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Learning to shield – Policy learning in socio-technical transitions

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ABSTRACT

The dynamics of protection in the context of socio-technical niches have remained under-researched. In this paper we conceptualise the process of policy learning in the context of transitions. We show that a variety of actors inside and outside a technological niche have to learn about the implications and effects of regulations aimed at protection of niches. We analyse this process of policy learning in two cases: high-need drugs and electric vehicles. We conclude that both regulators and the regulated need to learn about the width and depth of protection measures, their duration, the specific set of tools used, and their legitimisation. A crucial issue of implementing protective regulation is the question on what level of aggregation protection measures need to be applied. Learning is often part of the negotiation process between the protector and the protected, but in many cases learning only takes place after policies have been implemented.

1. Introduction

Emerging technologies are characterised as being malleable and immature. Several dimensions of these technologies are still to be fleshed out and developed in order to meet the level needed to fight

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off competition from incumbent technologies (Rip, 1995). Literature on socio-technical transitions describes these dynamics by examining niches in which these early-stage technologies are protected, creating room for experimentation and maturation (Kemp et al., 1998a,b; Schot and Geels, 2008).

These spaces are called protective spaces or socio-technical niches. In the last decade and a half, such technological niches have been vigorously investigated in a wide range of case studies. Most attention has been paid to the activities taking place inside these niches, i.e. the way in which learning, articulating expectations and network building strengthen technology development in protective spaces (Kemp et al., 1998a,b; Schot and Geels, 2008). These studies explicitly included an analysis of the policies that support individual pilot projects (e.g. Kemp et al. 1998a; Raven, 2005; Caniëls and Romijn, 2008), or policies that force industries to offer more sustainable products and which create an early market for otherwise too costly and typically underperforming solutions. They also focussed on assessments of the effectiveness of these protection measures (Nill and Kemp, 2009; Kemp and Pontoglio, 2011).

These studies have, however, not sought an answer to the question what niche protection really entails and how it is developed. In this vein, Smith and Raven (2012) recently emphasised how the nature and dynamics surrounding protection have remained under-conceptualised, despite it being a key element of transitions thinking. In other words, we still do not really know "what protection is, where protection comes from, how it is contested, who is involved in shaping protection, nor how protection is transformed and declines as transitions come about" (Smith and Raven, 2012). Their attempt to conceptualise niche protection and to answer the questions above hinges on a better understanding of the politics involved in transitions and hence in niche protection.[1]

This emphasis on agency and the politics of transitions has been advanced in recent transition literature (Smith et al., 2005; Kern, 2011; Smith and Stirling, 2010; Bakker, 2014; Geels, 2014; Markard et al., 2016). In the context of niche protection, Ulmanen et al. (2009) adduced the notion of agency and politics by showing that protection is produced by a wide range of actors rather than public authorities alone. They also find that the evolution of protection is the result of actors who strategically lobby, negotiate and mobilise discourses.

Building on this, creating protection as a long-term and complex process involving multiple actors and levels points to the need for continuous evaluation and adaption. Actors do not know beforehand what their interests exactly are in relation to the transition pathway, nor do they know how various policies will affect them or the proposed transition (Kern, 2011). This is something that all actors need to learn along the way, indicating a need for reflexive governance (Voß et al., 2009).

With this paper we aim to shed led light on the learning processes that actors go through in creating and sustaining technological niches by means of (public) policy. Current literature on protective spaces has paid relatively little explicit attention to policy learning, which is slightly odd given its importance in the shaping of protective space. This leads us to the research question central to this paper: how does policy learning shape protective spaces? We address this question in two ways.

First, we mobilise literature on policy learning. Putting this *mastering of protective policies* in a broader perspective, we aim to conceptualise 'policy learning' and thereby add to literature on the relationship between innovation and policy/regulation (Grabowski et al., 1978; Rothwell, 1992; Wiener, 2004; Blind, 2012). Building on policy studies, we distinguish five dimensions of policies for protection (Dunn, 1994; Schneider and Ingram, 1997, p. 102): the width, depth, duration, tools, and legitimisation of policies.

Second, we empirically investigate the relationships between policy and protective spaces using these dimensions in two cases: the pharmaceutical and the automotive sector. Both sectors can be characterised as having a high degree of regulator-regulated interactions and are concerned with unmet societal needs that are contested by different stakeholders. The remainder of the paper is structured as follows. In Section 2 the theoretical background is introduced. Section 3 elaborates the research methods and Section 4 analyses policy learning in the context of our two cases. Finally, Section 5 concludes the paper and reflects upon the findings.

[1] In this special issue Raven and colleagues present a meta-study of six empirical cases of niche construction and empowerment (Raven et al., 2015).