TATuP
ZEITSCHRIFT FÜR TECHNIKFOLGENABSCHÄTZUNG IN THEORIE UND PRAXIS
JOURNAL FOR TECHNOLOGY ASSESSMENT IN THEORY AND PRACTICE

Call for Abstracts

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Embracing the unknowable: The growth of knowledge in assessments of the future

TATuP Special topic in issue 36/2 (2027)

Submit your abstract by 13 May 2026

Background: The growth of knowledge presents a profound challenge for most assessments of the long-term future. We cannot know today what we will learn tomorrow – if we could, we would already have that knowledge! This fundamental constraint places inherent limits on the ability of science, technology, and reason to predict the future (Deutsch 2011a; 2011b). The future is not merely unpredictable, uncertain, and unknown. It is largely unknowable, and the growth of knowledge contributes to its unknowability.

Methodologies for dealing with an uncertain future have been developed in technology assessment, responsible research and innovation, foresight studies, risk assessment, and integrated modeling (Hansson & Hirsch Hadorn 2016; Petropoulos et al. 2022; Grunwald 2024). However, these approaches often fall short of addressing the fundamental challenge of knowledge growth. There have been recent calls for a shift from prediction to anticipation and reflexivity (e.g., Patomäki 2020; Grunwald 2021). Assessments that do not take the growth of knowledge into account run the risk of being biased in one way or another, and policies based on such assessments may lead to costly or harmful outcomes.

This TATuP Special topic aims to develop basic theoretical frameworks and methodological approaches for dealing with the unknowable growth of knowledge in forward-looking assessments. The Special topic will foster a transdisciplinary understanding of how different domains address knowledge growth, thus facilitating the cross-pollination of ideas and methods across fields. We would also like to see contributions from different regions of the World, especially from the Global South.

Research questions: We welcome contributions that examine and identify problems associated with the growth of knowledge in assessments of the future, particularly those that distinguish unknowability from related concepts such as ambiguity, uncertainty, severe or “deep” uncertainty, and unknown unknowns. In particular, we welcome contributions that address one of the following questions:

- **How can the growth of knowledge be dealt with in quantitative models of the future?** The modeling of future developments often depends on assumptions about knowledge growth. Severe methodological criticisms have been raised against integrated assessment models of climate and the economy (e.g., Ackerman et al.

2009; Pindyck 2013, 2017), energy scenarios (Hoekstra 2019; Gambhir 2019; McCollum et al. 2020; Vögele et al. 2019), life cycle assessments and global environmental assessments (van der Giesen et al. 2020; Igos et al. 2019). There is, however, a need to further examine and emphasize how explicit and implicit assumptions about knowledge growth affect assessments based on quantitative models of the future.

- **What implications does the unknowable have for policy advice?** The challenges of making policy for emerging technologies are well-known. For example, when a technology is new and easy to change, we cannot know if and how it will cause harm, but by the time we know it is harmful, it will have become too difficult and expensive to control (Collingridge 1980). Also, we cannot know in advance how society will respond and what solutions will be developed. Dealing with the unknowable will likely require more reflective approaches towards policy advice. How can analyzing underlying assumptions and narratives, as in Grunwald's (2014, 2016) 'hermeneutic approach', be used to embrace the unknowable? How can methods for decision-making under great uncertainty (e.g., Hansson 1996; Marchau et al. 2019) and temporal strategies (e.g., Hirsch Hadorn 2016) be used to address the growth of knowledge? How can we prepare for both imaginable and unimaginable possible futures? How can policy advisors maintain scientific rigor while acknowledging that even their analytical frameworks may be altered by future knowledge?
- **What can we learn from historical failures to anticipate the growth of knowledge?** Notable predictions have often failed to account for knowledge growth. Examples include Malthus' pessimistic population forecasts, Ehrlich's (1968) book *The Population Bomb*, the Club of Rome report (Meadows et al. 2004), and the repeated warnings of 'Peak Oil.' Historical examples can reveal how assumptions about the growth of knowledge in technological innovation, resource extraction, and energy alternatives can systematically distort our view of the future. Documenting and framing historical case studies in terms of failures of anticipating the growth of knowledge is critical to enable learning and devising approaches that not only acknowledge but also embrace the unknowable growth of knowledge.

The disciplines and scientific communities invited to contribute to the Special topic

- Technology assessment
- Responsible research and innovation
- Operations research/decision sciences
- Policy studies and policy impact assessments
- Foresight and future studies
- Cognitive science
- Economics and econometrics (e.g., productivity growth, innovation, learning curves, economic history)
- History of science and technology (e.g., historical case studies)
- Complexity science (e.g., emerging phenomena in complex feedback systems)
- Philosophy of technology (e.g., the philosophy of technological prediction, emerging and disruptive technologies, etc.)

- Philosophy of science (e.g., science vs. pseudoscience, scientism, prophecies, epistemic humility)
- Ethics (e.g., the rights of the yet unborn, temporal and intergenerational justice)

Special topic guest editors

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How to submit

- English language (US) only.
- Please submit your abstract via the journal workflow system no later than 13 May 2026 by copy-pasting your abstract of max. 1100 words (including bibliography) into the designated 'Abstract' field.

Editorial process outline

13 May 2026	Final date to submit your abstract
June 2026	Notification of invitation or rejection to submit research articles
September 2026	Final date to submit your research article, followed by peer review
December 2026	Feedback from the reviewers, followed by revision by the authors
January 2027	Submission of the revised research articles
March 2027	Further revisions, if necessary
May 2027	Editorial deadline
July 2027	Publication (print and online)

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