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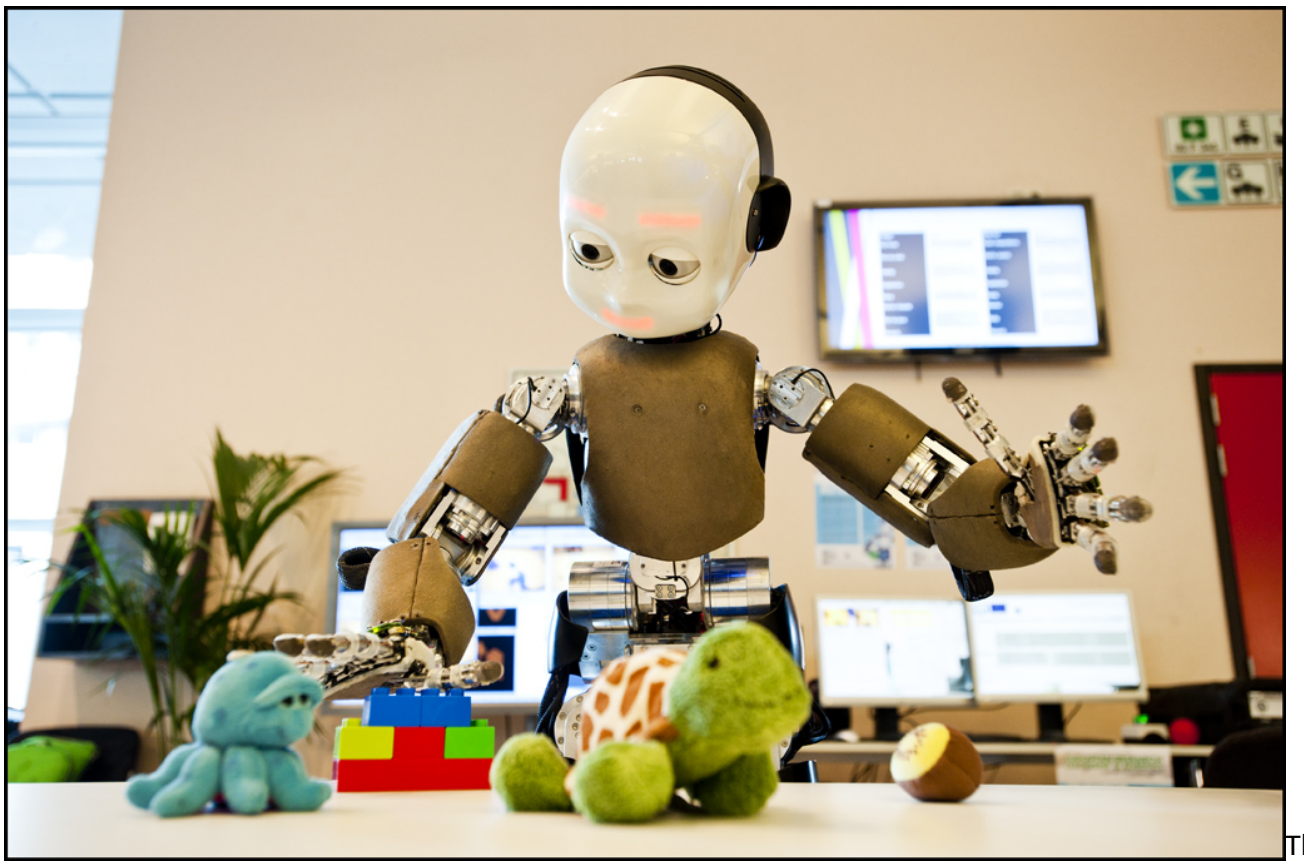
Summary

Find out how the European Parliament has an in-house mechanism to provide scientific advice, as part of the policy making mechanism. This advice is provided by the Science and Technology Options Assessment (STOA) Panel, which is supported by the European Parliamentary Research Service (EPRS). Since 1974, STOA has also integrated a foresight activity designed to anticipate the possible long-term unintended consequences of legislation on society.

Scientific foresight, new in the EU Parliament science advice toolkit



The iCub presented on the occasion of European Research Leadership in Robotics, a 2012 exhibition in the European Parliament, organised by STOA.

A science policy ecosystem based on sound scientific evidence and oriented towards the future

The European Parliament has its own source of strategic advice, based on sound scientific evidence, in all policy areas affected by developments in science and technology. This advice is provided by the Science and Technology Options Assessment (STOA) Panel, which is supported by the European Parliamentary Research Service (EPRS). Together they strive to turn the science-policy interface into a future-oriented science-policy eco-system. There, scientists and policy-makers are in dialogue with all relevant stakeholders, including industry, NGOs and society as a whole.

The advantage of creating such an eco-system, is that scientists and policy-makers are less likely to overlook important consequences of their choices. This matters, for example, with respect to the potential of industry to turn scientific results into innovative products. Or for the acceptance of new products and services by society. And this, even if these products only arrive in the distant future. In this article, we will explain why STOA believes in the power of an inclusive approach when defining policy options for techno-scientific issues.

In-house expertise

EPRS is the European Parliament's in-house research department and think tank with a mission to "assist Members in their parliamentary work by providing them with independent, objective and authoritative analysis of, and research on, policy issues relating to the European Union" and to "increase the capacity of Members and committees to scrutinise and oversee the European Commission and other executive bodies throughout the EU policy and legislative cycle."

STOA was established in 1987 to carry out the European Parliament's Technology Assessment activities. It provides Members of the European Parliament (MEPs) and committees with expertise in all policy areas with a significant science and technology component. All together, STOA is governed by a panel of 24 MEPs, appointed by eight committees and assisted by a secretariat within the Scientific Foresight Unit of EPRS.

STOA's role is to follows all aspects of EU policy with a relevance in science and technology. The Panel publishes Technology Assessment studies addressing "medium- to long-term, complex and interdisciplinary problems relating to the impact of [science and technology] developments on society." Between 2009 and 2014, STOA produced 24 studies. One recent study, dated January 2015, looks into risks and opportunities raised by the current generation of network services and applications as well as options for longer-term security and privacy improvements in connection with mass surveillance. Two other studies, published in March 2015, look at technology options for deep seabed exploration and for learning and teaching technologies, respectively.

STOA also organises events "in which politicians and representatives of [the] scientific [community] and of society as a whole . . . discuss . . . [science and technology] developments of political relevance." Recent events focused on the transition towards sustainable and liveable urban futures and how technology can contribute to improving patients' health literacy, among others.

Evolving role

Going one step further since 2014, STOA has taken on the challenge of helping Members and committees to take into account possible long-term unintended consequences of legislation on

society. Hence, STOA's traditional role of providing committees and Members with sound evidence on techno-scientific issues was then strengthened through a new emphasis on the long-term future dimension of its research.

This focus has been implemented through a new approach, called 'Scientific Foresight', which systematically involves social scientists, in addition to natural scientists and technical experts. Indeed, this approach encompasses all aspects of techno-scientific trends to be investigated, including social, economic and ethical aspects.

This led, for example, to the publication of and EPRS report *Ten technologies which could change our lives*, prepared by the Scientific Foresight Unit (STOA), in January 2015. This opus analyses emerging technology trends with potential unintended/unexpected impacts on society. This practice will continue with regular techno-scientific horizon-scanning reports to inform priority setting by the STOA Panel and parliamentary committees.

Wisdom of many

Similarly to the approach of the new Scientific Advice Mechanism developed by the European Commission, the STOA Panel relies, for the governance of STOA activities, on a wide range of expertise, involving professionals with diverse backgrounds. Thus, speakers in STOA workshops are always chosen to represent the full range of relevant expertise and viewpoints.

STOA also regularly invites committees and Members to propose topics to be assessed, as a valuable input to inform their discussions and choices. The STOA Panel selects the proposals it wants to turn into STOA projects according to well-defined criteria, grouping them in five priority areas.

These include Eco-efficient transport and mobility (how can this be ensured for an ever-increasing population?); Sustainable management of natural resources and modern energy solutions (how can the world secure the necessary resources for the future?); Potential and challenges of the Internet (what is the future for e-government, social networks, cloud computing and the Internet-based collaborative economy?). They also include Health and new technologies in the life sciences (the quest for 'perfect life': what can we do to improve people's health?) and Science policy, communication and global networking (how can STOA help to 'join the dots' with scientists across the globe?).

Future steps

STOA aspires to maintain a robust capacity to provide comprehensive and authoritative options for the appropriate policy response to current and future developments in science and technology. To do so, it relies on a panoply of tools, such as Technology Assessments, techno-scientific trends monitoring and Scientific Foresight. This capacity should firmly anchor STOA in the agenda-setting phase of the policy cycle.

And STOA is designed to help MEPs to conceive legislative pathways consciously chosen in a way to reach desirable outcomes in the long-term. This has been traditionally done through presentations of interim and final study outcomes to the STOA Panel and parliamentary committees. It will be

extended in the future to include personalised contacts with MEPs to discuss long-term scenarios and their implications for current legislative work, in the context of Scientific Foresight studies.

In essence, STOA has been developing the capacity to play a well-defined role in the EU policy cycle and has invested a lot of efforts in effectively communicating the available evidence at the 'science-policy interface'. In the past few years, STOA has developed novel ways of communicating the outcomes of studies and workshops as well, making ample use of the social media, such as blog posts on the EP Think Tank, video clips summarising studies for non-experts and live tweeting during events. This activity has helped raise awareness of STOA activities among the wider public, which has responded favourably to this new way of interacting. After all, communicating science and technology issues and making them understandable to society at large is an important part of STOA's mission.

Theodoros Karapiperis Head of Scientific Foresight Unit (STOA), European Parliamentary Research Service, European Parliament, Brussels.

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Lieve Van Woensel Head of the Scientific Foresight Service, Scientific Foresight Unit (STOA), European Parliamentary Research Service, European Parliament, Brussels.

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