



The application of value nets in food supply chains: A multiple case study



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ABSTRACT

This research investigates how and why collaborative networks in the global food supply chain differ from the theoretical value net business model. Using multiple case methodology, we find that changing social responsibility requirements from consumers and other stakeholders, in combination with dynamic market demand, cause a general tendency of collaboration between food industry firms evolving into collaborative value nets. However, in contrast to the general nature of the supply chain literature, the actual level of value net implementation is affected by four intervening factors (product factors, firm factors, cost structure, collaboration ROI). Thus, our research results shed light on the “boundary conditions” of this development which so far have been neglected in value net research.

1. Introduction

Consumers' taste and preferences for food products are always changing, creating a dynamic market environment for firms in the food industry (Baker & Smyth, 2012; Van Donk, Akkerman, & Van der Vaart, 2008). Besides obvious product attributes such as quality and price, consumers now also consider issues such as food safety and food manufacturers' social and environmental performance when evaluating products, brands, and food companies (Beulens, Broens, Folstar, & Hofstede, 2005; Maloni & Brown, 2006; Pullman, Maloni, & Carter, 2009; Trienekens, Wognum, Beulens, & Van der Vorst, 2012). Like in many other sectors, food companies recognize the impact corporate social responsibility (“CSR”) now has in developing and executing business strategy and, eventually, on firm performance (cf. Bitzer, 2012; McWilliams, Siegel, & Wright, 2006).

This new market reality has led to the call for redesigning food supply chains. The suggestion is to initiate integrated and collaborative business models that will focus on value creation for end-consumer by all supply chain partners collectively (e.g. Bitzer, 2012; Dentoni, Hospes, & Ross, 2012) and control of CSR across all echelons of the supply chain (e.g. Beulens et al., 2005; Trienekens et al., 2012; Van Donk et al., 2008). Correspondingly, there is a considerable body of research that proposes the integration of demand and supply functions within and across networks of firms as the most efficient business model for meeting consumers' and stakeholders' product and CSR requirements (Esper, Ellinger, Stank, Flint, & Moon, 2010; Jüttner,

Christopher, & Baker, 2007; Stank, Esper, Crook, & Autry, 2012). However, there seems to be a lack of consensus on which collaborative business model is best suited for replacing the consecutive dyadic business relationships that currently comprise most food supply chains (Engelseth, 2012; Van Donk et al., 2008). This lack of direction can be explained first because of channel-related issues such as different retail operational formats, the power differential between channel partners, and government regulations on channel structure and competition. Second, product-related matters such as perishability, seasonality, regional and cultural influences, and (food safety) regulations render the global food industry and its supply chain different from other industries in which collaborative business models are introduced (Fredriksson & Liljestrand, 2015). Third, research on the food industry supply chain focuses more on improving dyadic supply chain relationships, lacking a network approach (e.g. Bitzer, 2012; Corsten & Kumar, 2005; Danese, 2007; Kelepouris, Pramataris, & Doukidis, 2007; Matopoulos, Vlachopoulou, Manthou, & Manos, 2007).

The lack of agreement on which business model is best-suited for the food industry combined with the success of dynamic network-based business models used in other industry sectors (Bovet & Martha, 2000; Möller & Rajala, 2007; Valkokari, 2015) underlines the relevance of investigating value nets in the food industry. Further, collaborative business initiatives between suppliers and grocery retailers have already proven to be successful (e.g. Kotzab & Teller, 2003). These successes suggest that extending network-based models to include

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additional echelons of the food supply chain will have a positive effect on value creation in the food industry.

Ahtonen and Virolainen (2009) and Kähkönen (2012) suggest that the “value network” or “value net” (Bovet & Martha, 2000; Kothandaraman & Wilson, 2001) is a particularly appropriate network-based business model for food supply chains, given the above-noted market-driven pressures for closer cooperation and coordination. Value nets place the consumer at the center of value creation activities by all supply chain partners and stakeholders to better address market dynamics. Both Ahtonen and Virolainen (2009) and Kähkönen (2012) conducted empirical studies comparing collaborative partnerships in the Finnish food industry with the main theoretical characteristics of value nets. Both studies support the applicability of the value net business model in the food industry. At the same time, their research confirms that firm-related factors (i.e. size, core competencies and capabilities, supply chain position) and industry-specific factors (i.e. power differential between grocery retailers and suppliers, government regulations, and the size and geography of the supply base) may well require adaptation of the theoretical value net business model to better suit the particularities of the food industry.

Besides these two studies, there is limited research into network-based collaborative supply chain relationships in the food industry (Fredriksson & Liljestrand, 2015), resulting in a lack of well-developed theory on collaborative business models in the food industry (Tell et al., 2016). Therefore, to address this apparent gap in the body of knowledge, this study investigates the use of value nets as a collaborative supply chain business model in the global food industry. We seek to answer the research question: “How and why do collaborative networks in the global food supply chain differ from the theoretical value net business model?” Our research objective is to develop an inductive model, i.e. a mid-range theory (Carter, 2011), that helps explain and predict value net implementation in the global food industry and that provides insights into the reasons that explain why actual empirical value nets differ from the theoretical ideal. We consider the level of implementation (dependent variable) as a function of changing CSR requirements and dynamic market demand (independent variables) and affected by firm-specific, industry-specific, and partnership-specific factors (moderating variables). We expand on previous food industry studies (Ahtonen & Virolainen, 2009; Kähkönen, 2012) by exploring not just *if* firms in the food industry adopt value nets, but by seeking to understand *how* changing social responsibility requirements in combination with dynamic market demand impact the degree to which value nets are implemented.

We use multiple case methodology to develop a description of the phenomenon within its distinct (real-life) industry context, following a pattern-matching procedure for our case selection, comparing the collaborative business models we researched with the general characteristics of value nets derived from the literature (cf. Yin, 2012). We solicited advice and feedback from stakeholders and inside informants as an integral part of our research process, a more participative form of research termed “engaged scholarship” (Van de Ven, 2007). To further elucidate our theoretical model, we identify and describe in more detail a so-called “pathway case” concerning a German cereal company (cf. Gerring, 2007).

2. Literature review and theoretical framework

A value-creating system, such as a value chain or a value net, is a set of activities that involve several economic actors and create value for consumers (Parolini, 1999). Value can be defined in various ways. Porter (1985, p. 38) determines value as “the amount buyers are willing to pay for what a firm provides them” and understands value creation as the basis on which companies compete with one another. Bowman and Ambrosini (2000) further distinguish two components of value: the perceived use value, i.e. the customer’s subjective perception of the usefulness of the product, and the exchange value, i.e. the price paid for

the use value created. Following this line of thought, a firm has a competitive advantage when buyers rate its products as providing superior consumer surplus than competing firms. Following prior research in food industry value nets (Kähkönen, 2012), we, however, apply the value definition of Walter, Ritter, and Gemünden (2001, p. 366) who determine that “value can be regarded as a trade-off between benefits and sacrifices.” Value creation in the context of inter-firm arrangements, on the other hand, can be defined as “the process by which the capabilities of the partners are combined so that the competitive advantage of either the hybrid or one or more of the parties is improved” (Borys & Jemison, 1989, p. 241). Involving several economic actors, total value created in a value chain or value net equals the sum of the values appropriated by all participants (Amit & Zott, 2001).

The value chain construct (Porter, 1985) distinguishes between a firm’s primary activities, which contribute directly to value creation, and support activities which do so indirectly. A value chain consists of sequential interfirm business relationships encompassing the entire value creation process, starting with raw materials and ending at the final point of value creation, i.e. the end-consumer. By intentional specialization, the value chain partners optimize their business processes both in efficiency and financial performance. The view of supply chains as consecutive arm’s-length transactions received criticism for several reasons: First, for its consistent focus on ordered dyadic relationships without considering further removed value chain partners and other stakeholders or environmental factors. Second, for not appreciating the practical fact that firms are involved in multiple value chains simultaneously (Bovet & Martha, 2000; Stabell & Fjeldstad, 1998). Third, customers are placed outside of the firms in the value chain model, omitting the conditional nature of creating customer value/satisfaction to the existence of a value chain in the first place (Kähkönen, 2012).

In contrast, Achrol’s (1997) business network paradigm extends the value chain construct and lies at the foundation of the value net model, part of a considerable body of research on collaborative business models and business networks (Möller & Rajala, 2007). Contrary to the linear value chain theory, these network-based business models view value creation from a process perspective, not the activities of individual value chain actors (Ahtonen & Virolainen, 2009; Anderson, Havila, Andersen, & Halinen, 1998; Borg, 1991). To meet ever-changing customers’ and other stakeholders’ demand and expectations, one must engage many different firms and stakeholders (e.g. employees, shareholders, governments, non-governmental agencies, unions, media) simultaneously in a network-style structure to pool capabilities and competencies of different partners, “co-creating” value for end-customers (Bititci, Martinez, Albores, & Parung, 2004). The study of business networks is grounded in economics, economic sociology, and social network theories and posits that firms will establish business networks in a similar fashion as individuals create social networks (Halinen & Törnroos, 1998; Jones, Hesterly, & Borgatti, 1997). The distinguishing characteristic of a business network is its dynamic nature allowing it to change to meet dynamic customer demands and supply chain responsibilities (Mason & Spring, 2011). Consequently, markets are regarded as constellations of different business networks (Håkansson & Snehota, 1989; Johanson & Mattsson, 1994).

Delivering value through a focus on the customer (or end-consumer as the case may be) is the foundation of value net theory (Bovet & Martha, 2000). A value net is understood as a value creation model that “begins with customers, allows them to self-design products and builds to satisfy actual demand,” while “traditional supply chain management manufactures products and pushes them through distribution channels in the hope that someone will buy them” (Bovet & Martha, 2000, pp. 2–3). Value nets include all firms and stakeholders (i.e. suppliers, customers, complementors, competitors, regulators, industry organizations). Graphically the value net places the focal firm’s customers in the center with all other stakeholders placed on concentric circles representing the inherent interdependence of all

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