

Call for Abstracts: Amplified sociotechnical problems in converging infrastructures

TATuP special topic in issue 02/2020

Deadline for submitting your abstract: 29 November 2019

In order to achieve significant reductions in greenhouse gas emissions and the decarbonization of entire industries, it is necessary not only to transform individual sectors such as electricity, heat, transport/mobility, or industrial production but also to integrate these units in an intelligent way. The basic prerequisites for this approach are

- the widespread dissemination of renewable energy sources (RES);
- the integration of knowledge, technical norms and standards;
- the operational coupling of technical systems of production (of services) and organization;
- new forms of social coordination on markets and of regulation among actors and sectors.

In the context of the energy transition, the convergence of infrastructures (in Germany: “sector coupling” SC) has become a prominent strategy for achieving these objectives. With several emerging technologies enabling sector coupling, foremost developments in RES and in information and communications technology (ICT), scientists and industrial actors encourage the combination of different research and development activities, supporting policies, and energy-related practices (such as consumption patterns). Against this background, and given the potentially central role that the sector coupling approach will play in the energy transition and in future energy systems, this is a relevant field of research for interdisciplinary technology assessment (TA).

We propose to use the concept of “sociotechnical problems” (Büscher et al. 2018) as a heuristic to expose possible issues of such integration processes along commonly shared reference points for analysis:

First, there is the continuous problem of maintaining control in system operation despite amplified sociotechnical complexity due to structural changes: A larger number of technical systems, system components and social actors are intertwined, which might lead to emergent, surprising behaviour in systems, networks of systems and networks of networks (Edwards et al. 2007, p. 12).

Second, change must be enacted in various sectors simultaneously and, at the same time, reliable operation and secure services must be maintained while institutional settings change: A general loss of orientation in engineering, operation, planning, investment, and use should be avoided, even if the transition processes partly cause destabilization of institutions and require formerly successful practices to be abandoned, proven knowledge to be unlearned, and routines to be deviated from.

Third, the unavoidable uncertainty that comes with transition processes, i.e., structural and institutional changes, must be managed in order to remain actionable (to maintain control and to

further enact change). Furthermore, the increasing discrepancy between “simple” interfaces and complicated technological systems in the background of integrated, ICT-controlled infrastructures must be accompanied by social mechanisms that enable confident decision making and action in managing, operating, and participating in such systems.

Expected contributions

The problems and challenges named above cannot be reduced to purely technical or purely social categories; they cannot be solved permanently and need constant attention. Moreover, problems in several domains influence each other, and changes in one dimension cause permutations in others.

In this TATuP special topic we are looking for interdisciplinary contributions – from engineering sciences and economics, psychology, philosophy, sociology, or other disciplines – that address one or more of these issues and provide ideas on how to recognize the consequences of these developments and how to govern the ongoing integration of infrastructures.

Guest editors of this TATuP special topic

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Submissions

Please send your abstract by email to redaktion@tatup.de by **29 November 2019** at the very latest. The editorial office will correspond with the author submitting the abstract;

Your abstract submission must respect the following directions: max. 3000 characters incl. blanks; name all co-authors with full names, email addresses and institutional affiliations.

Schedule

29 November 2019: deadline for submitting your abstract.

early December 2019: decisions on inviting authors to submit a full manuscript.

17 February 2020: deadline for submitting your full manuscript, followed by a double non-blind peer review process.

mid-march 2020: feedback from the reviewers, followed by authors’ revisions.

mid-May 2020: editorial deadline.

July 2020: publication of TATuP 2/2020 in print and online.

References

Büscher, Christian; Schippl, Jens; Sumpf, Patrick (Hg.) (2018): Energy as a sociotechnical problem. An interdisciplinary perspective on control, change, and action in energy transitions. London: Routledge.

Edwards, Paul; Jackson, Steven; Bowker, Geoffrey; Knobel, Cory (2007): Understanding infrastructure. Dynamics, tensions, and design. Ann Arbor: DeepBlue.