2011 IRGC Annual Event

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Promoting academic networks for better S&T advice

An overview from Europe

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Outline: a diversified and “fragmented” list…

S&T advice for policymaking – Institutions

- Parliamentary “S&T assessment”
- Scientific societies with risk governance related research
- Institutions and networks providing S&T advice (IRGC…)

Training and research in “Technology and Policy”

Challenges:

- Telecom security and policy
- Energy security: Decarbonisation and sustainability
- Biosciences and healthcare
- Other: SRM (“geoengineering”); nanotechnology; …

Opportunities for a IRGC-based academic network

“S&T Assessment”: Parliamentary offices

Country / Region		Acronym	Office designation (English)	Website
Europe	European Parliament	STOA	Scientific Assessment of Technology Policy Options	http://www.europarl.europa.eu/stoa/default_en.htm
	Council of Europe	PACE-CCSE	The Committee on Culture, Science and Education	http://assembly.coe.int
Austria		ITA	Institute of Technology Assessment	http://www.oeaw.ac.at/ita/
Catalonia		CAPCIT	The Advisory Board of the Parliament of Catalonia for Science and Technology	www.parlament.cat/capcit
Denmark		DBT	The Danish Board of Technology	http://www.tekno.dk
Finland		Committee for the Future	The Committee for the Future	www.parliament.fi/FutureCommittee
Flanders		IST	Institute Society and Technology	http://www.samenlevingentechnologie.be
France		OPECST	The Parliamentary Office for Evaluation of Scientific and Technological Options	http://www.opecst.assemblee-nationale.fr
Germany		TAB	Office of Technology Assessment at the German Parliament	http://www.tab-beim-bundestag.de
Greece		GPTCA	Special Permanent Committee on Research and Technology	http://www.hellenicparliament.gr/en/Koinovouleftikes-Epitropes/Katigories/
Italy		VAST	Committee for the evaluation of scientific and technological options	http://vast16.camera.it/
Netherlands		Rathenau Institute	Rathenau Institute	http://www.rathenau.nl/
Norway		NBT	The Norwegian Board of Technology	http://www.teknologiradet.no
Poland		BAS	Bureau of Research	http://www.bas.sejm.gov.pl/
Sweden		PERU	Parliamentary Evaluation and Research Unit	http://www.riksdagen.se/
Switzerland		TA-SWISS	Center for Technology Assessment	http://www.ta-swiss.ch
United Kingdom		POST	Parliamentary Office of Science and Technology	http://www.parliament.uk/post

“S&T Assessment”: Parliamentary offices

Supported by academies of science and/or research centers

Focused on impact assessment…

Include prospective analysis

Represented at EPTA

European Parliament:

STOA

European Council:

PACE-CCSE

Parliamentary S&T offices: the case of P**OST** (UK)

The Parliamentary Office of Science and Technology (POST) was created in 1989 and aims to inform parliamentary debate through:

- Notes and reports focusing on S&T issues and implications for parliamentarians;
- Advice, analysis and research for parliamentary committees;
- Organising discussions on a wide range of issues;
- Horizon-scanning to anticipate S&T issues that are likely to impact on policy.

POST has 6 permanent science advisers covering the fields of biology and health; physical sciences, IT and communications; environment and energy; and science policy.

Source: http://www.parliament.uk/mps-lords-and-offices/offices/bicameral/post/

Parliamentary S&T offices: the case of P**OST** (UK)

Selected recent events:

- Foresight Project on Migration and Global Environmental Change (Oct2011)
- The Fukushima Dai-ichi incident: Implications for the international community (Jul2011)
- Examining Science, Technology, Engineering & Maths Education for Ages 14-19 (Jun2011)
- Landscapes of the Future (Jun2011)

Selected recent publications:

- POSTnote - Clinical Trials (Oct2011)
- POSTnote - Cyber Security in the UK (Sep2011)
- POSTnote - Biofuels from Algae (Jul2011)

Source: http://www.parliament.uk/mps-lords-and-offices/offices/bicameral/post/

International initiatives – Examples

Few international initiatives focused on risk governance:

- EPTA – European Parliamentary Technology Assessment
  - The network was created in 1990 “under the patronage of the President of the European Parliament”
- EU-VRi – The European Virtual Institute for Integrated Risk Management
  - EU-VRi is a 50 members European Economic Interest Grouping (IRGC is one of the members)
- IFP – OECD International Futures Programme
  - Recently published the report “Future Global Shocks: Improving Risk Governance” (2011)
- PACITA – Parliaments and Civil Society in Technology Assessment
  - FP7 Mobilisation and Mutual Learning Action (2011-2015) with 15 partners and 4,4M€ of EC funding

On the role of scientific societies: London

The **Royal Society of London**:

- providing scientific advice for policymakers...
- through the “Science Policy Centre” collaborates with others to analyze the scientific evidence relating to major policy issues and provides a forum for policymakers and scientists
- recent reports include:
  - Report on Geoengineering (Mar2009)
  - Working paper ”Transnational governance of synthetic biology” (May2011)
  - Report “Knowledge, Networks and Nations” (Mar2011)
  - Report “Climate Change: A Summary of the Science” (Sep2010)

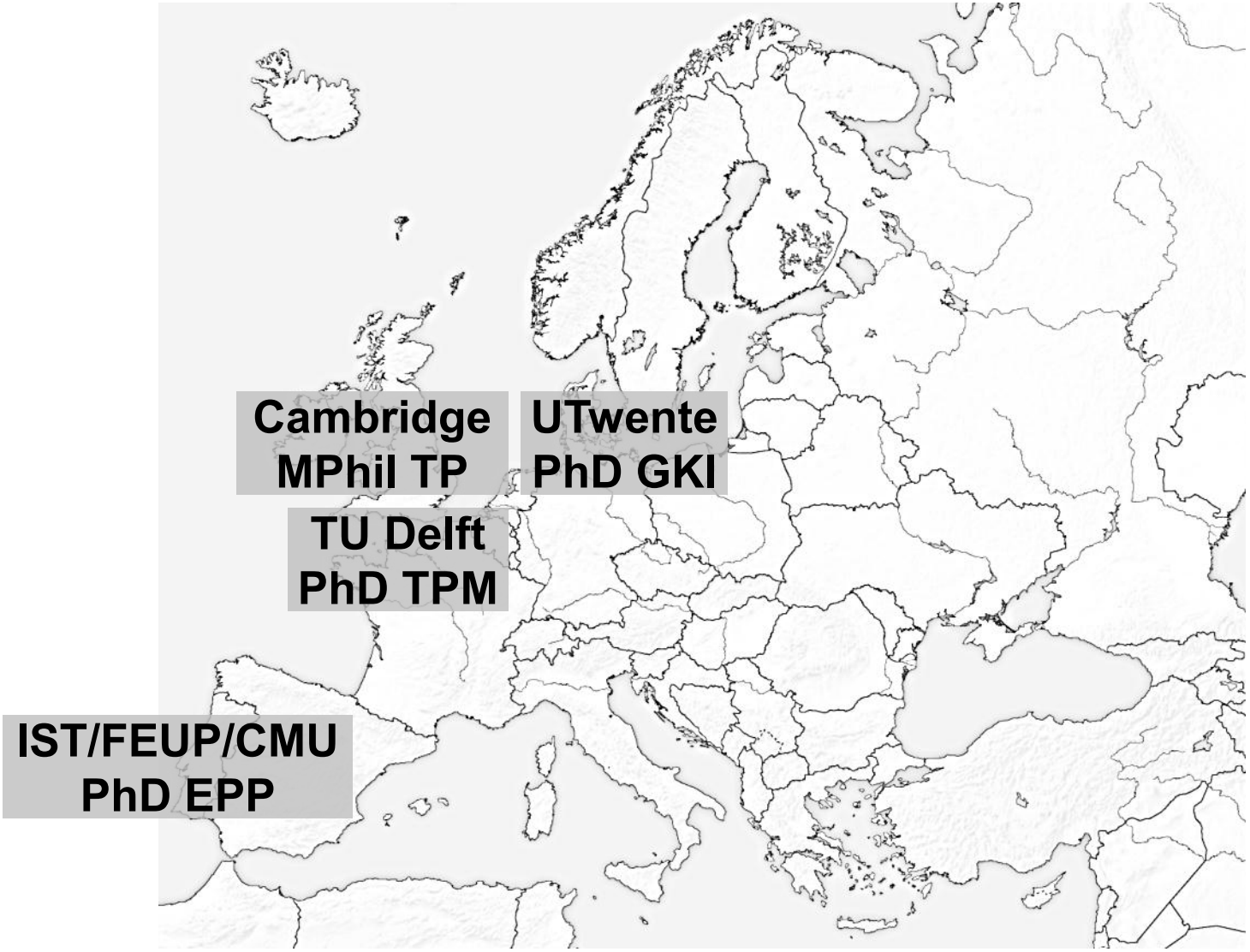
Source: http://royalsociety.org/policy/

But, a wide scope of Research Centres …

- Affiliation to the “IRGC S&T Council”…
- Other :
  - EPFL
  - KCRM, London
  - The Risk Centre at Cranfield
  - Stockholm Resilience Centre
  - IT, Portugal

… just to name a few

Technology and Policy:
Graduate training and research



Graduate training – 1: the experience of Carnegie Mellon Portugal

- A dual-degree PhD program, since 2008
- Engineering and Public Policy: interdisciplinary
- Focused on designing, developing, implementing and managing networked infrastructures
- Specialization on ICTs and energy policies
- Future target areas: science policy; emerging technologies

Source: http://www.cmuportugal.org/tiercontent.aspx?id=112

Graduate training – 2: Doctoral Consortium on Tech, Policy & Mgt

- An annual Doctoral Consortium (3 days), since 2002
- Brings together PhD and MSc programs in US and EU
- Built around interdisciplinary work by graduate students
- Aimed to foster a network and develop a better sense of complex policy issues…

2002 TU Delft (NL)
2003 George Mason Univ. (US)
2004 Univ. Cambridge (UK)
2005 MIT (US)
2006 IST(PT)
2007 CMU (US)
2008 U.Utrecht/TU Delft (NL)
2009 Simon Fraser Univ. (CA)
2010 Univ. Cambridge (UK)
2011 Penn State Univ. (US)

Challenges – 1: **Telecom security**

Regulated prices in telecom wholesale markets need to ensure that the risks and costs to deploy new infrastructures (fiber to the home, …) are appropriately shared across infrastructure and virtual providers

- work in this field under development at IST (PT), ENST (FR), Oxford Univ. (UK), Univ. Cambridge (UK), UNL (PT), UPF (ES), EP (FR).

Adjust **policies for mobile communications** to ensure the proper balance between subscribers' privacy and the companies' ability to predict near-future churners

- work in this field under development at IST (PT), UC Louvain (BE), Tartu Univ. (EE), Aalto Univ. (FI), TU Budapest (HU), ETH Zurich (CH), Univ. Carlos III (ES), Univ. Cambridge (UK).

Help reduce **piracy** and better understand the risks associated with how encryption can evade peer-to-peer traffic inspection and its implications for the unlawful transfer of copyrighted material.

- work in this field under development at IST (PT), IES, Univ. Amsterdam (NL), TU Delft (NL).

Challenges – 2: **Energy security Decarbonization and sustainability**

- Emerging energy and transportation systems consider **large scale complex systems**, which must adapt **adaptive and flexible design strategies**, particularly with respect to the reduction of carbon emissions, the overall energy consumption, rebound effects and other costs.
- Examples by Parliamentary "S&T Assess" offices:
  - TAB (DE) - Electric mobility concepts and their significance for economy, society, environment (2010-2012)
  - DBT (DK) - A sustainable Danish Transport System: Electric cars (2010-2011)
  - POST (UK) - Electric vehicles (2010)
- Sample Case Studies:
  - "Green Islands" project, based in Azores: "test bed" for 100% renewable integration adaptive strategies.
  - EU Green Cars Initiative, http://www.green-cars-initiative.eu

Challenges – 3: **Biosciences and healthcare**

- from drugs for large populations to **personalized medicine**: patients and physicians are likely to play a more active role …
- **Increasing innovation barriers**: relies on a complex system of decision that evolved during decades to protect the patient, with increasing costs that prevent new and promising therapies

Stakeholder's perspectives:

- **Regulators:** current approaches do not address the needs of new medicines.
- **Patients** and **physicians:** the need for affordable and more effective treatments. Important roles for Patients associations (influencing the approval of new therapies); Regulatory assessment (assuring physicians to prescribe therapies); and Medical associations (allowing for exchanging information and experience and foster its adoption).
- **Industry:** clinical trials are abandoned for economic reasons and not because of lack of clinical benefit. They act as an entry barrier favoring larger companies since start-ups do not have the financial resources.

Challenges – 4: **emerging technologies**

- From geoengineering to "**Solar Radiation Management**"…
- From passive to **active nanotechnologies…**
- From molecular to **synthetic biology**
- …
- From unsustainable "service-based innovation" **to modern industrialization?**
  - Europe and its **peripheries**…
  - BRICs and "**Natural resources based economies**"
  - But, also, **developing countries**…

Opportunities for IRGC´s academic network

a stepwise approach to include:

- **Annual Doctoral Consortium**: foster networking among research students
- **Annual Summer School**: foster networking with industry, government, consulting services and NGOs

…

- **International Doctoral program**: foster academic network, including exchange of faculty and students
- **International Master program**: foster specialized network among universities, industry and consulting services

…corresponding to the effective needs of the users' community, including regulatory agencies (e.g. European Aviation Safety Agency, European Maritime Safety Agency, Western European Nuclear Regulators Association, …)