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Establishing chain orientation on the level of an input supplier of the food chain: How market oriented is the feed industry?

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Abstract

This paper investigates the implementation of market orientation at the level of an agricultural-input factor supplier. The feed industry traditionally has adopted a medium degree of market orientation and a limited end-consumer orientation. However, it provides the building block of animal-derived foods, which are increasingly valuable consumer products. Therefore, market orientation embracing the entire food chain becomes an ever more important issue for the feed industry as an input supplier. Against this background, this paper investigates (1) the current challenges of the feed industry, which necessitate a more profound market orientation, (2) how the feed industry as a player on the input side of the food chain embraces the challenges of implementing a market orientation, and (3) the different influences with regard to the business model, based on different levels of vertical integration in the feed industry.

Keywords: Implementation of market orientation, innovation, food value chain, feed industry

1. Problem statement

The feed industry represents an important stepping stone in the production of animal-derived foods. This industry traditionally has been regarded as a mere supplier of commodities, without any need for a market or value chain orientation. Built on a traditional business-to-business (B2B) model, the industry perceived consumer trends as far away, and likewise, consumers and the public did not pay much attention to it. Only through food scandals has the public gotten more involved with the feed industry, unfortunately with negative connotations. To improve food safety and avoid feed-borne food scandals, numerous quality programmes have been implemented. However, these measures mostly have been reactive and present a production standard rather than an example of active market orientation. This approach is changing at the moment; as the praxis shows, the impact of feed on product quality can be demonstrated and result in a positive impact. For example the Dutch dairy company Campina has launched a “healthier milk” that contains more unsaturated fatty acids because of the special diet fed the dairy cows.[1] However, proactive anticipations of trends along the food chain and their implications for feed manufacturers, or even a “feed push” approach toward innovations at the level of the feed industry that can make an impact on the entire food value chain, are only emerging and still very rarely observed. Market orientation (MO) seems a difficult endeavour, because trends in consumer markets seem distant and thus rather difficult to absorb for a supplier of agricultural input factors—the feed industry’s traditional role.

This paper seeks to contribute to the literature pertaining to MO in food supply chains,[2] in particular by exploring the development of MO in the feed industry. Thus, this contribution delivers basic insights into the question of how to implement a MO among actors at the very front end of a food supply chain. In addition to the feed industry’s position as a supplier of agricultural input factors, it can be characterised by different business models depending on the different levels of vertical integration.

Hence, the challenges of building a MO may vary according to the degree of vertical integration, which influence the degree to which a partner in the very front end of the food chain has information about the back end. Different business models may require different approaches to developing a sufficient degree of MO. To gain a better understanding of why and how the feed industry needs to establish a MO, this paper investigates current challenges to the feed industry, measures to improve MO, and the influence of the business model on the adoption of MO.

The remainder of this paper is organised as follows: Section 2 contains a brief literature review on MO, followed by a more detailed description of the feed industry. Section 4 overviews current challenges for the feed industry, which exemplify the need for increased MO. The degree of MO and measures to increase MO in the feed industry then receive more extensive exploration. Finally, drawing on these findings, Section 6 derives some conclusions, provides managerial recommendations, and also highlights areas for further research.

2. Market orientation: an overview of existing research

Before exploring what challenges firms in the feed industry face and how they develop to become more market oriented, a closer consideration of the definitions and characteristics of MO is necessary. This paper follows Narver and colleagues,[3] who define MO as a general approach toward running a certain business, underscored by the company's culture. Therefore, "market orientation is the organizational culture that most effectively and efficiently creates the necessary behaviours for the creation of superior value for customers."[4] Literature on MO is well established,[5] initially postulated by Drucker in 1954. However, when it comes to agricultural markets and the feed industry, a traditional B2B industry sector, the discussion of MO is rather new.[6] In addition to understanding MO as a culture, Kohli and Jaworski employ a behaviouristic approach and argue that MO is constituted by three dimensions:[7]

1. Generating market-related knowledge about customers and competitors.
2. Distribution of that knowledge inside the company.
3. The ability to react on the basis of that market knowledge and be consistent with the market concept.

General agreement in MO literature indicates that ongoing, systematic information collection about customers and competitors, cross-functional sharing of that information in the company, and rapid responsiveness to competitor actions and changing market needs are at the centre.[8] Narver and colleagues expand this definition of MO to feature pro-active MO.[9] That is, MO would be reactive only if there were no anticipation of upcoming, evolving needs. Pro-active MO is especially important for the success of new products. The relationship between market orientation and new product success seems contingent on the type of innovation.[10] In addition, extant literature argues that MO is positively influenced by supply chain management.[11] Thus, not only supply chain management itself, which refers to the way the supply chain is controlled to deliver on promises to meet customer needs,[12] but also the

different relationships in the supply chain,[13] must be taken into account when analyzing MO. Strong supplier relationships positively affect the generation of market-related knowledge and more rapid responses to market information, allowing for improved customer responsiveness. Supply chain management seems especially important for long supply chains, as in the case of animal-derived foods, because value creation within the supply chain depends on how well each stage of the chain processes raw materials and information to add value for downstream customers.[14] Furthermore, MO differs with respect to the chosen strategy type[15] and degree of vertical integration,[16] because the supply chain configuration depends on the level of integration within the supply chain. According to Webster,[17] a supply chain can be characterised by different types of integration, reaching from pure transactional relationships to buyer–seller partnerships and strategic alliances to full vertical integrations. This differentiation is especially relevant for the feed industry, which consists of different strategy types, depending on the degree of vertical integration.

According to Beverland,[18] moving from a commodity orientation to MO requires a company to change not only its strategic outlook and marketing practices but also its culture. Assessing MO in this sense also means that different layers of the food chain need to be tackled, including supplier markets, direct customers, and customers' customers. The last form of MO is increasingly important to the feed industry in its efforts to adopt pro-active behaviour, though it also remains unaddressed due to barriers against it. For example, path dependency and the resulting market-related absorptive capacity create major hurdles to building chain-overarching MO. As Cohen and Levinthal note,[19] it is always easier to learn about related areas. From a theoretical standpoint, the construct of absorptive capacity—the ability to recognize, value, and acquire new information to apply it to commercial ends[20]—provides the prerequisite for MO. Because the feed industry is located at the very front of the value chain, its market-related absorptive capacity to develop a MO, which also embraces trends at the consumer level, seems rather difficult. Before exploring a practical case of MO, the next section presents an overview of the feed industry, identifies the markets the feed industry deals with, and notes the major challenges.

3. Feed industry: facts, business models, and value chain positionings

3.1 Some facts about the feed industry

Global animal nutrition production has increased steadily since the mid-1980s and amounted to 637 million tons in 2006. As illustrated in Figure 1, the compound feed sector consists of three main sub-sectors: pig, cattle, and poultry/laying hens. Each roughly represents one-third of total production, though pig feed is the most important feed stuff. A look at the geographical distribution of feed (Figure 2) shows that the largest market is the United States, with a world market share of 23% (175 million tons), followed by Europe (140 million tons). Since the millennium, emerging markets in Latin America, Russia, and Asia have exhibited the highest growth rates.

The world's largest manufacturer, Charoen Pokphand (18 million tons), is based in Thailand.[21]

Figure 1: Global production of feed

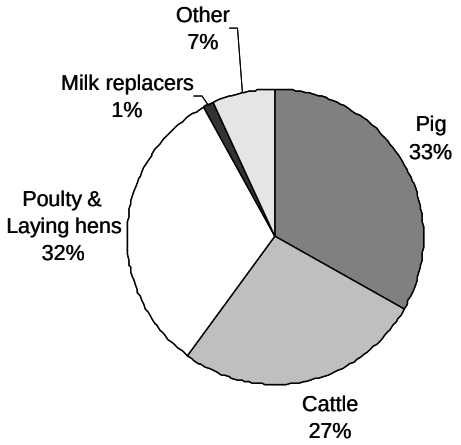
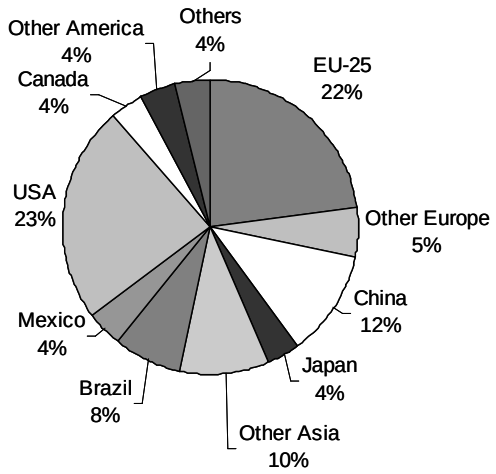


Figure 2. Global producers of feed, 2006



In Europe, meat and other animal-derived products represent 45% of the total value of farm production, which was a market of 126.5 billion € for the EU25 in 2005. In general, the market for feed stuffs depends on the market for livestock products. In 2006, the EU25 livestock farming sector produced 45 million tons of meat (21 million tons of pork, 11 million tons of poultry, and 8 million tons of beef), 131 million tons of milk, and 6 million tons of eggs. Pork meat consumption thus explains the high volume of pork feed produced. However, due to rising demand for poultry, the market for poultry feed shows the highest growth rates.[22]

In general, compound feeds are produced from a broad mixture of raw materials, vitamins, and minerals. Due to rising raw material costs, animal feed is an increasingly important cost factor, up to 80% of production costs of farm animals. Therefore, the exact calibration of energy levels of feed products by optimisation plays an increasingly important role in controlling the production costs of livestock. Feedstuffs are designed to achieve a pre-determined performance, so advanced methods formulate feeds according to the demands of the livestock farmer. For all species, the availability of carbohydrate sources such as wheat and the supply of protein crops (soybeans) are pre-requisites to ensure the production of feeds of both high quality and at competitive prices for livestock farmers.[23] In the European feed sector, protein sources such as soybeans need to be imported from overseas. Because they cannot be substituted with any other locally grown crop, the EU faces some severe challenges in the years to come.[24] From 2009 onward, new soybeans that have been genetically modified but not yet authorized by the European Food Safety Authorization (EFSA) will distort the protein supply, if there is no introduction of threshold levels that allow a certain "pollution" level of soybeans by imported, EU-unapproved, genetically modified soybeans.

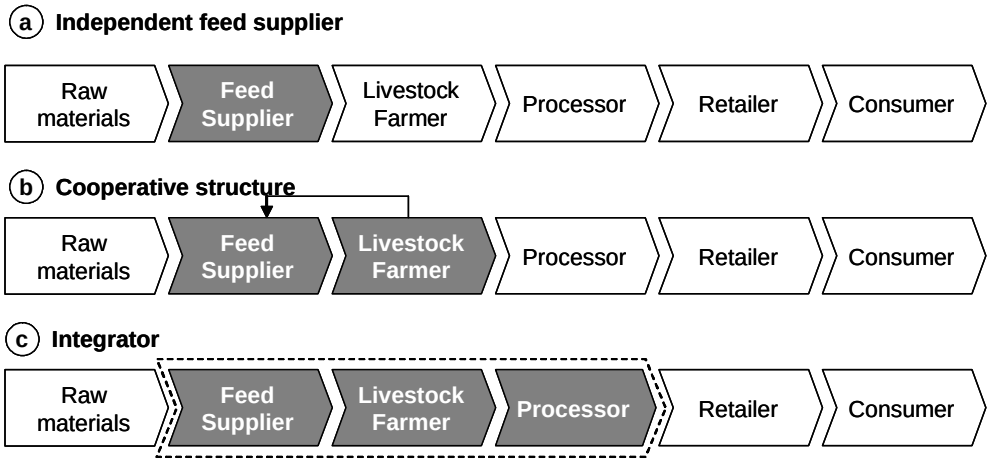
In addition to these constraints on the raw material supply side, the feed industry is implementing ever-increasing standards of quality and safety. The role of animal feed in the production of safe food is increasingly recognized worldwide.[25] Recent feed-borne scandals, such as the outbreak of bovine spongiform encephalopathy (BSE) in the United Kingdom, and other more common problems, such as salmonella and other micro-organisms, have encouraged the feed industry to take severe corrective measures and methods for their control, including the obligatory Hazard Analysis Critical Control Point (HAACP) assessment.[26] The compound feed industry is subject to a complex body of regulations, both at EU and national levels. Numerous certification schemes are in place to ensure higher degrees of feed and food safety (e.g., TrusQ, Safe Feed, QS, GMP). The Dutch Product Board Animal Feed (PDV) has introduced Good Manufacturing/Managing Practise quality assurance (GMP) standards, which require that as of 2000, the quality of animal feed must be guaranteed. As a result, all ingredients for animal feeds must be GMP or equivalently certified.[27] Feed manufacturing not only reflects the demands of the farmer but also increasingly those of the entire food chain and society. Following the "farm to fork" principle,[28] legislation helps improve trust in the quality of feed production for livestock and livestock products for consumers. Regulation affects production schemes and quality control systems and also controls the way feed products are marketed. For example, the "open declaration" obliges all feed manufacturers to put all ingredients and the composition of nutrients on their labels. That requirement makes feed products easily comparable for customers and competitors alike. At the same time, health claims, comparable to the situation of foods, are prohibited, which makes product differentiation difficult to communicate.[29]

3.2 Business models and levels of vertical integration in the feed industry

To detail the role of the feed industry in the food chain, it is necessary to distinguish different strategies observable in the feed industry, because the role of the feed supplier and interfaces with other partners in the chain depend on them. According to the International Feed Industry Federation (IFIF), three generic strategies (Figure 3) determine production and delivery systems.

This paper focuses on strategy type (a), the independent feed supplier, which is still the most common form in Europe. In this business model, the feed industry is part of the entire food chain and has many interfaces with partners up and down the food chain, as well as with related industries. This type is likely characterised by a transactional supply chain configuration.[30] In type (b), the cooperative structure, the feed company is jointly owned by the farmers. This model is quite widespread in the European feed industry. In contrast, the integrator type (c) is the dominant business model in chicken production throughout Europe.

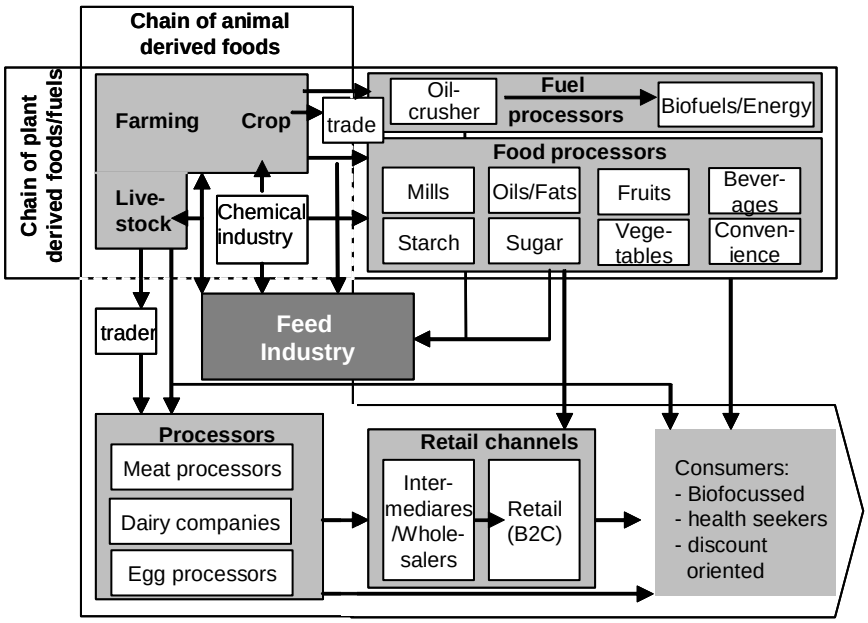
Figure 3. Different business models in the feed and livestock production industry



As mentioned previously, the role of the feed industry in the chain of animal-derived foods depends on the generic business model, such as whether it acts on the basis of transactional or integrated relationships with its direct partners. However, the chain of animal-derived foods is not the only supply chain important to the feed industry. As illustrated in Figure 4, the feed industry is part of the interrelated chains of plant-derived foods, plant-derived fuels, and animal-derived foods. Because they all draw from the same raw materials, interdependencies are strong[31] and must be taken into account when analyzing the feed industry.[32] From this perspective, the most important partner still is the individual livestock farmer, because farming remains the major customer base of the feed industry. Depending on the individual business model, there may be relatively strong ties to raw material processors and traders, as well as with the chemical industry for the supply of premixes, minerals, and vitamins. The food industry (plant-derived food chain) can also function as a supplier to the feed industry, because by-products such as wheat bran are valuable input factors.

In addition to these direct buyer–seller relationships, the feed industry contains indirect relationships with food processors that deal with animal-derived foods. For examine, the effect of certain feeding strategies on the constitution of the carcasses of pigs, cattle, or broilers and the milk fat composition of dairy products or the quality of eggs can be further investigated. Recently, more information from slaughterhouses or dairy companies gets evaluated and used to optimise a specific feeding program. Even though more efficient animal production remains the primary goal of innovation, there is increasing interest in carry-over effects from animal feed (e.g., vitamins, fatty acids) in consumer products.[33]

Figure 4: The role of the feed industry in the supply chain



4. Major challenges for the feed industry: need for market orientation

Traditionally, the feed industry has seen its responsibility to be assuring supply with feed and, in most cases, other agricultural input factors. Therefore, its MO was limited to immediate customers, namely, livestock and crop farmers. Its MO in terms of orienting all activities with a view to the entire value chain was not necessary. The industry is thus more supplier market oriented than consumer or value chain oriented, because raw material make up 80% of the costs of goods sold, and farmers are very price sensitive. In the case of easily comparable products, such as finisher diets for pigs, compound feed has similar characteristics to those of commodities. Because commodity production represents the opposite of MO,[34] the limited degree of MO can easily be explained.

However, the role of the feed industry has changed. It is part of the entire food chain but also has undergone many changes triggered by increased quality control systems. In addition, the feed sector has become more knowledge-intensive and offers more possibilities for product differentiation, resulting in a greater need for MO. Moreover, MO has become more important because consolidation processes, on both the farm level and the feed compound producer level, have led to increased competition. New forms of customer loyalty programmes, including a higher degree of services to farms and consulting offers, have become increasingly important. As Table 1 shows, the feed industry faces different challenges along the value chain, which can be distinguished as follows:

(A) Raw material and feed production-related challenges.
(B) Farm-level–related challenges.
(C) Consumer market-related challenges.

Table 1: Challenges for the feed industry

(A) Raw material and production-related challenges	(B) Farm-level–related challenges	(C) Consumer market-related challenges
Raw material supply: § Agricultural raw materials are becoming increasingly volatile § Shortages of certain minerals (e.g., feed phosphates) § Unapproved new soybeans leading to a potential protein shortage in the EU	**Customer structure:** § Consolidation process of farms: Customer-structure becomes important (high degree of farms with potential to survive is needed) § Vertical integration plays a dominant role § Buying centres of farmers with increased bargaining power are increasingly widespread	**Control of retailers:** § Retailers are increasingly active in controlling the supply chain (e.g., labelling "GMO-free") § In certain cases retailers even establish quality schemes for specific production programmes (e.g., obligatory feeding scheme for dairy farmers)
GMO-free products: § Access to GM-free raw materials § Involving NGOs to ensure that the feed industry follows environmental guidelines (responsible soy programme)	**Customer loyalty:** § Customer loyalty programmes from different feed suppliers § Relationship marketing becomes increasingly important	**Consumer behaviour:** § Consumers are very price sensitive but at the same time are postulating animal-welfare standards, which lead to increasing production costs
Quality control during processing and production: § Separate production facilities for each species § Within a species, separate production facilities for GM and non-GM feed § Increased safety demands create higher production costs	**Knowledge base:** § Farmers are increasingly knowledgeable, which requires a knowledgeable sales force § Prevention of diseases, the contribution of feed to animal health and welfare require feed companies to build related knowledge	**Outbound quality control:** § Quality control is increasingly important for feed production § Ensuring compliance with environmental concerns like greenhouse gas impacts of feed (e.g., reduction of methane emission from dairy cows)

As illustrated in Table 1, raw material supply and quality control play very important roles. For some species (especially broilers), access to raw materials that have not been genetically modified (GM) (e.g., soybeans, which according to legislation (EC) No 1829/2003 and (EC) No1830/2993 need not to be labelled) becomes crucial. This

demand is triggered especially by retailers that want to label animal-derived products as GM-free, but the label can be issued only if the animal has been fed on a GM-free diet. This GM-free market segment has been evolving mainly in the broilers market, but it puts additional constraints on production processes and quality controls in the feed industry, because a completely separate production plant for GM-free feed would be required to reduce the risk of contamination.

Considering the overall protein supply, with respect to the European feed manufacturers, this challenge may be even more pressing, because EU-unapproved, GM soybeans will enter the EU. The first EU-unapproved GM soybean likely to be cultivated in the United States and exported to the EU is MON 89788, a replacement for the Roundup Ready soybean 40-3-2, which in 2005 was planted on approximately 60% of the global soybean area. An authorisation dossier for MON 89788 was submitted to EFSA in November 2006 and is now subject to evaluation. Thus, EU-unapproved GM soybeans will be mixed with approved soybeans and exported together before the authorisation procedure is finished at the EFSA level, which means EU livestock production will be severely challenged by a shortage of EU-approved protein sources. Following the worst-case scenario outlined by a study carried out by the EU Commission, EU pork meat production would drop up to 39% in 2009 and 2010.[35] At the same time, a sharp increase of the EU price level would attract higher imports from overseas (fed EU-unapproved GM soybeans). In the long run, to avoid the negative perceptions of GM crops, the feed industry will need to adopt a non-GM certification scheme (e.g., Cert-ID's non-GMO certification) to ensure trust among consumers. This example reveals just some of the challenges the EU feed industry faces on the input side of the value chain. These challenges are rather EU-specific, because the acceptance of GM foods is generally higher among consumers in the United States, Latin America, and Asia.[36]

With regard to farm-level challenges, the feed industry is challenged by a change in its own customer structure, as farms go through consolidation processes. Competition among the remaining large farms will increase, and customer loyalty built through long-term customer relations may become less important. Furthermore, a increasing share of the market is not accessible because of the greater use of vertical integration models (especially in the broiler market), which include all steps of meat production from raw material supply and feed production to slaughtering. Hence, customer loyalty programmes must be developed for increasingly knowledgeable customers, and salespeople for the feed companies must have increased training so they can deliver knowledge about livestock production to farmers.

The consumer market-related challenges include increasing retailer control over the labelling of food products. In addition to the standardized, well-established quality control systems and labels (e.g., GMP$^+$, QS, TrusQ), retailers and consumer food companies seek new ways to differentiate products. Usually the feed industry does not play a role in these developments. However, in some cases, product development includes the feed industry, such as when the Dutch dairy company Campina launched an innovative milk product that was rich in unsaturated fatty acids. The innovation is based on a change in cow feeding schemes. Therefore, feed companies need to foresee

changes at the consumer base and then get involved in systemic innovations that involve different partners of the chain.[37]

Even though consumer behaviour and trends at consumer level seem far away from the feed company's perspective, they increasingly should be translated into feed-based innovations. In the past, opportunities for reducing production costs by enhancing the feed conversion ratio drove innovation. But in the future, certain quality attributes of animal-derived feed products and opportunities to influence these attributes through feeding schemes likely will become increasingly important. Moreover, as the public grows more concerned about the environmental impact of feed (e.g., methane emissions of cows), they have triggered new feed-related R&D programmes to address these issues. Some feed programs attempt to control environmental pollution by reducing certain constituents of excrements (RAM-reduced ammonia feeds). Furthermore, the public is increasingly interested in the role of feed with respect to animal welfare.[38] Finally, it is important for the feed industry to anticipate upcoming legislation that will regulate food safety and environmental constraints.

The challenges described in Table 1 indicate that the feed industry has different issues to address and increasingly is moving from a commodity to a more market-oriented industry. This development necessitates a strong orientation toward supply, toward the customer, and toward the customers´ customer markets. The feed industry is obliged to employ a MO that include s the entire food supply chain, but how can such a "chain-overarching" MO be developed?

5. Adopting market orientation in the feed industry

5.1 General assessment of the feed industry

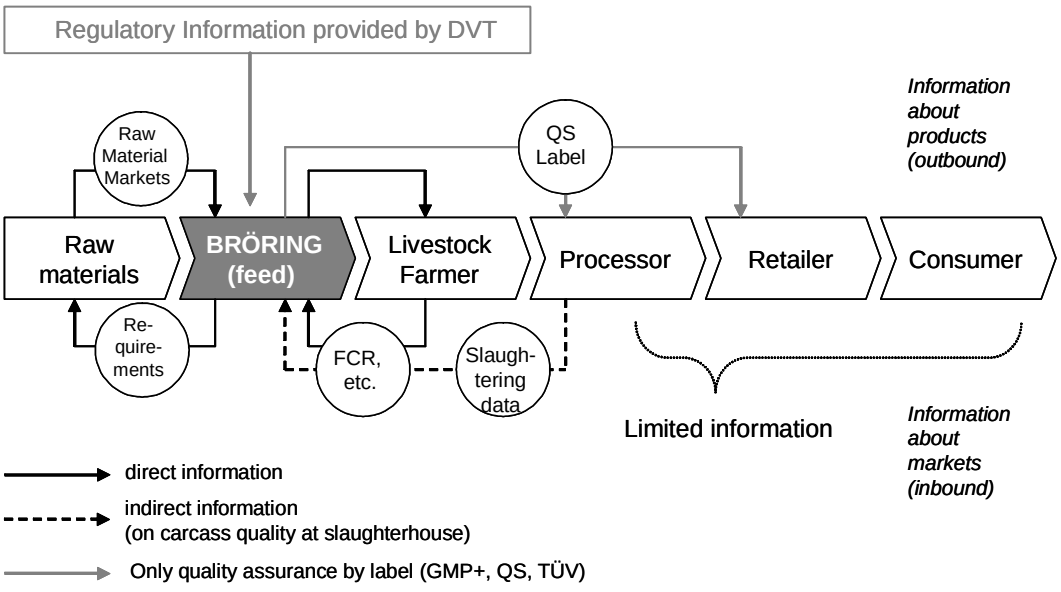
Considering the three major challenges within the feed industry (Table 1), the question becomes how different firms in the feed sector might respond to them with a MO. As detailed in Section 3, the feed industry contains three different business models (see Figure 3), which represent responses to the challenges on the supply, farm, and consumer levels. The integrated type, which pools together everything from feed supply to slaughter and consumer products manufacturing in one company, seems to struggle with fewer difficulties anticipating changes at consumer level, because its customer interface occurs at the retail level. However, this position differs in the classical cooperative model and even more in the stand-alone, non-integrated feed supplier business model. The non-integrated feed supplier, which is the prevalent form, is challenged by its knowledge gaps in many areas related to its direct market and competitive environment. Across the entire supply chain, this business model seems to experience the most challenges with regarding to translating trends at the end consumer level back into feed developments. The following case study explores how a family-run business that is not integrated but instead concentrates on feed supply has dealt with current challenges and developed itself to a market-oriented company.

5.2 Assessing market orientation at the BRÖRING Group

The BRÖRING Group is a family-held feed producer that was founded in 1891 as a local feed mill and grain trader in Dinklage in northern Germany. Despite a traditional commodity-based product production approach, the company produces 1.2 million tons of feed per year, based on a detailed consulting and service concept that includes farmers but also increasingly the entire chain. The company has undergone a significant change from just feed supply to the supply of both feed and knowledge about animal nutrition, housing, animal health, and environmental measures.

Market-related knowledge results from strong customer relationships. Furthermore, information about legal developments can be absorbed by playing an active role in the German feed producers association (DVT) (see Figure 5). Because relationships with downstream partners in non-integrated feed companies are not as tightly coupled as they would be in vertically integrated hierarchies, buyer–seller relationships were of tremendous importance for BRÖRING if it hoped to be market oriented and generate relevant information. On the raw material supply side, supplier relationships generate relevant market information and translate it into feed calibrations. Therefore, a close collaboration among the purchasing, production, and sales department was crucial and the basis for market-oriented feed production—especially for feed products that offer fewer opportunities for product differentiation and thus are relatively comparable to the farmer, because pricing possibilities in the market are determined by raw material prices. In terms of adopting a MO for the immediate market, the company's strong buyer–seller relationships and efficient internal communication processes were key, in line with Kohli and Jaworski's MO dimensions.[39]

Figure 5: Market information from the feed industry's perspective



For the immediate customer base of BRÖRING, the livestock farmers, the company developed strong market capabilities by implementing a customer relationship management program and a wide array of services. Starting as a rather reactive commodity supply organization, the entire company underwent a change to become more service oriented. For example, in addition to its core business, it offers consultancy services for farmers, such as hygiene programs, advice in livestock housing systems, individually calibrated feed compositions that fit other raw materials a farmer may have, knowledge transfer in piglet and sow nutrition, and so forth. This service also encompasses joint applied research with customers to calibrate the feed conversion ratio (FCR) and evaluate the efficiency of new feed products. In terms of Kohli and Jaworski's definition of MO,[40] BRÖRING has developed the ability to react to its market knowledge. This capability is especially important in its efforts to address challenges at farm level, because consultancy to an ever-shrinking customer base (due to consolidation) can encourage long-term customer relationships and customer loyalty among the A-customers who offer the greatest future potential.

However, at the level of the market for animal-derived foods, there has been very limited development of the three dimensions of MO, and access to consumer market-related knowledge is rather indirect and constrained. The reason likely pertains to missing market-related absorptive capacity.[41] Therefore, not only market knowledge generation but also its distribution in the company and the ability to react on it remains rather delayed. To develop a system of "consumer-responsive agriculture," the feed suppliers that are not vertically integrated need to establish close links with downstream partners. In recognizing this challenge, BRÖRING joined an integration system that produces feed for broilers. The feed mill is jointly owned by the food processor, slaughterhouse, broiler farms, and BRÖRING. In this consortium, information from retailers is more accessible, because the food processor shares it with the consortium. This situation differs entirely from pig production, which shows little tendency to integrate. Input suppliers like BRÖRING still receive rather weak signals from the consumer. The vast potential for product differentiation induced by different feeding schemes—and the possible role of the feed industry in adjusting feeding strategies to customers' needs—is not yet in place.

6. Conclusions

The feed industry, a partner at the very front of the entire food chain, is increasingly challenged by not only raw material shortages but also increasing expectations of food safety from retailers and consumers. In turn, MO has become crucial for this industry and encompasses three levels: raw materials (supplier market), farmers (direct customers), and end-consumers (customers' customer market). As discussed in Section 4, the feed industry faces different challenges related to these market levels (see Table 1). To respond to supplier market-related challenges, such as raw material shortages, companies require close buyer–seller relationships for all purchasing processes. As Martin and Grbac state, stronger supplier relationships positively affect MO, and this claim holds in the feed industry too. The numerous certification schemes foster reciprocal investments between the feed industry and its raw material suppliers. Likewise, the feed industry has improved its MO tremendously, from "tossing

products over the fence" to delivering highly specialised, customised feed solutions for individual farms, as BRÖRING is doing. In this case, MO consists of a high degree of services and sophisticated forms of customer relationship management, which allow for information gathering, distribution of information inside the company, and response capabilities. The three characteristics of MO, as described by Kohli and Jaworski,[43] thus are present in feed industries and their immediate customer base.

However, at the third level of MO, which features the consumer level and an entire value chain orientation, the feed industry is not yet very advanced, and consumer trends still seem far away from daily business. In this respect, MO differs according to the business model of the feed company (integrators vs. single partners in the chain). The flow of information may be easier in integrated forms. The supply chain configuration in agri-chains plays an important role for developing MO. For a feed company that acts separately as a partner in the chain and focuses on relations with farmers, the MO of the entire chain is a huge challenge. Chain MO also seems especially crucial for an independent, not integrated feed producer that, in contrast with an integrated system, does not automatically have access to relevant information from the consumer market. A feed manufacturer that is not integrated therefore should be especially pro-active in its MO. The more partners there are in the downstream chain, the more important it is for a firm to move from a market to a chain orientation.

Regarding the traditional business model of a feed company supplying bulk animal feed for livestock production, no direct link appears with consumer goods companies, retailers, and the consumer. These gaps help explain why consumers have only learned about this industry recently through bad news such as food scandals. Nevertheless, feed and food-related safety crises (especially BSE and dioxin) offered particularly important impulses to enhance existing quality programs. The integration of the HACCP and GMP$^+$ standards and upstream extension of the quality assurance to all suppliers of feed ingredients has resulted.[44] But quality assurance is not MO, because quality and safety are basic pre-requisites for successful marketing of any kind of product. The next step for the feed industry thus requires moving from quality assurance toward consumer responsiveness. The ways to enforce this move in practice and underline it with theory create interesting questions for agri-business research (as suggested by the newly founded Homer Nowlin Chair of Consumer Responsive Agriculture at Michigan State University). The role of the feed industry, located as it is at the very front of the chain, seems like an interesting topic to explore further.

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