

STOA Newsletter

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European Parliament

PANEL FOR THE FUTURE OF SCIENCE AND TECHNOLOGY

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Speakers at the workshop
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News | [European Science-Media Hub is online](#)

STOA's European Science-Media Hub (ESMH) is now online with its brand new [webpage](#). This online platform will serve to disseminate the various ESMH publications, in particular a press review, journalistic articles on science topics and interviews to scientists. The ESMH will issue these publications on a weekly basis.

The webpage describes the mission of the ESMH and presents its Interinstitutional Advisory Board, as well as the ESMH team. A section will be dedicated to the community of stakeholders (scientists, journalists and EU institutions).

The webpage will also be a communication channel for past and future events organised by the ESMH. Readers can subscribe to the webpage updates and to the press review in the form of a newsletter, including a selection of prominent science and tech news from the media. We invite you to be among the first to do so!

Event | [How to win elections](#)

In theory, the internet could provide the building blocks for greater transparency, accessibility and accountability. The reality is mixed. While internet technologies have made more direct communication between politicians and citizens possible, the Cambridge Analytica scandal highlighted many vulnerabilities. At the ESMH/STOA [workshop](#) on '*How to win Elections: Reflections on the use and misuse of technology in electoral campaigns*', a full house of parliamentarians, journalists and citizens heard a panel of distinguished scholars and practitioners discuss the role of technology and analytical techniques in contemporary election campaigns.

First, [Jeroen VAN DEN HOVEN](#), from Delft University of Technology, outlined the challenges presented by a 'Bermuda triangle' of various technologies and analytical techniques that has led to crises of autonomy and truth. He argued for human rights, rule of law and democracy by design, and concluded by highlighting potential initiatives, such as large-scale deliberative platforms, inviting the audience to imagine a 'Wikipedia of opinions'. He was followed by [Sophie LECHERER](#), from the University of Vienna, who explored how changes in the way news is produced and consumed have led to changes in citizens' expectations, and also place new demands on the role and activities of journalists.

The next speaker was [Inès LEVY](#), representing Liegey Muller Pons, a company that provides tech services for election campaigns. For them, the message that direct communication is more effective than indirect mass communication need not lead to micro-targeted internet adverts, but back to direct human interaction.

Long before these issues became mainstream, the final speaker, [David STILLWELL](#), from the University of Cambridge, had published an [article](#) on the power of sending personalised messages to internet users based upon personality traits inferred from data about them. He was concerned about the lack of transparency and control over how people can be categorised and targeted, and called for all advertisements to be stored in a repository so that claims and promises can be seen by everyone.

[Eva KAILI](#) (S&D, EL), STOA Chair, and [María Teresa GIMÉNEZ BARBAT](#) (ALDE, ES), STOA Panel member, took an active part in the workshop.

Event | **EPTA Conference: Towards a digital democracy**

In the morning of 4 December 2018, in the framework of its [EPTA](#) 2018 presidency, STOA hosted a [conference](#) entitled ‘Towards a digital democracy - Opportunities and challenges’ to examine democracy in the era of breakthrough technologies such as quantum technologies, artificial intelligence and blockchain. EP Vice-President [Ramon Luis VALCARCEL SISO](#) (EPP,ES), STOA Chair Eva KAILI, Vice-Chair [Paul RÜBIG](#) (EPP,AT) and Panel member [Mady DELVAUX](#) (S&D, LU), and MEP [Pilar del CASTILLO VERA](#) (EPP, ES) took part, in addition to the distinguished guests representing EPTA members linked to 17 national and regional parliaments around the world, the European Parliament and the Parliamentary Assembly of the Council of Europe.

The conference included sessions on ‘Interactions between quantum technology, blockchain and artificial intelligence’, ‘Societal and political debate’ and ‘Experiences and outlook’. There was a common understanding among participants that the new technologies are already having an effect on democracy by modifying interactions at many levels, from the legislative one to that of relations between the media and the citizens, and policy areas, from security and defense to the economy.

To understand all facets of this complex situation, it is essential to observe it from different perspectives, reflected in the experiences and points of view presented by parliamentarians and experts. The challenges are considerable for stakeholders, experts, media, policy-makers and society at large. Science and technology are fundamental tools for democracy and the need to create the best conditions for an effective and fruitful dialogue between scientists, politicians and the public is evident. As a result, knowledge sharing must underpin democracy for a society determined to make innovation an instrument of growth, freedom and prosperity.



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Event | **Annual Lecture: Catching up with the future**

In the afternoon of the same day, STOA hosted its [17th Annual Lecture](#), entitled ‘Quantum technologies, artificial intelligence, cybersecurity: Catching up with the future’, chaired by Eva KAILI, and with the participation of Paul RÜBIG, Mady DELVAUX and Pilar del CASTILLO VERA. The programme featured two keynote speakers: [Anton ZEILINGER](#), Professor of Physics and President of the Austrian Academy of Sciences, and [Esther WOJCICKI](#), technology educator and journalist, Palo Alto High School Media Arts Program. The event focused on the opportunities and challenges created by greatly enhanced computing power, addressing issues of computer security and data protection, artificial intelligence and data analytics, as well as on how to contain vulnerabilities that emerge along with these technologies.

In his talk entitled ‘From quantum puzzles to quantum communication’, Professor ZEILINGER made a link between the first quantum revolution, which began in the first decades of the twentieth century, and the present. He argued that we are currently in the middle of the second quantum revolution, which promises a great deal for the future. Whereas ordinary computers use ‘bits’ to store and process information, which can only occupy two definite states (0 or 1), a quantum computer would also allow a ‘quantum superposition’ of these two states. These superpositions would vastly speed up computation of certain problems, potentially by several orders of magnitude, making it possible to solve such problems much faster than with classical computers.

In her speech ‘Preparing students for a world dominated by quantum technologies, artificial intelligence, computer security and the media’, Ms WOJCICKI voiced her concerns about today’s education system and called for a change, which should, based on her own classroom experience, better prepare the new generations for facing future challenges and opportunities. In her view, today’s students need to acquire skills in such areas as collaboration, creativity, critical thinking and communication. This new kind of education should help us develop critical thinking, which is the basis for understanding and taking in our hands the future of our democratic society.



STOA Chair Eva KAILI with Anton ZEILINGER and Esther WOJCICKI.

Study | **Benefits and challenges of Galileo, the European satellite navigation system**



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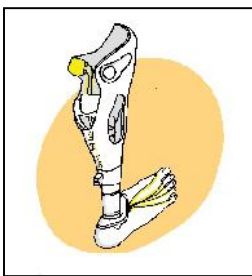
Satellite navigation (satnav) and other satnav-enabled services have found their way into many applications in our daily life, in areas such as aviation; location-based services; timing and synchronisation; surveying; road, rail and maritime transport; agriculture; and public-authority and military operations. After years of drawbacks, delays and increasing costs, the European satnav, [Galileo](#), started providing ‘[initial services](#)’ in December 2016 and is set to become fully operational by 2021. A recent STOA [study](#) looked into benefits and challenges related to Galileo. The Lead Panel Member for the study was STOA Second Vice-Chair [Evžen TOŠENOVSKÝ](#) (ECR, CZ).

Compared to other global satnav systems (such as GPS, BeiDou and GLONASS), Galileo offers several unique features and provides other benefits to the EU, as well as globally. Firstly, as a civil system under the civil governance of the EU, Galileo allows Europe to remain autonomous instead of relying on foreign-owned satnav. This also allows an open communication policy on system-design specifications, which enables the development of additional applications and technologies. Secondly, concerning the interoperability between different satnav systems, Galileo provides access to more satellites and frequencies, resulting in a better user service. Thirdly, Galileo will provide the signal authentication feature for open, free-of-charge signals available to civilians, which is crucially important for security-sensitive applications.

Lastly, as the European contribution to the worldwide search and rescue service [Cospas-Sarsat](#), Galileo helps increase the coverage and the localisation accuracy of the entire system, and adds a unique feature: a notification for the person in distress that their call has been detected and that help is on its way. In addition, it enables innovation, contributing to the creation of new products and services, creating jobs and allowing Europe to own a greater share of the €175 billion global GNSS market.

However, Galileo also faces a number of challenges from a technical, communication and organisational point of view. Nevertheless, it remains the first and only global satnav system under civilian control and represents a strategic advantage for the EU.

Study | **3D bio-printing for medical and enhancement purposes**



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This [study](#) examined 3D bio-printing, defined as the use of 3D printing technology for applications related to the body. This includes applications where the products themselves include biological material, as well as traditional 3D printing that is used for rehabilitating, supporting or augmenting any kind of biological functionality.

The impacts of 3D bio-printing are uncertain, and it is unclear which actions may be required to foster responsible development of the technology. The study responded to this uncertainty by describing the broad state of the art and future development prospects of the technology. Through a deeper exploration of four illustrated scenarios and examination of three case studies - dentistry, orthoses and prostheses, and tissue and organ printing - the authors assessed the wide-ranging current and future impacts of the technology, including social, ethical and economic aspects.

The study identified three key policy challenges, along with options to respond to them: (1) to define an appropriate approach to regulation, which could be comprehensive or piecemeal; (2) to manage the distribution of costs and benefits, which could take an open-innovation or mission-oriented approach; and (3) the role of citizens in technology development, as engaged participants in dialogues, and as ‘citizen scientists’ and innovators.

The study was presented to the Industry, Research and Energy (ITRE) Committee on 3 December 2018, and is available in English and Italian. The Lead Panel Member for the study was [Dario TAMBURRANO](#) (EFDD, IT).

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.

Panel for the Future of Science and Technology (STOA)

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 the field of science and technology. 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, STOA First Vice-Chair
Evžen Tošenovský, STOA Second Vice-Chair.

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