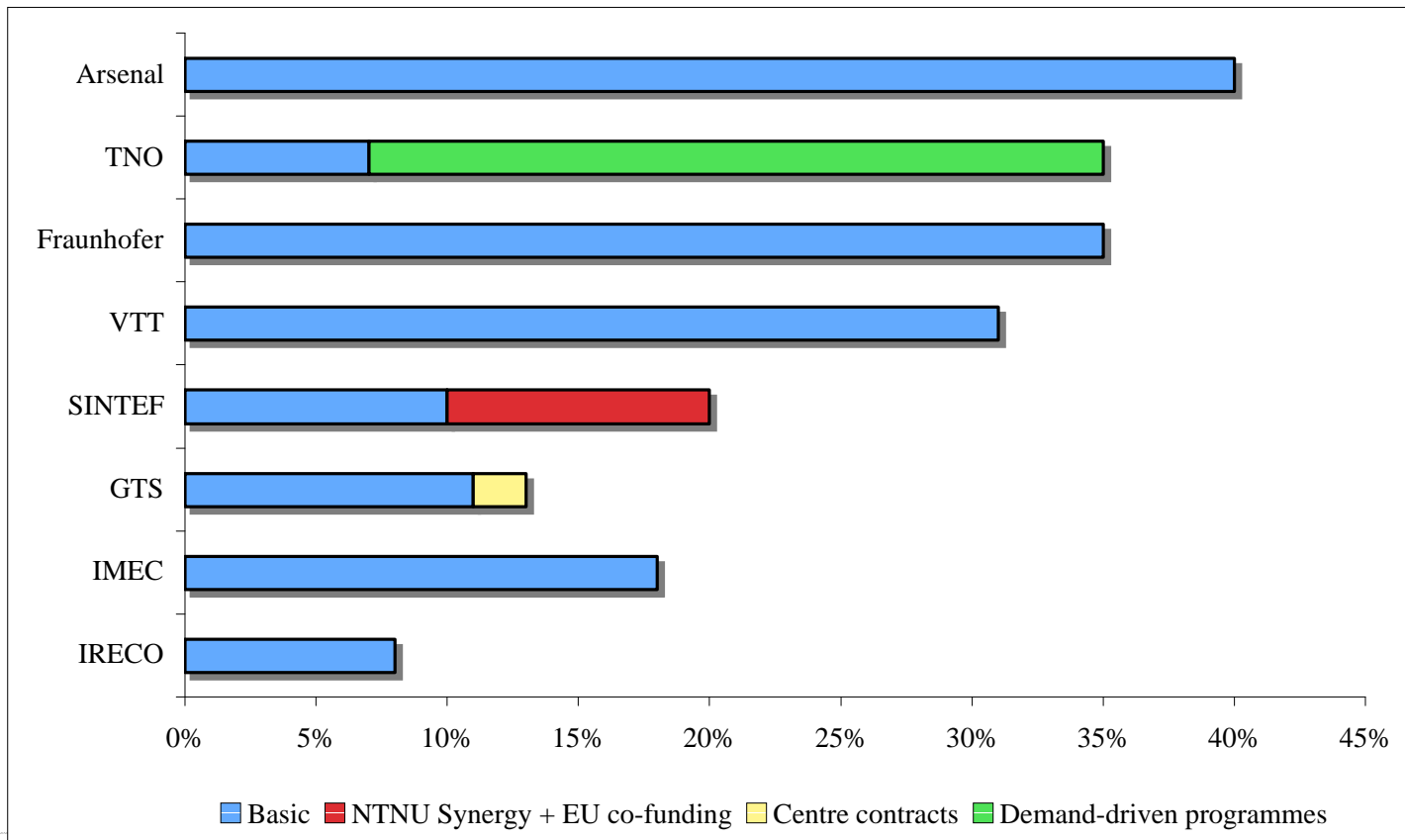
There are thus four funding streams influencing institute behaviour

- User contract research funding
 - *Industry*
 - *State/other*
- Competitive programme funding
 - *National*
 - *International*
- Tied, mission or 'administrative' research
 - *Research to support government and regulation*
- Core funding
 - *Science*
 - *Building knowledge and Human Resources*
 - *Building platforms*



Knowledge build-up

Capability development resources provide THE key lever on the nature of institutes' work



Change drivers common to Research Institutes

- Technological convergence; increasingly ‘scientific’ nature of technology and innovation
- Hence, closer links with universities
- Growing S&T sophistication of institutes’ users
- Globalisation of scientific knowledge and of the institutes’ company customers
- A growing proportion of more ‘commercial’ activity and greater participation in markets
- Increasing scale (in the RTO sector) and the building of more polytechnic organisations
- Policy – at national level to reduce state funding; potentially at European level, where measures to promote a stronger and more international role for the institutes in the European Research Area have largely been absent

Despite globalisation/integration drivers, there are major obstacles to integration (EUROLABS)

- Continued specificities in local markets for scientific advice caused by variation in legislation, standards etc
- Continued specificities in local markets for industrial services
- Variety in legal and ownership structures to perform the same mission
- Variety in scientific and technological structures providing a setting for a particular competence
- Variety in level of scientific achievement and facilities
- Lack of management capability in operating a multi-national service
- Variable rates of subsidy or core funding between countries

Civil Space Institutes

- Classic mission oriented institutes
 - Around 50 years of European cooperation in space due to high costs and risks
 - ESA a main coordinator
 - National institutes (prestige and economic benefits)
 - Shift towards applied research
 - Increasing cooperation at a global level with competing research teams
-

Plant Science

- Long-established institutes covering different disciplines, including agriculture, ecology
 - Ministry-owned; 50-90% government funding
 - Some re-organisation, consolidation to become multi-disciplinary with rise of molecular science
 - Reduction in core funding
 - Fragmentation - European Plant Science Organisation since 2000
-

Geological Survey Institutes

- Ministry-owned, mission-oriented
 - Changes in ownership, budgets and realignment of income streams to national and international contract work for some
 - Shift to include more applied and contract based research
 - Need for data harmonisation bringing more European integration through EuroGeoSurveys organisation
-

Marine Research Institutes

- Government laboratories with core funding providing advice to government on regulation and enforcement
 - Long history of research cooperation including beyond Europe, organised in Europe via ESF and EFARO
 - High costs of research infrastructure, international nature of seas and oceans, economic importance of aquaculture and support for EU policy all point to need for more cooperation
-

Metrology Institutes

- Nearly all government owned
 - Officially responsible for metrology, maintenance of standards and metrology in new areas
 - Still nationally embedded but cooperation in standards has underpinned cooperation and coordination in research programmes
 - Increasing links to university sector as new expertise is needed
 - Cooperation via ERA-Nets has allowed the development of the European Research Programme under Article 185 – major shift in governance of metrology research
-

Large RTOs

(Polytechnic R&D institutes)

- Much reorganisation including privatisation but national funding remains important
 - Extensive international activities and presence
 - Collaboration in FP projects and via ERA-Nets
 - Convergence
 - Drive for efficiency in delivering service to industry, more “open innovation” practices
-

Europeanisation

- **Space** – from ELDO platform-sharing to ESA: European applications in a virtual institute
 - **Plant science** – European Plant Science Organisation: a representative organisation
 - **Geosurveys** – Eurogeosurveys and OneGeology (global): representative and unifying the nationally-held knowledge bases
 - **Metrology** – European Association of National Metrology Institutes (EURAMET) operating the European Metrology Research Programme (EMRP) 169/185: shared science base and division of labour
 - **Marine** – history in International Council for the Exploitation of the Sea (ICES); forced together through the Common Fisheries Policy; shares science through EWSF Marine Board: shared science and regulation
-
- **RTOs** – EARTO/EUROTECH: representative organisations

Trends in governance

- Reforms to bring proxy users into the governance structures of institutes
 - Increased contestability and steering of core ('institutional') funding
 - *Performance contracts and growing use of indicators*
 - *Discussion around performance-based funding (implemented in Norway, Czech ...)*
 - More explicit negotiation with institutes about their strategies and thematic foci
 - A clearer pattern of funding, where the proportion of institutional funding reflects the degree to which the institute addresses areas of market failure
 - A vacuum with regards to internationalisation
-

TNO's new core funding governance has the most radical shift towards societal missions

- Four-year planning periods
- Drives most (but not all) of core funding
- Focused around 12 societally driven themes, each led by a ministry
- Funding periodically determined on the basis of four 'Audits'
 - *The Technology Position Audit*
 - *The Client Satisfaction Audit*
 - *The Employee Satisfaction Audit*
 - *The Future Impact Audit*

Policy opportunities to support internationalisation trends by providing supra-national incentives

Dissemination:
services and consulting

Mostly ‘retailing’ nationally or across borders; occasionally, common delivery where solutions are big (Space); reduced barriers to cross-border knowledge trade

Cooperation with
advanced users

Support programmes open to cross-border participation; cross-border demand aggregation; shared infrastructures; reduced barriers to cross-border knowledge trade

Platform building

Sharing the science base; specialisation and division of labour; rationalisation; cross-border mergers; shared infrastructures

Policy needs at European level

- Integrating European knowledge markets to create a common market for knowledge and knowledge services
 - Removing barriers to RTOs building globally competitive and naturally viable scale through competition and specialisation
 - Exploiting the capabilities of the RTOs to tackle the grand challenges
 - *Introducing Grand Challenge-based incentives into core funding, as well as competitive funding programmes*
 - Ensuring that Community provision of research infrastructure addresses the RTO sector
 - Supporting the self-organisation of the RTO sector at the European level via organisations such as EARTO, Eurogeosurveys, EUREMET ...
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Thank you

kate.barker@mbs.ac.uk

erik.arnold@technopolis-group.com