The value creation failure of grocery retailers’ last-mile value proposition: A sustainable business model perspective

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A R T I C L E   I N F O
A B S T R A C T

Keywords:
Grocery
Delivery
Sustainable business model
Value proposition
Interviews
Focus groups

How a sustainable business model (SBM) is created for last-mile deliveries (LML) has been highlighted for a long time. However, research is limited regarding understanding the value creation process and the importance that both firms and customers are considered when creating a sustainable business model. In this paper, we explore how a SBM for grocery LML can be created and how discrepancy of value created, and value expected, is displayed. Through interviews with retailers and customer focus groups, we analyze how value can lead to horizontal coherence within layers, or vertical coherence between layers (economic, social, and environmental). We find that discrepancy within and between layers mainly derive from low customer acceptance and different views on what is being offered. We also find that environmental concerns do not add to the value creation process. This study contributes to the understanding of the grocery LML value creation process by using SBM as arising from both perspectives: firm vis-à-vis customer. In addition, our study contributes by explaining and identifying that the discrepancy in the grocery LML’s SBM depends on the perceived value proposition of the product bundle and service solution payoff.

1. Introduction

Establishing sustainable business models (SBM) for LML has been raised as crucial for grocery retailers (e.g., Lim and Winkenbach, 2019; Perboli et al., 2021). Although descriptions of business models (BM) vary (Geissdoerfer et al., 2018), they are often defined as how firms intend to create and capture value from customers with a product or service (Osterwalder and Pigneur, 2010), such as an LML offer (Lagin et al., 2022; Mangano et al., 2021). The BM perspective has been criticized as too profit-driven compared to SBM. SBM instead view the value proposition from different perspectives (Baldassarre et al., 2017; Joyce and Paquin, 2016), provides an in-depth focus on the delivered value (Bocken et al., 2014; Boons et al., 2013), and tries to create a win-win situation for actors (Bocken et al., 2019). Challenges to create a SBM have been related to triple bottom line benefits and balances, actor mindset, resources, technology, and relationships (Breuer et al., 2018; Evans et al., 2017), where a focus on potential failure to create/exchange value is important to consider (Yang et al., 2017).

Understanding LML from a SBM perspective in-depth requires more considerations than just the delivery problem itself. Instead, the product delivered becomes part of the solution too. One product, groceries, has transcended into an online product bundle where delivery options have been added as a service component (Agnihotri, 2015; Cao, 2014; Chen et al., 2018; Hagberg et al., 2016; Lagin et al., 2022; Sorescu et al., 2011), but has yet to be fully accepted by customers (Lim et al., 2018; Weber and Badenhorst-Weiss, 2018). Customers demand for firms to be more sustainability oriented (Svensson et al., 2018) could explain recent studies advocating a SBM for LML (Mangiarcina et al., 2015; Olsson et al., 2019). Despite this, the value proposition is seen as inherently tied to delivery (Mangano et al., 2021) rather than to incorporating both product bundle and delivery in the value creation process.

Low customer acceptance indicates a discrepancy between value created by the firm and value expected by the customer. While research shows that customer expectations increase when last-mile delivery is evaluated (Vakulenko et al., 2019), customer perspectives are not fully considered when developing last-mile deliveries (Rai et al., 2021). Instead, focus falls on the retail firm itself (Lagin et al., 2022). Thus, the question is if a customer value expectation perspective, combined with the retail firm’s value creation process, can enhance our understanding of how delivery of grocery products can be formed as a SBM and how
discrepancy occur in terms of uncaptured value.

This study explores how a SBM for grocery LML can be created and how discrepancy of value created, and value expected, is displayed. By using a dual perspective, we contribute to the understanding of the value creation process of LML offer as something that is simultaneously created by the retailer and the customer. Following other studies (Bal-dassarre et al., 2017), we also contribute to an explanation of what discrepancy in the LML’s SBM entails depending on how product bundles and service characteristics are perceived by firm vis-à-vis customer. By contrasting potential discrepancies as occurring between two parties of the value proposition allows us to discuss situations where SBMs for grocery LML are not captured, which deepens the understanding of how to overcome this (compare to e.g., Yang et al., 2017) to create a competitive advantage (Boons et al., 2013). In addition, focusing on groceries per se allows us to build a SBM that is context-sensitive (Breuer et al., 2018; Zhu et al., 2019).

The paper is organized as follows. In Chapter 2, a conceptual framework of horizontal and vertical coherence of grocery LML SBMs is presented and discussed. In Chapter 3, the qualitative design of the study is presented and explained. Chapter 4 presents the findings, given customer and retailer. In Chapter 5, we discuss the coherence of the SBM for grocery LML and identify discrepancies in the value creation process. In Chapter 6, main conclusions, contributions, and future research are presented.

2. Conceptual framework

While numerous contemporary conceptual frameworks of SBM have been suggested and summarized (compare e.g. Baldassarre et al., 2017; Biloslavo et al., 2018; Bocken et al., 2019; Breuer et al., 2018; Geissdoerfer et al., 2016; Geissdoerfer et al., 2018; Joyce and Paquin, 2016), the framework used in this paper is the triple-layered business model presented by Joyce and Paquin (2016). This framework highlights the different components in the three layers of SBM (i.e., economic, environmental, and social layer). It is firm-specific and use Nespresso and its supply chain as the case, which is a part of the grocery industry and the perishability of existing products/services. It is therefore appropriate to use as a theoretical starting point. Joyce and Paquin’s (2016) framework also focus on coherence within and between layers, which allows for the exploration of discrepancies in the value proposition of grocery LML.

The conceptual framework by Joyce and Paquin (2016) connects the exchanged value throughout the layers, as well as delivery and payback of value, to develop the SBM of existing products/services. Grocery LML can be theorized using ibid. view on SBMs since problems for perishable products/services have been highlighted to be broader than just delivery (Belavina et al., 2016; Laging et al., 2022; Lim et al., 2018; Olsson et al., 2019; Siorescu et al., 2011; Weber and Badenhorst-Weiss, 2018). In comparison to the product used by Joyce and Paquin (2016), the value created (and supposedly captured) is more complex for grocery LML, in which both delivery and product bundle characteristics might influence the SBM’s horizontal and vertical coherence.

2.1. The importance of coherence within and between layers

While horizontal coherence is concerned with how each layer (economic, environmental, and social) is holistically viewed and interconnected on its own, vertical coherence concerns how value created within each layer are interconnected to each other (Joyce and Paquin, 2016; Svensson et al., 2018). A direct relationship between different components within layers are formed by a firm’s activities (Joyce and Paquin, 2016) and achieving coherence can be described as when a win-win situation occurs (Boons et al., 2015). The potential discrepancy in product/service value would allow venues to develop the value proposition (Breuer et al., 2018) by considering value created throughout the layers and whether it is uncaptured (surplus, absent, missed, or destroyed) (Yang et al., 2017). The value creation and capture process, and a lack of coherence, can thereby explain the discrepancy between retailer intention and low customer acceptance.

As the most developed part, the economic layer is a natural starting point in the SBM, implying that the value proposition is firstly determined by the horizontal coherence of hard components (activities, resources, revenues, and costs), and soft components (partners, value proposition, customer relationship, channels, and customer segments). Given its theoretical assumptions, a firm’s value creation process should lead to profit (Osterwalder and Pigneur, 2010), potentially by balancing other types of goals (Osterwalder and Pigneur, 2011).

Regarding retailer vis-à-vis customers, soft components could theoretically be related to customer experience and the firm’s ability to build feasible business relationships, while hard components relate to the firm’s possibility to harvest economical value based on customer experience. Research has shown that grocery LML implies managing the operational cost of service solutions, including: missed deliveries or cost of return (Dell’Amico and Hadjidimitriou, 2012; Panakitti and Tankasen, 2002); delivery mode flexibility (attended, unattended, or click and collect) (Frehe et al., 2017; Seghezzi and Mangiaracina, 2020); delivery time velocity (same day, next day, or two or more days); time slot flexibility (specific or undefined); or delivery area (local, regional, national or international) (Hübner et al., 2016). The latter is crucial when customers evaluate an online value proposition (Vakulenko et al., 2019).

Noteworthy though is a lack of research on product bundle characteristics throughout the literature.

Regarding vertical coherence between other layers (environmental and social), Svensson et al. (2018) study indicate that the economic layer most likely influences the social layer, and the social layer influences the environmental layer. Hence, the social layer could potentially function as a mediator steering the value captured by the LML of groceries. Being dependent on customer acceptance of flexibility and transparency (Rai et al., 2021), crowd logistics, connected to the end-user community in solving the last-mile delivery, is suggested as lowering costs (Frehe et al., 2017) and environmental impact (Seghezzi and Mangiaracina, 2021). Thus, the customer could be a facilitator in achieving vertical coherence of delivery itself, through the social stakeholder layer, since its hard components relate to governance, employees, social benefits, and social impacts, while soft components relate to local communities, social values, societal culture, scale of outreach, and end-user. In comparison, environmental layer hard components relate to production, materials, environmental benefits, and environmental impact, while soft components relate to supplies and outsourcing, functional value, end-of-life, distribution, and use phase.

2.2. Coherence as bi-directional interconnections

Fig. 1 is a development to illustrate a bi-directional assumption of how vertical and horizontal coherence could be interconnected. Following Joyce and Paquin (2016) and Osterwalder and Pigneur (2010), it is assumed that the whole layer, i.e., the horizontal coherence, is of relevance to determine the vertical coherence between the layers in a value creation process. However, given that the interrelationships between different layers are somewhat unclear (e.g., Svensson et al., 2018), the bi-directional arrows illustrate fluent interconnections in which no one layer is more important than the other.

Precise relationships between, or within, the three layers is debatable. While the underlying assumption of vertical coherence as casual relationships between layers is not evident in the literature, neither is whether a potential overlap between components within layers occurs vertically or horizontally, i.e., a division made between, for example, soft and hard components are not mutually exclusive. However, certain conceptualizations indicates that the former is of intangible nature in terms of experience, while the latter is of tangible nature in terms of resource usage. Given previous research, it is plausible to assume that vertical coherence is reached by how decisions are made and why by a value creating actor and that this connects layers and their inherent
components. For example, one can assume that activities in the social layer are naturally connected to activities a firm do in the economic layer, given that the reason for offering a certain product/service is based on reaping benefits from each layer.

As such, a bi-directional relationship is identified by the assumption that why and how retailers and customers decide to perceive, offer, and buy the product/service at focus would lead to identifying how horizontal and vertical coherence is displayed. Following Svensson et al. (2018) study, the social layer becomes a mediating layer since grocery LML are partly driven by customer demand and expectations, making the customer primarily a social stakeholder. Similar bi-directional connections are plausible to assume when horizontal coherence is displayed. For example, decisions and activities concerning partners can be assumed to shape the resources used, while, in turn, the choice of partner can be assumed to be shaped by resources available. Using the dual perspective of retailers and customers, the assumption is that coherence is derived from decisions that creates bi-directional interrelationships within and between layers. This allows for a deeper understanding of if and why captured or uncaptured value arises.

3. Methodology

To explore how a SBM for grocery LML can be developed, and to identify potential uncaptured values that creates discrepancies, this study applies a qualitative case study approach that includes three retail firms and four customer focus groups. The advantage with our approach, compared to previous case and design studies (Baldassarre et al., 2017; Bocken et al., 2019; Breuer et al., 2018; Geissdoerfer et al., 2016; Joyce and Paquin, 2016), is that the value creation intended from the grocery retail firm and received by the customers can be empirically connected. This allowed us to explore and identify uncaptured value that arises due to discrepancies within and between grocery LML SBM layers.

3.1. Retail firms and data collection

To obtain an in-depth view on available LMLs value propositions on a market, three Swedish grocery firms were selected (see Table 1). By triangulating different data sources, Yin (2009) argues that multiple cases can provide a rich context of a phenomenon and thereby a rich description of a holistic value proposition. Retailer 1 belongs to a leading retail chain in traditional retailing in Sweden. Retailer 2 belongs to a smaller retail chain in traditional retailing in Sweden. Retailer 3 is an entrepreneur within grocery production, operating in a special niche of high-quality local products offered only on the local market (>200 km radius from production center). While being of different sizes and having different resources available, all three firms offer a LML value proposition on local, rural level. According to LML literature, it would be difficult to harvest financial value here due to its rural constraints (e.g., Boyer et al., 2009).

Data collection was made through repeated semi-structured interviews with the retail managers and secondary information (website information and sustainability reports, if available). Interview questions was thematically structured around Joyce and Paquin’s (2016) framework and focused on the firm’s setup and reasoning behind the LML value proposition (see Appendix A). Website data and sustainability reports concentrated on sustainability information and value proposition transparency. Understandably, there was less secondary information for Retailer 3, due to firm characteristics (e.g., no sustainability report was available, and the website was less developed). Notes taken during the interview were merged with secondary information.

Table 1. Characteristics of selected firms.

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<tr>
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<th>Retailer 1</th>
<th>Retailer 2</th>
<th>Retailer 3</th>
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<tbody>
<tr>
<td>Ownership structure</td>
<td>Franchise</td>
<td>Family</td>
<td>Family</td>
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<tr>
<td>Markets</td>
<td>Nordic</td>
<td>National</td>
<td>Local</td>
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<td>Physical store format</td>
<td>Variation</td>
<td>One</td>
<td>Limited</td>
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<td>Online store</td>
<td>Assemble your own bag</td>
<td>Assemble your own bag</td>
<td>Pre-assembled bags</td>
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<td>Delivery alternatives</td>
<td>Click-and-collect</td>
<td>Home delivery</td>
<td>Home delivery</td>
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3.2. Focus groups constellation and data collection

To obtain an understanding of how customers view LML of groceries, focus groups were conducted in parallel to data collection from the retail firms.

Focus group participants with experience of online shopping were strategically sampled from the same primary market area as Retailer 3 to adhere to the rurality complexity. Participants were divided into age groups for the focus group occasions (see Table 2). They were first contacted via email and, if agreed to participate, provided with additional information of when and where focus groups were taken place (see appendix B). Group 1 and 2 had previously participated in a research project. Several participants in Group 2 also had professional experience working with logistical issues. Group 3 included participants from academia, teaching business modeling and similar topics. Group 4 included participants that recently moved from the parental home and was currently establishing their own households. As such, the focus groups represent different consumer segments and communities, allowing for a diverse perspective on grocery LML value proposition. Reimbursement for participation was passed on to a local non-profit organization (c. 25 Euro/person).

To ensure data quality, the focus group interviews were conducted by the same two researchers together during a relative short time (April–May 2017). Questions were open-ended, prompting participants to consider their online shopping behavior and discuss their views on LML value proposition. The same questions were asked in all focus groups and were aimed at understanding the participants willingness to “purchase” grocery LML and what was considered as an attractive/non-feasible solution (see appendix B). To keep the discussion focused and ensure that all participants were heard, researcher moderation was done by backtracking to previously raised points by one researcher (Krueger and Casey, 2015) while the other took notes. They were on average ~69 min each, which provides a valid empirical substance on how individuals’ reason. To increase the quality when processing the data, the focus groups were audio-recorded and transcribed by a third-party professional transcriber (with expertise in focus group transcriptions).

3.3. Data analysis

Since the framework of SBM has developed over time (see e.g., Bocken et al., 2019; Geissdoerfer et al., 2018; Joyce and Paquin, 2016), the economic, environmental, and social layers is the theoretical starting point for analysis to validate or develop the understanding of coherence, or lack thereof. Given SBM established conceptualization, a direct content analysis approach was used. By analyzing empirical data via a directed content analysis (Hsieh and Shannon, 2005) theoretical concepts (e.g., economic layer) and its components (e.g., resources) guided the analysis.

In practice, the directed content analysis takes a three step approach when analyzing the data using Fig. 1 (Chapter 2.2) to allow for a further description of horizontal and vertical coherence. Firstly, findings from

<table>
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<th>Economic business model layer</th>
<th>Environmental business model layer</th>
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<td>Supply and sustainability</td>
<td>Production, distribution &amp; disposal</td>
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<tr>
<td>Functional value</td>
<td>Energy efficiency, environment, carbon footprints</td>
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<tr>
<td>End-of-life</td>
<td>Material and energy efficiency, environment, carbon footprints</td>
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<tr>
<td>Product cost</td>
<td>Environmental benefits</td>
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Note: Findings in underlined italics derived from the focus groups, otherwise from the retailers.

Fig. 2. Findings on the different layers of the SBM
Note: Findings in underlined italics derived from the focus groups, otherwise from the retailers.
the firms’ and focus groups are presented in a descriptive nature in chapter 4. Secondly, chapter 5.1 provides a summary of the findings in Fig. 2, in which each different theoretical components within Fig. 1 are used to form Fig. 2. This is then discussed in relation to horizontal coherence in Chapter 5.1. Hence, Fig. 2 corresponds to the direct content analysis of each layer (economic, environmental, social), allowing for an initial discussion of horizontal coherence within a layer. Thirdly, Fig. 2 provides the foundation to identify and discuss vertical coherence (Chapter 5.2) and potential discrepancies within and between layers (Chapter 5.3). Identified vertical coherence, i.e., one-directional, or bi-directional relationship between two or three different layers, are illustrated in Fig. 3 (Chapter 5.2).

4. Findings

4.1. The retailers’ last-mile business model

The retailers believe that the core value proposition resides in pre-assembled grocery bags, containing ingredients and recipes, in combination with customer saving time. Grocery LML home deliveries are believed to lower traffic and CO₂ emission due to a decrease in the number of individual customer shopping trips. However, no retailer runs a profitable LML on their own, despite the value created. All retailers use omnichannel solutions where sales of pre-assembled, or customer-assembled, grocery bags are connected to the individual store, but with varying degrees of control in what is offered (e.g., website, delivery options). Only Retailer 3 has unlimited freedom to make decisions related to the value creation process.

The LML value proposition is mainly offered to safeguard market position. Regarding market shares, Retailer 1 holds 50% of the market in Sweden with their current omnichannel model and is the market leader, but delivered grocery bags are only a small part of the offering. Retailer 2 holds 7% of the Swedish market, while Retailer 3 is a small retailer located in a rural farm-like area in a niche market. The last mile value proposition is not the main business foci for Retailer 2 but rather a food delivery. The customer is obliged to pay the cost price of unreturned, reusable boxes (≈ cost of goods).

4.2. Customer perspective on SBM components

Focus group discussions mainly concerned the economic business model, focusing on value proposition, delivery solutions, and willingness-to-pay. While most individuals had experience purchasing products online, few had tried grocery LML. Instead, they preferred to purchase groceries in the store, due to the ‘touch, feel, and smell’ shopping experience, or using the click-and-collect option. The focus group suggests that product type (durable vs. non-durable goods), rather than delivery solutions, drives shopping preferences.

The focus groups advocated that the solution needs be custom-tailored to the individual needs to be perceived as an optimal delivery. But to be environmental feasible, this should be coordinated and linked to the individual’s normal car route. Individual consumption behavior is considered important, especially from an environmental perspective, since grocery shopping occur several times a week, often by car, and pre-assembled grocery bags could counteract food waste. Delivery facilities and product storage solutions are important for product quality since grocery products are sensitive to delivery and requires different temperatures for different products. Thus, unattended deliveries are perceived unfeasible (risk of mammals “snacking”, weather conditions, perishable product characteristics etc.). Potential technical solutions to address this (e.g., private delivery boxes, access to cold storage in the house) were considered a breach of personal space by most participants.

Focus group discussions indicated clear resistance to purchasing groceries LML for home delivery, as local produce was not included, and...
local farming were considered important for the value proposition. Interestingly, participants perceived a higher degree of product quality trust if the product was produced locally. In addition, local product consumption was preferable since it contributes to the local economy and joining local networks where a person delivers produce from a local farmer, rather than the opposite, was perceived beneficial.

There are no indications that the focus groups prefer click-and-collect to home delivery (or vice versa). However, click-and-collect was understood as problematic, for instance, if a parcel size was larger than expected. Click-and-collect was considered the most feasible option (time and money-saving), where drive-through solutions could be a flexible and convenient solution. Generally, the focus groups agreed that failed/ slow/late deliveries were unacceptable (given the delivery window). Regarding optimal delivery, a narrow pre-determined delivery window (1–3 h) after 4.00 p.m., with a 30–60-min notification window, was preferred. A pre-determined delivery window, without notification, is considered unreasonable, while no pre-determined delivery window needs to have a (longer) notification time. As a possible delivery window communication solution, the group discussed mobile applications/texts for increasing the safety of unattended home deliveries (e.g., by electronic authorization), which should be easy to create at low cost.

In addition, weekend, early morning, or short-order delivery lead times are other valuable home-delivery components raised. For click-and-collect solutions, the current availability (opening hours, queue, and pick-up options) is considered acceptable since it is managed by the individual.

Achieving coordination to one delivery point by multiple firms was considered most environmentally friendly, and potentially the most economical solution. The focus groups tended to see a retailer’s distribution and manufacturer network as key components in solving issues related to failed deliveries, returns, or product damage. However, responsibility is unclear as these issues might be caused by a third-party distributor. Most customers use return solutions if the product ordered is faulty or damaged, which is considered a failure, but return may not be possible with grocery LML. However, when returns are actualized, a personal relationship is activated, and swift solutions are perceived as crucial. Otherwise, personal relationships are relinquished when purchasing products online.

Overall, the focus group discussed grocery LML as unattractive due to current website interfaces being time-consuming, rather than time-saving, and the long order-delivery lead time (next-day delivery not always available). Pre-assembled options are considered less attractive due to restricted recipes and that the full set of products for the recipes are not included. However, not everyone was aware of all available bag solutions (e.g., shop as in-store, or variation in pre-assembled). A few participants had tried, or considered trying, pre-assembled bags due to lack of inspiration, for convenience, and possible monetary gains. The price tradeoff for grocery LML was based on total weight related to price of delivery.

The focus groups considered fixed delivery prices and picking fees as too high and not adapted to delivery distance or delivery weight. A percentage fee, based on total purchase value, as a delivery fee solution was not considered a suitable pricing scheme. However, temporary reservation fees above the actual price as a safeguard for customer total cost experience is perceived positive, with a limit of approx. 5–10 Euro for delivery, and no picking fee for big-box retailers (as Retailer 1 and 2 is). There is an increased willingness-to-pay for home delivery of local produce (possibly double), or customized deliveries, despite the understanding that shortening the supply chain can lead to lower costs for the customer (while maintaining high quality).

The price tradeoff for purchasing grocery LML was based on time saved and customer store proximity. Free deliveries, trial rounds etc., lowered their uncertainty, allowing individuals to evaluate the quality of grocery LML. Regarding willingness-to-pay, participants believe the customer is used to get free offers, which negatively alters willingness-to-pay, regardless of whether the customer’s behavior is economically feasible or not. Online purchases are perceived cost-effective if the individual is an impulse buyer (since the customer is considered more rational online), or if it significantly simplifies the shopping experience (e.g., family with children). From a company perspective, one group questioned offering grocery LML to private persons, since it is not economically feasible or sustainable, regardless of delivery fees charged.

Optimal delivery involves working inconvenient hours, adjusting trade union agreements, organizing working hours to suit demand, and technological solutions. In turn, this likely increases delivery fees. The participants were not interested in workplace deliveries to meet potential customization to lower the delivery fee. It was questioned if legal and security aspects could be followed by those doing the deliveries, since most participants had experienced deliveries not meeting the required legal standards of deliveries (e.g., deliveries being signed off by the wrong persons, delivering unattended even if not permitted). Many of the unattended solutions were deemed unsafe from a privacy data perspective and accountability for faulty/damaged products combined with a failure to meet the delivery window was considered a contractual breach.

5. Discussion

5.1. Horizontal coherence of grocery LML

In Fig. 2, the findings are summarized for each layer and discussed on a general level of horizontal coherence in the text.

It is evident both from the retail firms and the focus groups that when a firm chooses to create this type of value proposition, decisions influence different components of the economic layer. More specifically, the value creation process of grocery LML offers has direct consequences on activities by and resources of the retailer, with increased costs that potential revenues might not cover, given the customer’s accepted price range and price sensitivity that the focus groups suggest. While this does not mirror a win-win situation necessary for achieving coherence (Boons et al., 2013) or resulting in profit (Osterwalder and Pigneur, 2011) it does indicate uncaptured value (Yang et al., 2017) due to price sensitivity.

In addition, the mix of service and bundle components in the value creation process leads to influences outside the sphere of logistics and the grocery bag itself, since there are indications that it taps into the original economic business model, i.e., the physical store, according to the retail firms. Hence, the economic layer for grocery LML, given that activities and resources are in-house, influences the economic business model of the store’s value proposition. As such, the sole focus on operational service solutions for grocery LML (e.g., Dell’Amico and Hadjimitriou, 2012; Hübner et al., 2016; Seghezzi and Mangiaracina, 2020) does not sufficiently explain the degree that the offering influences the retailers’ prior business model.

In the social stakeholder layer, neither the retail firms nor the focus groups establishes clear horizontal coherence of activities made when one considers the dual perspective of retailer and customer in the value creation process. While this indicates no horizontal coherence in the social layer at all (Joyce and Paquin, 2016), the findings indicate that if local farms are included in the grocery SBM, there is a potential to establish horizontal coherence of impact, benefits, and communities as described by Joyce and Paquin (2016). Thus, current uncaptured value could potentially be re-created (Breuer et al., 2018) if the social layer’s components is reconsidered when re-shaping grocery LML offers.

Regarding horizontal coherence in the environmental layer, the functional value influences several components according to the retail firms interviewed. For example, the service solution offer of grocery LML demands a retailer to consider several components (e.g., production, material, end-of-life) in the environmental layer simultaneously. As theorized, it is problematic to determine the causality of how coherence is reached but it is clear from the findings that the environmental layer plays a big role in influencing a firms SBM (see e.g., Biloslavo et al., 2018; Geissdoerfer et al., 2016).
5.2. Vertical coherence of grocery LML displayed

Neither in the interviews or the focus groups are the layers connected in full, i.e., the grocery LML offers lacks, in general, horizontal coherence on all layers. This would, according to Joyce and Paquin (2016) and Osterwalder and Pigneur (2010), prevent the identification of vertical coherence between layers. However, to be able to discuss discrepancies in the value creation and capture process both horizontal and vertical coherence is necessary to understand. Therefore, the following discussion of vertical coherence identifies potential interrelationships between different layers components, rather than the full layers, which deviates from prior research. The identified interrelationships of vertical coherence are visualized in Fig. 3 and consists of three two-layer relationships and two three-layer relationships.

The first two-layer relationship identified is between the economic and environmental layers, by aspects of, for example, costs of material and partner selection to their environmental impact or supplies and outsourcing options (1). As described in interviews and focus groups, the interrelationship is from the economic layer to the environmental layer. While this would create a combination of both soft and hard components in the different layers (Joyce and Paquin, 2016) most are related to grocery LML’s delivery challenges (e.g., Seghezzi and Mangiaracina, 2020) or actor-network coordination, the latter not often used in LML research (Lagin et al., 2022).

The second one identified is between the social and economic layers via employees, social culture, end-users, and governance to costs, revenues, and resources (2). As described in the findings, the interrelationship is from the social layer to the economical. The last two-layer relationship identified is where the scope of outreach in the social layer affects the distribution and environmental benefits in the environmental layer (3). Both last two-layer relationships indicate the social layers mediating possibilities (Svensson et al., 2018), but where the activities that creates a possible vertical coherence from the social layer is often not considered in LML research, but most of the economic and environmental components are (e.g., Olsson et al., 2019; Seghezzi and Mangiaracina, 2021; Sorescu et al., 2011).

Moving to the two three-layer relationships identified, one is one-directional (4), and one is bi-directional (5). The first one starts with a combination of value proposition and channels, which influence the social value, end users, and societal culture. This, in turn, influences the functional value of the product offer. Here, the social layer can function as an important mediator (Svensson et al., 2018) and that it is the value component per se that primarily connects the layers.

The bi-directional relationship shows a connection between revenues, materials, and production on one hand, and materials, production, end users, and societal culture on the other hand. The bi-directional nature is based on that the there are no notable differences in the findings of which layer the value creation process starts or in which layer it finishes. Given that interrelationships usually are considered unclear (Svensson et al., 2018) identifying only one link of vertical coherence that is bi-directional between components indicates the possibility to develop grocery LML by broadening the scope of what LML entails (e.g., Lagin et al., 2022; Lim et al., 2018; Olsson et al., 2019).

These examples can relate to how vertical coherence can be displayed. As indicated, the social layer can function as mediator that creates bi-directional relationships in the SBM for grocery LML (compared to e.g., Svensson et al. (2018)). Hence, vertical coherence between the layers of a LML SBM can be assumed to be driven by perceived social value rather than the perceived value proposition, but does not necessarily include environmental considerations.

5.3. Discrepancies in value creation and expectation

Grocery LML has uncaptured value for the individual customer, starting already in the intended customer segment, which indicates an absence of value (Yang et al., 2017). As a result, harvesting any value becomes impossible. As is evident from the findings, when an offering fails to create the expected value, a societal stakeholder, such as the customer, do not create the same view of what is being offered and the initial discrepancy in both horizontal and vertical coherence thereby arises from within the economic layer. While this offers a venue to develop the value proposition (Breuer et al., 2018) it is clear that the largest issue resides in customer acceptance (Lim et al., 2018).

In general, it is evident that the value proposition, potentially due to low social value, and consequently functional value, is not built to correspond to customer expectations, and market acceptance is low. The main reasons for this discrepancy reside in that while the firm views delivery solutions, in combination with simplifying grocery purchases, as a matter of convenience, individuals tend to favor the explorative nature of grocery shopping, which is impossible online. In comparison to the product used by Joyce and Paquin (2016), this issue is inherently linked to grocery product characteristics, which is not easily solved since it concerns an individual’s senses. However, with an increased focus on delivery areas (Hübner et al., 2016) the need to ‘touch, feel, smell’ might be counteracted if local awareness and social benefits are highlighted in the value creation.

Another important discrepancy that prevents value capturing (Yang et al., 2017) and a win-win situation (Boons et al., 2013) relates to the societal cultural assumptions made by firms and those expressed by focus group participants. While firms assume society as being more convenient in their choices, individuals instead express a view of safeguarding their own decisions. Albeit recognizing the potential of convenience, individuals are more likely to make these decisions based on information given and ensured quality. It is difficult that an increase, for example, in local produce, would enable a change in individual behavior, since it still does not solve their biggest concerns: the explorative feeling and increased quality risk. This view may be further enforced due to discrepancy in delivery options, where individuals’ view of convenience is for a higher degree of customization than the firm might be able to propose. Discrepancy in cultural assumptions and customer expectations can be related to absent or destroyed value in the SBM (Yang et al., 2017), since customers tend to miss important characteristics of the value proposition or are dissatisfied with the product and its end delivery. This indicates that when viewing grocery LMLs from the economic layer with a horizontal coherent focus, value is created as and expected to be a balance of quality, quantity, and price (Q-Q-P), rather than the traditional quality vs. price argument, which current LMLs tend to be based on (e.g., Belavina et al. (2016); Lagin et al., 2022; Lim et al. (2018); Weber and Badenhorst-Weiss (2018).

6. Conclusion

This study explored how a SBM for grocery LML could be created and how discrepancy of value created, and value expected, is displayed. Creating a SBM is still hindered by feasible solutions in establishing horizontal or vertical coherence, potentially due to low customer acceptance. One problem in creating vertical coherence is that grocery LML offerings has not created value for the individual, therefore harvesting value is impossible. When an offering fails to create the expected value, societal stakeholders do not share the same view of what is being presented. Further, environmental concerns do not add to the value creation process, despite an understanding that current consumption is not sustainable in the long-term.

6.1. Contributions and future research

This study contributed to the understanding of the grocery LML value creation process by using SBM as arising from dual perspectives: firm vis-à-vis customer. In doing so, we extended SBM models’ (Joyce and Paquin, 2016; Osterwalder and Pigneur, 2010) to be context-sensitive (Breuer et al., 2018; Zhu et al., 2018). This allowed us to identify discrepancies between SBM layers and for them to be theorized as
occurring from firm and customers decisions. 

In line with Baldassarre et al. (2017), our study explains and identify that the discrepancy in the grocery LML’s SBM depends on the perceived value proposition of the product bundle and service solution payoff. As such, avoiding uncaptured value (Yang et al., 2017), which is the result of a discrepancy, or creating a competitive advantage (Boons et al., 2013), is in this study indicated to occur primarily when firms and customers have different understandings of the economic layer and if the social layer is ignored.

Due to the study’s explorative nature, we suggest future research to deepen the understanding and explanations of the discrepancies that occur in grocery LML by using, and potentially develop, our context sensitive SBM. In addition, the logic behind the discrepancies has a potential to be transferred to other food home delivery solutions, like social layer is ignored.

Furthermore, the logic behind the discrepancies has a potential to be transferred to other food home delivery solutions, like social layer is ignored. Such, avoiding uncaptured value (Yang et al., 2017), which is the result of a discrepancy, or creating a competitive advantage (Boons et al., 2016). This is an eco-critical perspective on business models: the value triangle as an approach to closing the sustainability gap. J. Clean. Prod. 174, 746–762. https://doi.org/10.1016/j.jclepro.2017.09.011.


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