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Strategic Capabilities in Sustainability-oriented Value Chains in the Northern German Agri-Food Ecosystem – a Natural-Resource-based View Perspective**

Abstract

This research is about the strategic capabilities and resources of sustainability-oriented businesses in the agri-food sector. We apply the lens of the natural resource-based view (NRBV) to two exemplary value chains in the Northern German agri-food sector. First, we explore the position of the focal firm, its suppliers, buyers and collaboration partners in the agri-food chain to reveal their relationships and interconnections. Responding to a call by McDougall et al. (2019) for more research on the manifestation of NRBV resources in different contexts, we show how small enterprises employ capabilities that facilitate environmentally and socially sustainable economic activity. Among others, stakeholder alignment on environmental and/or social sustainability is found crucial in the investigated value chains. Local philanthropy and product stewardship are found to be highly related, and both enhance reputation and legitimacy, enabling differentiation through the integration of stakeholders and social support. The paper culminates in an extension of the NRBV conceptual framework.

Keywords: Natural-resource-based view, value chains, agri-food ecosystem, sustainability, case study, strategic capabilities
(JEL: M10, Q01, Q20)

Introduction

Generally, the food sector has a negative impact on the environment and is one of the main climate sinners, with a contribution of almost one-third to global greenhouse gas emissions (European Commission, 2023c). The European Green Deal is an initiative of the European Commission aiming to transform Europe into the first climate-neutral continent by 2050 (European Commission, 2023b). Sustainable food systems are the core of this initiative (European Commission, 2023a). Therefore, it is relevant from different perspectives to investigate agri-food systems regarding sustainability (Desa & Jia, 2020, pp. 1207–1208). Sustainability

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is a highly relevant topic in the field of strategy (Cantele & Zardini, 2018; Danso et al., 2019; George et al., 2021; Hart et al., 2016; Husgafvel et al., 2018; Roxas et al., 2017; Walsh & Dodds, 2017).

This relevance is reflected in many recent contributions to research on agri-food systems with a focus on different country contexts and different parts of the agri-food ecosystem (Camanzi & Giua, 2020; Cronin & Halog, 2022; Scalvedi & Saba, 2018; Truant et al., 2019; Wu & Huang, 2018; Zhuo et al., 2021). We want to complement this research and are interested in identifying and assessing the underlying resources and capabilities of small sustainability-oriented businesses in the agri-food ecosystem in Northern Germany. Thereby, we link into strategic management as a discipline dealing with value creation on the basis of resources and capabilities (Barney, 1991, 2018; Collis & Montgomery, 2008; Peteraf, 1993; Peteraf & Barney, 2003) that considers the inter-organizational nature of competitive advantage (Dyer & Singh, 1998; Dyer et al., 2018; Gulati, 1999; Lavie, 2006). The research gap we want to address with this paper lies in lacking knowledge about valuable resources' orchestration and strategic capabilities of sustainability-oriented activities in the agri-food sector (McDougall et al., 2019, p. 1379) and beyond (Ashby, 2018, p. 706). Research concentrating on specific industry contexts may enable deeper insights into the potential effects of sustainability-oriented practices on competitive advantage (Govindan et al., 2020, p. 14).

We choose the natural-resource-based view (NRBV) as the theoretical lens for the investigation of two sustainability-oriented value chains in the Northern German agri-food ecosystem: With the NRBV, Stuart L. Hart (1995) wanted to fill the void left by the classical resource-based view of the firm (e.g., Barney, 1991) which does not consider the impact of firm activities on the natural environment. The focus of the NRBV is on resources and capabilities as a source of competitive advantage through sustainable operations. Hart and Dowell (2011) suggest four key resources to be considered: continuous improvement, stakeholder integration, disruptive change and embedded innovation. These resources are the fundament for establishing four strategic capabilities: pollution prevention, product stewardship, clean technologies, and base of the pyramid. In a recent investigation of the UK agri-food sector, McDougall et al. (2019) have come up with a fifth strategic capability, namely local philanthropy.

With our work, we respond to a recent call for more qualitative research on the existence and manifestation of NRBV strategic capabilities and their underlying resources in different contexts (McDougall et al., 2019). Moreover, we aim to enhance our understanding of local philanthropy and how it is connected to the capabilities and resources needed for effective product stewardship (Hart & Dowell, 2011, p. 1475; McDougall et al., 2019).

We use the NRBV to better understand the underlying resources and capabilities of small (sustainability-oriented) enterprises and are therefore interested in exploring

the manifestation and interconnectedness of NRBV resources and strategic capabilities within and across firm boundaries. We ask two questions: (1) How do small enterprises employ resources and capabilities that facilitate environmentally and socially sustainable economic activity? And (2) how NRBV resources manifest and interconnect within and across firm boundaries.

The remainder of this paper is structured as follows: In the next sections, we reflect on the relevant literature and develop the conceptual fundament for the investigation of NRBV resources in our case analyses. It follows the description and justification of the chosen case study research strategy. Subsequently, findings are presented. The paper concludes with a discussion and concluding remarks.

NRBV Literature Review

Stuart L. Hart was an early management scholar who demanded that the natural environment be taken into account when developing a strategy. In 1995, he suggested that it was "[…] likely that strategy and competitive advantage in the coming years will be rooted in capabilities that facilitate environmentally sustainable economic activity" (Hart, 1995, p. 991). This initiated the NRBV that till today inspired many empirical studies and was continuously extended (e.g., Graham, 2018; Aragón-Correa & Sharma, 2003; Miemczyk et al., 2016; Camanzi & Giua, 2020; Chen & Kitsis, 2017; Govindan et al., 2020; Li et al., 2018; McDougall et al., 2019; Miemczyk & Luzzini, 2019).

To specify the NRBV fundament, Hart (1995) builds on the understanding, taken from the resource-based view of the firm as shaped by Barney (1991) and others, that businesses may generate sustained competitive advantage when they own resources that are "valuable and non-substitutable" as well as "either *tacit* (causally ambiguous), *socially complex*, or *rare* (firm specific)" (Hart, 1995, p. 998).

Hart (1995, pp. 998–999), in addition, suggests taking external requirements for firms into account, such as social legitimacy and reputation, making it necessary to include cooperative activities in the analysis as well as the (institutional) environment into which firm activities are embedded. Building on the NRBV and a review of the dynamic capabilities literature, Graham (2018, p. 285) suggests that "it is of interest to consider how companies progressively develop their environmental capabilities" as a reaction to pressures from outside the firm.

In the 1995 version of the NRBV, Hart (1995) suggested propositions related to pollution prevention, product stewardship and sustainable development and their interconnectedness. Pollution prevention is reflected in continuously improving used equipment and technology to save costs and, at the same time, act in an environmentally sustainable fashion. Regarding product stewardship, the point of reference is the integration of relevant stakeholders, especially "integrating the 'voice

of environment'" (Hart, 1995, p. 993) when products are developed, produced and sold, i.e., covering the whole lifecycle.

A sustainable development strategy is "not merely seek[ing] to do less environmental damage but, rather, to actually produce in a way that can be maintained indefinitely in the future" (Hart & Dowell, 2011, p. 1466) including social, economic, and environmental factors, also in a global perspective. Therefore, Hart and Dowell (2011) added clean technology and base of the pyramid to substitute as well as to specify the capability of sustainable development. A deficit of the NRBV was identified with regard to "knowledge about parameters for successfully integrating business, poverty alleviation and sustainable development" (Hart et al., 2016, p. 401).

The strategic capability of pollution prevention is less complex than product stewardship, which in turn is less complex than sustainable development (Hart, 1995). Path dependency is a relevant intrinsic property of resources (Collis & Montgomery, 2008), preventing imitation by competitors, and underlies these strategic capabilities in the sequence mentioned before (Hart, 1995, p. 1005). Thus, the value of a bundle of resources would increase over time when an actor develops one of these capabilities after the other. At the same time, path dependency may lead to lock-in situations with regard to old technology, so a pure sequential approach starting with pollution prevention and then leading to product stewardship would not be sufficient in all constellations. Therefore, embeddedness should be taken into account next to path dependency, including the idea that a shared vision of sustainability may orchestrate the development towards a more sustainable business model from the beginning (Hart, 1995, pp. 1007–1008).

With regard to the underlying resource-based reasoning of the NRBV, the dynamic capabilities perspective (Teece et al., 1997), as an extension of the resource-based view, has been used to better understand sustainability-oriented capabilities (Wade et al., 2022). This fruitful complement (Hart & Dowell, 2011) has been used to further develop the NRBV (Aragón-Correa & Sharma, 2003; Miemczyk et al., 2016). Using Dyer and Singh's (1998) relational view to extend the NRBV was identified as a research deficit (Miemczyk et al., 2016, p. 466). Recently, the first studies included inter-organizational resources and capabilities and networking relationships (Camanzi & Giua, 2020; Chen & Kitsis, 2017; Miemczyk & Luzzini, 2019).

Empirical work on the NRBV is mainly reflected in studies with a focus on pollution prevention (Hart & Dowell, 2011), while "research on the NRBV capabilities of product stewardship and sustainability is nascent" (Ashby, 2018, p. 706). This reflects the need to include inter-organizational resources and capabilities in our understanding since actors have to interact and coordinate their activities to achieve sustainability along the whole value chain by integrating different stakeholders.

Sustainability can be understood as depending on all activities necessary to bring a product or service to market or as Li et al. (2018) conclude from their quantitative study of the impact of the competitive environment on green market orientation of firms based on an NRBV reasoning: "Indeed, a high level of environmental performance by a focal firm can be wholly undermined by its suppliers' poor environmental management" (Li et al., 2018, p. 930). That implies the consequence that resource analysis has to transcend firm boundaries: "Product stewardship extends the environmental perspective to the entire value chain to include internal and external stakeholders" (Ashby, 2018, p. 703).

The current NRBV literature reflects the connection between the sustainability-oriented NRBV and the investigation of value or supply chains. Miemczyk et al. (2016) give an overview of the literature linking the NRBV and closed-loop supply chain management and, in this context, provide informative conceptualisations of value creation. Studies in the field of green supply chain management use the NRBV perspective (Ashby, 2018; Yunus & Michalisin, 2016). Competitive advantages in this context are often regarded as being connected to pollution prevention and product stewardship in sustainable supply chains (Govindan et al., 2020).

McDougall et al. (2019) identify local philanthropy as a relevant strategic capability in a recent empirical study of the UK agri-food sector. Local philanthropy reflects the relevance of being connected with the local community in terms of supporting social issues of relevance (McDougall et al., 2019). Thus, in a way, local philanthropy is considering the local aspects of the base of the pyramid instead of the global ones. The term local philanthropy is understood as referring to "small towns and villages" as well as "support of social issues in such markets, namely fair treatment of farmers, animal, welfare, food poverty, health, sponsorship and charities, employee rights and social rehabilitation" (McDougall et al., 2019, p. 1376).

NRBV Conceptual Framework

In the following, we bring together the relevant reasoning of the NRBV to form the conceptual fundament for our study by linking into the NRBV conceptualisation of strategic capabilities, key resources and competitive advantage suggested by Hart and Dowell (2011) and McDougall et al. (2019).

The resources 'continuous improvement', 'stakeholder integration', 'disruptive change' and 'embedded innovation' in Hart and Dowell's (2011) version of the NRBV are the fundament for establishing pollution prevention, product stewardship, clean technologies and base of the pyramid as strategic capabilities of relevance in the NRBV reasoning.

When a company, for instance, is able to reduce energy consumption, it prevents pollution but at the same time can save cost. Here, no trade-off between economic

and ecological sustainability occurs. This part of Hart's (1995) conceptual framework thus deals with efficiency-related advantages or put differently 'win-win-situations' for businesses and society since businesses are motivated to save cost without any extra rules or incentives to do so. However, only when efficiency implies less use, this leads to a satisfying result regarding the achievement of environmental aims (Koh et al., 2017, p. 1524). Further, pollution prevention can obviously come with additional costs when, for instance, extra effort has to be put into separating waste.

The strategic capability of product stewardship acknowledges that sustainability does not end at the boundaries of one organisation but links into the whole value chain (Hart, 1995, p. 993) and may enable competitive advantage in terms of differentiation advantage in the eyes of the final customers in the here investigated context.

It appears to be especially relevant to consider how the different strategic capabilities work together – complement and reinforce each other from a strategic perspective. Therefore, we take product stewardship as our starting point into which pollution prevention is interconnected. This approach facilitates considering all value chain activities necessary to bring a product to market and thereby focusing on the process of value creation and its effects on firm performance in an economic, environmental, and social sense. Some studies rather investigate 'process stewardship' to highlight that the process is more at the core of the investigation than the product as such (Graham, 2018, p. 286). This is one of our points of reference.

In addition, sustainable development as the strategic capability that was part of the original NRBV conceptualisation may be reflected in a regionalisation with regard to partners in value chains in agri-food ecosystems in order to come to "a strong sense of social-environmental purpose" (Hart, 1995, p. 1002). Linked to a sustainable development capability are potentially game-changing innovative (and clean) technologies (Hart, 1995, pp. 1003–1004). We do not consider base of the pyramid that only plays a minor role when analysing local food chains in the global North as we do. What fits better into our conceptualisation is local philanthropy, as suggested by McDougall et al. (2019).

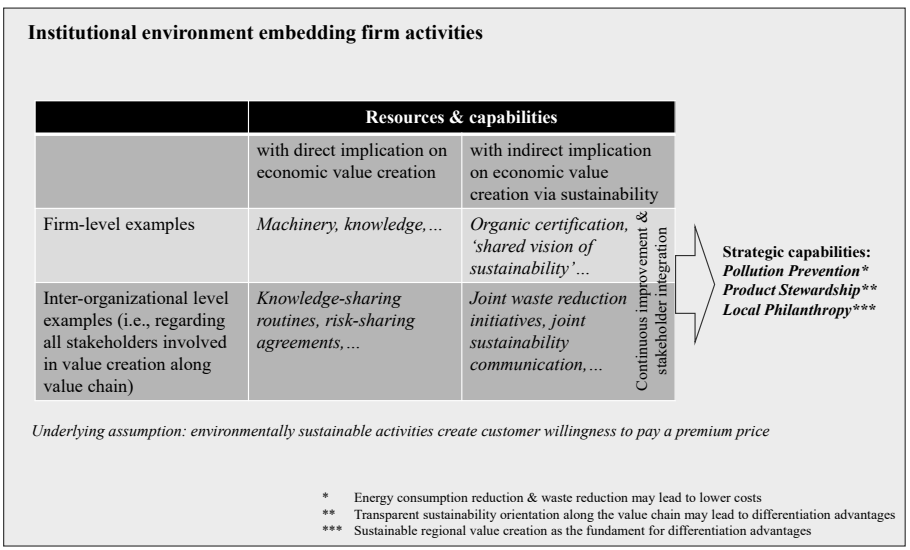
We choose the natural-resource-based conceptual fundament summarised in Table 1 as our theoretical lens for the investigation of two sustainability-oriented value chains in the Schleswig-Holstein agri-food ecosystem. The summary in Table 1 suggests that the different resources and capabilities investigated may be the source of different types of competitive advantage in the conceptualisation of the NRBV. Figure 1 brings together the NRBV reasoning and reflects our conceptual fundament.

Table 1. The Natural Resource-based Conceptual Fundament Underlying Our Study

Strategic capability	Societal driving force	Key resource	Competitive advantage
Pollution prevention	Minimise emissions, effluents, and waste	Continuous improvement	Lower costs
Product stewardship	Lower product life cycle cost	Stakeholder integration	Reputation/ legitimacy
Clean technologies	Make quantum-leap improvement	Disruptive change	Future position
Local philanthropy	Alleviation of domestic social ills	Social support	Differentiation/ reputation

Source: Table (structure and rows 1–3) by Hart and Dowell (2011, p. 1472), row 4 based on the work of McDougall et al. (2019).

Figure 1. NRBV-based Conceptual Fundament of Our Study



Source: Adapted from so far cited literature.

Methodological Framework

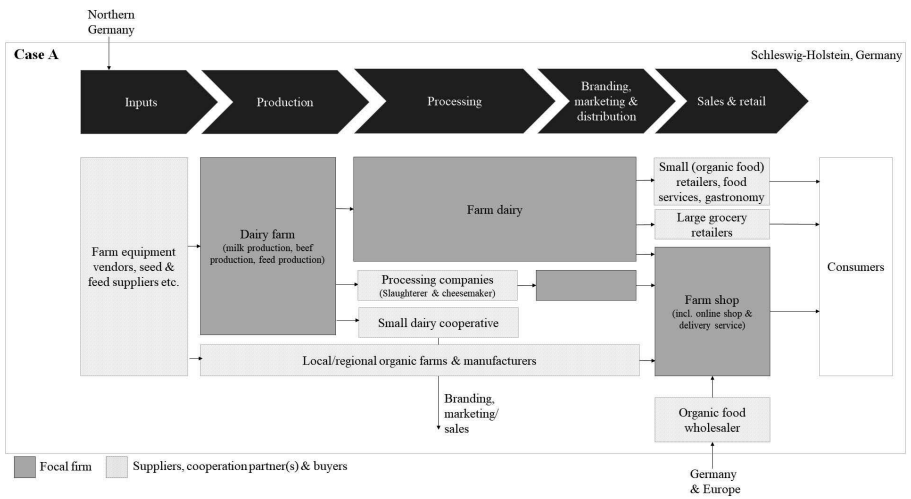
Next, the methodological framework for the NRBV-based analysis of two value chains from the agri-food sector is described and justified. Due to the aims of this research and following the suggestions by Hamdoun (2020) and McDougall et al. (2019), we regard a qualitative case study as an adequate research strategy.

Data have mainly been collected by conducting semi-structured interviews with owner-managers, co-founders and managerial employees of the focal firms and their cooperation partners along two exemplary value chains. The agri-food value chain consists of inputs provided by seed growers and fertiliser producers and the four

value chain activities: (1) production, (2) processing, (3) branding, marketing and distribution, and (4) sales and retail. We first selected two small companies which were characterised by an orientation towards sustainability and took them as our focal firms. We then used value chain mapping to explore their position and to identify suppliers, buyers, and cooperation partners who were interviewed. Both focal firms are in the organic food sector and are located in the German federal state of Schleswig-Holstein. Their suppliers, buyers and cooperation partners are also located in Northern Germany.

Figure 2 and Figure 3 display the position of the focal firms and their suppliers, cooperation partners and buyers in the agri-food value chain.

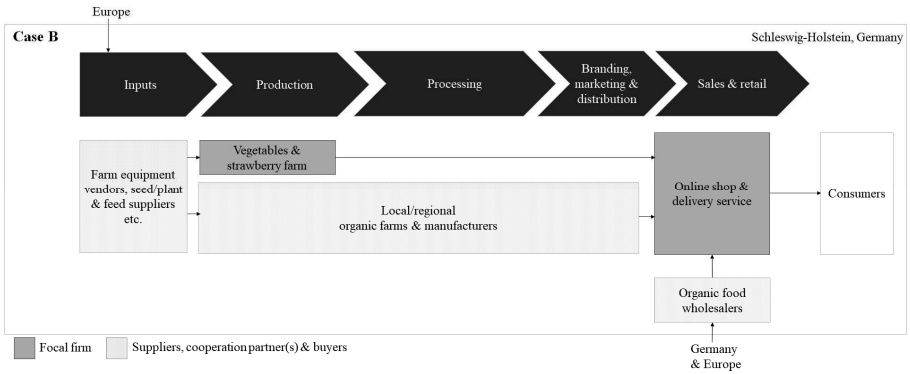
Figure 2. Case A: The Position of the Focal Firm and Its Cooperation Partners in the Agri-Food Value Chain



Source: Own compilation based on case study data.

We sent the interview guide to the interviewees in advance. Instead of using the NRBV as the basis for creating the interview guide, questions revolved much more generally around competitiveness, relevant resources, and the impact of the COVID-19 pandemic. This had the effect of not leading the responses and eliminating misunderstandings due to terminology from the outset. In total, 13 interviews were conducted on the phone, via video conference or face-to-face in 2021 between April 1st and May 27th. Interviews lasted between 48 and 105 minutes (see Table 2). Further, we visited the focal firm of Case A to take field notes on October 31st, 2021. In addition, to contextualise the cases, we have collected secondary data from a variety of sources such as newspaper and journal articles and company websites.

Figure 3. Case B: The Position of the Focal Firm and Its Cooperation Partners in the Agri-Food Value Chain



Source: Own compilation based on case study data.

Table 2. Case A & B: Interview Information, Interviewees, Their Positions in the Agri-Food Value Chain and Their Relationship to the Focal Firm

Case A					
No.	**Date**	**Value chain position 0–1–2–3–4**	**Relationship with the focal firm**	**Interviewee**	**Duration (in min)**
#A1	16 April 2021	1,2,3,4	Focal firm	Owner manager & successor (3rd and 4th generation)	58
#A2	21 April 2021	1,2,3,4	Focal firm	Successor (4th generation)	65
#A3	31 March 2021	1,2,3	Supplier (local manufacturer) and buyer (retailer)	Co-founder & owner-manager	55
#A4	12 May 2021	2	Buyer (cooperative)	Co-founder & owner-manager	70
#A5	17 May 2021	2	Cooperation partner (butcher)	Owner manager	48
#A6	19 May 2021	3	Cooperation partner (marketer)	Office manager of the association	48
#A7 (=B6)	20 May 2021	4	Supplier (wholesaler)	Head of organisation and development	50
#A8	27 May 2021	4	Buyer (retailer)	Owner manager (2nd generation)	105

Case B					
No.	**Date**	**Value chain position 0–1–2–3–4**	**Relationship with the focal firm**	**Interviewee**	**Duration (in min)**
#B1	01 April 2021	1,4	Focal firm	Co-founder & owner-manager	67
#B2	13 April 2021	4	Supplier (wholesaler)	Sales and Procurement manager	48
#B3	13 April 2021	1,2,3	Supplier (organic farm)	Owner manager	105
#B4	20 April 2021	1,4	Focal firm	Shareholder (& co-founder & owner manager)	70
#B5	21 April 2021	-	Cooperation partner (personal network)	Owner manager	51
#B6 (=A7)	20 May 2021	4	Supplier (wholesaler)	Head of organisation and development	50

Source: Own compilation based on case study data.

The interviews have been transcribed and uploaded to MAXQDA 2020 software for analysis. The material used for this paper has been translated into English. We follow Kuckartz (2018) in conducting the qualitative content analysis in a multi-step category-building procedure. Coding was deductive and inductive: In a first step, responding to the call by McDougall et al. (2019) for more research on the manifestation of NRBV resources in different contexts, we roughly coded our interview transcripts along the main categories of pollution prevention, product stewardship, clean technologies, and local philanthropy. We used the coding framework of McDougall et al. (2019) (rather than our interview guide) for this purpose.

In the second step, we further developed the categories of the data material. This was followed by a second pass through all the data material. The category-based analysis was oriented toward the competitive benefits associated with individual strategic capabilities; in addition, we considered the respective position of the interview partner in the agri-food value chain. The Table in Appendix A shows a summary of the final category system. The categories provide the structure of the following findings section.

Case A is a dairy farm that is in the 4th generation of family ownership, and Case B is an organic food box delivery company that was established in 2017. Over the past decade, the former (Case A) has forward integrated into processing, branding, marketing, distribution, sales, and retail. Today, it operates a farm dairy, a farm shop, an online shop and a delivery service. It has suppliers of dairy equipment, farm equipment, seed and feed suppliers, and organic food suppliers. Cooperation partners are processing companies such as a butcher, a cheesemaker, and regional marketers. Most of its EU bio-certified products – pasteurised milk, dairy products and beef – are sold to private households, kindergartens, cafés and organic and non-organic food retailers in the farm's catchment area (in a radius of approx. 20

kilometres). Some of the raw milk is sold to a small dairy cooperative. Since the mid-1990s, the farmers have started to be increasingly committed to sustainable farming; this was emphasised by the successor, who has come up with a range of new projects and activities. Today, the farm has 32 employees (part-time and full-time). The latter (Case B) is an organic food box delivery service that is integrated backwards into production. It operates a delivery service, an online shop, and a vegetable and strawberry farm. It has suppliers of farm equipment, plant suppliers, and organic food suppliers, and it directly sells to consumers. The delivery service has 38 employees working both part-time and full-time.

Table 3. Case A: Focal Firm Information

Establishment of the	
-farm	1899 (4th generation of family ownership)
-dairy	2006
Subsector	Dairy
Turnover	~€1,55 million (FY2020)
No. of employees (2021)	32 (17,4 full-time)
Suppliers' locations (incl. wholesalers)	Northern Germany
Products	Organic food
Value-adding activities (in-house)	Feed production, milk & meat production, milk processing (stage I), branding, marketing (website, social media, local press, local (online) platforms), sales & retail (farm shop, online shop, delivery service)

Source: Own compilation based on case study data.

Table 4. Case B: Focal Firm Information

Establishment	2017
Subsector	Organic food
Turnover	~€1 million (FY2020)
No. of employees (2021)	38 (mini jobbers & permanent employees)
Suppliers' locations (incl. wholesalers)	Northern Germany
Products	Organic food
Value-adding activities (in-house)	Strawberry production, vegetable production, online shop, organic food box delivery service

Source: Own compilation based on case study data.

Both companies can be assessed as successful and competitive in their respective market niches since they have grown in recent years, not only since the COVID-19 pandemic ("So we also had strong growth before [the pandemic]", Interview #B1). In 2020, they had a turnover of around 1–1.5 million EUR (FY2020). However, almost all interviewees affirmed that COVID-19 has had a positive impact on business by increasing demand for organic products. "The pandemic is simply

playing completely into our hands – not only in economic terms but also in terms of the philosophy that is being lived by more and more people" (Interview #2A). This was confirmed by the other actors along both value chains (Interviews #A5, #B3). This current market trend, supported by slaughterhouse scandals (Interview #B3), has brought much attention to the players in our sample, which has had a motivating effect (Interview #A1). Table 3 and Table 4 summarise key information about the focal firms.

Findings from the Case Analyses

Next, we present the strategic capabilities of the NRBV identified in our case investigations.

Pollution Prevention

In sustainability discussions, pollution prevention was mentioned by all interview partners, albeit indirectly in some cases. Overall, four main themes emerged from the data.

First, prominent was the mention of *location, i.e., catchment areas and supplier distance*, which were associated with short transportation distances and thus efficiency and cost advantages (Interviews #A6, #A2, #A4).

Second, the topic of *product packaging, reuse and further processing* was dominant in interviews. Interestingly, cost advantages, e.g., through internal process optimisation, such as delivering goods on roll cage carts instead of wrapping them in foil (Interviews #A7, #B2), did not feature prominently. Instead, the topic was associated with subsequent differentiation from competitors through product adaptations. The switch from plastic or carton packaging to glass containers (e.g., Interview #A4) was a frequently mentioned market trend, which posed logistical challenges due to the necessity of much more storage space and the need to charge a deposit and deal with issues such as glass breakage (Interview #A4). Producers and processing companies especially found cooperation and networking with competitors essential in ordering glass together and washing glass containers for reuse (Interviews #A2, #A4). Resellers are increasingly requesting sustainable packaging (Interviews #B1, #A7). Statements such as "it's simply a high-quality product that you present in a high-quality way" (Interview #B5) and "even if it is more difficult to implement […], the sales figures have risen unbelievably" (Interview #A4), show that interviewees drew explicit links with differentiation advantage.

The third dominant topic in the interviews was *certification and labels* by independent third parties such as the EU and grower associations. Organic product labels were seen as containing important rules, for example, regarding the use of fertilisers and pesticides. However, interviewees hardly mentioned cost advantages linked to certification (for example, due to savings on pesticides) but instead emphasised

costs for prerequisites such as additional land needed (Interview #A1). Interviewees saw certification as one way to differentiate themselves from competitors and to advertise their commitment to sustainability: "We want to see that we are among the first to be certified so that we can then also advertise it" (Interview #A2).

The fourth theme in the study refers to the *digitalisation of interactions and processes* with companies taking small steps (Interview #A6), such as using electronic invoices and newsletters, holding online meetings, and enabling them to work remotely from home (Interviews #A4, #B1).

Product Stewardship

Effective product stewardship was a relevant topic in all interviews. Overall, two main themes emerged from the data.

First, the company's own share in value creation and, in this context, the discussion of the *integration of upstream and downstream value creation processes* was a prominent topic. The topic was relevant for all actors in the value chain, but especially for the producers of raw materials in our sample, who had already integrated up- and downstream value-adding activities (e.g., Interviews #A1, #B3, #B4) with the intention to guarantee quality in the last few years. Underlying the integration of value creation processes was the vision of creating closed loops, often with the goal of greater independence and resilience (e.g., Interviews #B3, #A1). The creation of closed loops was associated with the most efficient use of the available conditions (Interviews #A2, #B3). For example, Interviewee #A2 pointed out to "deal more efficiently with our land. That's actually what it's all about" (Interview #A2).

Processing companies integrated downstream (e.g., operating cafés to sell their own products) and upstream (e.g., importing raw materials) activities (e.g., Interviews #A3, #B4). Here, we find that interviewees explicitly link sustainability goals with cost advantages: "We do that for sustainability reasons because we would like to have direct trade, but actually it is [..] also a bit cheaper" (Interview #A3). The expansion of the product range is further seen as a way to efficiently use the premises (Interview #A4) and to "make the ecosystem more natural" (Interview #A1).

While the above shows that processors and producers focused on resilience through independence and cost benefits, retailers saw upstream integration (i.e., food processing) as a way to differentiate and create customer loyalty (e.g., Interviews #B5, #A8). However, demand (Interview #A2), small size (Interview #A4), and product attributes posed challenges for effective product stewardship strategies. For example, highly fluctuating milk volumes required quick processing (Interview #A2). Despite these challenges, almost all interview partners expressed a desire for further integration of value-creation processes.

Second, *stakeholder integration through the development of relationships and networks* was dominant in interview discussions. This became very clear in the statement of Interviewee #B2: "Our greatest resource is our good networking, our good anchoring here in the north, I would say, and our way of dealing with the people and with the producers and our profound knowledge about the connections from production to the consumer" (Interview #B2). In general, statements and narratives pointed to the careful selection of suppliers and buyers (Interviews #A4, #B5, #B1). Certifications and labels not only acted as a seal of approval (Interviews #A6, #B1) but also influenced the choice of suppliers (Interview #B3) and buyers (Interview #A1).

The interviewees in the study showed a preference for business partners who share the same beliefs and convictions (Interviews #B3, #A4, #B2, #A2). Interestingly, buyers were often suppliers at the same time (Interview #B2). Short distances and direct contact with business partners (e.g., Interviews #A5, #B1, #A3) played a major role in the quick exchange of new product ideas (Interview #A1) and for the just-in-time delivery of fresh products (Interview #B1). Additionally, support was given to each other among the partners (e.g., #A3). Although local partners were preferred, retailers also established contacts with foreign producers through intermediaries (Interviews #B1, #B2).

Interviewees drew more explicit links with differentiation advantages: Interviewee #A4 claimed, "We make a good product and want to bring it to market at a higher price, and we have to work with partners who appreciate that" (Interview #A4). Actors along the value chain aimed at creating trust by being authentic and transparent in response to increasing demand. This was achieved through actions such as disclosing purchase prices (Interview #A3), visiting producers, conducting tasting sessions (Interview #A6) and sharing stories of visits in PR magazines (Interview #A8). This was seen as important due to past scandals in the food sector eroding trust (Interview #A8).

Local Philanthropy

The topic of local philanthropy is closely related to product stewardship and stood out in our interviews. This is unsurprising, as our sample included players that serve local markets. Indeed, our data shows that actors are involved in a range of local philanthropic activities, in the understanding of McDougall et al. (2019, p. 1376). Broadly speaking, regionality pursues the goal "that the added value remains here [in the region]" (Interview #A6). The importance of regional food production has increased and is well-received by customers, who consider regional products to be of high quality. As a result, retailers demand regional products and are willing to pay extra for them (e.g., Interviews #A6, #B5, #A8).

In total, we identified four subtopics: animal welfare, offering information on high-quality food, the creation and maintenance of a local community and preserving the knowledge of artisanal processes.

First, *animal welfare* could be identified as a relevant local philanthropic activity. For example, processors sought to gain a competitive edge by adopting private animal welfare standards in response to market trends, at the same time signalling high product quality (e.g., Interviewees #A4, #A5). This topic shows that local philanthropic activities are closely linked to product stewardship, as the implementation of animal welfare standards influences the choice of downstream value chain actors and, from the producer's point of view, limits the number of suitable buyers. Despite this, producers prioritise animal welfare with initiatives such as bullet shooting, i.e., killing on the pasture (Interview #B3), the establishment of mother-bonded calf rearing (Interview #A1), also of bull calves (Interview #B3), which comes with losses. These activities are based on a common philosophy that can influence the architecture of the value chain.

Second, *offering information on high-quality food* includes events and activities where producers open their doors, such as cooperation with kindergartens and schools (Interviews #A2, #B3), EU-funded school fruit programs (Interview #B1) and events for demonstration purposes with organic associations and politicians (Interview #A1). Besides clearly local philanthropic intentions (e.g., Interview #A2), again, links with competitive benefits are drawn (e.g., Interviews #A1, #B3), as these activities attract customers who are interested in learning more about food production and improving their health (e.g., Interview #A8).

Third, the *creation and maintenance of a local community* include subtopics such as fair treatment of farmers (Interview #A4), support of social projects such as food donation, joint events (Interview #A8) and the creation of platforms for the purpose of regional marketing (Interview #A6). These actions are often based on themes of "give and take" (e.g., Interview #A4), for example, fairness and reputation building, local community support, and friendly business relations (e.g., Interviews #A5, #A7, #A8, #B1, #B3, #B2). Again, the belief that underlies these actions is often the personal concern of the owner-managers and founders (Interview #B2).

Significantly less prominent in our data, but still worth mentioning, was, fourth, the subtopic *preserving the knowledge of artisanal processes*. Unsurprisingly, this theme was particularly evident in interviews with processing companies. The interviewed companies specialised in filling niches in the organic food market to differentiate from the competition (e.g., Interviews #B4, #A8). Traditional craftsmanship, in particular, served as a unique selling point (e.g., Interviews #A4, #A5). For example, Interviewee #A4 explained, “We advertise that we are the last of our kind, and by that, we mean that there really are still dairy products made in the traditional way” (Interview #A4). In this context, gaining and maintaining a reputa-

tion plays a decisive role in influencing relationships with customers, suppliers, and cooperation partners (e.g., Interviews #A8, #B3).

Across all the local philanthropic activities mentioned here, communication with end consumers played a very important role (e.g., Interviews #A5, #A4, #B3).

Clean Technologies

In our sample of small sustainability-oriented businesses, interest in clean technologies was evident (e.g., Interview #B2), but at the time, it seemed to play an insignificant role in terms of perceived competitiveness. Energy technologies such as solar energy, biogas technology and heating technologies were mentioned more frequently, and while they had certainly been included in sustainability discussions, they had not been explicitly linked to competitiveness as perceived by the interviewees. Rather, clean technologies – apart from the switch to electric or hybrid cars – were a vision of the future (e.g., Interviews #A1, #A4).

Financial constraints hindered the implementation of some clean technologies (e.g., Interview #A4) and political will rather than competitiveness drove the modernisation of cooling technology, as mentioned by Interviewee #A5.

Table 5 summarises the main findings.

Table 5. Summary of Case Study Findings

Strategic capability	Key resource	Resources & capabilities	Competitive advantage
Pollution prevention	Continuous improvement	Location	Lower costs
		Digitalisation of interactions and processes	
		Product packaging, -reuse & further processing	Differentiation
		Certification & labels	
Product stewardship	Integration of value-creation processes	Closed loops	Resilience
	Stakeholder integration	Networks & relationships	Reputation/ legitimacy
Clean technologies	Disruptive change	N/D	Future position
Local philanthropy	Social support	Animal welfare	Reputation/ differentiation
		Offering information on high-quality food	
		(Local) community	
		Preserving the knowledge of artisanal processes	
Underlying resources and capabilities: vision, long-standing presence in the region/ experience & industry-specific knowledge			

Source: Own compilation based on Hart and Dowell (2011, p. 1472), the work of McDougall et al. (2019) and case study data.

Discussion

Sustainability orientation became obvious as a unifying element of the analysed companies in our case study. Actors along both value chains are sustainability-oriented and share a number of underlying common resources and capabilities that are unifying elements.

We selected the two focal actors in the value chains based on their sustainability orientation. However, the interviews showed that sustainability played a vital role for all actors in the value chain. The conviction to operate sustainably is rooted in the corporate philosophy and defines the fields of past, present and future action. As one interviewee stated, the focus is not only on money but also on the overall sustainability of the farm (Interview #B3). Statements like selling "with a clear conscience" (Interview #B5) and leaving a good world for future generations (Interview #A8) emphasise the importance of sustainability in their operations.

In addition, the interviewees emphasised the many years of experience in the organic food sector and the specific knowledge gained from it. Producing organic food for many years and practising extensively indicated their deep understanding of the sector (Interviews #A7, #A5). Interviewee #A5, for example, emphasised: "I'll say we started with organic [food], I don't even know when that was. Sometime in the '80s. So, we practised a lot and also threw away a lot" (Interview #A5).

The personal background of the owner-managers was found to be relevant when discussing their interest in sustainable issues: Some benefited from personal experience gained through education (Interview #A1) or previous employers (Interview #B4). Successor-managed family businesses benefited from the knowledge transfer of older family members and from new ideas of younger family members (Interviews #A1, #A5). Taking over a company was generally seen as an opportunity to bring in new ideas and process improvements and was emphasised as a way to keep old customers and attract new ones (Interview #B1).

In summary, the orientation towards sustainability is a unifying element among value chain actors and internal firm resources. Long-standing presence and experience in the region, a firmly anchored vision, and industry-specific knowledge seem to play an important role in explaining it. These resources form the foundation for the development of the analysed strategic capabilities of pollution prevention, product stewardship, clean technologies and local philanthropy.

When analysing the strategic capabilities in our data material, we came to the following insights that complement and extend the NRBV.

First, we identified four resources and capabilities in continuous improvement for effective *pollution prevention*: location, i.e., catchment areas and supplier distance; digitalisation of interactions and processes; product packaging, -reuse and further processing; and certification and labels. In contrast to existing literature (Hart &

Dowell, 2011; McDougall et al., 2019), interviewees connected pollution prevention not only with cost-cutting but also with differentiation advantage. This was especially true for product packaging and certification, which were used to signal outstanding product quality to customers.

Second, in the context of *product stewardship*, two key resources could be identified: (1) the integration of upstream and downstream value creation processes and (2) stakeholder integration through the development of relationships and networks (Hart & Dowell, 2011). The former primarily involves the careful selection of up- and downstream cooperation partners. The latter showed that the position of the company in the value chain can have an influence on the type of advantage: Producers and processors associate the integration of value chain processes, for example, with a vision of closed loops, aiming for resilience through independence and cost savings. Retailers, on the other hand, referred to differentiation advantages in the context of upstream process integration. This finding is a promising starting point for further research. In addition, creating authenticity through transparency plays an important role in product stewardship.

Third, *local philanthropy* (McDougall et al., 2019) proved useful for analysing our sample. In total, four different local philanthropic activities could be identified in the case study area: (1) animal welfare, (2) offering information on high-quality food, (3) the creation and maintenance of a local community, and (4) preserving the knowledge of artisanal processes. A central point of this topic area was stakeholder communication.

Although *clean technologies* were discussed in several interviews, this was not in terms of competitiveness but rather as a desirable vision of the future. Explanations can be found in the sampling: the small company size, limited financial capital and limited capacity are likely influencing factors for the (almost) inexistence of clean technologies.

The results of the case study analyses showed that the NRBV capabilities are interrelated and overlap (e.g. Hart, 1995). Most interesting is that local philanthropy and product stewardship are highly related. Both enhance reputation and legitimacy, enabling differentiation – one through the integration of stakeholders and the other through social support, which may well be part of stakeholder integration. We, therefore, suggest that local philanthropy contributes to stakeholder integration that allows for improved product stewardship and hereby respond to the call from Hart and Dowell (2011) for more research on product stewardship resources.

Concluding Remarks

In response to a recent call (McDougall et al., 2019), this paper aimed to investigate NRBV's strategic capabilities in the context of small companies in the Northern German agri-food sector. We explored resources and capabilities that allow for

effective pollution prevention-, product stewardship-, local philanthropy- and clean technologies strategies and were interested in their interconnectedness.

Among other things, we show that the internal firm resources' long-standing presence in the region/experience, a firmly anchored vision and industry-specific knowledge are connecting elements between sustainability-oriented value chain actors that provide the foundation for the development of *all* NRBV strategic capabilities.

We contribute to the literature with one of the few papers that uses the NRBV not only as a theoretical perspective but also investigates the resources and capabilities underlying the strategy and "their practical existence" (McDougall et al., 2019, p. 1366). We show that stakeholder alignment on environmental and/or social sustainability is one avenue towards a differentiation strategy. This specifies the nature of potential competitive advantage coming with sustainability orientation, which has been identified in the literature in the past.

Due to the relevance of emissions as well as waste from the food industry, pollution prevention that may be split into "energy consumption reduction" and "waste reduction" (Graham, 2018, p. 286) should be investigated further in future studies. When investigating emerging sustainability-oriented business models in the agricultural food ecosystem, it seems relevant to implement measures to prevent pollution (often already in order to get certified as an organic firm) in a more fine-grained fashion.

This research was carried out as a qualitative design and might lack generalizability. Moreover, data were collected in the middle of Corona times, when the euphoria of "the regional" was great. A second round of interviews at this point would be interesting.

In sum, this research makes the following theoretical contributions: In accordance with Govindan et al. (2020) and McDougall et al. (2019), we show that the NRBV contributes to the explanation of the competitiveness of small companies that is rooted in capabilities that facilitate environmentally and socially sustainable economic activity. Stakeholder alignment on environmental and/or social sustainability is found to be a central key resource in the investigated value chains. More specifically, we find that activities in the form of pollution prevention, product stewardship, and local philanthropy in the context of sustainability-oriented value chains include different resources and can go hand in hand with cost advantages as well as differentiation advantages. In particular, local philanthropy and product stewardship are found to be highly related, and both enhance reputation and legitimacy, enabling differentiation through the integration of stakeholders and social support.

Practitioners, such as small business managers and policymakers, can find inspiration in the findings of this research: From a managerial perspective, the findings can serve as best practices not only detailing how firms can integrate sustainability into their operations but also highlighting the internal firm resources that seem relevant

for achieving success in the organic market. From a policy perspective, this research identifies several areas of action that can support small companies in peripheral regions. For instance, in the context of product stewardship, public initiatives could promote the development of local networks to connect like-minded actors for cooperation. There is also significant potential for public policy to enhance local philanthropy, including supporting stakeholder communication of philanthropic activities and fostering the establishment of local communities. Moreover, the NRBV is helpful in this regard as it allows for a better explanation of the intentions behind individual actions in various fields.

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Appendix A – Table: Category System

Abbr.	Main category	Coding rule (1st)	Subcategories	Coding rule (2nd)	Anchor example(s)
SUS	Sustainability	General statements on the sustainability orientation of the company/owner-manager/(co-)founder.	Motivation	The interviewee's personal motivation with regard to the sustainability orientation of the company	*"everything you find here (...) I can sell with a clear conscience" (#B5)* *"I want to leave them [my grandchildren] a good world, (...)" (#A8)*
			Experience	Experience with regard to sustainable business operations	*"I'll say we started with organic [food], I don't even know when that was. Sometime in the '80s. So, we practised a lot and also threw away a lot" (#A5)*
			(Personal/ educational) background (SUS-B)	Origin of interest in sustainable business	*"(...), it was more through my studies that this far-sightedness to follow these paths came about" (#A1)*

Abbr.	Main category	Coding rule (1st)	Subcategories	Coding rule (2nd)	Anchor example(s)
PP	Pollution prevention	Statements that refer to the minimisation of waste and emissions via prevention (Guang Shi et al., 2012; Hart, 1995; Hart & Dowell, 2011).	Location, e.g., catchment areas and supplier distance	Factors (location, catchment areas, physical distance to business partners) that influence transport logistics	*"yes, and sustainability, too, of course. And that also includes short transport routes and that sort of thing, (..)" (#A6)* *"as far as logistics are concerned, we want to generate savings there (...)" (#A4)*
			Product packaging, reuse and further processing	Examples of internal process optimisation and product improvements due to product packaging, reuse and further processing	*"(..), we used to have plastic jars for quark, yoghurt, and crème fraîche, and now we've replaced them with this yoghurt jar deposit system" (#A4)*
			Certification and labels	Compliance with rules through (organic) certification, private labels, etc.	*"(..) we want to see that we are among the first to be certified so that we can then also advertise it" (#A2)*
			Digitalisation of interactions and processes	Reduction of waste/emissions through the digitalisation of processes (e.g., digital office) and interactions	*"Because we do more online meetings, so we don't drive as many kilometres" (#A4)*
PS	Product Stewardship	Statements that refer to the prioritisation of the natural environment throughout the entire lifecycle, wholly sustainable products, and access to scarce resources via stakeholder integration (Ashby, 2018; Ashby et al., 2012; Guang Shi et al., 2012; Hart, 1995; Hart & Dowell, 2011)	Integration of upstream and downstream value creation processes	Vision of creating closed loops by integrating value-adding activities, e.g., to increase efficiency, ensure product quality and reduce dependencies	*"The goal is, and not to somehow earn more money, but just to make the operation more and more stable, that we produce as much as possible here ourselves" (#B3)*
			Stakeholder integration through the development of relationships and networks	The development of relationships and networks and the careful selection of suppliers and buyers (keywords: shared beliefs, mutual trust, authenticity through transparency)	*"Our greatest resource is our good networking, (...), (...), and our way of dealing with the people and with the producers and our profound knowledge about the connections from production to the consumer" (#B2)* *"we then look at the (...) suppliers (...), whether they are sustainable enough for us" (#B1)*

Abbr.	Main category	Coding rule (1st)	Subcategories	Coding rule (2nd)	Anchor example(s)
LP	Local philanthropy	Statements that refer to competitive social sustainability on a local, philanthropic basis focus on support of social issues in local markets (McDougall et al., 2019).	Animal welfare	Animal welfare topics (e.g., implementation of standards)	*"(..), there is the story – how do we treat the animals? That's also often been through the press. (...)" (#A5)*
			Offering information on high-quality food	Informing stakeholders about food origin and production processes (keywords: farm tours, events, etc.)	*"(..) we have a very great need for people who are here and want to know things and want to see things and want to understand things" (#A1)*
			Creation and maintenance of a local community	Issues around creating and maintaining a local community (e.g., fair treatment of farmers, social projects, joint events)	*"We consciously work (..) with local companies, some of which are also members of our company" (#A4)*
			Preserving the knowledge of artisanal processes	Specialisation to fill niches in the organic food market; traditional craftsmanship as a unique selling point.	*"(..) we advertise that we are the last of our kind, and by that, we mean that there really are still dairy products made in the traditional way. (...), there are no more dairies that do anything like we do" (#A4)*
CT	Clean technologies	Statements referring to technological innovations as alternatives to non-renewables (Hart, 1997; Hart & Dowell, 2011; Hart & Milstein, 1999)			*"We are constantly keeping our finger on the pulse to see how logistics is developing toward climate-neutral logistics" Interview (#B2)*

Source: Own compilation, 1st-level coding rules of the strategic capabilities PP, PS, LP and CT are adopted from McDougall et al.'s (2019, p. 1372) coding framework.