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Abstract for full-paper session Track 1, Accelerating sustainability transitions: Unpacking challenges and causal mechanisms

Steering acceleration in sustainability transitions: an overview of the strategies to address new emergent lock-ins

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Abstract

The net-zero emission targets that many countries established for 2045-2050 have become a tangible reference for scientists and policy-makers to monitor our progress in the transition towards sustainability. This entails the urgency of accelerating this process by fostering deep and wide changes in all sectors in view of net-zero emissions (Markard and Rosenbloom, 2023).

Challenges do not only result from those targets, but also from the deep uncertainty (Castrejon-Campos et al. 2020) and potential negative side-effects related to the different trajectories to fulfil them. Sustainability transitions can lead to a multitude of possible alternatives with different environmental implications. Therefore, neither decline nor acceleration in a transition process guarantee that the new emerging configuration will meet societal functions sustainably, in the long-term. To navigate the complexity and related challenges of this phase, considerable steering and policy efforts are required.

Overcoming incumbent “carbon” lock-ins is a crucial challenge of the acceleration phase (Markard and Rosenbloom 2023; Andersen et al. 2023). Sustainability transition scholars have been focusing on path dependency and incumbent lock-ins as mechanisms that contribute to the functioning and preservation of the incumbent system (Seto et al. 2016). While acknowledging the importance of breaking ‘old’ lock-ins, this paper draws attention on avoiding ‘new’ lock-ins, which can emerge in the transition process. We refer to these mechanisms as new emergent lock-ins.

Like incumbent lock-ins, new emergent ones can help stabilising the elements of a system on the long-run. Yet, considering the deep uncertainty connected to the steering of transitions and to rapidly changing conditions, these new lock-ins might prevent advanced transitions from unfolding their full sustainability potential. A new lock-in could emerge for example when investing in a socio-technical option, that due to changing circumstances (e.g. knowledge advancing) might not be suited anymore for the new conditions, therefore becoming unfit for building a carbon neutral society.

In other words, this lock-in might either hinder the transformation taking place in line with (potentially changing) sustainability objectives or slow it down. Both could mean to miss ambitious net-zero targets. For these reasons, the present paper recommends addressing new emergent lock-in as a challenge that is also relevant during the acceleration phase.

Generally, we suggest reflecting on what building a sustainable system means and treat these lock-ins as one of the challenges embedded in this system building process. The main purpose of this work is to provide a structured overview of the strategies to cope with new emergent lock-ins, not the least as a basis for translating these strategies into specific policy instruments. The research questions are formulated as follows: **what are the strategies available to cope with and avoid new lock-ins? How do the strategies relate to each other? Which strategy is useful for what specific case?**

The strategies should enable adaptivity on the long-run, while addressing new emergent lock-ins in different ways. In order to identify these strategies, we conducted an interdisciplinary literature review. By drawing on insights from various disciplines, this research seeks to bring together the body of knowledge around lock-in, going beyond transition studies, and to extract strategies to address new emergent lock-ins.

The strategies are designed to be specifically effective in dealing with new emergent lock-ins and to provide more flexibility in the steering of transitions. Reflecting on these tools can be a key step to be able to react and adjust to future developments and to the deep uncertainty affecting transformations.

Sources

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Contribution to Track 1:

The paper contributes to deepen our understanding of new lock-in as a phenomenon that can emerge also on establishing sustainable systems by linking different strands of literature. We bring up the question of addressing these mechanisms during the acceleration phase developing general policy strategies to avoid new lock-ins. By picturing an overview of these strategies, this study analyses ultimately the linkages between the steering of a transition and the challenge of potential lock-ins, exacerbate by deep uncertainty.