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CHAPTER 13

Importance of relationship quality in food supply chain management

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Fierce competition in today's global markets and increased consumer expectations have forced companies to invest and focus on relationships with their customers and suppliers. Contemporary managerial thinking advocates the cooperation of business partners and responds to customer needs as an additional incentive to a successful competitive strategy.

One of the critical factors in AFSC is how to ensure fair cooperation between stakeholders and at the same time pay attention to economic, environmental, social, organizational, marketing and safety factors and responsibility towards companies, consumers and society^[1]. Managers in production and retail and managers of agri-food companies are becoming aware that successful coordination, integration and management of key business processes and quality cooperation of all stakeholders in the supply chain will ultimately determine their competitive success.

One of the goals of the supply chain is that companies do not view each other individually, but as members of a competitive network in which more companies are involved in creation of value. This goal can only be achieved through the cooperation of all participants in the supply chain, because the network has a competitive environment that brings benefits to all stakeholders and strengthens the supply chain. That is why it is important for the supply chain to integrate individual members and companies in the network in order to achieve the greatest possible benefits for members of the supply chain through cooperation^[2].

All participants in the AFSC should make efforts to improve the functioning of the chain, especially in terms of quality, competitiveness, pricing, requirements for absolute safety of agri-food products and the interrelationships between members of the chain (trust, communication, knowledge exchange, loyalty, etc.).

13.1 Integration and collaboration in Agri-food Supply Chain

In economics, the term integration means the merging of individual business partners and processes into an organized system for better joint market performance that will reduce costs, increase competitiveness and success of each business partner. Collaboration is a process in which several people or businesses come together (integrate) to do a job or activity, sharing tasks and roles, helping each other and coordinating

efforts to achieve a common goal. This implies cooperation that includes partnership, joint leadership, risk sharing, co-decision, ie a closer and more intensive relationship, equality and commitment. Here are some definitions of cooperation in supply chains:

Mentzer et al.^[3] “Supply chain cooperation” means “a business process in which collaborating partners work together to achieve common goals that are mutually beneficial to partner companies”.

Humphries and Wilding^[4] argue that cooperation means “working together to bring resources together to achieve effective operations in line with the strategies and goals of the parties involved, resulting in mutual benefits”

According to Simatupang and Sridharan^[5], supply chain cooperation is defined as “two or more chain members working together to create a competitive advantage by exchanging information, making joint decisions and sharing benefits derived from greater cost-effectiveness and end-customer needs. himself”.

Within the AFSC, there may be different levels of cooperation (vertical cooperation, horizontal cooperation, internal cooperation, external cooperation, which in turn can be downstream or upstream, etc.). The quality of cooperation will depend on many factors: product characteristics, business relationships and business processes, number of chain stakeholders, supply chain complexity, supply chain position, information exchange among chain stakeholders, mutual trust, etc.

In supply chain management, it is important to achieve the appropriate level of integration and cooperation between the partners in the chain, since the success of each individual entity in the supply chain does not depend solely on itself, but on their joint market presence. In order for a business to be successful, each member must gain an appropriate level of trust in other members and accept the fact that he is dependent on the business of other members in the supply chain.

According to Dani^[6], cooperation can be considered in three forms:

1. transactional cooperation: this includes simple communication and data exchange between partners;
2. cooperative cooperation: this includes partners who share data and processes and set common supply chain objectives; and
3. cognitive cooperation: this requires a higher level of involvement, as partners work together in joint planning and decision-making and develop a relationship of mutual trust and interdependence.

In order to achieve the objectives of the AFSC, it is important that all members of the supply chain are integrated and work together because the supply chain is “strong” only as the weakest link in it. For example, if a member of the supply chain does not comply with legal regulations and standards, it affects all partners because there is a decline in the reputation of customers and the public^[7].

13.1.1 Vertical and horizontal collaboration

When we talk about integration or cooperation in agri-food supply chains, cooperation can be horizontal and vertical. The type of cooperation will also significantly affect the supply chain management^[8, 9].

1. *Horizontal cooperation* – this type of integration is characterized by the cooperation of organizations at the same channel level, usually under the leadership of one of the participants. This means integrating several companies that produce the same types of products or the same level of production processes along the supply chain (eg different farmers integrate into a cooperative). It can also be a question of uniting mutual competitors. Frequent examples are joint distribution in individual markets where individual companies do not have enough resources to develop a quality distribution channel on their own. Two or more companies at the same level join forces to create new market opportunities. Companies combine their capital, sales teams and expertise, production potentials, marketing resources and thus achieve more than they would achieve individually. In this way, producers, retailers or any other participants from the same economic level can come together.
2. *Vertical cooperation* – consists of connecting different stakeholders (eg agricultural producers, processors, retailers) who act as a single system, but the participants are not at the same economic level. Individual participants from different economic levels come together to improve their own business and stand out from the competition. Vertical supply or value chain integration requires farmers, food

processors and food retailers to develop and maintain close and sustainable business relationships with each other. Full vertical channel integration will mean that one member has mastered all parts of the channel from producer to consumer. A higher degree of vertical coordination introduces more complex relationships among chain stakeholders and increases the level of interdependence among them. However, at the same time, vertical cooperation leads to greater coordination between, for example, farmers and food processors, which results in improved economic performance. The quality of agri-food products must be maintained at all stages of the supply chain from receiving production to the final consumer. As a result, agri-food supply chains are more intensively vertically coordinated than other supply chains. This is especially true of organic production chains. Based on research conducted in the German agri-food chain in two different phases (farmer-processor and processor-trader) and two different types of relationships (formal and informal), Reynolds et al.^[10] conclude that effective communication, personal connections and equal the distribution of power between customers and suppliers is a key determinant of sustainable vertical business relationships. The relevance and meaning of the determinants differ at different stages of the supply chain and in formal and informal types of relationships.

It should also be noted that contracts between farmers and processors are an instrument that supports a strong production link between the two phases of the chain, allowing for a greater degree of vertical coordination. The integration of the agricultural sector and processing should be strong, because the processor must be sure of the origin of raw materials and the fact that agricultural production is in line with the set standard of the production process. The supply chain of fresh produce is mainly linked by contract, and in the relationship between primary farmers and processors, contracts are more frequent^[11]. Supply contracts allow for a greater degree of vertical coordination, including greater interaction between chain stakeholders, because the set of rules is fixed (delivery schedules, pricing and product characteristics), thus improving traceability, quality assurance and security of supply to end consumers. In addition, processing companies purchase raw materials mainly from national, regional and local markets, facilitating vertically coordinated production. Contract agriculture can also bring significant benefits to farmers. With a reasonable contract, the farmer gains customer confidence, a fixed price (reducing the risk of price volatility), contracted loan terms and reduced marketing costs. In the medium to long term, 'contractual relations' and vertical coordination can lead to better relations and positions of interdependence. However, small farmers who do not have enough production volume to sell directly to the buyer find it difficult to find their place in such a partnership.

Vertical cooperation between food chain stakeholders is influenced by several factors: complex interaction between stakeholder strategies (eg processors and traders), power asymmetry between upstream and downstream companies, supply chain constraints (eg farmer-trader) and types of chain management structure supply^[12].

Since cooperation is based on relationships, whether at the interpersonal or organizational level in the context of supply chain management, there are also intraorganizational or internal cooperation, which refers to cooperation within organizations and interorganizational or external cooperation, which refers to the cooperation of all members in the supply chain^[13]. Vertical collaboration includes collaboration with customers and suppliers and collaboration within the organization. Horizontal cooperation includes cooperation within the organization and its entities, but also external cooperation with competitors and other organizations. Internal collaboration refers to the organization's culture of collaboration (for example, the existence of elements of trust and commitment). External downstream cooperation includes customer relationship management, while external upstream cooperation includes supplier management. There may be different levels of relationships within a supply chain.

Cooperation in the context of inter-organizational relations is very important, because when it comes to developing the quality of relations between companies or supply chain stakeholders, it is crucial to achieve the prerequisites for successful cooperation, including trust, because without trust between business partners, partnerships can not be successful.

13.1.2 Prerequisites for collaboration and relationship quality

Due to different product characteristics (fresh, processed food) there are different AFSC relationship structures (eg farmer-processor; farmer-trader, processor-trader, etc.) or forms of governance that significantly affect the quality of cooperation and relationships. In the case of AFC, both business relationships (e.g., price, cost, and market) and social relationships (e.g., local connections, trust, and friendship) are considered vital to its success^[14].

Close cooperation can help reduce business uncertainty and risk and achieve better performance for each stakeholder and the entire supply chain. In order to achieve this, it is necessary to achieve certain prerequisites for quality cooperation.

Wilding & Humphries^[15] list ten attributes that foster supply chain collaboration: reliability, long-term focus, communication, stability, win-win, trust, willingness to compensate, personal relationship, creativity, and C3 (collaboration, cooperation, and coordination). Bezuidenhout et al.^[16] believe that a lack of attributes such as reliability, trust, good personal relationships and communication cause fragmentation, opportunism and a desire for excessive control of individuals in the chain, and that reciprocity and communication are key strengths of the system. In his research, Aji^[17] singles out four key variables for building relationships: satisfaction, trust and two dimensions of commitment – commitment to continuity and commitment to support. Schulze & Spiller^[18], in researching the quality of relationships in the German pork sector, also argue that relationship quality must be conceived as a construct that encompasses satisfaction, trust, and commitment.

In business cooperation, the failure of either party seriously affects the performance of the other party. The human element within the supply chain partnership is extremely important for the partnership to function, so changes in organizational culture and behavior are necessary in creating a quality of cooperation in the supply chain. Cooperation is vital to empowering small farmers, especially those in communities with low socio-economic status. As key stakeholders in the AFSC, farmers typically have limitations in business skills, aspirations, and systematic thinking, so they often focus heavily on their business rather than creating an integrated collaborative system. Conflicts and misunderstandings can be minimized by understanding and managing the factors, ie the preconditions of quality cooperation in partnership in AFSC. Accordingly, several key prerequisites for quality cooperation in the AFSC shown in Figure 1 will be explained in more detail.

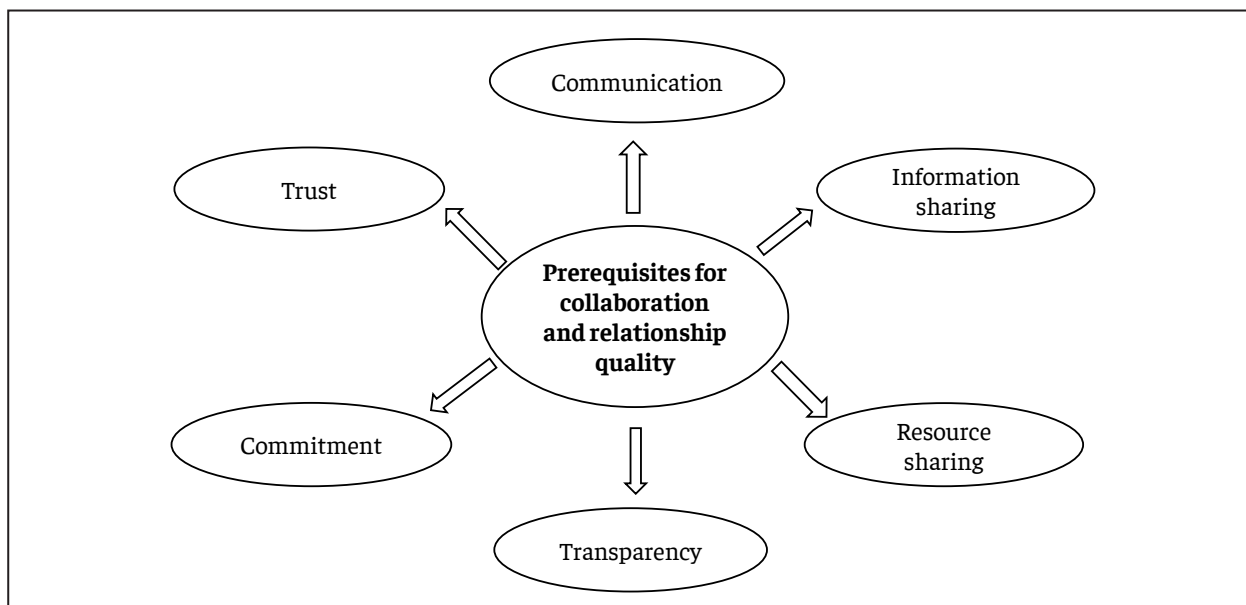


Figure 1. Key prerequisites for quality cooperation in AFSC
Source: Author's work

¹ Paper in the publishing process

1. Trust

Trust is a central component of AFSC management and only in this way can the food supply chain be successful. Trust is an important strategic condition and one of the main factors that can improve or limit (in case of mistrust) successful cooperation in the AFSC. In the agricultural sector, trust is more important for small and medium enterprises, which are characterized by the existence of personal relationships between business partners^[19, 20].

There is no single definition of trust and different authors distinguish different forms of trust in business relationships. Eg:

Trust is considered to exist if “one party believes that the other is fair or well-intentioned”^[21].

Trust can be seen as the opposite of opportunism in business relationships. Therefore, trust is defined as the belief that a business partner can rely on the fulfillment of its obligations in a situation involving risks and vulnerabilities^[22].

In operational terms, ‘trust’ refers to the belief that the other party is honest and fair and under no circumstances will it intentionally do anything that would damage the relationship. Quality cooperation, trust and commitment are important prerequisites for food quality as one of the important indicators of the success of the agri-food supply chain^[23].

Laequddin et al.^[24] noted that there are three key perspectives on trust in supply chain relationships:

1. *Characteristic trust* – deals with factors such as perception, reliability, credibility, commitment, honesty, goodwill, honesty, good will and emotions, etc.
2. *Rational trust* – deals with factors such as relationship economics, dynamic partner capabilities and technology adoption.
3. *Institutional trust* – deals with factors such as control mechanisms between supply chain members through legal frameworks, commercial law, contracts, agreements, bank guarantees and insurance.

In order for trust among business partners to develop successfully, certain preconditions of trust must be met. Different literature shows different prerequisites of trust within the AFSC. Thus Batt^[25] identifies perceived honesty, credibility of information, reliability of promises, relationship satisfaction, compatibility of goals, and relationship investment as factors that build trust in the fresh food chain. Puspitawati et al.^[26] list eight predecessors of trust in AFSC: communication, price transparency, price satisfaction, price quality ratio, joint problem solving, partner reputation, dependence and flexibility in the relationship. Numerous authors agree that the most important determinants of trust in AFSC are the quality of communication achieved by the frequency of communication and the quality of information, together with a positive experience of cooperation^[18, 27, 28]. Trust can be based on “contractual trust” contracts, on the capabilities and knowledge of the business partner “trust of competences” and on the willingness and commitment of the other party “trust of good will”^[29].

The higher the level of trust between the partners, the more likely it is to develop long-term cooperation. After developing a high level of trust, quality cooperation, good communication and strong personal relationships between the partners, the parties begin to engage in activities such as joint product development, co-investment or the development of innovation capacity^[30].

2. Communication

Another important category of cooperation and one of the prerequisites for trust is communication between business partners. Effective and efficient communication is a prerequisite for quality cooperation^[31]. Through continuous and honest communication, supply chain problems can be avoided and solutions can be found more easily, which greatly simplifies and improves cooperation among supply chain members^[32].

3. Information sharing

The exchange of information is a key feature in the category of cooperation, as the exchange of information not only reduces uncertainty among business partners, but leads to better efficiency, flexibility and faster response of the entire supply chain^[2]. This includes, in particular, sensitive strategic and tactical information about the company, such as demand forecasts and sales strategies, which the focal company shares

with its supplier^[33]. Lack of information within supply chain partners leads to increasing fluctuations in demand upstream in the supply chain^[34]. As a result of frequent information exchange, processes within the supply chain can become more efficient, savings can be achieved and costs can be reduced, thus avoiding the bullwhip effect, ie extreme changes in the amount of stock from the end to the beginning of the supply chain. which is caused by a small change in supply chain demand.

4. Sharing of resources

Resource sharing is also one of the subcategories of collaboration and differs from information sharing in its physical nature. While the latter refers to the sharing of data and information, the sharing of resources between supply chain partners involves the sharing of physical, financial, human and organizational resources^[35]. Through collaboration, companies can pool their resources and create a sustainable competitive advantage. However, companies not only share information and resources with each other, but also share risks if they work together successfully. As a result, supply chain members alleviate uncertainty.

5. Transparency

Transparency between supply chain partners improves communication within the supply chain and increases the exchange of information, which can lead to successful cooperation and improve overall supply^[26]. Transparency is particularly important in the case of pricing, as customers have high demands that their suppliers can communicate price changes as quickly, comprehensively and up-to-date as possible, in order to reduce uncertainty and achieve better planning security^[36]. This strengthens the bond between the partners and can lead to trust. If there is close cooperation between supply chain partners, mutual support can be expected in improving and further developing inter-company relations, as well as further product development^[37].

6. Commitment

Commitment or commitment reflects the organization's faith and commitment in maintaining and improving relationships with partners to work together to create value in the long run. Like trust, it is one of the most critical behavioral factors for successful cooperation in the agri-food supply chain^[38]. Trust and commitment lead to the creation of loyalty in relation to a business partner.

In addition to the previously mentioned and described factors that enhance cooperation between partners in the supply chain, there are also those that can negatively affect the development of cooperation, such as excessive use of power and opportunism.

1. Power

The power factor speaks about the ability of a person or organization to influence the behavior, decisions and actions of others by shaping parameters in cooperation and leading the direction of partnership^[39]. Power can also be used to determine pricing, inventory, operations, supply chain structure, and distribution of information in the supply chain. The more powerful the organization, the more it will be able to influence the types of information shared, the recipients, and the sharing mechanism in collaborative activities. However, the power function should not be used to exploit weaknesses, but to support and help find better ways to solve partnership problems, increasing mutual benefits and competitive strategies^[38].

2. Opportunism

Opportunism is a risky situation in which companies and individuals seek to take advantage of the situation. In inter-organizational relations, opportunism occurs when one or more parties exploit the vulnerabilities of other parties in search of their own unilateral gain at the substantial expense of other parties and/or the relationship as a whole^[40]. It is a search for self-interest, which lacks honesty. Hobbs^[41] states that the risk of opportunism increases in certain situations in supply chains, where the bargaining power of the chains is not evenly distributed. For example, when there are only a few buyers of products from many suppliers, as in most agricultural products in rural areas, the bargaining power of producers may be limited. Therefore, there

is a high risk that customers will act opportunistically. Some examples of opportunistic customer behavior (e.g. trader) are: the trader controls all information and does not share it with producers, the trader does not treat his supplier fairly and honestly, ie as an equal partner in the supply chain, the trader does not care about the supplier's welfare their interests and well-being, etc. The lower the opportunism of the supply chain partners, the greater the trust in the entire supply chain network.

13.2 Agri-Food Supply Chain performance measurement

Cooperation and trust can help improve the efficiency of the agri-food supply chain. Supply chain performance refers to the overall performance of a chain that depends on the performance registered at each stage of the supply chain^[42]. Therefore, it is important to improve not only the performance of individual members in the supply chain, but all participants in the supply chain. Competitive advantages are among the main strategic goals of the supply chain and can be generated and consolidated not only through the exchange of resources and information, but also through other indicators such as cost, delivery and delivery speed, quality and flexibility^[31]. Performance measurement is the process of qualifying the efficiency and effectiveness of the supply chain. In practice, there are a large number of performance indicators that mainly depend on the specific characteristics of the supply chain, which is why there is no single definition of performance indicators. Some of the definitions are:

“Performance measures serve as an indicator of how well a business initiative, process or system is functioning”^[43].

Performance indicators are the criteria by which the performance of products, services and production processes can be assessed^[44].

The success of a company is the result of a cooperative relationship in the supply chain in the form of increased sales, productivity and market share^[45].

Due to the specifics of agri-food chains and the characteristics that distinguish them from other supply chains, performance measurement is not easy to perform^[46]. Performance indicators of agri-food supply chains are grouped into four main categories^[42, 46, 47]: efficiency, flexibility, responsiveness and food quality. Each of these main categories contains more detailed performance indicators.

1. Efficiency measures the optimal use of resources in the supply chain. It has the aim to maximize the added value of the process and minimize costs. Some of the indicators for measuring performance are:

- *Production costs and distribution costs* – combined costs of raw materials and labor in the production of goods, combined distribution costs, including transport and handling costs.
- *Inventory costs* – are manifested through the time of inventory turnover.
- *Transaction costs* – costs incurred in trade in goods or services (eg search costs, negotiation costs and implementation costs).
- *Waste costs* – incurred in production, distribution, inventory management, etc.
- *Profit (profit)* – a positive return on investment or business after deducting all costs.
- *Return on investment* – a measure of a company's profitability and a measure of how efficiently a company uses its capital to make a profit.
- *Asset value (inventory)* – company goods, raw materials, finished and unfinished products not yet sold.

Through process improvements, faster inventory turnovers, or lower transaction costs, cost reduction can occur, improving supply chain performance.

2. Flexibility – the ability to adapt to a changing environment (eg. responding to changes in the market in order to gain or maintain a competitive advantage or to changes in customer demand). Some of the indicators for measuring flexibility are:

- *Customer satisfaction* – the degree to which customers are satisfied with products or services.
- *Volume flexibility* – the ability to change the output levels of manufactured products.

- *Delivery flexibility* – the ability to change planned delivery dates.
- *Reserve orders* – an order that is not currently in stock, but is being ordered and will be available later.
- *Lost sales* – an order lost due to inventory because the customer does not want to approve/accept the backlog order.

3. Responsiveness – the speed at which the supply chain delivers products to the customer.

Some of the indicators for measuring responsiveness are:

- *Charging speed* – the percentage of units ordered that are delivered by order.
- *Product delay* – the time between the promised product delivery date and the actual product delivery date.
- *Customer response time* – the time between the order and the corresponding delivery.
- *Runtime* – the total time required to produce a particular item or service.
- *Customer complaints and returns* – Registered customer complaints about a product or service and product returns.
- *Delivery errors* – incorrect product deliveries.

4. Food quality and food safety – special characteristics of chains food supply that implies product and process quality. Some of the indicators for measuring food quality and safety are:

- *Sensory properties, appearance and shelf life* – a first look at the food, a combination of different attributes, such as color, size and shape, strength, lack of stains and damage.
- *Taste* – determined by the sweetness, bitterness and aroma of vegetables/fruits.
- *Shelf life* – how long the packaged food will last without change or deterioration.
- *Health and nutritional values of the product* – that the product is healthy and qualitatively nutritious.
- *Product safety* – the product does not exceed an acceptable level of risk associated with pathogenic organisms or chemical and physical hazards such as microbiological, chemical and physical contaminants in the products.
- *Process quality* – consists of the characteristics of the production system that indicate the method of food production and includes factors such as pesticides used, animal welfare and the use of genetic engineering and environmental aspects such as the use of packaging and food waste management.

Supply chain performance indicators depend on the quality of cooperation of members in the supply chain and their mutual trust. Achieving a high level of efficient and successful relationships and cooperation also ensures the sustainability of agri-food supply chains.

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