

## SCIENCE AND TECHNOLOGY OPTIONS ASSESSMENT

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### News | **First STOA scientific foresight studies**

STOA has completed and published the first two studies using the new [scientific foresight approach](#) developed for the EP. The [study](#) '**Ethical aspects of cyber-physical systems**', which aimed to prepare MEPs for possible future developments in the area of robotics, was published in June 2016. The study provided input for committees and Members to prepare and amend the report on 'Civil law rules on robotics' (rapporteur: Mady Delvaux, (S&D, Belgium), member of the STOA Panel), which led to the EP resolution of 16 February 2017 with recommendations to the Commission. STOA also presented the study in an accessible [animated infographic](#).

A [study](#) on '**Precision agriculture and the future of farming in Europe**', intended to assist the work of the Committee on Agriculture and all MEPs involved in the Common Agricultural Policy, was published in December 2016. Meanwhile, as STOA developed experience in two further (still ongoing) foresight studies, an evaluation of the scientific foresight process has begun. STOA will soon publish a concise description of the revised approach.

Furthermore, STOA conducted a first horizon scan, with the support of an external contractor, exploring techno-scientific trends with implications for European policy. This scan identified eight topics with possible relevance for STOA: big data, gene technology, electric vehicles, autonomous cars, algorithms, screen addiction, fake news and bioterrorism.

### Workshop | **Spotlight on blockchain: A new generation of digital services**

The STOA '**Spotlight on blockchain: a new generation of digital services**' [workshop](#), held on 11 May 2017, provided a unique opportunity for the public to join policy-makers, technology experts and businesses to discover the wide-ranging opportunities and challenges presented by blockchain technology. In the course of the workshop, co-organised with DG CONNECT of the European Commission, panellists debated whether the technology was the best thing since sliced bread, the end of civilisation as we know it, or perhaps both. The event included an introductory keynote speech, allowing all participants to get up to speed with the technology. Two panel discussions followed. The first, introduced and moderated by Jakob von Weizsäcker, (S&D, Germany), focused on **blockchain for financial services**. The second, introduced and moderated by STOA Chair Eva Kaili, (S&D, Greece), looked beyond financial applications to consider a **new generation of blockchain-based services**.

There was plenty of time for broad and lively [discussions](#), with panellists and participants engaging in debates ranging from the practical challenges faced by blockchain start-ups in opening bank accounts, to the ideological considerations of how blockchain technologies could herald new forms of democracy in the decades to come. The room was packed for the event, with the live stream followed by hundreds, and the hashtag #EUBlockchain trending on Twitter for much of the day.



Jakob von Weizsäcker and  
STOA Chair Eva Kaili

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*'This could actually  
be a revolution  
because it creates a  
whole new way of  
thinking about trust.'*

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## Workshop | **Language equality in the digital age**

The first STOA [workshop](#) in 2017, held on 10 January, attracted many experts and Members, all actively involved in the discussion. The workshop was held in connection with the STOA [study](#) of the same name, published in March 2017. The study focuses on how to overcome language barriers across Europe and analyses the reasons for the gap between English and other languages, as well as the economic and social consequences of this gap, and its impact on the [digital single market](#) (DSM).

The workshop was chaired by Algirdas Saudargas, (EPP, Lithuania), and moderated by Professor Maite Melero, of Universitat Pompeu Fabra, in Barcelona. The first session included expert presentations by Georg Rehm, of the German Research Centre for Artificial Intelligence and Network of Excellence [META-NET](#); Andrejs Vasiljevs, CEO, Tilde; Sabine Kirchmeier, European Federation of National Institutions of Languages; István Horváth, President of the Romanian Institute for Researching the Problems of National Minorities; and Hans Uszkoreit, Scientific Director, German Research Centre for Artificial Intelligence and Network of Excellence META-NET. A [panel discussion](#) followed, with MEPs Jill Evans, Ádám Kósa and Csaba Sógor, and Marco Marsella from the European Commission, on the impact of language technologies in the digital age.

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*'The EU should become a world leader in the field of language technologies':*

*Georg Rehm on the implications of the need to overcome language barriers in the EU and tackle competition with US corporations such as Google and Microsoft.*

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## Workshop | **Ethical and social challenges of agricultural technologies**

This [workshop](#), held on 25 January 2017 and chaired by Mariana Petir, (EPP, Croatia), STOA Panel member, provided an opportunity for the public to join policy-makers, technology experts and ethicists to consider the ethical and social challenges of agricultural technologies. The presentations focused upon methods for assessing and responding to the full range of potential impacts of agricultural biotechnologies, including issues of public perception and social acceptability.

The event included a [debate](#) on the assessment of socio-economic sustainability, societal benefits and ethical acceptability of agricultural biotechnologies in the frame of the established risk assessment procedures. The speakers discussed the grounds for invoking the precautionary principle, and how EU policy-makers might adapt it to better account for the potential benefits of new technologies.

The debate was followed by a discussion with the audience about how policy-makers in the EU could deal with socio-ethical considerations, as well as regulatory challenges raised by scientific uncertainty, the complexity and pace of development of technologies, and issues related to public perception of agricultural biotechnologies.

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*'We shouldn't hinder technological development, but we should ... protect our citizens and our natural resources'*

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## Workshop | **STOA – STS forum: the future of mobility**

Mobility is an essential part of modern life. Technological advances and innovations in this area have been fundamental to defining the modern way of life. The automobile sector is among the most important and innovative industries in advanced economies, developing ever more efficient, safe and intelligent vehicles. Nevertheless, there are growing signs that the sector is about to approach a dramatic system change, in which modern societies will need to redefine the way they meet their mobility needs.

This [conference](#), opened by EP Vice-President Ramón Luis Valcárcel Siso, (EPP, Spain), and chaired by STOA First Vice-Chair Paul Rübig, (EPP, Austria), on 30 May 2017, gave industry representatives and policy-makers from Japan and Europe an excellent opportunity to reflect upon the challenges and potential solutions from different regions of the world. The conference also highlighted the future impact of connected driving, autonomous driving and electric power trains.



EP Vice-President  
Ramón Luis Valcárcel Siso

## Workshop | **The future of science through citizens' engagement**



STOA Chair Eva Kaili

The links between science and policy have seen strengthened in recent years. We often hear about the role of scientific evidence in policy-making, but policy also has a substantial influence on the way science develops. In this context, STOA and [TA-SWISS](#), the Swiss Centre for Technology Assessment, co-organised a [workshop](#) on the role of citizens in shaping the future of science.

Speakers argued that scientific research is not only about advancing knowledge, but also about responding to the most important opportunities and challenges facing European citizens. We also heard about methods for understanding these opportunities and challenges, and measures for delivering meaningful responses, such as the [CIMULACT](#) (Citizens and Multi-Actor Consultation on Horizon 2020) project, which involved the consultation of more than a thousand citizens in 30 countries, with the aim of involving them in setting the direction of European research.

[Discussions](#) focused in particular upon the ninth framework programme for research and innovation, which will follow Horizon 2020. Preparations are already underway for this programme, which is due to start in 2021. An important part of these preparations is to decide how to shape science and research funding to best respond to the opportunities and challenges that Europe will face over the next decade and beyond. Bottom-up strategies were identified as particularly interesting, as they engage citizens directly and take inspiration from their ideas to shape the future of European science.

## Visit | **AAAS Annual Meeting, MIT and Harvard**



H. Wegener, (then) Chair, High-Level Group (HLG), SAM, EC; W. Burtscher, Deputy Director-General, DG RTD, EC; P. Dykstra, HLG, SAM, EC; Paul Rübig; S. Hockfield, (then) President-elect, AAAS; R. Holt, CEO, AAAS; Eva Kaili.

Paul Rübig and Eva Kaili, STOA Chair and First Vice-Chair until March 2017 – posts they exchanged for the rest of the 8th legislative period – visited Boston in February 2017, on the occasion of the Annual Meeting of the [American Association for the Advancement of Science](#) (AAAS). At this, the authoritative annual meeting of US and international scientists and science policy-makers, the MEPs spoke in two sessions organised by the European Commission (EC)'s Joint Research Centre (JRC) and Scientific Advice Mechanism (SAM), respectively.

Taking advantage of their proximity, the two MEPs visited the [Computer Science and Artificial Intelligence Lab](#) (CSAIL) at the Massachusetts Institute of Technology (MIT) in Cambridge, as well as the [MIT Media Lab](#), the [MIT Martin Trust Center for Entrepreneurship](#), the [Cambridge Innovation Center](#) (CIC) and a number of companies active in the Information Technology (IT) area, notably [Akamai](#) and [HubSpot](#). The discussions at CSAIL covered such subjects as critical infrastructure, autonomous vehicles, decentralised web and human-computer interaction. At the Media Lab, the MEPs visited the Biomechatronics Group and the OpenAg Initiative, and discussed the prospects for blockchain technologies and the ethical aspects of artificial intelligence.

Following the visit to MIT, the MEPs participated in an interesting lunchtime roundtable with scholars at the Harvard [Belfer Center for Science and International Affairs](#), where they discussed a range of vital policy issues. These included the USA as a post-World War II model case of industrial research; rising powerhouses India and China; energy technologies; climate change and carbon tax; and cyberweapons, cybersecurity, privacy and 'fake news'. At the Belfer Center, the Members had the opportunity to meet with former US Secretary of Energy (under President Obama) E. J. Moniz, who briefed them about his first impressions concerning the intentions of the new administration, seen in the broader context of trends in US energy and research policy.

STOA (Science and Technology Options Assessment), an integral part of the European Parliament's structure, is tasked with carrying out expert, independent assessments of the impact of new technologies and identifying long-term, strategic policy options useful to the Parliament's committees in their policy-making role.

## STOA Panel

The STOA Panel is composed of 25 Members of the European Parliament, including the EP Vice-President responsible for STOA and 24 MEPs appointed by nine parliamentary committees. With the input of committees and individual Members, the STOA Panel, on the recommendation of its Bureau, decides on projects and other activities in this field. Each STOA project is overseen by one or more Panel members.

### STOA Panel

The STOA Panel includes Members from the following committees:

**Industry, Research and Energy (ITRE):** six Members

**Agriculture and Rural Development (AGRI):** three Members

**Employment and Social Affairs (EMPL):** three Members

**Environment, Public Health & Food Safety (ENVI):** three Members

**Internal Market and Consumer Protection (IMCO):** three Members

**Transport and Tourism (TRAN):** three Members

**Culture and Education (CULT):** one Member

**Legal Affairs (JURI):** one Member

**Civil Liberties, Justice and Home Affairs (LIBE):** one Member

### STOA Bureau

The STOA Bureau is comprised of four Members:

**Ramón Luis VALCÁRCEL SISO**, EP Vice-President responsible for STOA

**Eva Kaili**, STOA Chair

**Paul Rübig**, First STOA Vice-Chair

**Evžen Tošenovský**, Second STOA Vice-Chair.

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