



STOA online workshop

Ethical issues in the Covid-19 pandemic: The case of digital health applications

Participants' booklet



Ethical issues in the Covid-19 pandemic: The case of digital health applications

STOA Workshop

11 February 2022, 10:00 -12:00

(Online via Webex Events)

Participants' booklet

Prepared by Luisa Antunes and Laia Delgado Callico, Scientific Foresight Unit (STOA)

Available at <https://www.europarl.europa.eu/stoa/en/events/details/ethical-issues-in-Covid-19-pandemic-the-/20220117WKS04001>

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#eHealthSTOA

PE 697.232

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1. Programme

10:00-10:05 - Welcome

Eva KAILI, Vice-President (VP) of the European Parliament and Chair of the Panel for the Future of Science and Technology (STOA)

10:05 - 10:15 - Presentation of the STOA study: 'Artificial Intelligence in healthcare: Applications, risks, ethical and societal impacts'

Karim LEKADIR, Researcher and Director of the Artificial Intelligence in Medicine Lab at the University of Barcelona

10:15 - 10:30 - Q&A

Moderator: Eva KAILI, VP and STOA Chair

10:30 - 10:40 - Introductory remarks

Anna ASIMAKOPOULOU, MEP and STOA Panel member

10:40 - 11:50 - Panel discussion on digital health tools - Governance and practice

Timo MINNSEN, Professor of Law at UCPH and Founding Director of the Centre for Advanced Studies in Biomedical Innovation Law, UCPH

Effy VAYENA, Professor of Bioethics at the Swiss Federal Institute of Technology (ETH) Zurich and Chair of the Hellenic Commission for Bioethics and Technoethics

Elettra RONCHI, Senior Policy Consultant in Digital Health and Data Governance, WHO/Europe

Alessandro BLASIMME, Senior Scientist, Health Ethics and Policy Lab, Swiss Federal Institute of Technology (ETH) Zurich

(short 10 min talks by each speaker followed by discussion)

Moderator: Anna ASIMAKOPOULOU, MEP and STOA Panel member

11:50 - 12:00 - Closing remarks

Anna ASIMAKOPOULOU, MEP and STOA Panel member

2. Introduction

Artificial intelligence (AI) has been at the core of the response to the Covid-19 pandemic. In turn, the pandemic has accelerated the development of AI technologies in the field of healthcare, with immediate implications in the improvement of clinical diagnoses and the enhanced precision of medical interventions.

The revolutionary advent of AI in healthcare has the potential for both disruptive advances and extraordinary benefits, with many unknowns and sensitive ethical and social issues. As with other technological advances, AI has its own set of benefits, risks, ethical issues and societal implications. Relevant questions include how to balance such benefits against the risk of unintended harms, how to govern the use of these technologies, and how to incorporate societal values into salient clinical and policy considerations.

This STOA workshop will present a STOA study on AI health-related applications and their potential to transform healthcare in the EU and worldwide. A discussion panel on the application of digital health applications in the context of Covid-19 will follow. Experts will discuss outstanding ethical, regulatory and policy challenges, and address possible policy options targeted at enhancing AI governance.

3. Speakers

3.1. Eva KAILI, Vice-President of the European Parliament and STOA Chair



Eva Kaili is a Vice-President of the European Parliament, part of the Hellenic S&D Delegation since 2014. She is the Chair of the European **Parliament's** Panel for the Future of Science and Technology (STOA) and its Centre for Artificial Intelligence (C4AI), member of the Committee on Industry, Research and Energy (ITRE), and substitute member of the Committees on Economic and Monetary Affairs (ECON), and on Budgets (BUDG), and of the Special Committee on Artificial Intelligence in a Digital Age (AIDA). Eva is a member of the delegation to the ACP-EU Joint Parliamentary Assembly (DACP), and a substitute member of the delegation for relations with the Arab Peninsula (DARP), and of the delegation for relations with the NATO Parliamentary Assembly (DNAT).

As Member of the European Parliament, Eva has been working intensively on promoting innovation as a driving force for the establishment of the European Digital Single Market. She has been the draftsman of multiple pieces of legislation in the fields of blockchain technology, online platforms, big data, fintech, AI and cybersecurity, as well as the ITRE draftsman on the Juncker Plan EFSI2 and, more recently, the InvestEU programme. She is the founder of the Future Forum, a network of influential politicians, officials and public figures promoting innovation. She has also been the Chair of the Delegation to the NATO Parliamentary Assembly, focusing on Defence and Security of Europe. Prior to that, she was elected as a Member of the Hellenic Parliament (2007-2012), with the PanHellenic Socialist Movement (PASOK). She also worked as a journalist and newscaster prior to her political career. She holds a Bachelor degree in Architecture and Civil Engineering, and a postgraduate degree in European Politics.

3.2. Anna ASIMAKOPOULOU, MEP and STOA Panel member



Anna-Michelle Asimakopoulou is an economist and an attorney-at-law. She is currently a Member of the European Parliament affiliated to the European **People's Party**, Vice-Chair of the Committee on International Trade and member, inter alia, of the Special Committee on Artificial Intelligence in a Digital Age, the Committee on the Internal Market and Consumer Protection, the Committee on Foreign Affairs, the Committee on Development, and the Panel for the Future of Science and Technology (STOA).

She has taken a leading role in shaping the European Parliament's international trade agenda and has worked on the EU's strategy on critical raw materials. Having focused for many years politically and professionally on the uptake of advanced information technologies, MEP Asimakopoulou has been active on key files including the Digital Services and Digital Market Regulations and the Artificial Intelligence Act.

She was formerly a member of the Hellenic Parliament and spokesperson for the New Democracy Party. She has also served as Deputy Mayor of the City of Ioannina in NW Greece.

She worked for several years as an attorney in the USA, specialising in financial transactions and international banking law, as an external expert for the European Commission, and as a manager in consulting companies in Brussels and Luxembourg.

She is a member of the Board of Trustees of the think tank Friends of Europe and of the Hellenic American University.

3.3. Karim LEKADIR, Researcher and Director of the Artificial Intelligence in Medicine Lab at the University of Barcelona



Karim Lekadir is a Ramón y Cajal Researcher and Director of the Artificial Intelligence in Medicine Lab at the Universitat de Barcelona (BCN-AIM). He holds a PhD from Imperial College London (UK) and was previously a Visiting Scholar at Stanford University (USA). His current research focuses on the development of data science and machine learning approaches for the analysis of large-scale biomedical data, including imaging, biological, clinical, lifestyle and mobile data. He is the Scientific Coordinator of several large-scale EU-funded research projects related to big data and artificial intelligence, such as in the field of cardiology (euCanSHare) and oncology (EuCanImage).

Key message

In recent years, the use of artificial intelligence (AI) has become ever more ubiquitous across a wide variety of sectors. In this time, AI has been both praised for the great promise it offers and has also stood at the centre of heated controversy. The application of AI in healthcare and medicine is an especially delicate area, as medical AI functions in a high-stakes context in which it has the potential to offer important improvements to health systems, hospitals, healthcare professionals, patients, and the general public, but it also poses its own significant and context-specific set of logistical, technical, clinical and socio-ethical risks. Although there is growing attention and research dedicated to risk assessment and evaluation of AI in general, there are still many gaps to be filled in the medical AI field. These gaps highlight the need for increased interdisciplinarity, representation and inclusivity at all stages of AI in healthcare, increased involvement of the general public – especially marginalised and vulnerable communities – as well as the need for continual in-depth evaluation of health-related AI tools at all stages of their design, development and deployment.

3.4. Timo MINSSEN, Professor of Law at UCPH and Founding Director of the Centre for Advanced Studies in Biomedical Innovation Law, UCPH



Timo Minssen is Director of the Center for Advanced Studies in Biomedical Innovation Law (CeBIL) at the University of Copenhagen (UCPH). Specialising in regulatory law, data protection law, IP law and competition law, as well as on the interface of law and ethics, his research and part-time advisory practice concentrates on emerging health and life science technologies, big data & artificial intelligence, including medical devices and quantum technology. Timo is a member of several international committees and serves as an adviser to the WHO, WIPO, European Commission, research organisations, national governments and law firms. He leads major research projects with inter alia Harvard Law School, Harvard Medical School and the University of Cambridge. Holding a German Staatsexamen, as well as Swedish law & life science-related LL.M. & LL.D. degrees, he also advises research infrastructures and life science companies as a senior consultant at the Swedish law firm X-Officio.

Previously, he trained at the European Patent Office and German courts. He has been a Max Planck stipendiate and Visiting Fellow at the Universities of Cambridge and Oxford, as well as at Harvard Law School, Chicago-Kent College of Law and the Pufendorf Institute. His publications comprise several monographs, as well as 170+ book chapters and articles in both legal and science journals, such as Science, Nature Biotech, Nature Genetics, Nature Digital Medicine, The Lancet Digital Health, Nature Electronics and PLoS-Computational Biology.

Key message

This contribution to the panel debate will highlight the importance of the interaction between ethics and law in the debate on digital medicine in pandemics. It will discuss possibilities, as well as ethico-legal challenges and risks in selected areas of application. The selection focuses primarily on a few case studies that have emerged in the current Covid-19 pandemic and that are considered to be particularly relevant for discussing ethical and legal issues. One major objective is to not only clarify problems and risks, but also to sketch out potential solutions and provide an outlook on future developments that will need to be proactively addressed.

3.5. Effy VAYENA, Professor of Bioethics at the Swiss Federal Institute of Technology (ETH) Zurich and Chair of the Hellenic Commission for Bioethics and Technoethics



Effy Vayena is Professor of Bioethics at the Swiss Federal Institute of Technology Zürich (ETH Zürich). In her work, she investigates how advances in science and technology can be ethically applied for best outcomes in public and personal health.

Vayena completed her education as a social historian with a PhD in Medical History from the University of Minnesota and a habilitation on Bioethics and Health Policy at the University of Zurich. A keen interest in health policy led her to work for the World Health Organization (WHO), where she served as a technical officer for several years. Upon her return to academia, Vayena was awarded a Swiss National Science Foundation professorship and founded the Health Ethics and Policy Lab. The **lab's** purpose is to tackle ethical questions that arise at the cutting edge of biotech research, in areas such as genomic technologies and big data analytics for healthcare. The lab moved to ETH Zurich in 2017. Vayena has been appointed Faculty Associate at the Berkman Klein Center for Internet & Society at Harvard University, where she was previously a Fellow. She is an elected member of the Swiss Academy of Medical Sciences. She chairs the Ethical, Legal and Societal Implications advisory group for the Swiss Personalized Health Network, a national infrastructure and research programme, which aims to advance personalised healthcare in Switzerland. She is a member of the World Economic **Forum's** advisory board for the Global Risks Report. She recently co-chaired the **WHO's** expert advisory group on artificial intelligence health ethics and governance. In 2021 she was named chair of the Greek National Bioethics and Technoethics Commission.

Key message

In this intervention I will present the example of digital contact tracing applications that were released by national health authorities in several European countries during the Covid-19 pandemic. Despite meeting data protection and interoperability requirements, the overall adoption rate of these apps remained low and reduced their effectiveness. I argue that several other ethically salient issues affected the uptake of such applications, including quality of evidence, equitable access and trust. Lessons from this experience can help us develop appropriate governance of digital health tools for health crises and beyond.

3.6. Elettra RONCHI, Senior Policy Consultant in Digital Health and Data Governance, WHO/Europe



Elettra Ronchi, PhD, MPP, is currently senior policy consultant in digital health and data governance, WHO/Europe. In her former capacity as Head of Unit in the Division for Digital Economy Policy at the Organisation for Economic Cooperation and Development (OECD), she has led work on data governance, privacy and risk management for over a decade. Work under her guidance has recently included the review of the OECD Privacy Guidelines, the development of the 2021 OECD Recommendation on Enhancing Access and Sharing of Data, and the 2016 Council Recommendation on Health Data Governance.

During her career as international policy analyst, Dr Ronchi has worked extensively on evaluating the conditions for system innovation and digital transformation, which she has examined in a variety of sectors with a focus on health care systems. She has served as an expert on various advisory boards and panels, including most recently the Ethics Advisory Council of the International Covid-19 Data Alliance, the Working Group on Data Governance of the Global Partnership on Artificial Intelligence, and the Foundation Board of the Graduate Institute of International and Development Studies.

Elettra Ronchi started her policy career in 1993 as consultant for the United Nations Development Programme, before which she held academic research and teaching positions in the U.S. and France.

Key message

During the Covid-19 pandemic, governments took drastic measures to curb the spread of the virus. The use of data, and in many cases personal data, has been vital to some of these measures, but raised significant privacy and data-governance challenges. Over this period, the OECD has sought to support governments and other stakeholders by providing, jointly with the Global Privacy Assembly, a forum to collectively consider and address the privacy and data governance aspects of the measures put in place to limit the spread of the virus and contain the Covid-19 pandemic. The presentation will review main lessons learned and how governments in a selected number of OECD countries have approached the Covid-19 crisis and the legal and policy frameworks that were developed in support of the exceptional measures taken to track, trace and contain the spread of the Covid-19 pandemic.

3.7. Alessandro BLASIMME, Senior Scientist, Health Ethics and Policy Lab, Swiss Federal Institute of Technology (ETH) Zurich



Alessandro Blasimme is a senior scientist in bioethics at the Swiss Federal Institute of Technology Zürich (ETH Zürich). His work focuses on ethical and policy issues in biomedical innovation and biotechnology. His areas of expertise include translational medicine, precision medicine, regenerative medicine, genetic engineering, digital health and ageing. He has published widely in leading bioethics and medical journals and he is principal investigator in large national and European research consortia.

Key message

The Covid-19 pandemic gave further impetus for the development of novel artificial intelligence (AI)-based tools with clinical application, raising a host of ethical and regulatory issues that need to be urgently addressed. In this intervention, I will illustrate a few examples of AI systems developed in connection to the Covid-19 emergency. In particular, I will present tools for diagnosis, prognosis, triage and risk assessment. Ethical issues in this space range from algorithmic bias to interpretability and liability. Possible ways to address such challenges include ethics-by-design and principles-based approaches. Europe is developing a set of regulatory instruments to address AI. However, from a regulatory viewpoint, we still lack a coherent set of requirements, operational standards and oversight mechanisms to address emerging medical AI. Regulation alone is unlikely to offer sufficient safeguards, while at the same time promoting responsible innovation in the field of medical AI.

4. About STOA

4.1. Mission

The Panel for the Future of Science and Technology (STOA) forms an integral part of the structure of the European Parliament. Launched in 1987, STOA is tasked with identifying and independently assessing the impact of new and emerging science and technologies.

The goal of its work is to assist, with independent information, the Members of the European Parliament (MEPs) in developing options for long-term, strategic policy-making.

The STOA Panel

The STOA Panel consists of 27 MEPs nominated from eleven permanent parliamentary committees: AGRI (Agriculture & Rural Development), CULT (Culture & Education), EMPL (Employment & Social Affairs), ENVI (Environment, Public Health & Food Safety), IMCO (Internal Market & Consumer Protection), INTA (International Trade), ITRE (Industry, Research & Energy), JURI (Legal Affairs), LIBE (Civil Liberties, Justice and Home Affairs), REGI (Regional Development) and TRAN (Transport & Tourism).

Ewa KOPACZ was the European Parliament Vice-President responsible for STOA for the first half of the 9th parliamentary term. The STOA Chair for the first half of the 9th parliamentary term was Eva KAILI with Christian EHLER and Ivars IJABS elected as 1st and 2nd Vice-Chairs respectively.

The STOA approach

STOA fulfils its mission primarily by carrying out science-based projects. Whilst undertaking these projects, STOA assesses the widest possible range of options to support evidence-based policy decisions. A typical project investigates the impacts of both existing and emerging technology options and presents these in the form of studies and options briefs. These are publicly available for download via the STOA website: www.europarl.europa.eu/stoa/.

Some of STOA's projects explore the long-term impacts of future techno-scientific trends, with the aim to support MEPs in anticipating the consequences of developments in science. Alongside its production of 'hard information', STOA communicates its findings to the European Parliament by organising public events throughout the year. STOA also runs the MEP-Scientist Pairing Scheme aimed at promoting mutual understanding and facilitating the establishment of lasting links between the scientific and policy-making communities.

Focus areas

STOA activities and products are varied and are designed to cover as wide a range of scientific and technological topics as possible, such as artificial intelligence, blockchain, 5G, genetic engineering, antimicrobial resistance, internet addiction, facial recognition, pollution, sustainable agriculture, Covid-19 and health in general.

These activities are clustered within three main thematic areas: Artificial intelligence & other disruptive technologies, the new Green Deal, and Quality of life. In addition, **STOA's** work addresses four cross-cutting policy areas: Science, technology and innovation; Societal and ethical challenges; Economic challenges; and Legal challenges.

The European Science-Media Hub (ESMH)

The [European Science-Media Hub](#) (ESMH), operating under the political responsibility of the STOA Panel, is a platform to promote networking, training and knowledge sharing between the European Parliament, the scientific community and the media. The ESMH makes information available to journalists, other media and citizens about new scientific developments, as well as about scientific topics that attract media attention, and promotes information based on evidence. The ESMH maintains a growing network among policy-makers, scientists and media involving science, academia, educational and research entities, and professional associations of journalists and scientists.

For journalists and media representatives, the ESMH organises training sessions and workshops on current technological developments, both as subjects of their reporting and as a means of facilitating their work. Via media monitoring and media intelligence tools, the ESMH follows the most popular topics in the field of science and technology on different platforms including journals, newspapers and social media.

Centre for AI (C4AI)

To intensify its activities in the field of artificial intelligence (AI), STOA has launched its Centre for AI (C4AI). C4AI was established by decision of the STOA Panel on 19 December 2019, and was announced at the high-level STOA workshop 'The Future of Artificial Intelligence for Europe', which took place on 29 January 2020 at the European Parliament in Brussels.

Within the context of STOA and based on decisions of the STOA Panel, C4AI produces studies, organises public events and acts as a platform for dialogue and information exchange on AI-relevant topics within the Parliament and beyond. In particular, it provides expertise on the possibilities and limitations of AI and its implications from an ethical, legal, economic and societal perspective. Through these activities, C4AI aims to contribute to the quality and coherence of discussion and policy-making as the EU seeks to coordinate its efforts and influence global AI standard-setting.

4.2. STOA Panel members (2019-2021)

	Panel Member	Committee		Panel Member	Committee
	Ewa KOPACZ (EPP, PL) EP Vice-President STOA Bureau member			Herbert DORFMANN (EPP, IT)	AGRI
	Eva KAILI (S&D, EL) STOA Chair STOA Bureau member	ITRE		Lina GALVEZ MUÑOZ (S&D, ES)	EMPL
	Christian EHLER (EPP, DE) STOA 1st Vice-Chair - STOA Bureau member	ITRE		Alexandra GEESE (Greens/EFA, DE)	IMCO
	Ivars IJABS (Renew Europe, LV) STOA 2nd Vice-Chair - STOA Bureau member	ITRE		Alexis GEORGOULIS (The Left, EL)	CULT
	Anna-Michelle ASIMAKOPOULOU (EPP, EL)	INTA		Maria GRAPINI (S&D, RO)	TRAN
	Rosa D'AMATO (The Greens/EFA, IT)	REGI		Ivo HRISTOV (S&D, BG)	AGRI
	Francesca DONATO (NI, IT)	AGRI		Marina KALJURAND (S&D, ET)	LIBE

	Panel Member	Committee		Panel Member	Committee
	Othmar KARAS (EPP, AT)	ITRE		Hermann TERTSCH (ECR, ES)	ENVI
	Maria-Manuel LEITÃO-MARQUES (S&D, PT)			Barbara THALER (EPP, AT)	TRAN
	Karen MELCHIOR (Renew Europe, DK)	IMCO		Patrizia TOIA (S&D, IT)	ITRE
	Caroline NAGTEGAAL (Renew Europe, NL)	TRAN		Yana TOOM (Renew Europe, ET)	EMPL
	Dennis RADTKE (EPP, DE)	EMPL		Viola VON CRAMON- TAUBADEL (Greens/EFA, DE)	ITRE
	Michèle RIVASI (Greens/EFA, FR)	ENVI		Tiemo WÖLKEN (S&D, DE)	JURI
	Susana SOLÍS PÉREZ (Renew Europe, ES)	ENVI	AGRI: Agriculture and Rural Development CULT: Culture and Education EMPL: Employment and Social Affairs ENVI: Environment, Public Health and Food Safety IMCO: Internal Market and Consumer Protection INTA: International Trade ITRE: Industry, Research and Energy JURI: Legal Affairs LIBE: Civil Liberties, Justice and Home Affairs REGI: Regional Development TRAN: Transport and Tourism		

4.3. STOA Administration

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This is a publication of the Scientific Foresight Unit (STOA)
EPRS | European Parliamentary Research Service



PE 697.232