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The impact of privatization on sustainability transitions: A comparative analysis of dynamic capabilities in three water utilities



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ABSTRACT

This paper analyzes the ability of water utilities to contribute to sustainability transition processes. More specifically, we compare the capacity of utilities, embedded in purely public, mixed and largely private governance modes, to innovate. We employ dynamic capabilities as core indicators for innovativeness and therefore as major enabling factors for sustainable sector transitions. We assess the relationship between governance modes and innovation by conducting an in-depth comparative analysis of three water utilities, each within a differing governance mode along the public-to-private continuum: Zurich, Berlin and Leeds. While we find that the private and mixed governance modes have an increased degree of innovativeness, they perform lower in terms of static sustainability criteria than the public mode. We therefore conclude that the impact of privatization on sustainability transitions in the water sector involves multi-dimensional trade-offs between static and dynamic sustainability criteria.

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1. Introduction

Centralized water infrastructure in urban areas providing potable water and flushing toilets in every household is taken for granted in today's industrialized countries (Aubin and Varone, 2007;

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Lupton and Bauby, 2007; OECD, 2011; OECD Environment Directorate, 2008). More recently, however, the sustainability of the associated socio-technical regime has been challenged in several respects. Ensuring resource protection (environmental pillar of sustainability), maintaining security of supply (social pillar) and financing aging infrastructures under the condition of affordable prices (economic pillar) comprise three main difficulties for the urban water sector to tackle today and in the future (OECD, 2011; OECD Environment Directorate, 2008).

Socio-technical transitions scholars maintain that the above challenges could potentially require a fundamental transformation of the established socio-technical regime, leading to more customer oriented water services, a more creative integration of storm water as an important element of urban landscapes and a general move away from centralized treatment and transport structures toward a more decentralized and smart treatment of water near the point of use (Truffer et al., 2013; Wissen and Naumann, 2008; Wong and Brown, 2009). Water utilities are likely to play a major role in any transition scenario. Today, they are the central actors for operating and maintaining the core structures of the regime. As an infrastructure sector, the urban water sector is furthermore characterized by very strong alignments between technical and institutional elements of the regime, which sets high barriers for radical alternatives (Fuenfschilling and Truffer, in press). Utilities are therefore important gate-keepers for the introduction of any novelty in the sector.

The present paper analyzes the preconditions of these incumbent actors to engage with radical innovations. In order to tackle this task, we have to extend transition studies in two directions: First, we analyze utilities' potential contribution to transition processes by drawing on management literature. Second, since water utilities operate in highly regulated sectors, it is insufficient to analyze relevant processes within the bounds of each individual organization. Rather, the interplay with regulators, research institutes and the wider constituency has to be taken into account. Accordingly, we also adopt a systemic perspective to assess the innovativeness of water utilities that are embedded in different regulatory contexts. To accomplish this we draw on the political science literature.

At the organizational level, we find that most water utilities worldwide are organized as some form of a public organization (Dominguez et al., 2009; Palaniappan et al., 2004). In general, the literature regards public organizations as lacking in innovativeness (Dominguez et al., 2009; Dyer and Larsen, 2001; Kiparsky et al., 2013; Potts, 2009). This expectation can be linked to the fact that utilities typically have a public mandate (i.e., to achieve public *policy objectives*, which ideally balance the three pillars of sustainability) to provide services equitably and universally; their primary function is not to be innovative and/or profit maximizing entrepreneurs (Considine and Lewis, 2003). In contrast to private companies, public organizations therefore typically develop and implement more restricted portfolios of product alternatives as their success is not evaluated in comparison to any competitors (Markard and Truffer, 2006). Private companies, in contrast, are bound to be innovative if they want to survive in a market environment (Eisenhardt and Martin, 2000; Teece et al., 1997).

At the sectoral level, we find liberalization (enabling competition for end users) and privatization (a transfer of ownership and/or operations from public to private firms) reforms since the end of the twentieth century (Conca, 2005; Guthrie, 2006; Mayntz, 2002; Simonis, 2007). The underlying expectation has been that due to their efficiency orientation and innovativeness private companies can better meet sustainability criteria than public (Geradin, 2006; Palaniappan et al., 2007; Simonis, 2007). Accordingly, we have witnessed a shift from predominantly *public governance* to various *mixed governance modes* (i.e., shared ownership and operations between the public and private sectors, with less regulatory and governmental changes) (Pollitt and Bouckaert, 2004). While the water sector has been somewhat less affected by regulatory reforms than many other public utility sectors (such as electricity or telecommunications) it has been marked by strong reform programs of privatization in terms of a transfer of operational management within a primarily public ownership frame and with varying degrees of private capital involvement in many countries (Menard, 2009; Rothenberger and Truffer, 2003).¹

Within this context, our aim is to investigate *whether utilities that operate in a private or mixed governance mode have increased abilities to carry out innovation in comparison to those embedded in*

¹ We focus on privatization, rather than the overarching liberalization term because the water sector has not been deregulated.

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