Call for Abstracts
for a Special Issue in *Research Policy* on
"Multi-system innovation: Emergence, dynamics, and impact"

Guest Editors:

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Rationale and aim of the Special Issue

In light of current global challenges, such as social and environmental problems (e.g., climate change, mobility, energy, employment, health, aging), a deeper understanding of the wider systemness of innovation, or "multi-system innovation", is needed to foster the emergence and implementation of integrated or interconnected solutions to enable synergies between technologies, fulfill societal functions, and move towards achieving the sustainable development goals. Multi-system innovations (e.g., electric vehicles, medical diagnostics, industry 4.0, smart cities, wearable technology, circular business models) refer to new technologies and products that emerge at the intersection of two or more (socio-technical) systems (e.g., sectors, industries or parts of a value chain). Given the complex landscape that emerges when multiple systems interact, depend on each other, and coevolve over time, the directionality and consequences of socio-technical change becomes more difficult to assess. At the same time, a better understanding of the impetus, characteristics, and dynamics of multi-system innovations is needed to guide economic actors and policy makers (Ateş et al., 2024; Bakhuis et al., 2024; Haddad and Bergek, 2023; Löhr et al., 2024; Markard and Rosenbloom, 2022).

The aim of this special issue is to shed new light on the emergence, dynamics, and impact of multi-system innovation, with a particular focus on the overarching directionality, the nature and kinds of interactions between multiple socio-technical systems, including the actors, their constellations and needs, and the role of policy. Past studies, e.g., in the field of sustainability transitions, have often studied the emergence of innovations in single systems, and only recently shifted attention to interactions among different systems (Andersen and Geels, 2023; Andersen and Markard, 2020; Rosenbloom, 2020). We are only beginning to understand how multi-system innovations form, change over time, and how the systems ultimately become able to (better) provide their societal functions.

The contributions to the special issue should improve the theoretical concepts and empirical analysis of structural change processes associated with multi-system innovations in diverse contexts (e.g., healthcare, pharmaceuticals, agriculture, heavy industry). We especially invite contributions that work toward a generalization of the phenomena, e.g., as they reach beyond the 'usual' cases around clean energy technologies or digital innovations. The novel insights should increase our understanding of the emergence, characteristics, and impact of multi-system innovation and help to provide guideposts for economic actors, identify policy intervention points (Kanger et al., 2020), assess the direction of policy and system change (Edmondson et al., 2019), or address global system dynamics (Hipp and Binz, 2020). The special issue aims to provide novel theoretical insights and derive coherent policy recommendations on how to support and govern multi-system innovation and tackle contemporary global, social, and environmental challenges.

Potential research questions

We seek contributions that address the field of multi-system innovation along the following pillars:

Emergence

- What are key elements and characteristics of multi-system innovation?
- Which actors or institutions foster or hinder the emergence of multi-system innovation?
- How do systems interact and co-evolve when confronted with the emergence of multi-system innovation?

Dynamics

- How do actor constellations in interconnected systems influence technological trajectories and system development?
- How can knowledge exchange between different systems be fostered and accelerated?
- How can the directionality, co-evolution, and interactions between systems be formalized and modeled?

Impact

- How does multi-system innovation vary in different spatial or technological contexts?
- How can we analyze multi-system innovation in a systematic way, mobilizing both established frameworks (e.g., innovation systems, ecosystems) as well as new ones?
- How can decision makers in policy and practice support multi-system innovation?
- How does multi-system innovations increase the fulfillment of sustainability goals, societal functions or welfare?

We welcome theoretical, qualitative and quantitative contributions from Research and Innovation Policy, Economics and Management of Innovation, Management Studies, Science and Technology Studies, Transition Studies, Environmental Science, or Economic Geography, which can jointly provide a more comprehensive picture of multi-system innovation with regard to its elements, development and impact in different sectors and countries.

Submission process and timeline

Since our letter of interest for this special issue was approved by the editors of Research Policy in a first stage, we now seek extended abstract submissions to screen potential contributions. Based on this screening, a full special issue proposal will be developed and submitted to Research Policy. After a positive decision by the Research Policy editors, we will host a paper development workshop and selected authors can submit their full papers. The timeline is as follows:

- April 30th, 2025: Deadline of abstract submission.
- May, 2025: Decision by guest editors which papers will be included in the special issue proposal.
- July/August: Decision by Research Policy and invitation to submit a first draft paper to the workshop.
- February, 2026: Paper development workshop. Invited papers will be presented and discussed by researchers and guest editors.
- Spring 2026: Submission of full papers to Research Policy, followed by the review process.
- 2027: Continuous online publication of accepted papers and final publication of special issue.

For initial submission, please send a title, authors, abstract (max. 1,000 words incl. theory, data and methods used, results and contribution), brief biographies (max. 50 words), affiliations and contact details of the (co-)author(s) until April 30th, 2025 to ann.hipp@thuenen.de. Should you have any questions, please do not hesitate to contact us.

Ann Hipp, Martin Kalthaus, and Jochen Markard (Guest Editorial Team)

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