

STOA

Science and Technology Options Assessment

STOA Panel meeting
Thursday, 18 May 2017, 09:30 - 11:00
LOW N1.4, Strasbourg

Minutes

The meeting started at 9:37 with Claudia SCHMIDT, MEP and Panel member, in the Chair. The STOA Chair and Vice-Chairs were unable to attend the beginning of the meeting, due to the important committee vote.

1. Adoption of the draft agenda

- The Chair recalled that the draft agenda was in the dossier and, in the absence of any requests for changes or additions, announced that it was deemed adopted.

2. Approval of draft minutes - STOA Panel meeting of 6 April 2017

- The Chair informed the meeting that the draft minutes of the STOA Panel meeting of 6 April 2017 were in the dossier and, in the absence of any requests for changes or additions, announced that they were deemed approved.

3.a. Presentation of the outcomes of Phase I of the Scientific Foresight study ‘Additive bio-manufacturing: 3D printing for medical recovery and human enhancement’

- The Chair gave the floor to Philip BOUCHER, Policy Analyst in the Scientific Foresight Unit (STOA), who explained that the study would assess 3D printing of biological or conventional materials for the purpose of rehabilitating, supporting or augmenting biological functionality. The definition includes a wide range of 3D-printed objects, such as organs, non-biological implants, exoskeletons and surgical tools. The first phase of the study was just about to be finalised and key interim findings would be given in the subsequent presentation.
- The Chair then gave the floor to Dario TAMBURRANO, MEP and formerly Panel member, who argued that there was a genuine need for this study as science and technology were moving fast and the need for politicians to acquire basic science skills was vital, especially concerning the ethical issues. He then urged the European Parliament (EP) to set up a legal framework for Artificial Intelligence (AI) and 3D Printing.
- The Chair welcomed the speakers, Arianna FERRARI and Christopher COENEN, Institute for Technology Assessment and Systems Analysis (ITAS), Karlsruhe Institute of Technology (KIT), and gave them the floor.
- Ms FERRARI began by explaining that the study focussed on Additive Manufacturing (AM), with an emphasis on devices supporting medical treatment or helping people regain functionalities, in the following main fields of application: (i) Surgical, diagnostic and educational tools; (ii) Digital dentistry and hearing aids; (iii) Prostheses and orthoses; (iv) Drug delivery; (v) Organ printing / tissue engineering; and (vi) Food printing.
- She then went on to outline the major advantages of AM in the medical sector (freedom of design, customised design, no tooling required during fabrication, short production time for some products, reduction of waste), but also some disadvantages (slow production process in comparison with the usual (subtractive) production; high cost; limitations in object size; necessary production time restricting mass production; need to strictly control processes; time-consuming qualification and approval procedures; absence of user communities for 3D prints).
- She then analysed a few key STEEPED¹ issues, including: safety as one of the main ethical challenges; questions about standards of production raised by the decentralised production in AM; accountability and responsibility, e.g. in case of an accident; security, mostly due to the possibility of dual use of these technologies; fabrication at home of medical devices, which could be used without the control and supervision of a medical professional.
- Ms FERRARI noted the interesting economic aspects of the subject and the concerns expressed regarding possible job losses, as it was, for example, stated in the workshop on ‘The 3D Printing Revolution and the Dental Sector: Opportunities and Challenges’ held in EP in November 2016. She also explained that cosmetic companies had begun to show interest in 3D printing, due to the European Union (EU) ban on animal testing for cosmetics.
- She then emphasised that most research and development (R&D) is for therapy and that (non-therapeutic) enhancement R&D was almost non-existent. The boundaries between enhancement and therapy were, however, blurred, as in the case of cosmetic surgery and therapeutic applications may also be used for enhancement.

¹ Social – Technological – Economic – Environmental – Political/legal – Ethical – Demographic

- She finally gave the upcoming phases of the project: There would be an envisioning workshop on 20 June 2017, and Phase II of the project would focus in particular upon three specific areas of 3D bioprinting: AM for prostheses and orthoses; prospects of AM in dentistry; AM in regenerative medicine, tissue and organ printing.
- The Chair thanked Ms FERRARI for her presentation and opened the floor to questions.
- Mady DELVAUX, MEP and Panel member, shared her doubts regarding ethical and security aspects of AM. She asked the speaker to clarify how 3D printing of organs was working and what exactly food printing meant. She also expressed concern about the fact that, whereas medical prostheses were subject to authorisation in order to be put on the market, it was not clear how one could regulate each 3D printed prosthesis made for individual use.
- Ms FERRARI acknowledged that ethical and security issues were very important for 3D printing, especially in the health sector. In her view, there was no immediate concern on the security front, as it was not yet possible to print bioweapons, but legislation would need to be implemented. On the question of 3D printing of organs, she explained how scientists could already print layers of cells outside the body. They were also able to produce cheese, hummus and chocolate using 3D printing with alternative ingredients, like proteins from legumes.
- Ms FERRARI mentioned that the problem of cost was ambivalent in this case, due to the cost-cutting prospects in the long run, but also the high initial set-up cost. Mr COENEN added that this was only the first deliverable and the next phase of the study would focus on the innovation and financial aspects in this area.
- Mr TAMBURRANO called for a discussion on “what is life” and how physical systems could have life-like features without being human, as well as around the ethical notions of AI and 3D printing.
- Marijana PETIR, MEP and Panel member, mentioned the need to implement ground rules for protecting different groups of people, such as farmers if one were to start 3D printing food.
- Ms FERRARI argued that new and emerging technologies always caused changes in societal issues. She urged politicians to implement legislations in order to draw a line that would keep these advancements from being used in non-intended ways. Mr COENEN added that the idea of drawing a line on “what is human” in relation to the future of AI and AM was very interesting, and it was something they were looking at.

At this point in time Eva Kaili, MEP and STOA Chair, arrived at the meeting and took over the chair.

3b. Presentation on ‘Techno-scientific trends explored through a data-driven horizon scan’

- The Chair asked Paul RÜBIG, MEP and First STOA Vice-Chair, to introduce the presentation.
- Mr RÜBIG argued that there was a clear need for data-driven horizon scans, as they brought out how we should analyse future trends for the future, taking into account what the policy-makers, scientists and the public thought about techno scientific developments.
- The Chair then welcomed the experts, Michael BAUMGARTNER and Bijan FARSIJANI, from the Augmented Intelligence Institute (‘Augmento’) and gave them the floor for the presentation.
- Mr BAUMGARTNER stated that his vision was to help scientists analyse huge amounts of data and interpret it in a way that only humans can do. In this particular study, they analysed 15,000 news articles and 8 million tweets, and divided the findings into two lists for possible future lighthouse projects: a first list of topics controversially discussed on social media and news (big data, autonomous cars, electric cars, gene technology) and a second list of options with potentially high societal impact (algorithms, screen addiction, fake news, bio terrorism).
- Mr FARSIJANI underlined that the purpose of this study was to analyse how much certain topics were discussed and how stakeholders’ opinions varied on social media. Another objective was to analyse which positive and negative topics were currently trending on social media, an example being the discovery of the quinoa genome, which could be used in other plants (e.g. rice), so that they could grow in different climates. On the negative side, it was shown that some people were afraid of gene technologies, as they thought they might be used by terrorists.
- María Teresa GIMÉNEZ BARBAT, MEP and Panel member, referred to recent media attention on farmers, as there were concerns that AI and machines could take over that sector.
- Ms DELVAUX asked whether or not the results were geographically collected (US, European Union, Asia etc.).
- Ms MOODY, MEP and formerly Panel member, called for better communication with the citizens and noted the importance of speaking about fake news due to its vital importance in that connection.
- Mr BAUMGARTNER argued that political decisions would always be made by humans, but the decision-making capabilities of politicians could be enhanced using data. He also clarified that they tracked data on a global scale.
- The Chair thanked the speakers, and announced that, as there were no objections, the report of the horizon scan would be finalised and published on the STOA website.

4. Ongoing and new STOA projects

- The Chair informed Members that all ongoing STOA projects were running to schedule and provided details about important milestones in the execution of certain specific projects. She then announced that, as there were no objections, the projects would continue to be implemented as described.

5. STOA Annual Lecture 2017

- The Chair reminded Members of the tentative decision taken by the outgoing Panel in February 2017, pending confirmation by the newly constituted Panel, that the Annual Lecture 2017 should focus on science and media.
- She then announced that, following further discussions in the STOA Bureau, the event could address the broad topic of the role of artificial intelligence in the production of news feeds. The event could conclude with the announcement of the launch of the ‘European Science Media Hub’.
- The Chair explained that the specific topics of science, data, media and artificial intelligence were to be seen as a basis for exploration, and the programme would be refined following the confirmation of key speakers. Possible dates for the event were 21 November and 6 December, the final choice depending on the availability of speakers.
- She finally confirmed the Panel’s agreement in principle to proceed along these lines, so that potential speakers could be contacted, and reassured Members that they would be regularly informed about the evolving programme.

6. MEP-Scientist Pairing Scheme

- Zsolt PATAKI, Head of Service responsible for the STOA Secretariat, was given the floor to convey the STOA Bureau’s recommendation to the Panel to launch the 6th round of the MEP-Scientist Pairing Scheme in May/June 2017, based on the following actions:
 - Extending the validity of the remaining list of 59 scientists (from the original list of 108 scientists drawn up in 2015) until 31 December 2019 and informing them that a new round of the scheme would be launched soon.
 - Broadening the pool by launching a targeted call for the expression of interest, with the same selection criteria as in 2015, within the Joint Research Centre (JRC) and the EU scientific agencies, as well as among Marie Skłodowska-Curie fellows and European Research Council (ERC) grant recipients.
 - Inviting Members, if interested, to take part in the next round.
 - Organising the 3rd ‘Science meets Parliaments’ event, jointly with the JRC, on 28 November 2017 in the EP. Which also meant organising the ‘Brussels week’ from 28 to 30 November 2017.
- The Chair announced that, as there were no objections, the preparations would proceed along these lines.

7. STOA Workshops and joint activities with external organisations

7.1. Forthcoming events

- The Chair referred Members to the table of forthcoming STOA events in the dossier.

7.2. STOA – STS forum high-level workshop on ‘The future of mobility’, 30 May 2017

- The Chair gave the floor to Theo KARAPIPERIS, Head of the Scientific Foresight Unit (STOA), who reported that, following the opening remarks and a number of keynote speeches by eminent policy-makers, this year’s event would feature two panels, one on ‘Sustainable urban mobility’ and one on the ‘Transport technologies’ with speakers from policy-making, academia and industry from the EU and Japan. He also mentioned that a sandwich lunch would be offered to the audience, and requested the Panel’s to approval for sharing the cost equally with the STS *forum*, with the STOA part to be covered from the STOA budget for representation expenses.
- The Chair announced that, as there were no objections, the preparations would proceed as described, including the partial financing of the sandwich lunch from the STOA budget line for representation expenses.

7.3. STOA workshop on ‘Cross border transport infrastructure and services: How to finance missing link completion?’, 6 June 2017

- The Chair noted that the event would offer an opportunity to discuss (i) possible approaches towards improving the financing of new technologies that enhance transport infrastructure in border areas, and (ii) the preliminary findings of the ongoing STOA study on ‘New ways of financing transport infrastructure projects in Europe’
- She then announced that, as there were no objections, the preparations would proceed as described.

7.4. STOA workshop on 'Health systems for the future', 8 June 2017

- The Chair explained that, with the impact of the global economic and financial crisis continuing to reverberate in Europe, health system sustainability had become a priority. This workshop would be an opportunity to learn from one another on what works best under what conditions, capitalising on existing know-how, and thus enhancing innovation and action for building sustainable and resilient health system models.
- She then announced that, as there were no objections, the preparations would proceed as described.

7.5. STOA workshop on 'Innovative solutions for therapeutic treatments in Europe', 11 October 2017

- The Chair explained that the purpose of this workshop would be to report on the status of nanomedicine and advanced therapy medicinal products, as well as on possible pathways for the future development of these new therapies in Europe. The event would offer an opportunity to develop a range of options for supporting patient access and transparent information on these therapeutic treatments across Europe.
- The Chair announced that, as there were no objections, the preparations would proceed as described.

8. Visits / External activities

6.1. STOA delegation to the Croatia (Zagreb), 22-24 May 2017

- The Chair gave the floor to Mr BOUCHER, who reported that the delegation would proceed with two Members, Mr RÜBIG and Ms PETIR. During the visit, the Members would participate in meetings, roundtable discussions and conferences with a wide range of academic, industry and policy representatives from all over Croatia. The programme focussed upon technology and innovation, in particular transport and modern energy solutions, sustainable management of natural resources, bioethics and public communication.
- The Chair announced that, as there were no objections, the preparations would proceed as described.

8.2. STOA delegation to INNOVEIT, 16-17 October 2017, Budapest

- The Chair informed Members that the STOA Bureau recommended that authorisation for a delegation of up to two Members to visit the European Institute of Innovation and Technology (EIT) and attend the INNOVEIT event should be requested. Members would be informed when the conference structure and programme were known.
- The Chair announced that, as there are no objections, she would write to the President requesting the EP Bureau's authorisation for the delegation.

9. Any other business

- There were no issues Members wanted to raise or discuss.

8. Date and place of next meeting

- The Chair announced that the next Panel meeting was scheduled for Thursday, 15 April 2017, at 9:30 a.m. in the same room (LOW N1.4) and would feature a presentation by the ERC on the occasion of their 10th anniversary.

The meeting ended at 11:03.

ANNEX **List of participants**

STOA Panel members

Ms Kaili, Mr Rübìg, Mr Tošenovský, Ms Schmidt, Ms Delvaux, Ms Giménez Barbat, Ms Jazłowiecka, Ms Petir.

Other Members:

Ms Moody, Mr Tamburrano.

Scientific Foresight (STOA) Unit

Mr Karapiperis, Mr Pataki, Ms Van Woensel, Mr Evrard, Mr Boucher.

Other participants

Stephane Reynolds (Advisor to Mr Teasdale), Niccolo Invidia (Trainee to Mr Tamburrano), Ms Grahek (JRC), Nathalie Feltes and Robert Schichl (Assistants to Ms Claudia Schmidt), Martin Spielhofer (Trainee to Mr Rübìg), Peter Ide-Kostic (LIBE), Domagoj Stjepan Krnjak (Assistant to Ms Petir).