

Re-Combining Value Chains: Cross-Industry Cooperation for Business Model Innovation

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Abstract

The interplay between the value chain and business model innovation is a comparatively overlooked topic in business model literature. This paper explores how incumbents create a business model for biodiesel production through the re-combination of established value chains. The case study highlights the importance of ownership and cross-industry cooperation for business model innovation.

Introduction

The introduction of the business model into mainstream strategy research meant that the concept had to be contrasted with the existing analytical toolbox (cf. Teece, 2010). One of the key pre-existing concepts that has direct implications for the function of the business model is the external value chain. The importance of the value chain for the development of business models was pointed out in early research (e.g. Timmers, 1998) and the role of the value chain has been highlighted in work on the interaction between network ties and business model innovation (Allee, 2009; Oskam et al., 2018).

Vice versa, it has been noted that business model innovation may influence what role a firm plays in a value chain (Giesen et al., 2007) and that there is potential to use business models to modify or improve value chains (Linder and Cantrell, 2000; Tikkanen et al., 2005). However, the topic is still comparatively poorly understood. There are thus calls for research that explores the role that the value chain plays in relation to business model innovation in general (Zott et al., 2011), and for business model innovation for sustainable innovations, in particular (Boons and Lüdeke-Freund, 2013).

Keywords: Business model innovation, value chain, governance

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A topic of importance in relation to value chains and business model innovation is the maturity of the firm (cf. Giesen et al., 2007). Incumbents possess resources and knowledge that allow them to scale up operations quickly, even in the more challenging case of sustainable innovations (Hockerts and Wüstenhagen, 2010). They also already have existing value chains in place. However, due to phenomena such as dominant logic and path dependence, incumbents face particular challenges associated with the development and implementation of new business models (Chesbrough, 2010; Massa and Tucci, 2013). Incumbents therefore often choose to experiment with business models externally through for example subsidiaries or joint ventures – options that offer both flexibility and control while limiting the risk exposure of other operations (cf. Markides, 2013; Visnjic Kastalli and Van Looy, 2013). Ventures building on cross-industry cooperation are of particular interest to incumbent firms since such ventures provide access to a wider resources base (financial, physical and intellectual) compared to when the firm is only active in its original business sector (cf. Giesen et al., 2007). Cooperation between enterprises can serve as a mechanism that promotes organizational learning, especially regarding the transfer of tacit knowledge (Tamer Cavusgil et al., 2003). Cooperation thus facilitates the use of complementary assets and expertise between firms. Through cooperation, firms can improve their ability to manage complex relationships and share risks associated with, for example, policy or product development (Schibany et al., 2000). However, cooperation may also entail the establishment of complex production systems, which frequently necessitates substantial investments in new business infrastructure. Moreover, for cooperation to function well, involved parties need to find common goals and incentives while building up trust (Hoejmose et al., 2012). This means that the formation of the business model and the accompanying value chain constitutes a considerable part of the managerial work that goes into the building of a joint venture. Despite enjoying the benefits associated with a more mature resource base, the development and implementation of a business model is still a considerable challenge for established actors (Markides, 2013). Hence, the purpose of this paper is to explore the role that the value chain plays in business model innovation when incumbent firms cooperate to establish joint ventures.

Firms that operate within the field of sustainable innovation are under particular pressure to establish a suitable business model (Boons et al., 2013). Sustainable innovations are often costly to the point where they are not competitive, successful ventures in this sector thus offer the opportunity to study critical success factors. An example of successful cross-industry cooperation is SunPine, a manufacturer of pine-based biodiesel, bio-oil and resin. The main product, pine-based biodiesel, is a sustainable alternative to fossil diesel fuel as it is carbon neutral in the sense that it does not add CO₂ to the atmosphere. SunPine operates from Piteå in northern Sweden. Since starting production in 2010, the company reached a turnover of SEK 950 million in 2016, producing 2 % of all diesel sold in Sweden during that year. SunPine claims that its biodiesel reduced CO₂ emissions from diesel vehicles with more than 1 125 000 tons¹ between 2010 and 2016. The company was founded through a cooperation between Sveaskog (Sweden's largest forestry company, owned by the Swedish state and holder of a 25 % stake in SunPine), Södra (Sweden's largest forestry cooperative, producing mainly timber goods and pulp products, also holding a 25 % stake), Preem (a petroleum corporation, owning oil refineries and a network of petrol stations in Sweden, likewise with a 25 % share) and Kiram (a Swedish biotechnology developer owning a 15 % share). Four years after starting production, a new player got involved. Lawter, a global chemical company specialized in pine-based chemicals, became a partner by acquiring 10 % of SunPine. Together these companies possessed the intellectual and process-related resources necessary to develop the products that are currently offered. Furthermore, they represent the entire value chain from forest-based raw material to the consumer product. Södra provides SunPine with crude pine oil, a residue originating from the production of pulp from forest resources, which in turn are provided by Sveaskog. Kiram represents the interests of the founder and inventor, who developed the initial prototype, whereas Lawter provides technological and process-related know-how as well as strategic insights. Preem processes the pine-based diesel in its refineries, mixing it with ordinary diesel into a blend consisting of at least 50 % renewable pine diesel. Through Preem's network of petrol stations, the final product is then

¹ SunPine public presentation from 2017.

sold to end-consumers all over Sweden. Consequently, the board of SunPine joins representatives from the main suppliers of the raw materials used in the production, the technology inventor, and the distributor of the final product. It is worth noting that even though SunPine is highly successful, much of its success can be attributed to the environmental policies implemented in Sweden with regards fuel taxes (cf. Palgan and McCormick, 2016). Without high taxes on fossil fuels bio-diesel would not be a competitive alternative.

Approach

The interaction between the supply chain and the business model is a topic linked to managerial sensemaking about strategic issues (cf. Chesbrough, 2010; Tikkanen et al., 2005). Case studies are considered an appropriate approach when exploring, analyzing and describing how individuals, such as managers, make sense of complexity (Woodside and Wilson, 2003), making it a suitable research approach for this study. By allowing the researcher to address “why” and “how” questions in a broad and explorative manner, case studies enable the researcher to map contextual factors and help creating a picture of the logic behind a specific course of events (Yin, 2003). For this paper, we relied on interviews with business representatives involved in the founding and management of SunPine, including its CEO and the inventor that developed the technology around which the firm is built. The interviews were recorded and transcribed with a low level of inference. In addition, secondary material such as annual reports, news and press material was gathered and used both for the formulation of the interview questions and for establishing a better understanding of the case firm’s context and development. The analysis builds on SunPine being a paradigmatic case (Flyvbjerg, 2006) of a successful cooperation between incumbent firms that collectively develop a business model through the pooling of resources.

Key Insights

As is often the case with innovation processes, the development of SunPine’s business model was neither quick nor simple. Both value creation (i.e. the production processes) and the value offer (i.e. what type of products and what properties those products should possess)

have changed over time. The idea behind the technology that SunPine builds on was originally conceptualized during the late 1990s by the inventor who is still represented in the firm through ownership of Kiram. In 2005, the idea was tested in a small experimental plant with promising results. With the support of a financial service provider, the inventor engaged with several potential investors and established a ‘dream team’ of representatives from the value chain that would become the base of SunPine’s business model. These investors had skills and resources that were used to iron out any remaining problems related to the complex production process, gradually increasing the efficiency of the production line. In 2010, a full-scale commercial production plant was opened and after some fine-tuning, plans were developed to complement operations with new types of production inputs as well as new outputs. The modifications meant that in 2016 SunPine could utilize two variants of the main raw materials and produce not only the two original products, pine-based diesel and bio-oils, but also resins (the result of the cooperation with Lawter) and turpentine. This development was the result of the capacity that the owners brought into SunPine and is tightly linked to the value chains that these firms already had in place. Making SunPine into a node for the value chains of its owners was a strategy pursued by the founder, who had the explicit goal to make SunPine part of a value chain that the owners would want to see grow at a rapid pace. Hence, the business model of SunPine can be said to be the result of an interweaving of the different value chains that the owners already were engaged in.

Analyzing SunPine we found three key lessons related to the success of the firm and the interplay between value chains and business model innovation for new joint ventures. First, the owners showed a common understanding not only of SunPine’s technology, but also of the potential of the resources that SunPine and its owners jointly possessed. This meant that it was possible to develop the business model further while increasing the yield of already existing value chains and introducing new partners without hurting the existing constellation. The common understanding also meant that it was important to the investors to keep key patents within SunPine. This arrangement provided clarity in relation to the management of patent-related issues. Second, the case reveals the importance of

active and smart – both in the sense of being technologically savvy and strategically astute – ownership. For example, Preem possesses expertise in relation to both present and future requirements for diesel fuels, as well as the demands of end-consumers. This is knowledge that could take considerable time and effort to acquire, and especially so for an inventor with no previous experience of the fuel market. Hence, by having all the key players from SunPine's value chain on the board, the strategic management team has an advantage when analyzing up- and downstream trends. Furthermore, it increases the quality of communications between these key stakeholders. Here the inventor's ability to recruit a 'dream team' of dedicated actors that were willing to have 'skin in the game' appears to be a considerable success factor, both in relation to business model development and for the technological development of the product. Third, each of the firms that eventually became owners of SunPine has a long-term dedication to sustainability and sees SunPine as a promising way for them and for society to move to a bio-based economy. SunPine thus represents a good fit both with existing value chains and with the greater strategic scope of each of the owners. The dedication to sustainability is also mirrored in the long-term contracts that the backers have entered. Since the partners needed to be patient during the start-up and development phase, the long-term dedication to both sustainability and to SunPine was portrayed as crucial for the success of the firm. Additionally, the dependence of SunPine on environmental policies meant that there were, and still are, concerns about the political risks associated with the firm's future. Without the dedication to the vision of a future bio-based economy, the constellation behind the firm, as well as its business model, would most likely have been quite different.

Discussion and Conclusions

Studying the role that the external value chain played in relation to business model innovation for SunPine, we see an interaction that can be characterized as a process of adaptation and mutual strengthening. The initial business model that the inventor brought to the negotiation table was dependent on SunPine purchasing raw materials from existing supply chains dominated by large incumbent actors and selling its products to established industry leaders. This is a situation that, due to SunPine's

anticipated low bargaining power, squeezes profit margins. Furthermore, SunPine would be under constant threat of elimination through encroachment on both the supplier and the customer side. By making suppliers and customers into key stakeholders whose interests are constantly present in the board room, the inventor assured that the growth of SunPine is something that is beneficial for actors located both up- and downstream in the value chain. Consequently, the investors will support the development of SunPine's business model in ways that both capitalize on, as well as strengthen, their own external value chains. The case study thus shows the importance of 'smart capital', i.e. investors that have an interest in contributing with their knowledge and resources in order to make the firm grow (cf. Bjørgum and Sørheim, 2015), as well as the necessity to shape the business model of joint ventures in a way that makes the growth of the firm into something that not only generates revenue in the form of dividends but also strengthens the value chains of the investors. In relation to business model research, this case study thus highlights the importance of ownership and the role that ownership plays in relation to the formation of both business models and new value chains. The case study therefore illustrates the importance of good governance (cf. Chesbrough, 2010; Zott and Amit, 2010) and the weight that this should be given when incumbent actors are involved in business model innovation for joint ventures.

As pointed out in existing literature, the business model perspective on entrepreneurship and management has come to influence research on sustainable innovation to a degree where the commercialization process for sustainable innovations has turned into a matter of finding and establishing a suitable business model (Boons and Lüdeke-Freund, 2013). Hence, concerning sustainable innovation, our case study shows how a shift to a more sustainable technology is facilitated by cooperative business model development. The case not only shows the possibilities and potential pitfalls of cross-industry partnerships conducted by incumbents with quite different scale and scope, but it also indicates that such collaborations may contribute considerably to a more sustainable future. Finally, the study shows that this development can be achieved through a combination of cross-industry cooperation and relatively simple but powerful policy incentives, such as taxes on fossil fuels and tax exemptions for sustainable alternatives.

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