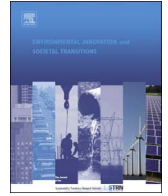




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Original Research Paper

Experimenting with a circular business model: Lessons from eight cases

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ABSTRACT

Experimentation is an important capability in the transition to a sustainable business. The aim of business experimentation is to learn and improve business model innovation activities with limited risks and resources through continuous and collective learning with stakeholders. Through action research we worked with eight case companies on a pathway to becoming a sustainable business. We focused on ‘circular economy’ as a driver for sustainability. The process and role of business model experimentation were analysed. A circular business experimentation framework was developed and applied. We found that 1) experimentation creates internal and external engagement to start business sustainability transitions 2) experiments can help test assumptions in every building block of the business model 3) collaboration with external partners can ease experimentation, and 4) experimentation processes are iterative and require regular learning and sustainability checks. Further research is necessary to analyse how sustainability targets can be integrated into the experimentation process.

1. Introduction

With a growing global population, middle class and associated consumption patterns that put pressure on global resources, it is increasingly apparent that business-as-usual can no longer be sustained. A fundamental shift in the purpose of business and almost every aspect of how it is conducted is needed in the transition to a sustainable future (Jackson, 2009; Ehrenfeld and Hoffman, 2013; Bocken and Short, 2016). The aim of this paper is to explore the role of experimentation in corporate sustainability journeys to support this transition. While the ultimate goal is to understand and create progress in innovation towards sustainability through action research, we specifically focus on the ‘Circular Economy’ as an important, recently popularised driver for sustainability (Geissdoerfer et al., 2017). The assertion here is that this would provide a more targeted focus on resource-related issues to facilitate experimentation, in contrast to the broader concept of sustainability.

The ‘circular economy’, in which stakeholders collaborate to maximise the value of products and materials, and contribute to minimising the depletion of natural resources and create positive societal and environmental impact, gained widespread popularity among businesses and governments (Kraaijenhagen et al., 2016). In the circular economy, business model innovation plays an important role to fundamentally change the way of doing business to go beyond prevalent sustainability approaches that focus on efficiency, productivity and ‘greening’ the supply chain (Bakker et al., 2014). Product service systems (PSS) are an example of a ‘sustainable business model’ which have gained popularity in the field of circular economy (Tukker, 2015). Although PSS, in which

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companies remain owners of products, may allow for higher environmental gains (Brezet, 2001; Charter and Tischner, 2001; Manzini and Vezzoli, 2002; Mont, 2004; Tukker and Tischner, 2006a,b), this innovation also comes with a higher degree of uncertainty because of the radicalness compared to the traditional way of doing business (Keskin et al., 2012).

From a strategic point of view, large companies already understand the need for business model innovation to ensure survival and growth as they deal with an external threat of continual innovation (Blank, 2013). For corporates looking to create products and services associated with high levels of uncertainty, experimentation has been considered as the most important innovation capability to succeed in radical innovation activities (Chesbrough, 2010; Weissbrod and Bocken, 2017). Chang et al. (2012) identify a positive relation between experimentation and the innovation performance in radical innovation. Methodologies such as the ‘Lean Startup’ approach (Ries, 2011) acknowledge this and opt for experimentation over elaborate planning; customer feedback over intuition; and iterative design over traditional ‘big design up front’ development, when launching a new enterprise. Offerings are redesigned through a continuous feedback loop of assembling minimum viable products – early versions of the product/service – and receiving customer feedback and using this input to revise assumptions (Blank, 2013). Weissbrod and Bocken (2017) integrated this theory in the field of sustainable development and made a conceptual link between lean start-up thinking, triple bottom line value creation (economic, social and environmental) and the organisational capability of experimentation through a single in-depth case study.

The topic of experimentation is not new and is widespread in fields like natural sciences and economics (Bocken et al., 2016a,b). In the natural sciences and economics, experiments often take place in controlled lab settings. Experimentation has also prevailed in literature on strategic niche management (SNM; Kemp et al., 1998) and transitions management (TM) focusing on searching, learning and experimenting for sustainable development (Van den Bosch, 2010). SNM and TM are established literature streams focused on the emergence of sustainable innovations and the role of public actors (Kemp et al., 1998; Van den Bosch, 2010; Brown et al., 2004; Hoogma et al., 2002). Experimenting may refer to innovative, ‘small-scale’ experiments conducted in practice to address persistent societal problems (Van den Bosch, 2010). An important aim is to stimulate the articulation of needs, problems and possibilities and to enact a broad learning process as a stepping stone in a new direction (Kemp et al., 1998). Brown et al. (2004, p. 291) use the term bounded socio-technical experiment to refer to ‘attempts to introduce a new technology, service, or a social arrangement on a small scale’. Analogously to Weissbrod and Bocken (2017) and this paper, the term experiments rather than ‘pilots’ is used to stress the central idea of ‘learning’ by doing (Hoogma et al., 2002, p. 5–6). Experimentation goes beyond technical learning, to areas such as user needs, regulation, and societal benefits; it is about tinkering with assumptions, and the process is open-ended and concerned with learning (Hoogma et al., 2002, p. 6).

Whereas there are clear parallels between experimentation in TM and SNM and business experimentation, the concept in business is less open-ended with a focus on deliberate learning by doing and testing specific assumptions at a time (e.g. customer traction) about the future business (Ries, 2011). Business experimentation mainly involves the focal business, sometimes with one or a handful of stakeholders (e.g., supplier, customer), and is low in resource-intensity. It often takes place ‘under the radar’, initially involving a limited number of stakeholders (Weissbrod and Bocken, 2017). The focus is on one particular type of learning at a time, e.g., the value proposition to the customer (Ries, 2011), with business as the main initiator. In contrast, TM and SNM projects appear to manifest themselves as multi-actor, large scale projects covering an extended period of time involving various public actors (see e.g. the mobility experiments in Kemp et al., 1998, p. 109). Sarasini and Linder (2017) also argue that the role of business and in particular business models remains underexplored in TM, whereas this could be a promising research avenue.

There is insufficient evidence on the role of business in sustainability experimentation, except emergent work incorporating the notion of the Lean Startup in circular business experimentation (Antikainen et al., 2017; Weissbrod and Bocken, 2017). However, it has been recognised that environmental paradigm shifts in business may originate from a small number of organisation members and that individual actions and practices trigger transitions (Halme, 2002; Shove et al., 2012). This paper explores *the role and process of sustainable business model experimentation within companies that shift from a linear to more circular business model*.

Through action research we worked with eight case companies on a pathway to becoming a sustainable business. Considering the limited timespan of the project, no LCA studies have been conducted to quantify the environmental and social value of the circular business models. However, as a selection criterion the transitional businesses models had to meet descriptions of sustainable business models (Bocken et al., 2014; Breuer and Lüdeke-Freund, 2017) and maximise the value of products and materials to minimise the depletion of natural resources (Kraaijenhagen et al., 2016). Thereby the analysed transitional business models hold potential for positive environmental and societal impact. Nevertheless, it should be noted that new business models do not necessarily lead to environmental benefits. Tukker (2004) argues that some PSS (e.g. those creating a functional result, e.g. a ‘pleasant climate’) may be more promising than others (e.g., product lease) from an environmental perspective. As such, business models need to be designed in such a way to create positive effects and avoid additional negative impacts being created as argued by Mont (2002, 2004) and Tukker (2004, 2015) and environmental value propositions need to be verified (Manninen et al., 2018). Research should more clearly emphasise criteria for design, experimentation and evaluation to develop the most sustainable outcomes (Tukker, 2015).

The remainder of the paper is structured as follows: Section 2 includes the literature review on sustainable and circular business models approaches; Section 3 (Research Method) presents the action research based case study approach; Section 4 (Results) focuses on the process and role of business experimentation for circularity based on the case outcomes; Section 5 includes the discussion which describes the results in the light of extant literature and practice in the field as well as limitations and potential for future work; and Section 6 describes the conclusions.

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