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Review

A literature and practice review to develop sustainable business model archetypes

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ABSTRACT

Eco-innovations, eco-efficiency and corporate social responsibility practices define much of the current industrial sustainability agenda. While important, they are insufficient in themselves to deliver the holistic changes necessary to achieve long-term social and environmental sustainability. How can we encourage corporate innovation that significantly changes the way companies operate to ensure greater sustainability?

Sustainable business models (SBM) incorporate a triple bottom line approach and consider a wide range of stakeholder interests, including environment and society. They are important in driving and implementing corporate innovation for sustainability, can help embed sustainability into business purpose and processes, and serve as a key driver of competitive advantage.

Many innovative approaches may contribute to delivering sustainability through business models, but have not been collated under a unifying theme of business model innovation. The literature and business practice review has identified a wide range of examples of mechanisms and solutions that can contribute to business model innovation for sustainability. The examples were collated and analysed to identify defining patterns and attributes that might facilitate categorisation.

Sustainable business model archetypes are introduced to describe groupings of mechanisms and solutions that may contribute to building up the business model for sustainability. The aim of these archetypes is to develop a common language that can be used to accelerate the development of sustainable business models in research and practice. The archetypes are: Maximise material and energy efficiency; Create value from 'waste'; Substitute with renewables and natural processes; Deliver functionality rather than ownership; Adopt a stewardship role; Encourage sufficiency; Re-purpose the business for society/environment; and Develop scale-up solutions.

1. Background

With prospects of a rising global population, accelerating global development and associated increasing resource use and environmental impacts, it seems increasingly apparent that business as usual is not an option for a sustainable future. The world is currently using the equivalent of 1.5 planets to support human activities (WWF, 2012) – an unsustainable rate even at today's levels of consumption (Randers, 2012). Awareness of the need to value ecological systems and natural capital required for human welfare is not new (Constanza et al., 1997). However, it is not yet common practice in business to value the – often 'free' – natural assets. A holistic approach is required to tackle the challenges of a sustainable future: responses to environmental changes will necessarily need to be in parallel with economic and social change.

Features of a route to a sustainable economy (developed from Jackson, 2009) might be:

- A system that encourages minimising of consumption, or imposes personal and institutional caps or quotas on energy, goods, water, etc.;
- A system designed to maximise societal and environmental benefit, rather than prioritising economic growth;
- A closed-loop system where nothing is allowed to be wasted or discarded into the environment, which reuses, repairs, and remakes in preference to recycling;
- An system that emphasises delivery of functionality and experience, rather than product ownership;
- A system designed to provide fulfilling, rewarding work experiences for all that enhances human creativity/skills;

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- A system built on collaboration and sharing, rather than aggressive competition.

These types of changes require a fundamental shift in the purpose of business and almost every aspect of how it is conducted. Business model innovation offers a potential approach to deliver the required change through re-conceptualising the purpose of the firm and the value creating logic, and rethinking perceptions of value. The assertion is that with careful business model redesign it is possible for mainstream businesses to more readily integrate sustainability into their business and for new start-ups to design and pursue sustainable business from the outset, as suggested by Stubbs and Cocklin (2008) and Porter and Kramer (2011), and business model innovations can support a systematic, on-going creation of business cases for sustainability (Schaltegger et al., 2012).

Business model innovation is increasingly recognised as a key to delivering greater social and environmental sustainability in the industrial system (e.g. Lüdeke-Freund, 2010). However, understanding of sustainable business models and the options available for innovation for sustainability seems limited at present. While there is extensive literature on the theory of business models for delivering sustainability (e.g. Stubbs and Cocklin, 2008 conducted a literature review), and examples on specific companies (e.g. Xerox, Canon and Océ 'pay per copy' models, Baines et al., 2007) there is no comprehensive view of how firms should approach embedding sustainability in their business models.

This paper uses a systematic review approach to formalise a categorisation (the result of a process of dividing the world into groups of entities whose members share similarity in a given context, as defined in Jacob, 2004) of business model innovations to deliver sustainability. This categorisation aims to drive the future research agenda for sustainable business models by proposing archetypes for new sustainable business models, and assisting the process of embedding sustainability into existing industrial models.

In Section 1 the concept and relevancy of sustainable business models are explained. The gaps in the literature are defined to highlight the need for the development of a categorisation. This is followed by an explanation in Section 2 of the iterative methodology to develop the categorisation, building on literature and industrial practice examples, and by using various categorisations. In Section 3 the proposed categorisation of sustainable business model archetypes is explained in detail. Eight sustainable business model archetypes are introduced: Maximise material and energy efficiency; Create value from 'waste'; Substitute with renewables and natural processes; Deliver functionality rather than ownership; Adopt a stewardship role; Encourage sufficiency; Re-purpose the business for society/environment; and Develop scale-up solutions. Section 4 discusses the limitations and potential of these archetypes, and offers suggestions for future extension of the research.

1.1. What is a business model?

A business model is a conceptual tool to help understand how a firm does business and can be used for analysis, comparison and performance assessment, management, communication, and innovation (Osterwalder and Pigneur, 2005). Business models are concerned with how the firm defines its competitive strategy through the design of the product or service it offers to its market, how it charges for it, what it costs to produce, how it differentiates itself from other firms by the value proposition, and how the firm integrates its own value chain with those of other firm's in a value network (Rasmussen, 2007). The quality of management is key because they determine the success of the business model through their capabilities, ability to acquire, combine and utilise valuable resources in ways that deliver a value proposition to customers (Beltramello et al., 2013).

The literature presents various perspectives on the business model: Margretta's (2002), Zott and Amit (2010) and Beattie and Smith (2013) describe business models as a holistic description on 'how a firm does business' and Teece (2010) describes that a business model articulates how the company will convert resources and capabilities into economic value. It is nothing less than the organisational and financial 'architecture' of a business and includes implicit assumptions about customers, their needs, and the behaviour of revenues, costs and competitors (Teece, 2010). More specifically, Osterwalder and Pigneur (2005, 2010) describe a business model as a series of elements: the value proposition (product/service offering, customer segments, customer relationships), activities, resources, partners, distribution channels (i.e. value creation and delivery) and cost structure, and revenue model (i.e. value capture). Richardson (2008) based on a wide range of literature, proposes a consolidated view of the components of a business models as: the value proposition (i.e. the offer and the target customer segment), the value creation and delivery system, and the value capture system. Zott and Amit (2010) take an activity-based perspective, including the selection of activities ('what'), the activity system structure ('how'), and who performs the activities ('who').

In this paper, a business model is defined by three main elements: the value proposition, value creation and delivery and value capture (Fig. 1). Value creation is at the heart of any business model; businesses typically capture value by seizing new business opportunities, new markets and new revenue streams (Beltramello et al., 2013; Teece, 2010). While the value proposition is typically concerned with the product and service offering to generate economic return, in a sustainable business, the value proposition would provide measurable ecological and/or social value in concert with economic value (Boons and Lüdeke-Freund, 2013). Value capture is about considering how to earn revenues (i.e. capture value) from the provision of good, services or information to users and customers (Teece, 2010).

Business models and business model innovation have received substantial attention in literature and industry and it is increasingly suggested that business model innovation is a key to business success (Chesbrough, 2010; Lüdeke-Freund, 2010; Zott et al., 2011). With the rising global sustainability pressures, collaboration between firms and other key stakeholders is becoming more important (Lowitt, 2013). Value is no longer created by firms acting autonomously, but by firms acting together with parties external to the firm through informal arrangements or formal alliances (Beattie and Smith, 2013). The business model may be viewed as a new unit of analysis in business, which takes into account these collaborative ties (Zott et al., 2011; Beattie and Smith, 2013).

1.2. Why are business models important for sustainability?

Eco-design and eco-efficiency improvements have assisted in reducing energy, resource intensity, and emissions and waste per

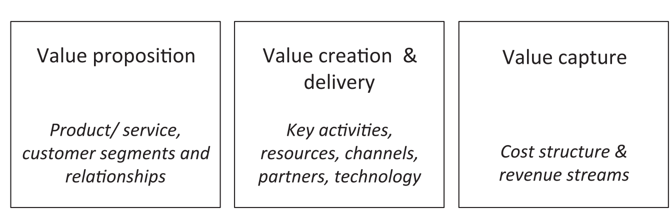

Fig. 1. Conceptual business model framework. Adapted from Richardson (2008); Osterwalder and Pigneur (2005).