

# T14P02 / Designing Sticky Policies: How to Steer the Co-evolution of Policy and Technology

**Topic :** T14 / Science, Internet and Technology Policy

**Chair :** Tobias Schmidt (ETH Zurich)

**Second Chair :** Benjamin Cashore (National University of Singapore)

**Third Chair :** Sebastian Sewerin (Delft University of Technology)

## GENERAL OBJECTIVES, RESEARCH QUESTIONS AND SCIENTIFIC RELEVANCE

Not only does technological change play an ever growing role in our daily lives (e.g., through the introduction of new information and communications technologies (ICTs)), but it also is considered a key lever in tackling super-wicked problems, such as climate change. However, technological change is presently not considered systematically in public policy research. While research on the policy designs' effect on technological change is abundant – for example in the field of renewable energy policy, many studies investigate the effect of policy instruments on the development and deployment of low-carbon technologies – the inverse effect of how technological change affects policy-making remains largely unexplored. Only some isolated studies have explicitly analyzed the role of technological change in policy dynamics: Auld/Cashore et al. (1) discussed how technological innovation can improve the general performance and tracking mechanisms of forestry certification programs; Jacobsson/Lauber (2) analyzed the politics of the German energy system transition, touching upon the effects of technological innovation on advocacy coalitions in German energy politics; and Hoppmann et al. (3) showed how technological innovation in the German photovoltaics industry induced compulsive sequences of policy reform.

Despite these efforts, the majority of current public policy research neither treats technological change in a systematic way nor considers peculiarities of different technologies (such as distinct innovation patterns), making it difficult to hypothesize about the feedback link between technological change and policy dynamics. This gap is particularly troubling for the emerging 'new' policy design literature that stresses the need to consider the temporal aspects of design, e.g., by designing 'sticky' or 'durable' policies that intentionally generate positive policy feedbacks. Furthermore, a better understanding of the feedback link between technology and policy dynamics is particularly crucial in policy fields characterized by high technological complexity and long time spans for change, such as in the energy sector. Here, researchers have shown that policy designs that do not consider peculiarities of different technologies risk being ineffective and thus fail to induce positive feedback. Much less is known, however, about the effect of policy-induced technological change on actor constellations and the underlying politics of policy-making. Another aspect of the technology-policy feedback link rarely studied is how technology helps in assessing a policy's effectiveness in achieving its intended impact (e.g., smart metering and final energy consumption or remote sensing and land-use changes).

This panel discusses how to foster the systematic endogenization of technological change in policy research, particularly in policy design studies. It aims to bring together perspectives and insights from innovation studies and policy analysis. Participants are encouraged to include conceptualizations of technological change, to consider policy mixes instead of individual policies and to be precise about the dimension of policy output studied. The panel is open to both conceptual papers that aim to integrate technology into policy design studies as well as empirical studies of the feedback link between technological change and policy dynamics in fields relevant to the environment, e.g. renewable energy, forestry and land-use change.

References:

- (1) Business and Politics 12(3)
- (2) Energy Policy 34(3): 256-76
- (3) Research Policy 43(8): 1422-41.

## CALL FOR PAPERS

The panel invites papers relating to four topics concerning the design of sticky policies to steer the co-evolution of policy and technology:

- 1) Policy interventions can nurture new technologies, leading to the creation of new actor networks that in

turn influence long-term policy dynamics. Our understanding of the policy designs that are most effective in creating new actors is limited. We invite papers that systematically compare policy designs and their impact on the creation of low-carbon actor networks that fundamentally alter policy dynamics.

2) Political institutions moderate the speed, direction and stickiness of policy interventions. The moderating effect of institutions on policy dynamics is mostly analyzed in isolation, with systematic cross-country comparisons missing. We invite papers that analyze the effect of institutions on the technology-policy feedback link in order to improve policy design for different institutional contexts (such as uni-/bicameral legislations and federalism).

3) Technology differences can also affect the technology-policy feedback link: technologies differ in their disruptive potential as well as their learning rates, which in turn will entail different speeds of policy adjustment. Also, different technologies allow different shares of the supply chains to be localized. While these differences are widely recognized, systematic research to explain them is missing, leaving open the long-term effects of technology selection on policy dynamics. We invite papers that investigate how policies that are sensitive to technology differences can be designed.

4) While policy diffusion is well-studied, technology spillovers and their effect on policy dynamics are rarely studied. Policy-induced technological change as a driver of policy change in other jurisdictions is not analyzed systematically, nor is how technological innovation external to a policy field affects policy implementation and monitoring (e.g., remote sensing and forestry). We invite empirical and conceptual papers that aim at designing future policy interventions that are more adaptive to technological innovation.

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## Session 1

Wednesday, June 28th 16:15 to 18:15 (Block B 3 - 7 )

### **Discussants**

Tobias Schmidt (ETH Zurich)

Sebastian Sewerin (Delft University of Technology)

### **A Theoretical Framework for Systematic Analyses of Policy Feedback**

Philipp Pechmann (Department of Political Science, Aarhus University)

### **The Joint Center for Energy Storage Research: A Lesson in Depoliticizing Science and Technology**

Matthew Shapiro (Illinois Institute of Technology)

### **Evolving interest coalitions and deployment policy design: Comparing the Swiss and German feed-in tariffs for renewable energy**

Leonore Haelg (ETH Zurich)

Tobias Schmidt (ETH Zurich)

Sebastian Sewerin (Delft University of Technology)