Deutscher Bundestag

Ausschuss für Bildung, Forschung
und Technikfolgenabschätzung

EPTA
European Parliamentary Technology Assessment

TAB
BÜRO FÜR TECHNIKFOLGEN-ABSCHÄTZUNG
BEIM DEUTSCHEN BUNDESTAG

EPTA Conference 2022

Disruption in society – TA to the rescue?

17 October 2022, 9.45 a.m. to 5:00 p.m.

Venue: Deutscher Bundestag, Marie-Elisabeth-Lüders-Haus, Anhörungssaal 3.101

What do leapfrog innovations, 9/11, a possible collapse of the Gulf Stream, and the COVID-19 pandemic have in common? The answer is: disruption! What is meant here are drastic, rapidly occurring changes that are (often) destructive in nature. However, destruction can also offer opportunities for something new in the sense of "creative destruction". Relevant for technology assessment (TA) are disruptions in which technologies play an essential role, for example as a trigger of disruption, as a means of dealing with it, or as an affected system.

Using three exemplary topics, we highlight some of the many facets of disruption:

1. critical infrastructures (such as electricity, water supply, Internet) whose failure must be prevented at all costs;
2. autonomous weapon systems as an example of software-based systems that make decisions with potentially far-reaching consequences;
3. forests as a prime example of a natural area that is under severe pressure to "tip over" due to climate change and other human activities.

The aim of technology assessment is to provide orientation knowledge by identifying and naming opportunities and risks at an early stage. It can also pinpoint vulnerabilities and instabilities, develop scenarios and analyse the possible consequences of various courses of action. With numerous examples from the international research and consulting practice of the EPTA partners and beyond, the conference will explore the question of what contribution TA has made and can continue to make to the political and social handling of disruptions.

The EPTA network is the European association of parliamentary technology assessment institutions. The 25 members advise their respective parliaments on topics of current technologies and innovations. The annual EPTA conference in 2022 will be hosted by the German Bundestag with the Office of Technology Assessment at the German Bundestag (TAB), which holds the EPTA presidency this year.

Parallel to the conference, the EPTA Report 2022: "Disruption in society - TA to the rescue?" will be published. The anthology comprises the individual contributions of network members and bundles the different perspectives on dealing with disruptions in the context of the conference themes (1) autonomous systems, (2) critical infrastructures and (3) natural areas under pressure.

#EPTA2022 #TechnologyAssement

Programme overview

from 9:00 a.m.	**Arrival and registration**
9:45 a.m.	**Welcome and opening** Kai Gehring, Member of the Bundestag, Chairman of the Committee on Education, Research and Technology Assessment
10:00 a.m.	**Thematic introduction** Prof. Dr. Armin Grunwald, Director of TAB
10:10 a.m.	**Keynote: "We shape our world, thereafter it shapes us"** Marc Elsberg, author of the novel »Blackout«
10:40 a.m.	**Session I: Critical infrastructures - how do we prevent disruption?** Chair: Dr. Michael Nentwich, ITA, Austria Speaker: Dr. Petra Jonvallen, ERS, Riksdag, Sweden Jaro Krieger-Lamina, ITA, Austria Katri Liekkilä, National Emergency Supply Agency (NESA), Finland Gerhard Deimek, Member of the Austrian National Council
12:10 p.m.	Lunch
1:00 p.m.	**Session II: Autonomous weapon systems - humans in the crosshairs of the machine** Chair: Linda Kool, Rathenau Institute, Netherlands Speaker: Dr. Frank Sauer, University of the Federal Armed Forces, Munich, Germany Maya Brehm, International Committee of the Red Cross, Switzerland Prof. Chris Jenks, LL.M, SMU Dedman School of Law, Texas, USA Prof. Dr. Cedric Ryngaert, Utrecht University School of Law, Netherlands
2:30 p.m.	Coffee break

3:00 p.m.	**Session III: Nature under pressure - humans as a disruptive force**
	Chair: Dr. Helene Limen, Baltic Waters 2030, Sweden
	Speaker: Dr. Palle Madsen, InNovaSilva ApS, Denmark Prof. Dr. Pierre Ibisch, HNE Eberswalde Dr. Somidh Saha, ITAS, Karlsruhe, Germany
4:30 p.m.	**Closing panel: From advice to action - Disruption from the MPs perspective**
	Members of the TA Rapporteur Group: Kai Gehring, MP, Chairman of the Committee on Education, Research and Technology Assessment, Alliance 90/The Greens Dr. Holger Becker, MP, SPD Lars Rohwer, MP, CDU/CSU Laura Kraft, MP, Alliance 90/The Greens Prof. Dr. Stephan Seiter, MP, FDP Prof. Dr.-Ing. habil. Michael Kaufmann, MP, AfD Ralph Lenkert, MP, The Left Party Moderation: Tore Tennøe, Teknologirådet, Norway
5:00 p.m.	Refreshments

The conference language is English and simultaneous translation in and from German will be available.

The conference will be broadcast live on parliamentary television and on the Internet at www.bundestag.de in both German and English.

Please note: Film and audio recordings as well as photos will be taken at the event. By attending the event, you agree to their subsequent use in the context of our public relations work or that of the German Bundestag.
If you do not wish to be photographed or filmed, you can contact us or the photographer or cameraman directly.

Sessions and speakers

Keynote: We shape our world, thereafter it shapes us

“We shape our buildings, thereafter they shape us”, Winston Churchill once stated famously. Having entered the so-called Anthropocene, this insight must be expanded to “We shape our world; thereafter it shapes us.” While events such as the failure of major infrastructures pose a threat to entire societies, the development of autonomous killer machines, or turning the planet into a hothouse have the potential to change the game fundamentally, and go far beyond “shape us”. My novels explore possible futures based on facts but guided by imagination. With the survival of humanity at stake, humanity too often gets shockingly close to fiction.

Speaker

Marc Elsberg is a native of Vienna and the author of three international bestselling science thrillers, with titles like BLACKOUT, ZERO and HELIX. He originally worked in advertising and came to writing when he was looking for a book on a particular topic and couldn't find it - so he simply wrote it himself. He now passes on his experience as a writer to younger generations and teaches storytelling at the University of Applied Arts in Vienna. He first became known for his book "Blackout: Tomorrow Will Be Too Late", which was published in 2012 and deals with a European power outage due to a cyberattack. Blackout, like many of his other works, was successfully made into a film.

Session 1: Critical infrastructures - how do we prevent disruptions?

Running water, full shelves in supermarkets, medical care, cashless payments – these and other essential services have become a given in our Western societies and we are only too happy to trust that services that work today will continue to do so tomorrow. However, events such as the international financial crisis, the COVID-19 pandemic or the war of aggression in Ukraine have made visible that this feeling of security may be misleading. These and other threats (e.g. natural disasters, technical or human errors, cyberattacks) can cause sudden disruptions, damage or failure of critical systems. Given our dependency on critical services, major infrastructure failure would result in severe economic and societal disruptions.

The protection against natural hazards or manmade threats is just one of many essential tasks for operators of critical infrastructures. They also have to meet challenges such as climate change, resource scarcity, demographic change or increasing urbanization. As governments and companies worldwide invest massively in the modernization of infrastructures, sector integration (e.g. electrification of the transport sector) and digitisation are seen as key factors to meet future challenges. As a consequence, the complexity of critical systems as well as the interdependencies between them keep increasing, thereby augmenting the probability that due to cascading effects small disturbances in a subsystem result in major infrastructure and societal disruptions.

In the upcoming modernisation and transformation process the promises of technical solutions for greener, more efficient and more resilient infrastructure systems on the one hand have to be carefully balanced against the risks of failure on the other hand. How can we make critical infrastructures fit for the future without increasing the risks for massive disruptions in society? And what is the role of TA therein?

Chair and speakers

Dr. habil. **Michael Nentwich**, born 1964, is director of the Vienna Institute of Technology Assessment (Austrian Academy of Sciences) since 2006. He previously worked at the Vienna University of Economics, in Warwick, Essex, and the Max Planck Institute in Cologne. He studied law, political science, economics, and science & technology studies. His current research interest is technology assessment (TA), mainly information and communication technologies, and parliamentary TA. He published numerous articles and books, among them the volumes "Cyberscience" (2003), "Cyberscience 2.0" (2012), and "Digitalisierung und die Zukunft der Demokratie" (2022).

Petra Jonvallen is a senior research officer at the Evaluation and Research Secretariat at the Swedish Riksdag. Currently, she is involved in a project on electrification of the transport sector with the Committee of Transport and Communication. She has an interdisciplinary background, holding a PhD in Technology and Social Change from Linköping University and "docent" from Luleå University of Technology. After leaving academia, she has gained ten years of experience leading performance audits at the Swedish National Audit Office, *Riksrevisionen*. Her work there also included international capacity development cooperation of Supreme Audit Institutions in developing countries, with the aims to contribute to democratic development, and strengthen the supervisory power of parliaments. Petra is furthermore a board member of the Swedish Evaluation Society.

Jaro Krieger-Lamina; trained as a photographer after school and grew into the IT world via web design and web programming, where he worked in a number of companies. After more than ten years in this industry, he studied information security management and then began his scientific career at the Institute of Technology Assessment of the Austrian Academy of Sciences, where he has worked for 15 years. His research projects have revolved around the relationship between surveillance, privacy and security. At the moment he is working on a project on the possible consequences of a largescale, prolonged outage of internet-based services in Austria. Previously, he has worked on studies on the prevention of power outages, the security of electricity supply in Austria, the social impact of artificial intelligence, digital assistants, privacy in online games, ICT dependency and self-driving cars, among others.

Katri Liekkilä is the International Relations Manager of National Emergency Supply Agency in Finland. Her expertise lies in resilience, risk management, security of supply, critical infrastructure protection as well as strategic foresight and she explores these topics on global, European and Nordic levels. She has been with the National Emergency Supply Agency for 7 years, before which she has worked in international development projects, coached start-ups in their business model development and for investor meetings as well as in the Finnish forestry industry. Her background is in International business, Economics and Military Sciences.

Dipl.-Ing. **Gerhard Deimek** is a member of the National Council of Austrian Parliament. After studying mechanical engineering at the Technical University of Vienna, Mr. Deimek worked for various industrial companies as an engineer, product and sales manager or project manager for major international projects. In 1990, Mr. Deimek joined the Freedom Party of Austria (FPÖ) and has held various political functions at state and province level ever since. In 2008 he was elected to the Austrian National Council. In the current legislative period, Mr. Deimek is a member of the Committee for Research, Innovation and Digitalization, the Environment Committee, the Transport Committee and other committees.

Session 2: Autonomous Weapon Systems - Humans in the Crosshairs of the Machine

Autonomous systems are software-based or robotic systems that can largely independently plan and execute actions, with potentially significant consequences. In many areas, such systems will redefine the rules of the game. This is foreseeable, for example, in transportation (autonomous cars, ships, trains or airplanes) and, in the future, possibly in care for the elderly and the sick (care robotics). But pure software systems are also in use, for example in the form of algorithmic decision-making systems in finance (credit rating), human resources (applicant screening and selection) or the penal system (determining the probability of recidivism).

Autonomous Weapon Systems (AWS) are of particular concern, as they literally involve matters of life and death. Sending AWS onto the battlefield and exploiting their advantages, such as the speed with which sensor data can be analysed, without endangering the lives of their own soldiers, may sound attractive to military decision-makers. But is it politically responsible, permissible under (international) law and, not least ethically justifiable to leave the decision to use lethal force to machines?

The original task of technology assessment is to analyse the potential impacts of developing and deploying AWS and thus provide the guidance knowledge urgently needed to make these difficult trade-offs. This is a major challenge, given the dynamic nature of technological development.

Autonomous systems are software-based or robotic systems that can largely independently plan and execute actions, with potentially significant consequences. In many areas, such systems will redefine the rules of the game. This is foreseeable, for example, in transportation (autonomous cars, ships, trains or airplanes) and, in the future, possibly in care for the elderly and the sick (care robotics). But pure software systems are also in use, for example in the form of algorithmic decision-making systems in finance (credit rating), human resources (applicant screening and selection) or the penal system (determining the probability of recidivism).

Autonomous Weapon Systems (AWS) are of particular concern, as they literally involve matters of life and death. Sending AWS onto the battlefield and exploiting their advantages, such as the speed with which sensor data can be analysed, without endangering the lives of their own soldiers, may sound attractive to military decision-makers. But is it politically responsible, permissible under (international) law and, not least ethically justifiable to leave the decision to use lethal force to machines?

The original task of technology assessment is to analyse the potential impacts of developing and deploying AWS and thus provide the guidance knowledge urgently needed to make these difficult trade-offs. This is a major challenge, given the dynamic nature of technological development.

Chair and speakers

Linda Kool, MSc MA, is coordinator AI and Digital Society at the Rathenau Instituut. She is closely involved in research related to Artificial Intelligence, robotics and immersive technologies. She looks at social, ethical and political implications of these emerging technologies. How do these technologies affect our way of life and the future of work? How to protect human rights and public values, such as privacy, security and autonomy? A recent publication for example is ‘Balancing algorithms’ which explores measures administrative

agencies develop to protect human rights when using profiling algorithms. Before joining the Rathenau Instituut, Linda worked for research organization TNO. Linda studied Social Science Informatics at the University of Amsterdam and European Studies of Society, Science and Technology at the University of Maastricht and Oslo.

Maya Brehm is a legal advisor in the Arms and Conduct of Hostilities Unit of the Legal Division of the International Committee of the Red Cross (ICRC). Her present work focuses on IHL questions raised by new technologies of warfare, including autonomous weapons systems, and the promotion of responsible arms transfers. Before joining the ICRC, Maya worked as a re-searcher, lecturer and policy advisor for academic institutions, civil society organizations and UN bodies in the fields of humanitarian action, disarmament and human rights. Maya holds an MA in international relations and an LLM in international humanitarian law.

Dr. phil. **Frank Sauer** is the Head of Research at the Metis Institute for Strategy and Foresight and a Senior Research Fellow at the Bundeswehr University Munich. He has been working on the military application of robotics and AI for more than 15 years. Frank is currently a member of the International Committee for Robot Arms Control (ICRAC). He also serves on the International Panel on the Regulation of Autonomous Weapons (iPRAW) and the Expert Commission on the responsible use of technologies in the European 'Future Combat Air System' (FCAS). Frank is the co-host of the German language podcast "Sicherheitshalber" on all matters security and defense. You can follow Frank on Twitter @drfranksauer

Prof. Chris Jenks, LL.M., is a Professor of Law at the SMU Dedman School of Law in Dallas, Texas. His research considers technology's impact on accountability norms across the conflict spectrum. He recently completed a research fellowship at the Center for Naval Analysis in Washington D.C. where he worked on maritime autonomous systems. He received a Fulbright Scholars grant to researched autonomous weapons at Melbourne Law School in Australia, presented on autonomous weapons at a United Nations Group of Governmental Experts meeting and twice served on the United States Delegation at similar UN meetings. He has also worked with the U.S. National Security Commission on Artificial Intelligence and the U.S. Defense Innovation Board's AI Principles Project. Prior to joining the SMU law faculty, Professor Jenks served in the U.S. Army, initially as an Infantry officer and later as a Judge Advocate and participated in operational deployments to Kuwait, Bosnia, and Iraq. In his final military assignment, he served as the Chief of the U.S. Army's International Law Branch in the Pentagon.

Prof. Dr. **Cedric Ryngaert** (PhD Leuven 2007) is Chair of Public International Law at Utrecht University (Netherlands) and Head of the Department of International and European Law of the University's Law School. Among other publications, he authored Jurisdiction in International Law (OUP 2015) and Selfless Intervention: The Exercise of Jurisdiction in the Common Interest (OUP 2020). He is a member of the Dutch Advisory Council on International Law (CAVV), which together with the Dutch Advisory Council on International Relations (AIV) advised on the regulation of lethal autonomous weapon systems in 2021.

Session 3: Nature under pressure - Humans as a disruptive force

Rapidly advancing climate change, rising world population and overexploitation of natural resources are putting massive pressure on nature and its ecosystems around the globe. The age in which we live is therefore also referred to as the Anthropocene – an age in which humans are shaping the Earth on a geological scale, often with disruptive force. Global forests, as particularly sensitive, diverse ecosystems, are especially affected by this development. They are not only an important supplier of wood and thus an economic factor, but also fulfill central functions for the preservation of biodiversity and climate protection (CO_2 storage).

Since ongoing climate change is likely to lead to further deterioration of the condition of forests in the future and to destabilization of forest ecosystems in the long term, the pressure to act is extremely high. However, how to make forests more resilient is currently an open question that is controversially discussed in forest science and practice. Should forest ecosystems be left largely to their own devices and forestry measures be kept to a minimum? Or is a controlled conversion of forests required instead, including new management concepts and also targeted reforestation?

The example of forests thus manifests an area of tension that also applies to other natural habitats: an intact and diverse natural environment secures existential livelihoods, but it is also an indispensable resource for many areas of the bioeconomy. The difficulty lies not only in the uncertainty regarding natural processes and tipping points, but also in the task of balancing the sometimes very different demands of the various interest groups involved (such as forest owners, timber industry, hunters, people seeking recreation). Ideally, TA succeeds in supporting this transformation, where its thinking in systemic contexts, its expertise in evaluating innovations (e.g., satellite-based monitoring), and especially its many years of experience in shaping participatory processes can be useful.

Chair and speakers

Dr. **Helene Limén** holds a PhD in aquatic ecology from Sweden and has worked as a researcher within the field of deep-sea ecology in Canada for several years. Thereafter she worked at the Evaluation and Research Secretariat at the Swedish Parliament over ten years with research and future issues, amongst others with technology assessments on behalf of the committees. She also represented the Riksdag Administration in the network for parliamentary technology assessments, EPTA. Presently, she holds a position as an analyst at the independent foundation BalticWaters2030 focusing on research and policy issues for a better Baltic Sea environment.

Dr. **Somidh Saha** heads the research group “Sylvanus – Increasing resilience and reducing trade-offs during forest transformation” at ITAS, Karlsruhe. He received his PhD (Dr. rer. nat.) in Forestry from Albert-Ludwigs-University, Freiburg. Born in Assam, India, he spent his childhood in Bhutan and graduated with a Bachelor of Science in Zoology from the University of Calcutta and with a Master of Forestry from the Forest Research Institute in Dehra Dun, India. He has been living in Germany since 2008, first in Freiburg and since 2017 in Karlsruhe where he is working in KIT as a research group leader/senior scientist. He has collaborated in and led a number of research projects on forest adaptation to climate change, including one on the transformation toward resilient urban forests.

Dr. **Palle Madsen** is Principal Lead, Forest Restoration and Practice Research, at InNovaSilva ApS. He received his PhD from the Royal Veterinary and Agricultural University, Copenhagen. From 2015 to 2019, he was Professor at the Forest and Landscape College, University of Copenhagen. In 2019, he founded InNovaSilva ApS with a mission to advance and improve sustainable management and restoration of forests and forest landscapes challenged by climate change by innovating through applied research and development. The approach of InNovaSilva ApS is to collaborate with practitioners and stakeholders to combine forest science with innovative methods to underpin implementation that is relevant to meeting needs.

As Professor of Conservation, Prof. Dr. **Pierre Ibisch** heads the Centre for Econics and Ecosystem Management at Eberswalde University for Sustainable Development, Germany. Here he is also one of the two scientific directors of the Institute for Biosphere Reserves. He has extensive experience in nature conservation and development cooperation as well as in research on different continents. He conducts research and consultancy projects on the adaptation of nature conservation to global change and on the management and protection of forest ecosystems. He is vice-chairman of the board of the German Environmental Foundation.

Closing panel: From advice to action - Disruption from the perspective of MPs

TA rapporteurs in dialogue

Kai Gehring, MP, Chair of the Comimitee on Education, Research and Technology Assessment, Alliance 90/The Greens

Dr. Holger Becker, MP, SPD

Lars Rohwer, MP, CDU/CSU

Laura Kraft, MP, Alliance 90/The Greens

Prof. Dr. Stephan Seiter, MP, FDP

Prof. Dr.-Ing. habil. Michael Kaufmann, MP, AfD

Ralph Lenkert, MP, The Left Party

Moderator:

Tore Tennøe (Teknologirådet, Norway)

Impressum and contact

Deutscher Bundestag
Ausschuss für Bildung, Forschung und Technikfolgenabschätzung
- Sekretariat -
Platz der Republik 1
11011 Berlin
Technikfolgenabschätzung:
bildungundforschung∂bundestag.de

Büro für Technikfolgen-Abschätzung beim Deutschen Bundestag (TAB)
Office of Technology Assessment at the German Bundestag
Neue Schönhauser Straße 10 | D-10178 Berlin | Germany

twitter: @TABundestag | **instagram:** ta_bundestag | **linkedin:** tab-beim-bundestag