

Session Proposal for the 4th European Technology Assessment Conference in Bratislava: "Value-driven Technologies: Methods, Limits, and Prospects for Governing Innovations", 4th - 6th November 2019

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“Limits to ... predictive power” - policy advice in the age of computational modelling

“Computer statt Politik” (computers instead of politics) - already in the early 1970s the German magazine “Der Spiegel” questioned governmental efforts to rationally predict, plan and govern by the means of computational power. Since then, the role of computational modelling and simulation (CMS) in informing and guiding policies and politics has steadily increased. Technical improvements - both with regard to data basis (for example via more accurate measuring methods) as well as enhanced computing power allow for the development and calculation of ever more complex models. To name just a few examples, computer models are used in risk governance to determine the toxicity of chemicals; computer simulations inform political strategies for energy transitions on EU, national and regional levels, and computer models suggest potential effects of preferential trade agreements between countries. Yet, CMS in policy advice are not uncontested: The most prominent example might be the accusation of the politicization of IPCC climate models. Moreover, questions of interpretability and informative values remain challenging for those directly involved in advising policy makers or societal actors. Recently, debates on computational modelling in policy advice have gained new impetus by advances in Artificial Intelligence (AI) and Big Data. Based on abundant and just-in time data, learning machines are tasked with developing models for the prediction and management of a variety of situations and decisions, be it the occurrences of crimes or terrorist attacks, the most efficient use of social assistance, or successful strategies in foreign policy. Such developments fortify concerns about algorithmic biases and the risks of autonomous decision-making for democracies.

For Technology Assessment, computational modelling in policy advice is of interest in two ways: First, computational modelling, big data and artificial intelligence are objects of analysis in TA, relating to the question how the increasing digitization affects knowledge production and advisory systems and, in a broader view, societal decision-making and democracy. Second, TA practitioners are themselves users, and in some cases even developers, of computer models and simulations. For this session, we invite presentations that reflect on either of the two dimensions, CMS as an object of TA analysis or CMS as a tool of TA analysis, along the following themes and questions:

- **(Hidden) assumptions, values and biases in models and algorithms:** What kind of and whose assumptions and values are (intentionally or unintentionally) inscribed in computational modelling approaches – and therefore may rather remain unchallenged in broader discourses - and how? What biases are produced or maintained by models and algorithms and how can they be disclosed?
- **Models at the interface between science (or specifically TA) and politics:** How are model assumptions and results negotiated and communicated between different actors (scientists, stakeholders, policy-makers)? What kind of challenges do arise for TA when using modelling approaches, simulation results or data analytics in policy advice? How can accountability and transparency of policy advice and decision-making processes be ensured in the view of ever more complex models and algorithms?

- **Models between democracy and technocracy:** What opportunities and barriers does CMS provide for democratic deliberations of technology visions? In what way are different actor groups and their perspectives included in modelling practices? How is such openness with regard to actors mirrored in respective discourses around CMS? Do new developments in AI, Big Data and machine learning foster technocratic tendencies in policy advice?

Information for organizers:

Proposed duration: approximately 1,5 hours, depending on submissions.

Format: open call for papers; this session will give the opportunity to present individual work and discuss it in a joint panel in order to identify the most pressing questions and challenges arising in this area.