

Prevention-led innovation of sustainable business models: Systemic tensions in value co-creation networks

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Abstract

Balancing financial returns with social value remains a key challenge in Sustainable Business Model Innovation (SBMI), particularly when multiple stakeholders hold conflicting goals. This developmental paper addresses this gap by examining how companies navigate multidimensional tensions in health-focused prevention-led SBMI. We adopt a single-case study of a nutrition company launching functional butter category to mitigate cardiovascular disease risks. Through semi-structured interviews and archival documents we explore two iterations of SBMI to understand the multidimensional tensions at micro, meso and macro levels. Preliminary findings suggest that intellectual property arrangements, selective partnering, and direct consumer feedback serve as important elements of tension-navigation mechanisms. As the study progresses, we will conduct in-depth thematic analysis and map tension-navigation mechanisms to develop an inductive theory for effectively managing VCC tensions in SBMI. Expected outcomes include a deeper theoretical understanding of systemic tensions and the mechanisms for navigating them within orchestrated stakeholder networks during SBMI.

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Complex social challenges, such as public health issues, increasingly pressure businesses and society to find sustainable solutions. In response, companies are increasingly turning to Sustainable Business Model Innovations (SBMIs), which aim to create both economic value and positive social and environmental impacts. SBMI involves the transformation of business models to generate financial returns while also benefiting society (Schaltegger et al., 2016). Although SBMIs offer greater potential for long-term societal impact compared to product innovations, they also introduce complexities and tensions that must be carefully managed.

A major challenge in implementing SBMI is managing the multidimensional tensions between economic and social value co-creation (VCC) with external stakeholders. These tensions often arise from conflicting sustainability goals among various stakeholders, including the focal company, co-creating partners (such as consumers and business partners), and external stakeholders like communities and governments (Hahn et al., 2018;). For instance, investors often prioritise financial returns, while consumers and communities emphasise social outcomes like healthcare, education, and environmental sustainability (Freudenreich et al., 2020). These tensions become especially pronounced in complex multi-actor networks where companies must engage a range of stakeholders to co-create sustainable value through SBMI (Oskam et al., 2021).

Successfully navigating these tensions is crucial for the success of SBMIs, yet how companies manage these competing tensions remains an underexplored research area (Spanjol et al., 2024). This study seeks to address this gap by focusing on health-related VCC in stakeholder networks, particularly in the context of prevention-led innovations. Such innovations require companies to balance short- and long-term objectives, as prevention involves proactive measures aimed at reducing disease onset and promoting public health (Loeppke et al., 2008).

This study adopts a systemic thinking approach (Bansal & Song, 2017), recognising that tensions in SBMI are interrelated and interact over time (Aquilani et al., 2018). Value co-creation is an ongoing process, where short-term actions contribute to long-term sustainability. While previous research on VCC and SBMI has often examined individual tensions in isolation (Joyce & Paquin, 2016; Stål et al., 2022), little is known about how companies navigate interconnected tensions within multi-actor networks (Alosi et al., 2023; Carmine & De Marchi, 2023). To address this, the study focuses on network-based VCC within SBMI, applying a systemic approach to investigate: *How do companies navigate multidimensional tensions in co-creating economic and social value in sustainable business model innovation?*

Theoretical Background: Value Co-Creation Networks in SBMI

Sustainable Business Model Innovation (SBMI) refers to the transformation of business models to generate both economic and social value for various stakeholders (Schaltegger et al., 2016). Unlike traditional product or process innovation (Massa & Tucci, 2013), SBMI involves reconfiguring the entire business model or its individual components (Menter et al., 2022). While sustainable innovations have historically focused on products, technologies, or processes, recent research highlights the importance of systemic business model change as a means of addressing complex social and environmental challenges (Geissdoerfer et al., 2018; Lüdeke-Freund et al., 2024).

To implement SBMI effectively, VCC plays a crucial role, as companies must engage external stakeholders—such as customers, suppliers, and end-users—in the innovation process to co-create both economic and social value (Bocken et al., 2014). VCC, as introduced in business management literature, emphasises collaboration among multiple actors to create diverse types of value for stakeholders (Prahalad & Ramaswamy, 2000). VCC operates on two key principles: first, value co-creation with others, which involves the exchange of resources, sharing knowledge, and enhancing capabilities (Alves et al., 2016); and second, value co-creation-in-use, where value is

created during product consumption (Witell et al., 2011). Although these principles are studied separately, they can be integrated when examining SBMI from a process-oriented perspective (Freudenreich et al., 2020).

In SBMI, the locus of innovation shifts from the organisational level to a network level, where value is co-created across a multi-stakeholder network (Freudenreich et al., 2020). This network-based approach aligns with systems thinking (Bansal & Song, 2017), recognising that social issues, typically addressed by governments and non-profits, can be tackled by businesses through sustainable innovations that deliver both economic and social value (Girotra & Netessine, 2013).

Moreover, SBMI requires a systemic approach that considers the life cycle of products and their broader socio-environmental impacts at micro, meso, and macro levels (Breuer et al., 2018). At the micro-level (Austin & Seitanidi, 2012), the focus is on individual stakeholder benefits, at the meso-level on organisational impacts, and at the macro-level on broader societal outcomes (Carmine & De Marchi, 2023). Innovation literature distinguishes between orchestrated networks, where a company manages stakeholder relationships, and non-orchestrated networks, such as collaborative ecosystems (Dhanaraj & Parkhe, 2006; Reypens et al., 2016). This study focuses on orchestrated networks, where the focal company plays a central role in managing stakeholder activities to enhance value creation (Möller & Halinen, 2017).

Multidimensional Tensions in SBMI

Tensions within SBMI arise due to contradictions in decision-making, where companies must balance diverse, often conflicting, objectives (Oskam et al. 2021; Smith & Lewis, 2011). These tensions can be classified as sustainable VCC tensions, intertemporal tensions, and multilayer tensions (Hahn et al., 2015).

Sustainable VCC Tensions: Conflicts emerge when the three aspects of sustainability—economic, social, and environmental—are at odds (van Bommel, 2018). In B2B value co-creation, for example, tensions often emerge between trust and opportunism, where business partners may exploit the relationship for immediate gains, undermining sustainable value co-creation (Blome et al., 2023). These tensions are especially challenging when a company must balance economic returns with social outcomes, such as in the healthcare sector (Bünder et al., 2024). For instance, in the food industry, companies may face tensions between enhancing product taste to increase demand and maintaining the health benefits of a product (Lowe et al., 2015).

Intertemporal Tensions: These tensions arise from the need to balance short-term and long-term objectives, particularly when companies must manage both immediate financial returns and future sustainability goals (Jay, 2013). In SBMI, these tensions are more complex, as sustainable innovations may provide short-term benefits but carry long-term risks (Grewatsch et al., 2023). Resolving these tensions involves balancing economic, social, and environmental aspects in both the short and long term (Slawinski & Bansal, 2015).

Multilayer Tensions: At the individual level, tensions arise when decision-makers' personal values conflict with organisational objectives (Austin & Seitanidi, 2012). At the organisational level, tensions may emerge between economic goals and the interests of diverse stakeholders. At the network level, these tensions become even more complex, as companies must consider not only their own objectives but also the broader social and environmental impacts of their SBMI (Carmine & De Marchi, 2023). Understanding these tensions at multiple levels is crucial for navigating the challenges of SBMI and achieving both economic and social value creation.

To resolve these tensions, two approaches have been suggested: the *Instrumental* approach, which focuses on profit maximisation and resolving tensions through trade-offs or win-win solutions (Hahn et al., 2018), and the *Integrative* approach, which embraces paradoxical strategies to manage opposing values simultaneously (van Bommel, 2018).

Methodology: Prevention-led SBMI in the Nutrition Industry

This study examines prevention-led innovations in the nutrition industry for three key reasons. First, public health issues like diet-related diseases have driven calls for new business models in the nutrition sector (Lang, 2009). Prevention-focused SBMIs have the potential to significantly contribute to public health, particularly in achieving SDG #3, related to health and well-being (Deloitte, 2022; Lowe et al., 2019). Second, prevention-led SBMIs often involve complex multi-actor VCC, providing an ideal context for examining VCC dynamics (Dubé et al., 2014). Finally, the healthcare sector provides a suitable foundation for exploring tensions and their management in SBMI (Denis et al., 2001).

Data Collection and Analysis. This study employs a qualitative single-case study approach to investigate *how*-questions, as recommended by Yin (2018), making it particularly suitable for examining emerging phenomena like SBMI. To understand multidimensional tensions from a systemic viewpoint, a single case study is advisable for its ability to explore dependencies and contingencies (Flyvbjerg, 2006). We collect extensive data on VCC within SBMI over several years (2012–2021), providing a detailed and contextual understanding of these complex tensions.

The case study focused on *FFoodCorp* [pseudonym], a B2B nutrition company that implemented a prevention-led SBMI between 2013 and 2021. Primary data were collected through semi-structured interviews with former employees, including managers from various departments such as R&D, marketing, and sustainability. Secondary data, including project presentations, press releases, and patent documents, were also gathered. Data analysis followed the Gioia methodology (Gioia et al., 2013), with an abductive approach to identify themes and develop a process model.

Pilot Findings

The case study focuses on *FFoodCorp*, a large B2B nutrition and food ingredients company, which implemented a Sustainable Business Model Innovation (SBMI) aimed at promoting healthy food products to reduce cardiovascular diseases (CVD) caused by high-fat consumption. The SBMI was launched between 2012 and 2021, introducing a new product line of dietary fats for the Eurasian Union (EAEU) market. The main objective of the SBMI was to integrate social value into the company's value proposition by reducing the negative impact of high-fat butter consumption on consumer health. As one respondent stated, "*We aimed to make products that were one of the main causes of cardiovascular diseases – not harmful, but beneficial*" (Respondent 1).

The SBMI unfolded in two distinct phases. The first phase, spanning from 2012 to 2017, focused on the introduction of *Healthy Butter* [pseudonym], which aimed to offer healthier fat and oil ingredients designed to prevent cardiovascular diseases. This product was developed with a focus on reducing harmful elements, including high calorie content, trans fats, and saturated fats, which are typically found in conventional butter (Figure1).

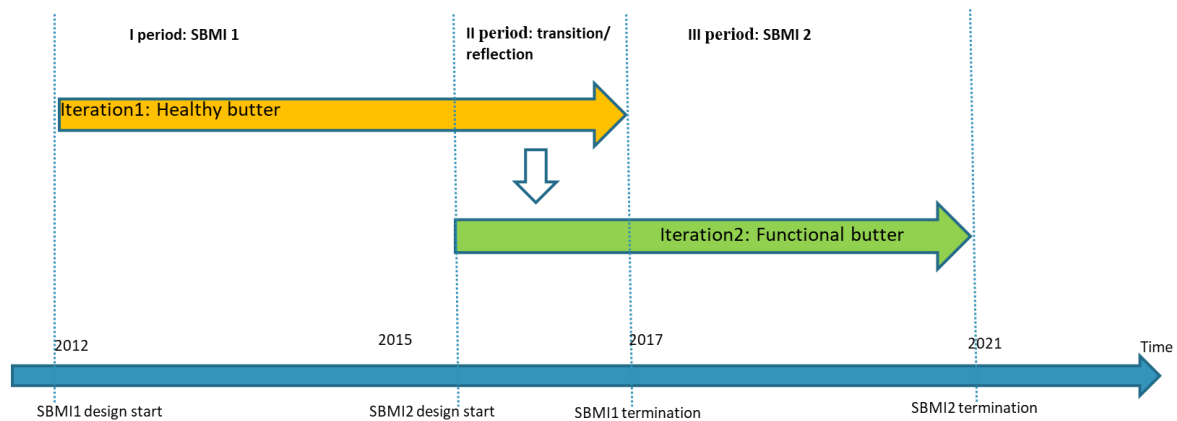


Figure1. Timeline of *FFoodCorp* SBMI

The second phase, from 2015 to 2021, involved the launch of an advanced version of the product, named *Functional Butter* [pseudonym]. This iteration included active ingredients specifically aimed at the prevention of cardiovascular diseases, as confirmed by clinical trials. As noted, “*Functional Butter already included active ingredients for the prevention of CVD*” (Respondent 2). This version represented a more targeted approach to health improvement, building upon the foundation established in the first phase.

The company faced significant tensions during SBMI implementation, particularly between generating economic value (profit) and social value (health benefits). These tensions intensified during the value co-creation process with customers, especially in the B2B2C model. In the first iteration, *FFoodCorp* created a value creation network by collaborating with B2B customers, who produced the final product under their brands and distributed it to consumers. This model, however, encountered challenges when B2B partners, without intellectual property agreements, acted opportunistically by altering the recipe to lower the product's quality in favour of economic gain. As a result, the value proposition was compromised, and the company lost control over its B2B partners, undermining the SBMI's success.

Reflecting on these issues, *FFoodCorp* designed a new business model in the second phase (2015 onwards), launching a new product category *Functional Butter*, which was patented to ensure better control over the value creation network. The company reduced the number of partners, selecting only the most reliable ones based on prior experience and production capabilities. Furthermore, *FFoodCorp* launched its own local production of *Functional Butter* in one region, allowing direct consumer feedback to be incorporated into product improvements, including organoleptic properties, consumption methods, and packaging convenience. A comparison of the two SBMI iterations is presented in Table 1.

Table 1 Comparison between the first and the second SBMI iterations of the *FFoodCorp*.

No	Criteria	Iteration 1	Iteration 2
1	Value proposition	Low-cholesterol & trans-free fat-and-oil products for diets.	Functional fat-and-oil products
	Value co-creation and delivery	<i>FFoodCorp</i> (lead company) supplied ingredients, technology	Lead company itself produced the product for end consumers in one

		and documents to its B2B customers to produce dietary products for the end consumers	region and formed a network of manufacturers (B2B customers) in other regions who produced the product under different brands.
2	Market segment	B2B2C customers	B2C consumers B2B2C customers
3	SBMI Years	2012-2017	2015-2021
4	EAEU markets	2 countries	4 countries
5	Priority sustainable aspect	Economic aspect (priority) Social aspect- Cardiovascular diseases Prevention (minor)	Social value- Cardiovascular diseases Prevention (priority) Economic value (minor)
6	Success /failure at the Adjustment phase	Success - Economic value Failure – Social value	Minor success - Social value & Economic value
7	Value co-creation actors	B2b Customers, Research centre (NGO)	B2b Customers, B2C consumers, 2 Research centres (NGO), Public Medical Institution,
8	Level of network control (power) by the focal company	Low	High
9	Priority of SBMI project for the focal company from the strategic perspective	Low	High
10	Number of departments involved in value co-creation within the focal company	4	9

Further Development of the study

The pilot data collected indicates the presence of empirical contradictions between the creation of economic and social value within the context of network VCC across different phases of SBMI. Evidence suggests that during the first iteration, the key source of tension in the network stemmed from differing logics of value creation (instrumental vs. integrative). In contrast, the tensions in the second iteration arose from varying perspectives among agents on temporal horizons and contradictions within internal stakeholders of the focal organization.

In the next phase of analysis, thematic analysis and mapping of the interrelations between these contradictions and navigation mechanisms will be conducted, contributing to the development of an inductive theory for navigating VCC tensions within SBMI.

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