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## **Backcasting and design for sustainable social practices**

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### **Abstract**

Policy and design are fundamentally about the future – about changing the course of individuals and communities, setting patterns for new actions and, in the case of sustainable development, steering toward preferred futures. This paper sets out to explore the theoretical and methodological basis for creating, understanding and representing sustainable futures in terms of altered practices of consumption, through the integration of futures studies, design epistemology and social practice theory. As an introduction to this exploration, we present these three perspectives and generate questions for discussion and future work.

**Keywords:** sustainable consumption, design, backcasting, social practices, research methods

## **1. Introduction**

Consumption has increasingly been recognized as one of the major challenges to sustainable development. In part, this is due to assessments showing that changes in production systems will not alone be sufficient to mitigate environmental damage. Furthermore, increased efficiency of production and products has been countered by increased consumption, and volume effects resulting from behavioural, social and demographic factors (Keyfitz 1998; Stø et al. 2006). For example, ‘rebound effects’ have spurred consumer research which challenges previous assumptions of rational choice, planned behaviour and consumer sovereignty which tended to ‘black box’ consumption as an economic and material category (Stø et al. 2006; Welfens et al. 2010).

Broadening focus from the individual consumer to consumption as part of socially shared practices (Spaargaren et al. 2006) holds potential for a better understanding of the role of these in the complex reality of daily life, and to find leverage points for change on the scale required for reaching a more sustainable society (de Jong and Mazé 2010). This is supported by numerous studies showing that, in order to understand consumption, technical, social, cultural and institutional dimensions also need to be taken into consideration (Owens and Driffill 2008; Power and Mont 2010; Mont and Plepys 2008; Tukker et al. 2008).

Furthermore, policy and design are fundamentally about the future – about changing the course of individuals and communities, setting patterns for new actions, and, in the case of sustainable development, steering toward preferred future visions. However, many of the theories, methods and practices used are principally oriented

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toward understanding the past or the present, taking ‘needs’ as a given (Scott et al. 2011), resulting in strategies for sustainable development delimited to predict-and-provide or -prevent approaches. While the epistemological and methodological basis of these research disciplines can make it difficult to take a futures focus (Malaska 1993), finding ways of introducing such a focus is central if policy and design are to successfully take on the larger-scale and longer-term issues of sustainable development.

This paper sets out to explore the theoretical and methodological basis for creating, understanding and representing sustainable futures in terms of altered practices of consumption, through the integration of futures studies, design epistemology and social practice theory. The paper is intended to function as an introduction to the session “Stepping forward, looking back: futures studies and design for sustainable consumption practices” at the 2012 Nordic Consumer Research Conference. Rather than providing answers, the purpose of this paper is therefore to generate a common basis and to highlight some points of discussion. The paper first introduces the three fields of research of social practice theory, design, and futures studies separately, after which follows a discussion in which common and conflicting traits are explored and tentatively addressed.

## **2. Social practices**

In the 1990s, a strand of research emerged from innovation management and the social sciences taking up the issue of the *social* in everyday life within socio-technical studies. However, discussions within socio-technical transitions literature

place policy and corporate actors as key players, while the interest of users and other groups of interest are not acknowledged (Shove and Walker 2010). Building on the work of Giddens, Schatzki and Reckwitz, the orientation was towards variously sustainable ‘practices’ and not on individuals, organisations or innovations. The ‘Social Practice Approach’ was introduced by e.g. Shove (2003) and Spaargaren (2003) to indicate that relations between consumers, producers and systems of provision are mediated and co-produced through ordinary consumption practices, such as ‘washing’ and ‘cooking.’

Focussing on practices as consisting of interrelated elements and their trajectories and interrelations provides a more encompassing view of the complexity of what it means to sustain and change everyday practices. Reckwitz locates practice theory as a version of cultural theorising, a view shared by practice theorists: “a practice is social, as it is a ‘type’ of behaving and understanding that appears at different locales and at different points of time and is carried out by different body/minds. Yet, this does not necessarily presuppose ‘interactions’ – i.e. the social in the sense of the intersubjectivists – and nor does it remain on the extra-mental and extra-corporal level of discourses, texts and symbols, i.e. the social in the sense of the textualists” (Reckwitz 2002, 250).

A basic characteristic of practices is that they consist of a constellation of interconnected elements, of which ‘things’ and their use, mental activities and emotional states, and bodily activities and background knowledge are part (Shove and Walker 2010). While designers are trained to design products, Shove and Pantzar argue that “products (‘things’) alone have no value. They do so only when integrated

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into practice and allied to requisite forms of competence and meaning” (2005, 57).

Taking practices as a unit of design (de Jong and Mazé 2010) means not only to focus on the design of new things but to think about novel skills and images as well.

However, this is still not enough. Again in the words of Shove and Pantzar, “new practices consist of new configurations of existing elements or of new elements in conjunction with those that already exist. From this point of view, innovations in practice are not simply determined by the generation of new products, images or skills. What really matters is the way in which constituent elements fit together” (2005, 61). In practice-oriented design, focus expands from things to images and skills, but not without consideration of how these fit together. Taking practices as unit of analysis offers sustainable design the systemic perspective necessary to address the scale of change required in moving towards a more sustainable society (Scott et al. 2011).

### **3. Design**

As contemporary design is increasingly focused on taking responsibility for its role in society, for examples in tendencies towards ‘social’, ‘critical’ and ‘activist’ design (Ericson and Mazé 2011; Mazé and Redström 2009), new approaches are being developed to investigate design in relation to societal and environmental issues.

Sustainable design, for example, has long been focused on sustainable production, including lifecycle issues in the purview of the producer. In recent decades, however, attention has expanded to include sustainable consumption, moving from a focus on production (and technical, lifecycle issues such as material sources and energy

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efficiency) and the product itself (on usability or use experience) to the broader societal and environmental effects of designs in everyday life and lifestyles.

A variety of perspectives from the social sciences has been advanced and is being developed in order to understand how design is implicated and influential in lifestyles. For example, cultural, historical and sociological studies explore the material shaping of ideals about the modern living, the ‘good life’ and ‘natures’ (cf. Forty, 1986; Highmore, 2002; Whatmore 2001), and how design shapes the social practices that constitute everyday lives and lifestyles (cf. Shove et al. 2007; Dovey 1999; Sandercock 1998) – including those practices that are increasingly unsustainable.

Design for (sustainable) consumption practices focuses on resource-consumptive practices in everyday life. How these are shaped by design is a focus in analytic and empirical studies, for example of information and communication campaigns about energy conservation, product and packaging design of lighting and other resource-efficient devices, and interfaces for users to see and interact with resources controlled via electricity meters, thermostats, power generation and other systems (for some examples, see Verbeek and Slob 2006; Sylwan and Stål 2008; Mazé 2010). While many studies can rely on research paradigms that ‘black box’ consumption, whether as ‘point of purchase’ or ‘human-product interaction’ narrowly bracketed and isolated in time and space, social practices approaches operate in relation to a larger and longer unit of design and analysis (Mazé and Redström 2008; de Jong and Mazé 2011).

For example, practices of washing, cooking, travelling and gardening (Hielscher et al. 2008; Kuijer and de Jong, 2009, de Jong and Mazé, 2010; Spaargaren et al. 2006) are understood as a historically and constantly changing assemblage of designed artifacts, skills and images. In immersive and extended studies, such as those ‘in the field’ or in Living Labs, using ethnographic and other methods adapted from the social sciences, the complexity of existing practices can be studied as well as – importantly – the effect of designed interventions on such practices (f.ex. Routarinne and Redström 2007; Kuijer and de Jong 2010; Welfens et al. 2010). In this, approaches from the social sciences and from design are integrated and complementary, toward a better understanding of existing practices, or ‘what is’, and to construct situations in which transitions to desired futures may be investigated.

#### **4. Futures studies and Backcasting**

In the field of futures studies, backcasting is explicitly normative in its focus on the desired (the sustainable) (Börjeson et al. 2008), which is in contrast to the focus of predictive and explorative approaches. Rather than taking contemporary states and trends as starting points, backcasting starts with the desired future, formulated in terms of one or more concrete targets. Scenarios are then developed through exploring how a future in which the target(s) has been fulfilled could look. In order to render the illustration of major changes possible, these scenarios usually have a long time span, of decades rather than years. Backcasting studies (should) also include an analysis of these scenarios, e.g. in relation to existing societal structures (what needs to change) or to other societal goals.

Backcasting was developed in the 1970s as an alternative way of energy planning. At that time the traditional, trend-based prognoses pointed at a future with an accelerating energy demand and a need for a substantial increase in production capacity. The risk of energy crises, together with a growing environmental awareness, made such a future highly problematic and undesirable. Through backcasting, it became possible to propose leaving the traditional predict-and-provide approach behind and instead focus on what a desired level of energy use would be, and to design policies accordingly (Robinson 1982). Studies of energy systems *per se* have remained dominant, but backcasting has also been applied to, for example, transport (Åkerman and Höjer 2006), food (Wallgren and Höjer 2009), buildings (Svenfelt et al. 2011), and households (Green and Vergragt 2002; Höjer et al. 2011) – all of which incorporate altered ‘ways of doing’, i.e. social practices.

However, in spite of the recognition that a reliance on ‘technical fixes’ alone is not enough to meet the sustainability targets, backcasting studies for sustainable development has, to a great extent, been found to be techno-biased (Wangel 2011). In the changes proposed in the scenarios, there is little elaboration of the *social*, neither as driver or enabler of technical changes, nor in terms of social implications. Depending on the aim of a scenario study, of course, this might not be any drawback at all. However, if the aim is to explore societal changes from a socio-technical perspective, this kind of techno-bias may cause internal and external inconsistencies between the proposed technological changes and the socio-institutional context in which they are thought to evolve. Rather than ‘dressing up’ these technocratic studies in a social garment, using a social practice approach, and its integration of

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materialities, skills and images, renders it possible to construct scenarios that are socio-technical from start.

Considering the challenge of consumption, there are many similarities to how energy planning was framed in the 1970s. Prognoses point at nothing but increased levels of consumption. The global consumer class is growing rapidly (Gardner et al. 2004), as are levels of consumption within this class. Defining a sustainable level of consumption is a challenge in itself, and relating this to sustainable consumption practices is even more demanding, due to increasing complexity of the lifecycles of products and services. Dealing with complexity is however one of the benefits of working with backcasting, as it enables a systemic perspective of the object of study (Dreborg 1996). This, together with advances in environmental and social impact assessment tools, provides a good basis for taking on such a challenge.

## **5. Discussion**

This paper outlines three perspectives, drawing on approaches to social practices, sustainable design, futures studies and backcasting, which we argue as a complementary and necessary basis for developing more sustainable consumption practices. Understandings of ‘what is’ within everyday social practices provides a basis for understandings about the role of design in moving towards a more sustainable ‘what else’. Backcasting provides an alternative, counterfactual reality, allowing us to perceive the present as if ‘from the outside’ and to identify aspects of the present that we would like or need to maintain – or change – towards particular and desirable ends. Research methods from these fields allow us to explore

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alternative realities and futures, asking ‘what if’ in relation to more sustainable design and policy approaches to consumption.

In line with current thinking in the environmental and social sciences, we understand ‘the future’ as a subjective or social construction. Rather than pre-existing or fully determined, ideas and visions about the future must first be generated in order to be studied. Consequently, what is really studied is not the future, but the subjective or social imaginations about the future (Karlsen et al. 2010), in which the ‘desirable’ social or sustainable aspects may be approached in various ways. The expanded unit of analysis within a social practices approach allows us to better understand the social construction of ‘ways of doing’ in everyday life, in which histories and aspirations are embodied and enacted within a changing assemblage of artifacts, images and skills. The role of design in maintaining or transitioning these practices may be investigated, for example, through the construction and intervention of design artifacts ‘in the field’ or experimental settings. Beyond the field or lab, activities in galleries and other settings can further expand the methodological unit of analysis towards that of futures studies. Prototypes or scenarios depicting an ‘alternative now’ allow ‘what is’ to be discussed in relation to ‘what else’ is possible, in the context of a social discourse that may also be critical and participatory (cf. Seago and Dunne 1999; Ehn 2008; Koskinen et al. 2011).

The question ‘what if’ further expands the temporal horizon, requiring further approaches to understanding role of design in future (and sustainable) social practices. Certainly, design has long operated as ‘visions of the future’ featured in trade shows, world exhibitions and corporate R&D, and critical design queries socio-

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technical futures through methods from science fiction and counter-historical approaches (Mazé and Redström 2009). Rather than ends in themselves, designed artifacts can be instrumental in futures studies for approaching the social complexities and controversies inherent in dealing with sustainable futures. For example, visualizations may frame perspectives on otherwise intangible and complex phenomena, conceptual or critical designs may broaden the collective imagination by depicting alternative futures or viewpoints, and scenarios may illustrate transition pathways (cf. Sevaldson et al 2010; Mazé and Önal 2010; Vergragt 2010; Quist 2007). Such approaches are well-aligned with the Scandinavian participatory design tradition (Bjerknes 1987; Gregory 2003), in which artifacts and structured activities are a basis for social learning and collaboration among those with different expertise, backgrounds and worldviews, engaged as active participants in design and policy development.

The futures studies approach of backcasting is aligned with such approaches and facilitates a shift from a focus on the contemporary to the desired. Further, backcasting methods can provide an alternative socio-technical context than that of historical and ongoing social practices. Futures studies and design research share common ground in the potential of action-oriented approaches, in which the social construction of futures takes place in the present, within experimental and participatory settings, and often with designed artifacts and activities (f.ex. Argyris and Schön 1989; Quist and Vergragt 2006; Ehn 2008; Gidley 2009). Deliberate and interactive approaches involving the doers of practices, i.e. citizens, practitioners and/or politicians, allows for knowledge to be co-produced, contextualised and

contested, in this way leading to higher-order learning and an increased legitimacy of process and/or outcomes (Nye and Hargreaves 2010; Owens and Driffill 2008; Street 1997; Robinson et al. 2011). This also enables discussions on norms, values and rationality through which values and presumptions can be made visible and contested.

In (sustainable) consumption research, fresh perspectives are needed to seriously address climate and resource forecasts, as well as to redress longstanding social inequities in resource consumption and transition scenarios (f.ex. Andersen and Tukker 2006). Indeed, predominately technocratic and Western discourses have presumed a ‘middle class standard’ that can fail to recognize other (and sometimes more sustainable) practices, as well as disruptive innovations, which may be evolved in everyday life, cultural traditions and ecological niches (c.f. Bradley 2009; Westley and Antadze 2009; Penin et al. 2008; Pieterse 2008). Moving between questions of ‘what is’, ‘what else’ and ‘what if’, we argue for the development of this research in relation to a wider ‘critical turn’ within the social sciences, design research and futures studies. With the perspectives advanced in this paper as a basis for addressing such issues in sustainable development, we pose the following questions for discussion and future work:

- How can we further develop social practices approaches to inquire into ‘what is’ in everyday life and lifestyles, including other and diverse ‘ways of doing’?
- How can we query both ‘how to change’ and critical social questions such as ‘change by whom’ within design and policy approaches to future practices of consumption?

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- How can these multi-disciplinary epistemologies and methods be brought to bear on research in the area of sustainable consumption, and how may relevant research programs be formulated?

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