

Food Retailers as Drivers of Supply Chain Integration: A Review

by

Jon Hanf

*Institut für Agrarentwicklung in Mittel- und Osteuropa,

Theodor-Lieser-Str.2, 06120 Halle, Germany, Tel. 0049-(0)345-2928246

Email: hanf@iamo.de

Abstract

In recent years strictly coordinated supply chains have gained in importance in the agri-food business sector. In this context this article aims to provide a review of the state of the art of verticalisation and of supply chain management in agri-food business. Because today food retailers can be considered to be one of the most powerful actors in this sector the article also aims to provide an overview of the connection between retail developments and verticalisation. The proposition in this article is that retailers can be regarded as drivers of supply chain integration and their role in supply chain management is confirmed by recent developments in 'new markets' such as China, India, and Russia.

1. Introduction

The food retail industry in most industrialised countries has been subject to major alterations in the last two or three decades. During the 1970s food retailing companies could be largely characterised as acting as the vicarious agents of the food processors. Nowadays, they are widely accepted as the most powerful actor group within the whole food chain. Indeed, there are some indications that retailers exercise monopolistic power such as imposing listing fees, unilateral demands for price stability, etc on upstream actors. The retail industry moved into this powerful position as a consequence of the dramatic increase of firm growth after 1960 that led to high concentration. The increase of market power gave rise both to the change from a vicarious agent to an actor affecting the terms of trade and to relationships among the members of the food chain due to changing their self-concept and business conduct. The outstanding feature of this changing business behavior has been the increase in the retailers' consumer orientation, mainly generated by the fierce competition on consumer markets.

Considering that profits are heavily influenced by retail acquisition prices and the quality properties of supplied food

items, the retail industry has tried more and more to control upstream production processes. This tendency towards 'verticalisation' is strengthened further by the endeavors of many retail firms to establish retail brands and to convert their shop name to a brand itself. In fact, retail branding offers profit potential by saving costs, exploiting processing rents and enhancing consumer loyalty. However, it also amplifies risk because consumers identify the retailer as the responsible actor in cases of product failure of a retailer-branded product. Hence, it stands to reason that the retailers also try to obtain some control over the physical processes.

In the course of retail globalisation it is observable that 'western retailers' such as Wal-Mart, Carrefour, Metro, or Aldi are exporting their business models. Thus, entering 'new markets' such as China, Vietnam, or India, these retailers work hard to implant their mature supply chain management and quality management approaches. Because only the minor part of the overall food supply is sourced globally, these retailers first have to establish tighter relationships with local suppliers and they have to build the infrastructure before they are able to roll out their sophisticated management concepts. Thus, one can argue that, particularly in new markets, retailers are the drivers of 'verticalisation' and of the emergence of supply chain integration.

The following paper is concerned with the organisational and management aspects of this 'verticalisation' process. To discuss the possibilities, problems and risks of managing these hybrid systems in the context of food chain networks, I address first the content and definition of the term 'network'. A detailed discussion of networks reveals that chain networks belong to the category of strategic networks. Such networks are characterised by a central authority which is able to make decisions for the whole network as well as to force the implementation of these decisions. That is, strategic networks have a focal company which is also called the chain captain. As a result of adopting a retailer-branding strategy retailers are the natural candidates for the focal company role for all of their retailer-branded products.

The following section deals with the management system that retailers have to design and implement to coordinate the different independent firms within the chain network if they want to act as the focal company. As the intensity of interdependencies among firms in the chain varies widely, there is no one unique universal network design. Therefore, the chain management system has to be derived as a collective strategy of the network. Further on, I argue that chain management has to be divided into 'operative' and 'strategic' components. While operative chain management is designed mainly to obtain parity with competing food chain networks, strategic chain management is aimed at creating a competitive advantage over competitors. The paper is concluded with some implications with particular focus on 'new markets' and with a short summary.

2. Changes in the Retailing Business

Over time retailers have been able to emancipate themselves, changing from being the extended arm of the processors to be on an equal footing with them (Nieschlag et al. 1994). Today, to some extent retailers dominate the agri-food sector. A major determinant of this development has been the concentration process at the retail level. For example, the top five German retailers have a cumulative market share of about sixty percent and the top ten retailers have an aggregated market share of about eighty-five per cent. This concentration indicates that retailers face fierce competition which demands that retailers forage for all efficiency gains possible. Arguably, producing at an efficient level has always been a prerequisite for company success. However, while in the past enterprises were seeking efficiency and quality improvements solely in their own firms, nowadays companies recognise that intra-firm efficiency gains are no longer sufficient and are moving to address inter-firm issues as well. Particularly, in the agri-food sector efforts to improve the efficiency throughout the whole value chain can be regarded as a competitive necessity. The majority of the medium-sized and large firms in the food industry are using supply chain management in order to gain efficiency by, for example, reducing stocks, optimising logistics, and reducing waste. The persistent competitive importance of a consumer orientation has provoked the previously logistic-oriented concept of supply chain management to have added the concepts of 'efficient consumer response' and 'collaborative planning, forecasting and replenishment' addressing the demand side.

Another important change in the agri-food business for retailers is the changing perception of quality. However, even though people have long been concerned about the quality of their food during times of food scandals, people are becoming even more routinely aware of, and concerned about, food quality. In Germany, the Bovine Spongiform Encephalopathy (BSE) and Foot and Mouth Disease (FMD) crisis of winter 2000/01 can be regarded as the straw that broke the camel's back. Consumers perceived this crisis as perhaps the doomsday of modern food processing. Consumers, politicians and the press unanimously clamored for transparency of the whole production process resulting in a change in the perception and the expectations of food quality by consumers and politicians affecting the consumption patterns of 'good' food. The most striking consequence of these dramatic food scares was the fact that politicians, consumers and also producers and suppliers assessed that food quality is no longer the responsibility of a single firm. Instead, the whole food chain needs to work together to deliver the 'new quality' (Hanf/Hanf 2005).

The suggested developments point to a need for increased verticalisation in the agri-food sector. The consultancy

KPMG (2000) characterizes verticalisation as the building of vertically-coordinated systems resulting in the changing of fast-moving consumer goods (FMCG) markets. Thereby, vertical coordinated systems are understood as involving the exchange of goods that is not primarily conducted by market transactions. Thus, verticalisation implies these chain organisations are either hybrids or vertically-integrated companies.

Due to the fierce competition in the retail sector retailers have to increase their endeavours to distinguish themselves from their rivals in order to create store-loyal customers. In this context a key concept is retail branding. Thus, for some years it has been observable that retailers are using the instrument of retail branding more intensively, reflected in a steady increase in the market share of retail brands (Hanf/Kühl 2005). As retailers carry the same responsibilities for their own brands as manufacturer brands, consumers as well as politicians are making claims on the retailers if anything is wrong with the retailer own-branded products. Thus, the role which 'modern' retailers play in the supply chain has altered. Being the surety company for the correctness of the retail-branded products a retailer has not only to manage the processes within their own company; retailers also have to coordinate processes which overlap firm boundaries. Only by supervising the whole supply chain can retailers verify the transparency and traceability and other quality attributes of the retail branded products.

On account of this, the role of modern retailers can be described as chief coordinator of particular food supply chains. This role demands that retailers exercise a central decision making authority which is respected by all participants of this food chain. This implies that the exchange modus of such food supply chains is more highly coordinated than market exchanges. That is, hybrids or vertically-integrated enterprises are the result of this development. As food products are usually not produced in strict (vertically-integrated) food chains they are, instead, produced in vertically-coordinated networks.

3. Hybrid organisations in the Agri-food Sector

3.1 Definitions and Properties of Firm Networks

Before analysing food chain networks I give a brief synopsis of the more recent literature on networks of firms. Albeit networks have been the object of intensive scientific research for many years there is no consensus about the elementary characteristics that distinguish a network from other modes of firm relationships (Kasperzak 2004). There is even dissent about the number of actors required to constitute a network. Some authors assume that two enterprises can form a network while other authors define networks as a more complex multi-partner-structure that includes at least three firms. A common feature of most network definitions is that they are characterised by a polycentric structure, but there is dissent about the autonomy of the included companies. The spectrum of notions ranges from autonomy to economic dependency. Therefore, some definitions of firm networks do not permit the existence of a focal company which has centralised authority. Other definitions do not see any conflict between a polycentric firm structure and a central authority as long as the relationship does not imply legal subordination. The dissent regarding the definition of a network is also mirrored in the question about the essential characteristics of networks. While definitions based on transaction cost theory regard more or less every hybrid firm system as a network, sociology-based definitions regard networks as a stand-alone organizational form (Kasperzak 2004).

In what follows I will use the term network similarly to the definition given by Zylbersztjn and Farina (2003). They define networks as 'specific properties of the transaction relationships, typified by relational relationships in which formal and informal sharing and trust building mechanisms are crucial'. Further elements of the definition are that networks address all questions on inter-organisational relationships of more than two firms (Omta et al. 2001). Furthermore, the purpose of a network is to achieve (network) rents. However, contrary to the bargain rents of (spot) markets and the other rents occurring in firms in networks, the network rent distribution is not ex ante allocable. Thus, the rents have to be distributed among the network participants by negotiations (Kasperzak 2004). Another important aspect is that the partners have to provide complementary resources in order to gain these network rents (Menard 2004). Thus, complementary resources can be regarded as prerequisites of network relationships. These necessary complementarities cause interdependencies between the partners who become dependent on each other: the actions of one partner influence the actions of the other network members (Kasperzak 2004).

In order to avoid any misunderstanding of the construct network in the following I will refer to Burr (1999) who is taking a more differentiating approach to networks. He classifies four typologies which are the spontaneous network, the self-organizing network, the project-orientated network and the strategic network.

		Intensity of relation		
		low	medium to high	
Polycentric without broker	Spontaneous Network	Self-organising Network		Coordinated
Polycentric with broker	Project-orientated Network	Strategic Network		Hierarchical
		Short term, nonrecurring	Long term, repeatedly	

Figure 1 Types of interfirm networks (Burr 1999)

As figure 1 shows the typology is derived from the intensity of relation, the co-ordination, and the existence of a broker. Due to the characteristics of the agri-food business in the context of the food chain, strategic networks are of greatest relevance and interest. Thus, the subsequent thoughts are based on strategic networks and therefore I will elaborate solely on this type of network. The key characteristics of strategic networks are the long-term, rather than short-term, orientation of the network actors, the medium to high intensity of the relationships and the existence of hierarchical coordination mechanisms. These coordination mechanisms require that there is a focal company despite the general polycentric network structure. The repeated and enduring exchange relationships can be regarded as a prerequisite for the structuring of the network; that is, strategic networks manifest over highly-structured governance. In contrast to unstructured networks, in strategic networks members' roles and relationships are clearly defined. In addition, the members are well organized to achieve certain goals (Inkpen/Tsang 2005). As Inkpen/Tsang (2005) show, in strategic networks member firms can occupy different positions along the network's value chain. However, in fast moving consumer good markets most often the focal company is located on a tier near to the consumers (Sydow 1991).

3.2 Strategic Networks in the Food Chain

As food products are usually not produced in strict (vertically integrated) food chains they are rather produced in vertical collaborations which are called either supply chain networks (SCN) or netchains (Hanf 2004, Lazzarini et al. 2001). A self-evident reason for the formation of food supply chain networks instead of single line chains is the differing size of firms along the food chain. Besides efficiency gains one of the most important factors is that in the last decade consumers and politicians have revised their method of valuing food quality in the light of many food scandals. Prior to the food scandals search and experience attributes almost entirely formed the basis of consumer judgment. Thereafter, credence attributes became dominant properties. Certainly, the obvious overvaluation of risky properties in view of food scandals will wear off in quieter times; however, a general attention towards this type of food property will be enduring. As a consequence of changed perceptions and economic, political and public pressures, actors in the food chain were encouraged to think about redesigning the organisation of the food supply system in order to avoid similar events in the future.

In this context, food supply systems can be characterised as pyramidal-hierarchic strategic networks. Such supply chain networks possess a focal firm that is expected to manage the system in order to realise the strategic objectives. This focal company builds the core element of the network being either manufacturer or retailer. In general, the focal firm will be the firm that is identified by the consumers as being 'responsible' for the specific food item: the producer in the case of a producer brand and the retail firm in the pyramidal-hierarchic case of a retail brand. As this type of network includes horizontal as well as vertical relationships the network actors are more or less heavily dependent on the focal company because of long-lasting explicit or implicit contracts. The level of dependency is usually higher for vertical than for horizontal ties (Wildemann 1997). However, Pfeffer and Salancik (1978) showed that mutual dependencies are

becoming more and more evident. If the focal organisation itself is dependent on critical inputs of other organisations, these gain some power over the focal company (Medcof 2001). In order to guarantee the consumer the presence of credence attributes like 'organic produce' the vertical linkages between the different actors are especially relevant. Therefore, trust-mediating chain organisations deserve special attention and particular contractual design in the vertical chain relations. In addition, the focal company should possess sufficient market power to ensure that other firms strictly adhere to the offered contract terms.

3.3 The Co-ordination Task of Retailers as Focal Firms

As shown above supply chain networks have implications both for firm boundaries and governance structures and for competition in general and the role of retailers in particular. To meet consumers' expectations as to choice retailers have to carry manufacturer brands as well as retail brands implying that conflicts occurring in the process of category management are predictable. While these conflicts in general are nothing new, significant changes in competition occur in the supplier-purchaser relationships. Building SCN means that chain networks will compete against each other; there is intra-chain co-operation and simultaneous inter-chain competition. On account of this, especially for retailers, significant changes occur. While in former times vertical relationships – especially the one between suppliers and retailers – could be described as being at arm's length so that high tension and conflicts arose, in the context of retail branding retailers have to fulfill the requirements that consumers and politicians expect of focal companies owning well-known brands. Thus, retailers have to accept the responsibility for all product attributes – credence as well as experience attributes – not only within their own firm boundaries but for all participants in their supply chain networks.

If the focal firm is widely regarded as being responsible for the safety of the food then the focal firm has an incentive to establish a network management system that effectively prevents further recurrence of food scares. This is a very difficult and very comprehensive task. Therefore, retailers have not only to create the right governance modes for cooperation but they also have to create coordination mechanisms to steer and manage SCN. Firstly, I will discuss the specific risks and possibilities of chain management and then I will try to integrate these ideas with the more complicated quality management of chain networks.

4. Management in SCN

4.1 Management of Chains

Even though cooperation can be regarded as a prerequisite for effective supply chain networks different problems exist. Problems of cooperation arise from conflicts of interest among the different actors; that is, collectively beneficial outcomes fail to arise due to actions motivated by the private benefits to individuals. The canonical problem is the famous prisoner's dilemma (Gulati et al. 2005). These problems can be solved by aligning interests through formal and informal mechanisms (Williamson 1975, Heide/Miner 1992, Granovetter 1985). However, even when the interests of the different actors are aligned and cooperation is achieved, problems of aligning the action of the different actors can persist (Gulati et al. 2005). Gulati and Singh (1998) state that incentives, sanctions, monitoring, rewards, and punishment can help to achieve cooperation but are not sufficient to achieve coordination.

In the context of the agri-food sector material flows have to be coordinated as to timing, quantity, quality and other factors. Thus, vertical co-operation between firms requires a great deal of co-ordination between the partners and these can only be efficiently aligned by a sophisticated management concept (Bogaschewsky 1995). Zahra (2003) shows that the development of both an operative as well as a strategic management concept is crucial for the success of organisations. Hanf (2004) deduces that strategic and operative management concepts are equally important for a frictionless functioning of chain networks. Because strategic networks are comparable to conglomerates, similar concepts can be utilised to co-ordinate a SCN (Hanf 2004). The focal company should be able to co-ordinate the information and product flows throughout the whole network. Such managerial co-ordination saves resources of all participating firms, creating a sustainable win-win situation.

Although the managerial concepts of single enterprises can in principle also be used in networks, a much more detailed analysis has to be conducted in order to adapt these managerial concepts to netchains. The management literature usually only distinguishes between the two types of strategies - corporate and business strategies. This distinction is not sufficient for an adequate consideration of the multiple linkages which exist between interdependent organisations within a chain network (Bresser/Harl 1986). Thus, various authors have introduced the concept of collective strategies (Astley 1984, Carney 1987, Edström et al. 1984). Collective strategies are defined as systematic approaches by collaborating organisations that are jointly developed and implemented (Bresser/Harl 1989). Originally, collective strategies were only regarded as instruments dealing with the variation in the inter-organisational environment. That is, they were aiming to stabilise and dominate the interdependent task environment (Bresser/Harl 1986). Collective

strategies can be re-active, absorbing variation within an environment, or they can be pro-active, forestalling unpredictable behavior by other organisations (Astley/Fombrun 1983).

If collective strategies are introduced to gain market power, they obviously are likely to violate competition law. One reason to implement collective strategies in non-power orientated co-operations is to overcome co-ordination difficulties arising from interdependency among the firms. Interdependency is created when decisions and actions by one partner influence the decisions and actions of partnering firms (Theuvsen 2004). There are three types of interdependencies: i) pooled interdependencies between firms competing in the same market, ii) vertical interdependencies between firms operating in different markets but linked by sequential work flows where the output of one is the input of the other, and iii) symbiotic interdependencies between firms that complement each other or have reciprocal product and/or information flows (Astley/Fombrun 1983, Lazzarini et al. 2001, Theuvsen 2004).

Since the focal company is the centralised decision making unit (Gulati et al. 2000, Jarillo 1988) in a pyramidal-hierarchical strategic network it exerts influence, on the decisions which members take, in the direction of securing the super-ordinate network aims (Wildemann 1997). Furthermore, the collective strategy has to include co-ordination mechanisms addressing the three different types of interdependencies. Lazzarini et al. (2001) suggest advice is the appropriate managerial discretion to exercise for vertical interdependencies. For pooled interdependencies they recommend the achievement of standardisation, and for symbiotic interdependencies they propose co-ordination through mutual adjustments. For instance, when launching the 'kanban' practice, Toyota formed strong direct ties with the suppliers by a norm of reciprocal obligations through consulting assistance (Dyer/Nobeoka 2000). Besides the right approach to the interdependencies, chain management must also analyse co-operation on three different levels, namely firm, dyadic and network level (Duysters et al. 2004). Duysters et al. (2004) arrived at the following findings. Analyses at the firm level show that successful co-operation employs a significant number of managerial constructs known from single firms. Examples are partner programs, alliance database, joint business planning, and alliance managers. Investigations at the dyadic level stress the critical role that trust and commitment play in the success of coordination. Moreover, studies at the network level emphasize the role of social capital to enhance and bring about information exchange resulting in information advantages (Uzzi 1997, Uzzi/Gillespie 2002). Furthermore, the capabilities, the knowledge, and the skills that partner firms possess are recognised as sources of competitive advantage. Consequently, network performance is related to the current ties and to the ties with potential partners. Altogether, Duysters et al. (2004) point out that for the successful management of network co-operation it is essential to consider it at all three levels and not to focus on a single one.

Moreover, a further important point of chain management is the topic of partnering. Partnering is a term that addresses issues which are associated with the design of relationships within a supply chain. Partnerships exhibit a certain degree of continuity and the focus of the relationships goes beyond price (Mentzer et al. 2000). Considering supply chain networks and the heterogeneity of their member firms, it can be expected that along the whole chain the optimal mode of partnerships varies widely. Thus, the focal company has to work out how the partnerships should be designed. Webster (1992) proposed a continuum from independent partnerships to strategic partnerships. In this article I am using the typology of Mentzer et al. (2000) dividing partnering into strategic and operational partnering. They define strategic partnering as an 'on-going, long-term, interfirm relationship for achieving strategic goals, which deliver value to customers and profitability to partners' (Mentzer et al. 2000, p.550). The aim of strategic partnering is to improve or dramatically alter a company's competitive position through the development of new products, technologies and markets (Webster 1992). Additionally, strategic partnering should also include exclusivity and non-imitability (Mentzer et al. 2000). Operational partnering is defined as a 'needed, short-term relationship for obtaining parity with competitors' (Mentzer et al. 2000, p. 550). Thus, an operational partnering strategy seeks to improve operational efficiency and effectiveness. Such strategic orientation involves shorter time spans and fewer organisational resources. Therefore, operational partnership is much easier to implement and also to reverse than strategic partnership (Mentzer et al. 2000).

Summarising, the creation of a management system for a whole SCN is a tremendous organisational task that the focal firm has to accomplish if network advantages are to be realised. Possible network advantages are the creation of intangible network resources, risk reduction, gaining of economies of scale and scope, and the reduction of transaction cost.

- The co-ordination task has to be carried out in the interest of the whole chain. The creation of a shared chain vision and the development of a collective strategy for the legally independent firms are essential presuppositions. The participating firms have to be persuaded to abandon some authority and not to behave opportunistically. Therefore, a major task for strategic chain management is to create a chain culture of honesty and mutual trust among the members.

- Moreover, such a chain management concept turns out to be a ‘unique relationship proposition’ attracting firms to join in. Hence, participating firms are challenged to keep up with their competitors enhancing the overall efficiency. And if new enterprises are joining them new knowledge, capabilities and competencies are enriching the SCN.
- Another major task of chain management is to install co-ordination mechanisms which address the three different types of interdependencies in the best way (Hanf/Kühl 2004). Additionally, the design of a SCN has to take into account the variation of the intensity of relationships; that is, the issue of strategic and operative partnering has to be borne in mind.

Overall, a SCN can be called ‘strategy focused supply chain network’ if it highlights a collective strategy, a strategic partnering orientation and strategic chain management. The major constraint is the complexity of a ‘strategy focused SCN’ (Hanf 2004). Kaplan and Norton (2001) show that the complexity and diversity of interests within a single enterprise frequently hinders the implementation of the overall strategy throughout a single company. It is certainly much more ambitious to create a strategy for networks that are composed of a multitude of firms.

4.2 Quality Management WITHIN Chain Networks

In the previous section I have discussed the general requirements and the particular difficulties of chain management concepts. I now address the special prerequisites of quality management concepts of food SCN where I generally assume that food supply proceeds in polycentric-hierarchical strategic networks with powerful focal firms. Food quality management systems must perform at least two main tasks that go far beyond a firm’s boundaries. Firstly, the system has to fulfill any legally-demanded tasks of providing transparency and traceability of any food item. Secondly, the system has to guarantee buyers that claimed experience and credence attributes really exist. The first task demands a rather sophisticated technical solution. The second task can only be accomplished when the focal firm gains consumers’ confidence and when the participating firms trust one another.

In his paper on transparency Theuvsen (2004) divides transparency into history, operations and strategic transparency. History transparency is characterised as the ‘provision of an additional information flow which accompanies the products down the food chain on their way to the consumer’ (p.127). Therefore, tracking and tracing systems, and labeling technologies, as well as organisational solutions like separating batches in warehouses, have to be installed. Operations transparency comprises the sharing of information throughout the food chain in order to co-ordinate operative business activities. As a result operations transparency deals with the problems related to the division of labor resulting in information asymmetries and imperfect co-ordination. Strategic transparency additionally requires ‘the exchange of strategic information between business partners’ (p. 125). Based on these thoughts Theuvsen (2004) proposed several managerial implications. First and foremost, netchains have to clarify the level of transparency that is needed for the supply chain network and its member firms. The demands of consumers have to be recognised in this phase as well as the legal requirements. Afterwards, the actual levels of transparency have to be identified. Finally, the structure has to be re-adjusted to the one that is really needed.

An essential task of quality chain management is to create and to disseminate confidence in the food supplied, particularly as to such credence attributes as food safety. This presupposes that the supply chain partners have to rely on one another and can. Therefore, the chain quality management system has to be designed in a governance structure that enforces good conduct. The firms must trust one another that a commodity really contains a credence attribute if it is claimed. Furthermore, the design of the governance structure has to bear in mind that consumers’ behaviour is likely altering between learning and failing to remember. This implies that credence attributes which hold a high value in times of a scare might have little value in times when there is no food scare. Accordingly, governance structures that might be optimal in times of a food quality crisis might be sub-optimal in times when there are no scares. As a result, the designs of the governance structure of chain quality systems cannot be static; instead, flexible approaches have to be preferred.

Parts of the quality chain management system have to bear traits that are oriented to the long term; for example, all instruments fortifying the reputation of the system or trust-inducing measures. Other parts are shorter-term aligned and should be adaptable to changing consumer demands. Furthermore, different member firms exhibit varying partnership relations, and the overall chain goals are not in the focus of all firms that contribute to the supply. To overcome this internal heterogeneity, Hanf/Hanf (2005) propose to divide the chain quality management into an operative part and a strategic one. It should be much easier to formulate an integrated and consistent management system with such a division.

4.2.1 Operative Quality Management

The recently established interfirm food standardisation systems like “QS - Qualität und Sicherheit” (QS)^[1], International Food Standard (IFS) and British Retail Consortium (BRC)^[2] are all generated by the current situation which demands an emphasis on risk. The systems are unidirectionally focused on food safety risks. However, food safety is only one dimension that shapes the demand for food, and it has to be taken into account that risk perception by consumers is changing over time.

Chain quality management systems which are implemented under the pressure of food safety scares pursue the main objective to minimise the safety risks caused by food consumption. The vertical systems like ISO-Certification and QS as well as the horizontal ones like IFS, BRC, and GlobalGap mainly draw upon standardisation systems. These systems are supplemented by standard approaches to history transparency and operation transparency requirements. To enable the installation of the transparency requirements, formal supply chain networks had to be established. Affiliation with such a standardised supply chain network brings no, or only very minor, competitive advantage, as the standardisation procedures are already widely used at the level of the single firm.

For a cost advantage to be achieved, the focal company of a supply chain network must, additionally, apply an operational partnering strategy to this quality management. The aim of this kind of complementary strategy is twofold. Firstly, the tracing and tracking system as well as the standardisations are utilised to gain parity with the competitors with regard to quality. Secondly, by selecting the partners the efficiency of the network is fortified. That diminishes the use of resources for the whole netchain. However, such gains in efficiency and effectiveness are essential because consumers are not willing to pay a premium price for standard products and the implementation and maintenance of such approaches is high cost. Only if the costs can be offset by respective gains can the collaborative relationships be maintained over the period of time during which consumers value safety attributes highly. However, as such food safety standards are established for the majority of food products and have to be satisfied mandatorily, no competitive advantage can be expected from compliance with the standardisation system. For instance, due to a recent scandal in fresh fruits and vegetables, all German retailers require that fruit and vegetables be labeled by QS and GlobalGap (formerly EurepGap) (Lebensmittelzeitung 2006a,b,c).

4.2.2 Strategic Quality Management

There is no doubt that any food quality management system has to include adherence to the aforementioned standards on food safety. Moreover, the focal firm can try to utilise the operative quality management system to create long-term enduring competitive advantages by adding strategic components for a subgroup of the supply chain network. In this case the focal firm has to convince the especially selected partners to accept additional quality attributes and norms higher than the standards. A number of food products are suited to realising these competitive advantages because a unique selling proposition can be reached. This may result in the possibility of (hopefully) demanding a price premium or increasing sales quantity. I think that, in particular, credence attributes can be used to create such additional value propositions. Based on credence attributes such a strategic partnering concept is hard to imitate and the benefits are exclusive to the members of the selected SCN.

To permanently establish such strategic quality management a collective strategy has to be developed: a systematically planned approach of the collaborating firms within the supply chain network to reach a common quality. Such a collective strategy is necessary as the quality decisions and actions made by one partner influence the decisions and actions that partnering firms are facing. Hence, strategic quality management has to consider the evolving interdependencies as well as the resulting strategic transparency. Additionally, a strategic quality management system has to address all issues discussed in the previous section. Above all the establishment of trust between the partners and the creation of a chain culture of honesty are important. In summary, this type of strategic chain quality management can only be implemented in strategy-focused supply chain networks.

In general, the establishment of a food quality management system in a netchain is a hybrid system that overlaps the boundaries of firms. If the focal company is a branded food supplier the strategy is shaped according to the requirements of the brand. If this brand emphasises quality partly embodied in credence attributes, more or less centralised strategic quality management is needed. In the case of a brand for which non-quality propositions like image or price are put forward then operational quality management systems may be sufficient.

5. Conclusion

5.1 Implications

Strictly coordinated chain organisations have been in place in the agri-food sector for many years. The majority of them

are collaborative. These organisations have a pyramidal-hierarchic structure. A focal firm, which often is a retailer, coordinates the network firms in a hierarchical style. Besides the mere size and power of the retail companies, retail branding has altered the responsibilities of retailers. Carrying own-branded products and being a brand themselves retailers are regarded as being liable for the reliability of food products. Thus, today both retail-brand management and processor-brand management face the same challenges. In this context the management of the focal company (i.e. retailers) has to take into account that it has to guarantee the authenticity of the quality of the whole food chain because incorrect decisions concerning food safety may happen at any point throughout the whole food chain. In order to meet the desired 'new quality definition' food processors and retailers have to re-design their food chains in such a way that all stages of the food chain are involved. On account of this, the co-ordination mechanism of the existing food chain has to be altered, as spot market transactions are unable to properly co-ordinate the exchange of credence attributes such as food quality. They have to be substituted by transactions in vertical co-ordinated chain organisations. Thus, retailers face the challenges to build closer and long-term oriented business relationships with their suppliers. Furthermore, when they are selecting their suppliers the retail management has to be aware which kind of quality management has to be installed for which (retail-branded) product. If they do not attach to this product category a high strategic value, an operative partnering approach is right. However, if they want to strengthen their reputation as a retail brand they have to choose a strategic partnering approach.

These general implications are enduring if 'new markets' are being studied. In a very preliminary telephone survey of six CEOs of western European retailers that was conducted in spring 2007 the general findings were agreed upon. Entering 'new markets' such as China, India, and Russia these retailers faced the challenge to build up totally new procurement relationships. Even though the local population has not been demanding the same quality standards as in Western Europe the retailers decided that in the medium term the basic standards such as IFS, BRC, and ISO have to be met. The reason for this was that due to their attempts to create a global retail brand they cannot have substantial differences in product and process quality under the one brand. Therefore, they work together with their suppliers on chain quality approaches. Quite often the efforts start by building basic infrastructure. Gorton et al. (2006) showed that in Moldova branded dairy processors were providing cooling tanks to village co-operatives in order to allow small scale farmers and households to deliver small quantities of milk. At the same time basic laboratories were installed so that the processors could control the quality of the delivered milk. For Bulgaria, Poland, and Slovakia similar findings have been achieved by Dries/Swinnen (2005).

Summarising the interviews it became clear that all of the questioned retailers agreed that, to protect their retail brand-name, global food quality standards have to be met. However, if retailers enter a market they first have to start to build procurement relationships and basic infrastructure before they can think about implementing basic chain quality approaches such as certification schemes. Nonetheless, when entering a new market they also take along their certification bodies such as EurepGap. In the medium and longer term these retailers demand from the local suppliers that they adapt to the retailers' global quality standards. Overall, retailers face two major challenges. On the one hand, due to the high investment risks as a result of external factors such as political instability Western retailers have to achieve a high return on investment in the short term. On the other hand, they have to build up long-term relationships with their suppliers and invest in basic infrastructure as well as in chain management approaches.

5.2 Summary

The starting point of this article was the recent developments in the agri-food sector in general and food retailing in particular. Changing over time from the vicarious agents of the food processors, today retailers can be regarded as one of the most powerful actors in the food chain. Thus, if there are any inadequacies in the quality of retail-branded food products, retailers will be made liable for it. Because perceptions of food quality have altered due to food scandals and scares today food quality is no longer solely product item-focused; instead the whole production process is included. The firm which is understood by consumers and politicians to be the one in charge is therefore responsible for the appropriateness of the food output from the whole food chain. Consequently, strictly coordinated chain organizations are evolving. Such co-ordinated chain organisations are either hybrids or vertically integrated firms. For the agri-food sector there is evidence that the majority of these chain systems are organised as vertical networks: supply chain networks.

Even though the thoughts presented here are valid both for food processors and retailers, due to the increasing importance of retail brands food retailers seem increasingly to be the drivers of the establishment of supply chain networks. Supply chain networks are strategic networks and demand a collective strategy and a common chain management. The chain management has to incorporate the relationships and interdependencies of the member firms as well as problems arising at the firm level, the dyadic level, and the network level. I have differentiated between operative chain quality management and strategic chain quality management. Operative chain quality approaches address food safety and risk issues as well as efficiency issues.. For this purpose chain-adapted standardisation systems are used like ISO, QS, and IFS. Operative approaches are mainly tools to achieve parity with competing SCN,

whereas a strategic chain quality system can be used to achieve a qualitative competitive advantage. Strategic chain quality management considers additional quality attributes which are credence characteristics. However, I am not arguing that every supply chain network needs strategic chain management. Only if it has a strategic goal such as being a trusted brand. At that moment a strategic quality management approach is appropriate.

6. References

- Astley, W.G., 1984 "Towards an Appreciation of Collective Strategy", *Academy of Management Review*, Vol. 9, 526-535.
- Astley, W.G. and Fombrun, 1983 "Collective Strategy: Social Ecology of Organizational Environments", *Academy of Management Review*, Vol. 8, 576-587.
- Bogaschewsky, R., 1995 "Vertikale Kooperation – Erklärungsansätze der Transaktionskostentheorie und des Beziehungsmarketings", *Zeitschrift für betriebswirtschaftliche Forschung, Sonderheft 35*, 159-178.
- Burr, B., 1999 "Koordination durch Regeln in selbstorganisierenden Unternehmensnetzwerken", *Zeitschrift für Betriebswirtschaft*, Vol. 69, 1159-1179.
- BRC, 2008 "Homepage of the British Retailer Consortium", http://www.brc.org.uk/standards/default.asp?mainsection_id=1, visited 02.04.2008.
- Bresser, R.K.F. and J.E. Harl, 1986 "Collective Strategy: Vice or Virtue?", *Academy of Management Review*, Vol. 11, 408-427.
- Carney, M.G., 1987 "The Strategy and Structure of Collective Action", *Organization Studies*, Vol. 8, 341-362.
- Duysters, G., Heimeriks, K.H. and J.A. Jurriens, 2004 "An integrated perspective on alliance management", *Journal on Chain and Network Science*, Vol. 4, 83-94.
- Dries, L. and J.F.M. Swinnen, 2005 *Globalization, Quality Management and Vertical Coordination in Food Chains of Transition Countries*. Paper prepared for the 92nd EAAE seminar on Quality Management and Quality Assurance in Food Chains, March 2-4, Göttingen, Germany.
- Dyer, J.H. and K. Nobeoka, 2000 "Creating and Managing a high-performance knowledge-sharing network: The Toyota Case", *Strategic Management Journal*, Vol. 21, 345-367.
- Edström, A., Högberg, B. and L.E. Norbäck, 1984 "Alternative Explanations of Interorganizational Cooperation: the Case of Joint Programmes and Joint Ventures in Sweden", *Organization Studies*, Vol. 5, 147-168.
- Gorton, M., Dumitashko, M. and J. White, 2006 "Overcoming supply chain failure in the agri-food sector: A case study from Moldova", *Food Policy*, Vol. 31, 90-103.
- Granovetter, M., 1985 "Economic action and social structure: the problem of embeddedness", *American Journal of Sociology*, Vol. 91, 481-510.
- Gulati, R., Lawrence, P.R. and P. Puranam, 2005 "Adaptation in vertical relationships: Beyond incentive conflicts", *Strategic Management Journal*, Vol. 26, 415-440.
- Gulati, R., Nohria, N. and A. Zaheer, 2000 "Strategic Networks", *Strategic Management Journal*, Vol. 21, 203-216.
- Gulati, R. and H. Singh, 1998 "The architecture of cooperation: managing coordination costs and appropriation concerns in strategic alliances", *Administrative Science Quarterly*, Vol. 43, 781-794.
- Hanf, J. and C.-H. Hanf, 2005 *Does food quality management create a competitive advantage?* Paper prepared for the 92nd EAAE seminar on Quality Management and Quality Assurance in Food Chains, March 2-4, Göttingen, Germany.
- Hanf, J. and R. Kühl, 2005 "Branding and its Consequence for the German Agribusiness", *Agribusiness: An International Journal*, Vol. 21, 177-189.
- Hanf, J., 2004 *Strategic Chain Management in the German Agri-Food Business*. SAM/IFSAM VIIth World Conference, Göteborg, Schweden, July 5-7.
- Hanf, J. and R. Kühl, 2004 "Strategy focussed Supply Chain Networks", in: Bremmers, H.J., Omta, S.W.F., Trienekens, J.H and E.F.M. Wubben (eds.). *Dynamics in Chain and Networks*. Wageningen Academic Publishers, 104-110.
- Heide, J.B. and A.S. Miner, 1992 "The shadow of the future: effects of anticipated interaction and frequency of contact on buyer-seller cooperation", *Academy of Management Review*, Vol. 17, 265-291.
- IFS, 2008 "Homepage of the International Food Standard", <http://www.food-care.info/>, visited 02.04.2008.

- Inkpen A.C. and E.W.K. Tsang, 2005 "Social capital, networks, and knowledge transfer", *Academy of Management Review*, Vol. 30, 146-165.
- Jarillo, J.C., 1988 "On strategic networks", *Strategic Management Journal*, Vol. 9, 31-41.
- Kaplan, R.S and D.P. Norton, 2001 *The strategy focused organization*, Harvard Business School Press.
- Kasperzak, R., 2004 "Netzwerkorganisation und das Konzept der rechnungslegenden Einheit", *Zeitschrift für Betriebswirtschaft*, Vol. 74, 223-247.
- Lazzarini, S. and F. Chaddad and M. Cook, 2001 "Integrating Supply Chain and Network Analysis: The Study of Netchains", *Journal on Chain and Network Science*, Vol.1, 7-22.
- Lebensmittelzeitung, 2006a "Handel geht auf Nummer Sicher", *Lebensmittelzeitung*, No. 6, 6.
- Lebensmittelzeitung, 2006b "Lidl mimt den Saubermann", *Lebensmittelzeitung*, No.5, 1.
- Lebensmittelzeitung, 2006c "Lidl will bei Frischwaren strengere Maßstäbe anlegen", *Lebensmittelzeitung*, No.4, 10.
- Medcof, J.W., 2001 "Resource-based strategy and managerial power in networks of internationally dispersed technology units", *Strategic Management Journal*, Vol. 22, 999-1012.
- Menard, C., 2004 "The Economics of Hybrids Organisations", *Journal of Institutional and Theoretical Economics*, Vol. 160: 345-376.
- Mentzer, J.T., Min, S. and Z.G. Zacharia, 2000 "The Nature of Interfirm Partnering in Supply Chain Management", *Journal of Retailing*, Vol. 76, 549-568.
- Nieschlag, R., Dichtl, E. and H. Hörschgen, 1994 *Marketing*. 17, Auflage, Duncker & Humblot, Berlin.
- Omta, A.W.F., Trienekens, J.H. and G. Beers, 2001 "Chain and network science: A research framework", *Journal on Chain and Network Science*, Vol.1, 1-6.
- Pfeffer, J. and G.R. Salancik, 1978 *The External Control of Organizations*, Harper & Row, New York
- QS, 2008 "Homepage of QS – Qualität und Sicherheit, <http://www.q-s.info/Startseite.home.0.html?&L=1>, visited 02.04.2008.
- Theuvsen, L., 2004 "Transparency in netchains as an organizational phenomenon: exploring the role of interdependencies", *Journal on Chain and Network Science*, Vol. 4, 125-138.
- Sydow, J., 1991 "Strategische Netzwerke in Japan", *Zeitschrift für betriebswirtschaftliche Forschung*, Vol. 43, 238-254.
- Uzzi, B., 1997 "Social Structure and Competition in Interfirm Networks: The Paradox of Embeddedness", *Administrative Science Quarterly*, Vol.42, 35-67.
- Uzzi, B. and J.J. Gillespie, 2002 "Knowledge spillover in corporate financing networks: embeddedness and the firm's debt performance", *Strategic Management Journal*, Vol. 23, 595-618.
- Webster, F.E. Jr., (1992) "The Changing Role of Marketing in the Corporation", *Journal of Marketing*, Vol. 56, 1-17.
- Wildemann, H., 1997 "Koordination von Unternehmensnetzwerken", *Zeitschrift für Betriebswirtschaft*, Vol. 67, 417-439.
- Williamson, O.E., 1975 *Markets or Hierarchies: Analysis and Antitrust Implications*, Free Press, New York.
- Zahra, S.A., 2003 "The Practise of Management: Reflections on Peter F. Drucker`s landmark book", *Academy of Management Executive*, Vol. 17, 16-23.
- Zylbersztjn, D. and E.M.M.Q. Farina, 2003 *Dynamics of Network Governance: A Contribution to the Study of Complex Forms*. Paper presented at the IV International Conference on Agri-Food Chain/Networks Economics and Management, Ribeirao Preto, Br.

[1] As a reaction of the BSE and FMD diseases in the winter of 2000/01 in Germany a voluntary association of all food chain participants was founded in 2001. It has the goal to regain and strengthen consumer trust in the proper and high-quality production of food. QS stands for a quality assurance scheme across all stages of the food chain. All companies that are active in the QS system are working towards a common goal within an association for active consumer protection. The basis for a functioning quality assurance system is monitoring. The QS system has a three-stage control

system. The first level is the company's internal control. The internal control system is checked regularly through independent control bodies. These independent certification bodies form the second control level. In a third stage, the entire QS system and the work of the certification bodies are monitored. This means the controls themselves are checked. (QS 2008)

[2] In 2002, in order to create a common food safety standard, German food retailers have developed a common audit standard called International Food Standard. It has been designed as a uniform tool to ensure food safety and to monitor the quality level of producers of retailer branded food products. The standard can apply for all steps of the processing of foods subsequent to their agricultural production. Thus, IFS helps to comply with all legal food safety requirements. Thus, the aim of the IFS is to create a consistent evaluation system for all companies supplying retailer branded food products with uniform formulations, uniform audit procedures and mutual acceptance of audits, which will create a high level of transparency throughout the supply chain. (IFS 2008)

In 1998 the British Retail Consortium, responding to industry needs, developed and introduced the BRC Food Technical Standard to be used to evaluate manufacturers of retailers own brand food products. It is designed to be used as a pillar to help retailers and brand owners with their 'due diligence' defence, should they be subject to a prosecution by the enforcement authorities. (BRC 2008)