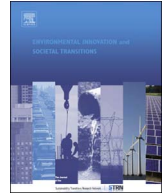




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Original Research Paper

Integrating a business model perspective into transition theory: The example of new mobility services



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ABSTRACT

Business model innovation is increasingly seen as a means to promote sustainable forms of production and consumption, having been linked to technological innovations in electric vehicles and the circular economy. Business models are an organisational phenomenon that concern focal firms and their networks. However, there is no theory of the firm in transition theory, such that the role of business model innovation in wider transformative processes is unclear. This paper aims to redress this issue by combining a business model perspective with core concepts and constructs from transition theory. We elucidate sources of change and inertia that issue from new and existing business models, illustrating our arguments by focusing on mobility services, which have the potential to radically transform road transportation via new business models. We derive new lines of inquiry that can be used to examine the dynamics of business model innovation in the context of sustainability transitions.

1. Introduction

Business model innovation (BMI) is increasingly recognised as a vital component of societal transitions towards sustainability (Bocken et al., 2014; Bocken and Short, 2016; Boons and Lüdeke-Freund, 2013; Schaltegger et al., 2016; , 2012; Stubbs and Cocklin, 2008). For example, BMI can facilitate the diffusion of sustainable energy technologies to new markets, geographies and new types of users (Drury et al., 2012; Jolly et al., 2012). Several works have noted that BMI may unlock the economic potential of electric vehicle technology and assist in its adoption (e.g. Budde Christensen et al., 2012; Costain et al., 2012; Weiller et al., 2015). BMI has also been cited as a key enabler of a transition to a circular economy (Linder and Williander, 2015; Tukker, 2015).

Examining the dynamics of BMI and the role of business models in wider processes of societal change using existing transition theories is problematic for at least two reasons. First, existing transition theories lack a theory of the firm, despite firms being regarded as a key performative actor in, for instance, innovation system approaches (Farla et al., 2012; Markard and Truffer, 2008a,b). Despite a lack of a common definition of business models, the latter are viewed by some scholars as mechanisms or ‘mediating devices’ that capture the value of firms’ innovative technology by connecting it to customer needs (e.g. Chesbrough and Rosenbloom, 2002; Teece, 2010). That is, business models are “conceptually placed between a firm’s input resources and market outcomes” (Zott et al., 2011: 1034). Hence whilst the business model concept cannot be regarded as an exhaustive theory of the firm (Baden-Fuller and Mangematin, 2013), it can be used as a descriptor of some firm-level activities, focusing on the creation and distribution of value (Baden-Fuller and Morgan, 2010).

Second, BMI may be characterised as a complement to traditional classes of product and process innovations (Zott et al., 2011). As a type of organisational innovation that is often intertwined with technology, BMI is nonetheless analytically distinct from

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technological innovation (Teece, 2010). Yet transition theories such as technological innovation systems are geared towards examining innovations of a more artefactual-technological nature, based on analyses on a set of key ‘functions’ that are critical to systemic change (Bergek et al., 2008a; Hekkert et al., 2007). Similarly, the multi-level perspective (MLP) is a heuristic device for analysing systemic socio-technical change (Geels, 2004, 2002). Whilst the MLP can in principle account for a broader range of social phenomena, the core concept of a socio-technical regime evolved from that of a technological regime (Rip and Kemp, 1998), and studies that utilise the MLP also tend to focus on the development and diffusion of new artefactual technologies (e.g. Geels, 2006a,b; Geels and Kemp 2007). Other theories, such as large technical systems (Hughes, 1987) and strategic niche management (Kemp et al., 1998a; Schot and Geels, 2008) also have a strong focus on technologies as artefacts, such that transitions which rely heavily upon organisational innovations appear to have been overlooked.

Given these shortcomings, in this paper we aim to integrate insights from the literature on business models into existing theories for analysing the dynamics of sociotechnical transitions. Although this literature is too young to provide a single, coherent business model perspective or theory, it does comprise different streams of research which describe functionalities of business models and their associated processes/activities (Zott et al., 2011), which can potentially add to the heuristic utilities of existing transition theories. That is, transition researchers and practitioners alike can benefit from an understanding of the role of new and existing business models, and the dynamics of BMI, in broader processes of systemic transformation, with the aim of elucidating how sustainable transitions based on new business models may be governed. To this end, we pose the following research question: *How can the integration of a business model perspective into transition theory elicit new lines of inquiry regarding the dynamics of sustainable transitions?*

With regard to transition theory, we explore ways in which a business model perspective can be combined with transition theory to facilitate analyses of the dynamics of sociotechnical change. We also derive new lines of inquiry that can guide future scholarship. The synthesis presented in this paper is intended as an ‘evolving framework’ that can later be modified and refined via “critical evaluation of emerging constructs against ongoing observations” (Suddaby, 2006: 236) using qualitative and abductive methodologies (Dubois and Gadde, 2014). As a first step in this abductive approach, we refer to BMI in the field of mobility services as an illustrative example of an emergent sustainability transition. Many other sustainability issues may be resolved via BMI and could thus have been used for illustrative purposes. We elected to focus on mobility services because they are an example of an emergent and disruptive innovation that is increasingly seen as a way to sustainably transform a given socio-technical system (road transport) via new business models. That is, mobility services can facilitate a radical shift towards sustainable urban management, improvements in energy efficiency and urban air quality, and greater use of renewable fuels (Burrows and Bradburn 2014; Lerner et al., 2011). Despite our focus on mobility services, the synthesis outlined in this paper is intended for more generic use in cases where transitions are contingent upon BMI, and in cases where transitions are hindered by existing business models.

In the next section we examine the lack of a firm-level perspective in transition theory before introducing mobility services and discuss their potential to form the basis of a sustainability transition. In section three we outline new lines of inquiry and a set of research questions that can be used to examine the dynamics of a transitions contingent upon BMI. Section four concludes, focusing on implications for governance.

2. The lack of a firm-level perspective in transition theories

Transition theories have been used to examine systemic shifts within large technical systems whose overarching purpose is energy supply (e.g. Geels and Raven 2006), transportation (e.g. Geels 2012) and the provision of other societal utilities (e.g. Geels 2006b; van der Brugge et al., 2005). Markard et al. (2012) identify four main theories within transition studies: technological innovation systems (TIS) (e.g. Bergek et al., 2008a; Hekkert et al., 2007), the multi-level perspective (MLP) (e.g. Geels, 2002), strategic niche management (SNM) (e.g. Kemp et al., 1998a) and transition management (TM) (e.g. Kemp et al., 2007; Loorbach, 2010, 2002). These perspectives utilise a common set of concepts and constructs such as sociotechnical systems, niches and regimes to study the dynamics of sustainable transitions, albeit in different ways and for different purposes. Whilst we observe the conceptual differences among transition theories and the way they are applied, we focus on synthesising core concepts and constructs from transition theories with a business model perspective. We delimit the study in this fashion because integrating the entire literature on business models with different applications of transition theory would imply the synthesis of two exceptionally diverse fields of research, which is beyond the scope of a single paper.

One common aim among transition theories is to elucidate prescriptive implications regarding how sustainable transformations can be governed or ‘managed’. SNM, for instance, focuses primarily on the governance of technological transformations via public policies that promote niche-level activities such as learning, networking and visioning (Kemp et al., 1998a; Schot and Geels, 2008). SNM, TM and the MLP share the notion of a niche as a protected space where experimentation with radical innovations can eventually bring about changes to sociotechnical regimes – another construct that is shared among transition theories (Kemp and Rotmans, 2005). Transition theories examine what may broadly be described as different sources of systemic inertia and change. We focus on these two aspects of the transformative process by referring to *sources of inertia* as structures, elements and forces that serve to create stability, lock-in, path dependence and which act as barriers and obstacles to change. By *sources of change*, we refer to elements, forces, activities and processes that contribute to transformation via technological and organisational innovations.

The concept of a sociotechnical (ST) regime is one source of inertia, and refers to the “semi-coherent set of rules” and structures that govern the engineers, users, policymakers, suppliers, scientists, financial actors, and other societal groups that produce and maintain technological systems (Geels 2002: 1260). That is, regimes encompass different dimensions, such as technology, science, policy, user practices, markets, the cultural and symbolic meaning of technology, and industry networks (Geels, 2007a, 2007b, 2002).

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