DEBATE

Technology assessment for a changing world

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The COVID-19 pandemic has resulted in unprecedented shocks to our societies: jobs lost in the crisis may not be recovered, vaccine innovation may not be fast enough, digitisation is accelerated, global supply chain disruptions may increase inequalities and social distancing may be here to stay. There is high pressure on decision-making in the face of these uncertainties. What role can Technology Assessment (TA) play in this radically novel situation? To deliver on its promises of bringing together science and technology with societal needs, foreseeing unintended social, environmental and economic consequences, moderating debates, and providing multidisciplinary policy advice, TA needs to critically question what its contributions can be to help build societies that are more resilient. In this opinion piece, we thus argue for a new form of TA in our immensely changing world.

The intensified pressure on scientific knowledge to deliver answers to complex questions rapidly raises its importance and attention *in* society while at the same time increasing critical scrutiny *by* society. The failure, for instance, of the U.S. and U.K. governments, for instance to adequately deal with the crisis despite strong (and often well-funded) science systems, shows that the separation of science from society is deeply ingrained in modern politics and needs to be acted upon quickly (Pielke 2020). A key factor here is the rise of explicitly antiscientific (conspiracy) ideologies, which have also gained support from some policy makers in a number of parliaments and governments. For TA this entails an intensified need for more reflection on its methods of research and forms of advice. Furthermore, with regard to attacks on science, the role of TA in science communication – which also should not be uncritical PR – has to be strengthened. As the crisis has made even more obvious, the assessment of science, technologies and their application is a crucial and permanent practice of society at large, in which professional TA practitioners have to redefine their roles.

In the recent past, TA scholars have increasingly discussed conceptual and internal issues of normativity and neutrality and questions of reflexivity and anticipation. Yet, in order to avoid this becoming a too self-referential endeavour, this reflection now needs to be adapted to the rapidly changing contexts. Professional TA has well-tested processes and established institutional settings with well-defined goals and target groups. Yet, the new COVID reality has the potential to disrupt TA routines, questioning many established paths, methods and research foci. It is therefore necessary to reflect on which key aspects of TA will endure and which are likely to change: How does TA find emerging and relevant topics? Why was a global pandemic not sufficiently on our radar? How can we set agendas in more pro-active ways? Against this backdrop, our goal here is to start a discussion by focusing on a key competency of TA: giving advice to policy makers, stakeholders and society at large. By re-thinking how we, as a professional TA community, provide advice and how our role may be adapted to a world in transition, we will better understand and define what is needed from us in current and in future crises.

The need for a pro-active honest broker

The changing contexts of our advisory practices also necessitate more reflection on how and when to provide which kind of advice. We posit that due to dramatic changes described above, more real-time TA (Guston and Sarewitz 2002) activities and strongly transdisciplinary approaches are needed. As a TA community, we must take on a more "pro-active" role in order to remain relevant and stay true to our mission, more visibly positioning ourselves within the current, highly politicized debates on socio-technical transformation that transgress established procedures and boundaries of the science-policy nexus. This positioning is of course tricky. Institutionalised TA aims to function as an "honest broker" (Pielke) presenting different options for actions to decision makers of various kinds using or deciding on science and technologies. Participatory TA and foresight studies identify future opportunities and concerns regarding long-term technol-

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ogy developments by including the perspectives of citizens, stakeholders and experts. Traditionally, TA researchers have different roles depending on the types of knowledge and the decision-making contexts (Bauer and Kastenhofer 2019). As the COVID crisis has made clear, there is now a need for a pro-active TA community that interacts with a wide array of actors, dealing with rapidly changing scientific knowledge bases for decision-making. This forces TA researchers to be more "hands-on" as facilitators of new communication formats that transparently and effectively feed into deliberation and decision processes, making values in research agendas more explicit. Such "real-time TA 2.0" should seek ways to intervene in ongoing, often short-term debates, deliberation and decision processes, leaving the comfort zone of established institutional settings and professional TA routines. The aim is to have an impact in highly dynamic political and social processes, by means of actively setting agendas, providing concrete orientational knowledge also for short-term decisions, and enabling their continuous societal assessment.

As a TA community, we thus need to improve experimental and strategic actions as politically thinking, publicly engaged, problem-oriented researchers who do not simply wait to be "(t)asked". Individuals and groups are faced with and make decisions based on evaluations of science and the assessment of technologies, which in turn shape their everyday (socio-technical) lives, making them increasingly important addressees – while in the meantime (due to heightening scepticism of science and democracy) they turn into rather "tough customers" – of our TA community. In turn, we may profit from increased public awareness that societal challenges need interdisciplinary and transdisciplinary activities – also more long-term ones than usual TA projects – in which TA researchers act as "agenda setters" rather than "service research" providers; and as honest knowledge brokers for citizens and politicians helping create a common language.

Innovative TA practices

The immediate social context of professional TA is also undergoing huge changes. Research and higher education are being digitally rewired while at the same time becoming more politicized. In political systems in the state-of-emergency mode, the possible is redrawn, democratic institutions are challenged, and the public sphere is increasingly polarized, morphing into a self-observatory of massively experimenting societies. In times when political actions lead to restrictions on personal freedom and public life, we see the need and the potential for more citizens to contribute to political decision processes, including those with mid- and long-term effects.

Assessing visions of socio-technical futures can help TA explore a possible near-future world in which COVID-19 will still not be under control, but also mid-term or long-term futures in which new (pandemic) crises will emerge. Given that the current state is also a crisis of trust in science and democracy, the engagement of stakeholders and the public is more important than ever. As a TA community, we should support "citizen TA" activities, as citizen science in which individuals learn about TA methods and apply them to assess and evaluate science or technology developments. In order to increase the capacities of societies to assess ongoing socio-technical challenges, further new processes and institutions could be envisioned that can help deepen democracy and fill the gaps in existing science-policy-society arrangements. Permanent civic conventions on science and technology, for example, could be forums for more robust and democratic deliberation even in times of "emergency policy making".

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The stakes are high. New forms of TA that pro-actively engage in deepening democracy in a time of (multiple) crises should be our response. We need to strengthen existing and help create new (international) interfaces of science, politics and societies, with a view towards democratic ideals, societal responsibilities of science and globalising publics.

References

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