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## Understanding the diffusion of Sustainable Product-Service Systems: Insights from the sociology of consumption and practice theory

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## ABSTRACT

The sustainable product-service system (SPSS) concept highlights that achieving sustainability requires changes in both 'production' and 'consumption'. Nevertheless, attention has focused mainly on 'production'. This paper enriches the SPSS approach with insights from the sociology of consumption and practice theory to provide a deeper understanding of the use of products and services in daily life contexts. The paper advances three key insights related to: a) the internal dynamics of user practices, b) the strength of linkages of practice elements (loose and tight coupling), c) external linkages to other practices. These insights are mobilised to provide a deeper understanding of the uptake and diffusion of innovations such as SPSS. The insights are illustrated with two cases in which interventions designed to stimulate diffusion have had differential success: energy efficient light bulbs and low temperature laundry. Implications for understanding the diffusion of SPSS are discussed.

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### 1. Introduction: Sustainable Product-Service Systems and consumption

The literature on Sustainable Product-Service Systems (SPSS) considers alternative social, technical and economic arrangements to meeting existing needs. Mont (2002: 239) defines SPSS as "a system of products, services, supporting networks and infrastructure designed to be competitive, satisfy customer needs and have lower environmental impact than traditional business models". While there are many small-scale examples of SPSS implementation (Ceschin, 2013; UNEP, 2002), there are few large-scale examples in which SPSS have replaced existing modes of consumer-need delivery. Arguably, the contribution of SPSSs to societal sustainability relies on their widespread diffusion and the replacement of existing modes of provision. It is therefore important to improve the understanding of processes which influence the diffusion and uptake of SPSS, which is the topic of the special issue of which this paper is part.

One of the strengths of SPSS is that the concept spans 'production and consumption' or 'product and use/service'. Nevertheless, it is fair to say that research has paid most attention to issues of design and management of systems (e.g. Morelli, 2006; Mont, 2002; Tukker, 2004). In a recent contribution, Ceschin (2013) uses

insights from literature on transitions management to address possible ways of stimulating the diffusion of SPSS. While this contribution is useful, the conclusions focus mainly on firms and how they should re-orient their management strategies to facilitate more successful implementation of SPSS. So, despite its symmetrical focus on 'production and consumption', it seems that the consumption side of SPSS is under-developed. In a review of the SPSS field, Tukker and Tischner (2006) also conclude that attention to the dynamics of consumption within the SPSS research community has been lacking. This paper aims to address this problem.

The general contribution is to enrich the SPSS literature with insights from the sociology of consumption and 'practice theory' (see also McMeekin and Southerton, 2012). The specific contribution is to deepen the understanding of consumption dynamics and consumer responses to alternative ways of meeting their needs, and how these influence uptake and diffusion processes. While existing studies of diffusion and uptake tend to focus on the acquisition of products (purchase), practice theories suggest that *appropriation* (the use of goods and services in order to accomplish personal and social practices) and *appreciation* (the symbolic, communicative and aesthetic aspects of consuming) are also important processes (Warde, 2010). Practice theories thus offer the promise of a richer understanding of consumers and consumption, which goes beyond the economic (consumers as buyers) and socio-psychological

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(consumers have attitudes that drive behaviour) views (Shove, 2010), by also accommodating practical and cultural aspects of use.

The paper is structured as follows. Section 2 provides an introductory discussion of practice theory, which is one of the salient theories in the sociology of consumption. I identify three crucial insights to deepen the understanding of uptake and diffusion. First, consumer practices have their own endogenous dynamics, which shape the uptake of new products and technologies. Second, building on the idea that practices consist of clusters of elements (e.g. material, skills, meaning), I distinguish between tight and loose linkages, and discuss the implications of this. Third, the degree to which practice elements can be changed (e.g. via the uptake of new products) is shaped by external linkages with other practices, which may stabilise the focal practice. The relevance of these insights is illustrated with an application to two case studies: energy-efficient lighting and low temperature laundry in the United Kingdom. The first case is an example of relatively fast diffusion and uptake, while the second case is progressing more slowly. Section 3 presents the arguments for this case-selection and data sources. Section 4 applies the three insights to provide a deeper consumer-oriented explanation of the difference between the two case studies. A drawback of the two cases is that they are not directly about SPSS. Section 5 therefore not only provides general conclusions, but also explicitly discusses the relevance of the three insights for SPSS.

## 2. A social practices approach to understanding consumption

In the last decade, practice theory has emerged as a new approach in the sociology of consumption (Schatzki, 1996; Reckwitz, 2002; Shove, 2003; Warde, 2005; Røpke, 2009; Shove et al., 2012; Southerton et al., 2012; Spurling and McMeekin, 2014). Although there is disagreement between practice scholars, they share a focus on people as ‘practitioners’ (who engage in practices during the course of everyday life) rather than as ‘consumers’. The basic idea is that people use (or ‘consume’) many resources and products while they engage in routine activities. For example, people ‘consume’ water, shampoo and energy (to heat the water) while they engage in the practice of showering. Similarly, people ‘consume’ energy when they turn on the light or relax through watching television. Whereas many economic theories of consumption focus on deliberate, conscious and rational considerations in purchase decisions (e.g. cost/benefit calculation), practice theorists focus on consumption that is less conscious, and shaped by habits and routines.<sup>1</sup> Warde (2005: 150), for instance, argues that: “People mostly consume without registering or reflecting on what they are doing because they are, from their point of view, actually doing things like driving, eating, or playing. They only rarely understand their behaviour as ‘consuming’”. This difference in conceptualisation is not only related to different disciplinary backgrounds, but also to a different substantive orientation. Practice theorists tend to focus on *mundane* kinds of ‘consumption’ (e.g. water and energy while showering, orange juice and bread for breakfast) whereas economic theories focus more on highly visible and expensive items (e.g. buying a house or car). A related difference is that practice theorists focus more on people in their daily life (in the home or at work), whereas economic theories focus more on shoppers in the high street. I would like to suggest that the practice focus on concrete user contexts is highly relevant for the

SPSS-field, which also focuses on concrete innovations and use rather than abstract economic models.

Schatzki (1996: 89) delineates practices as “a temporally unfolding and spatially dispersed nexus of doings and sayings. Examples are cooking practices, voting practices, industrial practices, recreational practices”. While this is a rather abstract definition, it suggests that practices can be seen as coordinated ‘entities’ that are reproduced and changed through concrete ‘performances’ (i.e. people enacting a practice). Phrased in terms of Giddens’s (1984) structuration theory, practices entail both structure (as an entity of related elements) and agency (concrete enactment and performance). The practice of showering, for instance, entails material elements (piped infrastructure, pumps, water, shampoo), cultural elements (norms of cleanliness, conventions of smell) and social elements (habits, skills and routines of daily showering). But the practice is also continuously reproduced and ‘performed’ by thousands of people who take regular showers. Practices can also change (often gradually) when new elements are introduced, e.g. power showers, new norms, new cultural expectations. In sum, the practice itself (what people do, how they do it and what this does) becomes the focus of analysis, shifting attention away from moments of individual decision making. From this view, potential for changing patterns of consumption does not depend on educating or persuading individuals to make different decisions, but on transforming the nature of the practices themselves (Warde, 2005).

Most practice theorists view practices as constituted from some combination of recognizable, identifiable elements. The precise configuration of elements that is taken into account does however vary. Reckwitz (2002: 249–250), for instance, proposes the following list of elements: “forms of bodily activities, forms of mental activities, ‘things’ and their use, a background knowledge in the form of understanding, know-how, states of emotion and motivational knowledge. A practice (...) forms so to speak a ‘block’ whose existence necessarily depends on the existence and specific interconnectedness of these elements”. Because such a list of elements is difficult to operationalise empirically, I follow Shove et al. (2012), who conceptualize practices as constituted of three interlinked elements: material, competence and meaning. The practice of laundry, used as the basis of a case study below, serves as a good illustration of this. The *material* element refers to physical objects such as the tools, tangible products and infrastructures. In the case of laundry this includes the machines and equipment (washers, dryers, drying racks, laundry baskets, iron and ironing boards), the household infrastructures (plumbing, airing cupboards, washing lines), and consumables (detergents, softeners, stain removers). *Competence* refers to the skill and know-how of practitioners. Many skills are mobilized during the range of procedures which constitute the practice of laundry including: deciding which items to wash, sorting into loads, selection of wash setting, temperature, detergents and mode of pre-treatment (including procedures of bleaching, stain removal); drying, ironing, folding and storing clean items. In addition know-how is required for the coordination of these tasks within constraints of space and time. *Meanings* refer to symbols, norms and collective conventions that govern action. In the case of laundry conventions of cleanliness (or what ‘clean’ means) are important and have been shown to shape how laundry is done over time, particularly in respect to the frequency with which clothes are laundered (Shove, 2003).

The paper advances three specific points which emerge from adoption of a practice-based perspective which are relevant to understanding the diffusion and uptake of new products or services by consumers: 1) practices have internal dynamics e.g. differentiation 2) the strength of the linkages between elements within a

<sup>1</sup> Not all economic theories focus on rational decisions. Behavioural economics, for instance, studies bounded rationality and habits. Additionally, certain marketing theories focus on ‘irrational’ consumer behaviour (thank you to one of the anonymous reviewers for suggesting this point).

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