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CHARACTERISTICS OF VALUE BASED ORGANIC FOOD CHAINS: TWO CASES FROM SLOVENIA

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Abstract: *In the literature the value based food chains express two main characteristics: business relationships among strategic partners interacting in the supply chain are based on a written set of values and food products are differentiated from similar food products (Stevenson, 2009). To verify the first part of the definition the analysis of two organic food chains were carried out. For the analysis of business relationships and food quality communication in the food chain two different methodological approaches were used. For collecting the input data semi-structured interviews of various stakeholders were performed. The results of the analyzed case studies show the characteristics of value based food chains could be broader and more complex if some additional perspectives were considered.*

Keywords: *value based food chain, organic production*

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1. Introduction

The commonly use of value based food chain terminology can be found in the recent European scientific literature after 2010 (Stevenson and Pirog 2008, Pirog and Bregendhal 2012, European Parliament 2013). Vacas et al. (2014) have explained positive direct and indirect economic and social effects of value based food chain to increasing the local economy and community, such as higher farmer´s income, lower unemployment rate, "fair price", and good relationships between the actors. Vacas et al. (2014) also argue positive direct and indirect economic effects of value-based food chains are definitely lower compare to conventional food chains, because of higher production costs and investments in production and processing system.

The characteristics of VBFC are: i) producing and spread the values equably to all partners, addressing producers, processors, retailers and consumers demand for memorable (according to Stevenson et al. 2011; Viitaharju et al. 2005) and ii) producing food products which are differentiated from similar food products based on product attributes such as food quality and safety. VBFC depends on an excellent cooperation and information flow between chain members during growth, aiming to provide transparency (Münchhausen et al. 2014). Growth process and successful development of VBFC are also closely linked to trust between the actors along the food chain (including the consumers trust into the food chain or brand), which can be reached with developing interactions between producers and consumers.

The objective of this paper is to analyze the stakeholder networking and relationships for two value-based ecological food chain cases from Slovenia with two different methodological approaches: i) constellation analysis and ii) down-stream and up-stream communication schemes.

2. Material and Methods

2.1 Value-based food chains – Slovenian case studies

The main difference between VBFC and other forms of food chains is in expression of the (added) value ("Value" and/or "Value added") which could be expressed through three different ways (Stevenson and Pirog 2008; Pirog and Bregendahl 2012; European Parliament 2013):

1) Through the agro-food products made from raw materials showing the origin of the food and consequently reaching a higher price on the market; 2) through the protected designations labels that express geographic location, higher quality and/or food safety and 3) as a combination of correct business relationships and interactions between different actors in the food chain.

Stevenson and Pirog (2008), Pirog and Bregendahl (2012), Stevenson et al. (2011) and Stevenson (2013) explained the definition of food chain with added value according food chain actors relationships. These differences are:

1) business relationships between strategic partners in the VBFC are built on common principles, which primary

Table 1: Statistical characteristics of case studies

DECSRIPTION OF CASE STUDIES IN NUMBERS (year 2013 and 2012*)					
NAME OF CASE STUDY	NUMBER OF FARMS	NUMBER OF EMPLOYEES	TURNOVER* (€)	NUMBER OF DISTRI-BUTION CHANNELS	PRODUCT RANGE
PLANIKA	120	52 (direct in Planika dairy)	8.747.356*	67	6.142.253,6 kg and lit of milk products
EKODAR	80	150 (indirect in central services)	64.465	53	15.809 kg of eco beef

base and are built through the trust component. The strategic partners contribute a large share to well organization and functionality of the chain. Strategic partners are commonly the companies or processors; 2) the producers/farmers are treated the same as the strategic partners in discussion about risk management and decision-making; 3) obligations and rights in the chain are placed for improving the benefits of all actors and 4) coordination of the actors is coordinated at the local, regional, national and/or international level.

Two case studies of value based food chains from Slovenia (statistical data are presented in Table 1) were analyzed, both with eco products. Both are medium scale food chains, one with milk production and the second with beef meat production. Both are located in Alpine and pre-alpine region. Planika dairy as first case and Agricultural Cooperative Šaleška Valley (Ekodar) as second case are the key actors in analyzed food chains. Both have a major role in processing the stage.

2.2 Constellation analysis and down-stream and up-stream communication schemes

Constellation analysis focuses on analyzing and mapping the relations between elements (actors) in food chain. Nöllting et al. (2009) describe the development process of constellation analysis in two steps. In first step is "mapping" and in the second step the functional principles and characteristics of the constellation are analyzed and interpreted. During the mapping process, researchers commonly use different symbols for different actors, such as technical artefacts, sign systems and natural elements. After that, directed relations, incompatible relations, conflicting relations and feedback relations between these elements follow. We used different symbols for the expression different types of communication, such as telephone, personal, email and written contractual communication..

Hence, for studying how the different actors along the chain communicate to their upstream and downstream partner and how the information flow between producers and consumers in both directions down-stream and up-stream, communication schemes have been used. With this methodological approach the type, frequency and content of communication for each actor with others along the supply chain can be identified.

Communication schemes between the actors represent the direction of communication. For example, if the initiative for communication with the consumer comes from the producers side it is called down-stream communication (this type of communication is marked with orange squares). If the initiative for communication with the consumers comes from the consumers side it is called up-stream communication (this type of communication is marked with green squares). With constellation analysis we gain the information mostly about the type of communication (written, personal, social networks, etc.) and relationships between actors in the chain while with up and down-stream communication schemes the frequencies and content of communication - values (ensuring the quality of food products, animal welfare, environmental concerns, "fair price", etc…) can be found out.

2.3 Input data

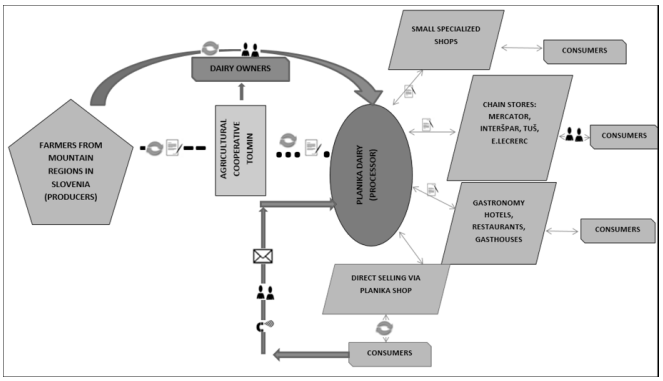
The input data for both methodology approaches to gain business relationships and information of food quality communication was obtained with a questionnaire completed by 24 farms from the mountain areas as well with interviews of actors in different stages of food chains. The question types were open and closed. Interviews were carried out between June and October 2014 and performed by qualified interviewers. The main aim of the questionnaire and interviews were ensuring precise information about formation of food chain in the past, present status and future development plans.

3. Results and Discussion

3.1 Explanation of constellation analysis

Figure 1presents the Constellation analysis schemes of Planika value-based food chain. Planika dairy is a key actor (strategic partner) in the chain and it is important in transformation of the news, experiences and opinions between the actors from the beginning to the end of the food chain. The specific characteristics of Planika case study is in the management decision-making processes, where second level actor Agricultural Cooperative Tolmin is involved. This specific characteristic cannot be found in the Ekodar case study (Figure 2). In Planika, this type of decision making is comprehensible, because the Agricultural Cooperative Tolmin is the owner of Planika dairy. The meaning of symbols used in constellation analysis are presented in Table 2 for Planika case study and in Table 3 for Ekodar case study.

Figure 1: Constellation analysis scheme of Planika value-based food chain



The owner of Ekodar brand is Agricultural Cooperative Šaleška Valley. Compared to the Planika case study, the Ekodar food chain is structured only from primary actors. Both value-based food chains have identity structure, while in the Ekodar brand management decision-making goes to Agricultural Cooperative Šaleška Valley. Another special feature is the QR code (Quick Response code), which enables communication and exchange of information between consumers and producers in the Ekodar food chain. Consumers can scan the QR code with smart phones from the packaging and get information about the farm.

Table 2: Symbols for relationships between actors and different types of communication in the case of Planika value-based food chain

SYMBOLS	DESCRIPTION OF SYMBOLS
⟷	Relationships between consumers - retailers, and retailers - Planika dairy
⌒	Relationships between producers and Planika dairy
----	Relationships between producers and Agricultural Cooperative Tolmin
....	Relationships between Agricultural Cooperative Tolmin and Planika dairy
	Frequent exchange of experiences
→	Relationships between consumers and Planika dairy
	Written agreements
	Personal communication
	Telephone communication
	E-mail communication

Figure 2: Constellation analysis scheme of Ekodar value-based food chain

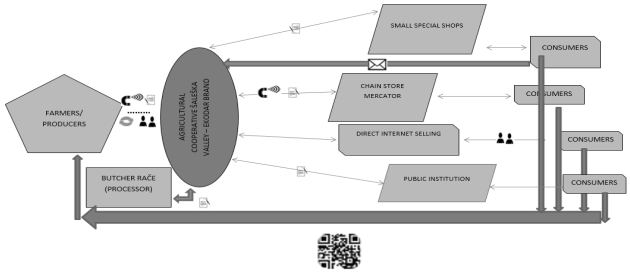


Table 3: Symbols for relationships between actors and different types of communication in the case of Ekodar value-based food chain

SYMBOLS	DESCRIPTION OF SYMBOLS
⟷	Relationships between consumers - retailers, and retailers - Agricultural Cooperative Šaleška Valley
.....	Relationships between producers and Agricultural Cooperative Šaleška Valley
	Relationships between Agricultural cooperative and Slaughter house in Rače
	Frequent exchange of experiences
→	Relationships between consumers and Agricultural Cooperative Šaleška Valley
	Written agreements
	Personal communication
	Telephone communication
	E-mail communication
→	Relationships between consumers and producers via Quick response code
	Quick response code (QR code)

3.2 Explanation of down-stream and up-stream communication schemes

The results of the communication schemes (Figures 3 and 4) identify well-organized communication between all actors in the chain in both ways. Each actor in the chain interacts (communicate) with the actors before and after them. The difference in case studies can be observed in the communication between consumers and producers. Communication is constantly present via QR codes in the case of Ekodar value-based food chain, while the regular communication in Planika chain does not exist. Communication schemes also have a disadvantage; they do not represent internal communication among the groups of a single actor, such as communication among producers. Based on the findings from the fieldwork we identify this type of communication in the case of Planika case study,

where farmers communicate with each other via Agricultural Cooperative Tolmin.

Figure 3: Up-stream and down-stream communication scheme of Planika value-based food chain

	Producers	Agricultural cooperative Tolmin	Planika dairy	Retailers	Consumers
Producers		Daily e-mail communication, personal communication, contractual agreements about quality and purchased quantities of milk	Occasional personal communication and contractual agreements about purchased quantities and quality of milk	No communication	No communication
Agricultural cooperative Tolmin	Daily e-mail communication, personal communication, contractual agreements about quality and purchased quantities of milk		E-mail communication (few times per week), phone communication, contractual agreements (agreements about of purchased milk - yearly quantities)	No communication	No communication
Planika dairy	Occasional personal communication and contractual agreements about purchased quantities and quality of milk	E-mail communication (few times per week), phone communication, contractual agreements (agreements about of purchased milk - yearly quantities)		E-mail communication (few times per year) and monthly personal communication about quality problems, prices and stocks	Organization of social events with consumers. Promotion of dairy products in different fairs
Retailers	No communication	No communication	E-mail communication (few times per year) and monthly personal communication about quality problems, prices and stocks		Promotion of dairy products in chain stores and fairs
Consumers	No communication	No communication	E-mail communication about quality of dairy products	Occasional e-mail communication about quality questions	

For chain growth, the communication about quality assurance of food products has a huge importance. Daily communication between processors and producers about the quality of raw materials exists in both cases via e-mail and personal conversations, while the communication between processors and consumers takes place from time to time (about ten times per month) via e-mail. However, there exists one way communication about quality of food products between consumers and key actors (processors in these case studies) with using different quality designations (organic products, protected designation of origin, protected geographical identification). A special way of communication about the origin of organic beef occurs in the Ekodar value-based food chain, where a QR code is used for direct and objective communication between consumers and producers. Daily personal and weekly communication about beef quality via e-mail exists between slaughterhouse and Agricultural Cooperative Šaleška Valley.

Figure 4: Up-stream and down-stream communication schemes of Ekodar value-based food chain

	Producers	Butcher Rače (processor)	Agricultural cooperative Šaleška Valley	Retailers	Consumers
Producers		No communication	Personal communication and contractual agreements about the number of animals purchased	No communication	No communication
Butcher Rače (processor)	No communication		E-mail communication (few times per week), phone communication, contractual agreements. All communication about quantity of slaughtered animals	No communication	No communication
Agricultural cooperative Šaleška Valley	Personal communication and contractual agreements about the number of animals purchased	E-mail communication (few times per week) in the case of agro-food products quality problems		E-mail communication few times per year and personal communication about quality problems, prices and stocks	E-mail communication about consumers satisfaction
Retailers	No communication	No communication	Occasional e-mail communication about the margins		Promotion of agro-food products in chain stores and

4. Conclusion

Analysis of interactions between the actors inside the value-based food chain have shown a well-developed communication about the quality of food and raw materials with different modes of communication (personal communication, phone calls, e-mail communications and contractual agreements). Actors intensively communicate with each other and with the actors before and after them, while weakness could be defined in communication about values along the entire chain and in communication between consumers and producers in both cases. We can confirm the presence of one important characteristic of value based food chains in the analyzed case studies - the business relationships among the actors in supply chain are present and fair, while the communication about the values such as “fair price”, animal welfare, reduction of pesticides use and environmental friendly farming are not emphasized or are completely lost along the chain. For further “healthy” growth of value based food chains and their positive impact on local/regional areas additional economic indicators, such as employment, economy and life standard growth should be studied.

5. Literature

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