

Method for identification of the opportunities for improving the competitiveness of Short Food Supply Chains through the application of innovative solutions

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ABSTRACT

There are several problems, daily pitfalls, challenges, that the different types of Short Food Supply Chains (SFSCs) face regularly. A method was developed to help to elaborate strategies to improve the competitiveness and sustainability of SMEs. After the analysis of the single SFSC businesses, the value propositions providing for the consumers and/or the short-chain as a whole, screening the needs of the consumers, through the application of innovations, the value propositions can be upgraded. With the appropriate innovations, the image, products/services of the organizations can be more appealing and preferable. The work was carried out within the SMARTCHAIN H2020 project.

Keywords: short food supply chain, SWOT analysis, value proposition, competitiveness, innovation

Introduction

There is a growing consumer demand for the products and services of SFSCs in recent times. Short food chains, where the farmers and producers sell their products directly to the consumers, or with a minimum number of intermediaries, become more popular nowadays, resulting in the flourishing of both the rural and urban areas. The Rural Development Regulation of the European Union (1305/2013/EU)¹ defines that “short supply chain means a supply chain involving a limited number of economic operators, committed to co-operation, local economic development, and close geographical and social relations between producers, processors, and consumers”. They represent different types of SFSCs like purchase on the farms, online or offline marketplaces, producing and selling individually or cooperatively, in communities (community supported agriculture).

However, SFSCs sometimes have little bargaining power. Thus, one of the most obvious methods for increasing the competitiveness is the use of differentiation, the use of the “value for money” concept. For providing value for the consumers, each SFSC organization needs to know, what is the specific value it can provide, what is the reason, why the customers will choose its product. Therefore, it is essential to define the consumer-focused “value propositions” of each SFSC organization to see the actual and the further opportunities to develop and this is what this paper aims to address.

In order to achieve this objective, it necessary that, firstly, the success factors and the bottlenecks of each single SFSC organization should be identified. Success factors support the exploitation of the opportunities and eliminate or reduce the threats. Bottlenecks can hamper the exploitation of an opportunity or can increase the impact of treats. By considering these two elements, the current value propositions of the SFSC organizations can be identified.

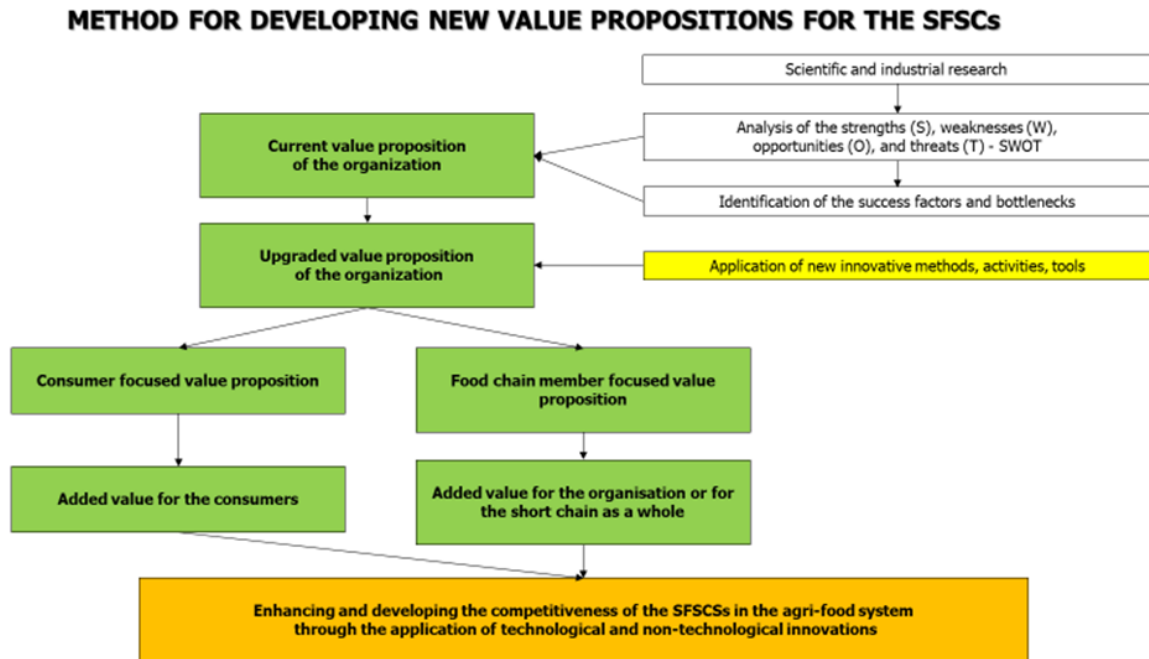
Moreover, two categories of value propositions can be distinguished. Those, which focus on the values delivered to the consumers and customers “consumer-focused value propositions”, and those, which deliver benefits for the members of the short food chains “short-chain focused value propositions”.

By considering these elements, recommendations can be developed for each organization to improve its performance through the application of technological and non-technological innovations (activities, methods, tools, and solutions) that enhance success factors (SFs) and/or eliminate bottlenecks (BNs).

Methods

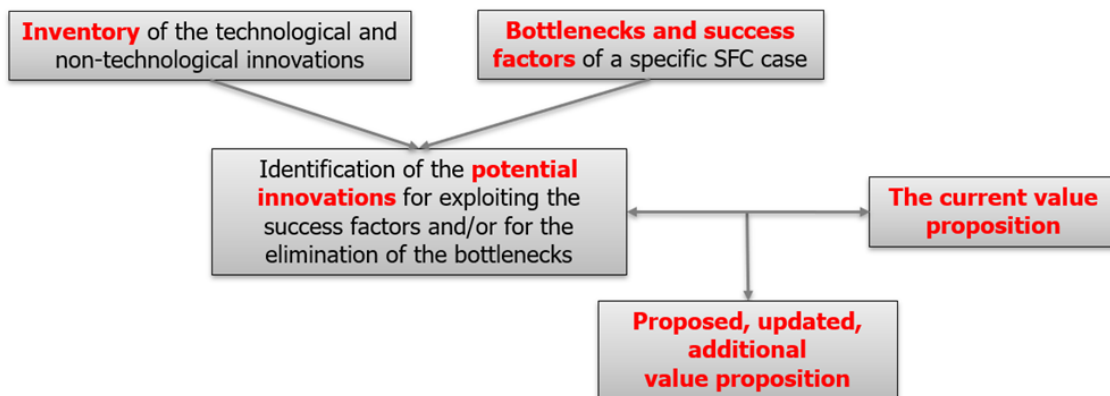
Developing the operation of the Short Food Supply Chains through the identification of their success factors and the elimination of their bottlenecks is applied for the analyses of the SFSCs that would make them more sustainable and competitive in the agri-food system. The method was carried out in the SMARTCHAIN project with the collaboration of 18 case studies of the Short Food Supply Chains from 9 countries (CH, D, FR, GR, HU, IT, NL, SP, RS).

As a result of the scientific and industrial research for the smooth functioning of single SFSC organizations, a new method was developed based on a systematic step-by-step analysis of the SFSC businesses that helps to find solutions for eliminating the bottlenecks and strengthen the success factors for sustainable operation of the SFSC members and/or the SFSCs as a whole. The value propositions provided by the SFSCs organizations for the consumers can be categorized based on consumers’ acceptance and preferences (consumer needs) for the food and services provided by Short Food Supply Chains. Through the application of technological-, (TECIs) and non-technological innovations (NTIs) (e.g. new methods, activities, tools, etc.), the current value propositions of the SFSC members can be developed and can meet better the consumers’ needs. This leads to providing more appealing the added value of SFSCs and helps the choices and purchase decisions of the products of the Short Food Supply Chains (Figure 1).



1. Figure: Method for developing SFSCs more sustainable and competitive

The first step is the screening of the operation of the short-chain organization, the success factors and bottlenecks that can be identified, and their current value proposition. Many solutions, activities, tools, and methods can be found, and are applicable to eliminate the bottlenecks and enhance the competitiveness of the short-chain organizations. Through the application of innovations, activities, and methods, upgraded value propositions can be developed for each SFSC organization, providing added value for the consumers (Figure 2).



2. Figure: The process of identifying the value propositions for each organization

Step 1: SWOT analysis for each short food chain organization

During the SWOT analysis, the strengths (S), weaknesses (W), opportunities (O), threats (T) can be identified for each short food chain business.

The followings should be considered:

What is the current situation and what are the problems that need to be improved?

S-O: To what extent can this strength help you to take advantage of the opportunity? - High S-O: attack, the chances are good.

S-T: To what extent can we use this strength to overcome this threat? - High S-T: defense, the business has the power to overcome external threats.

W-O: To what extent can this weakness hinder you from taking advantage of this opportunity? - High W-O: "clean ship" or reorientation, overcome the weaknesses to take advantage of the opportunities.

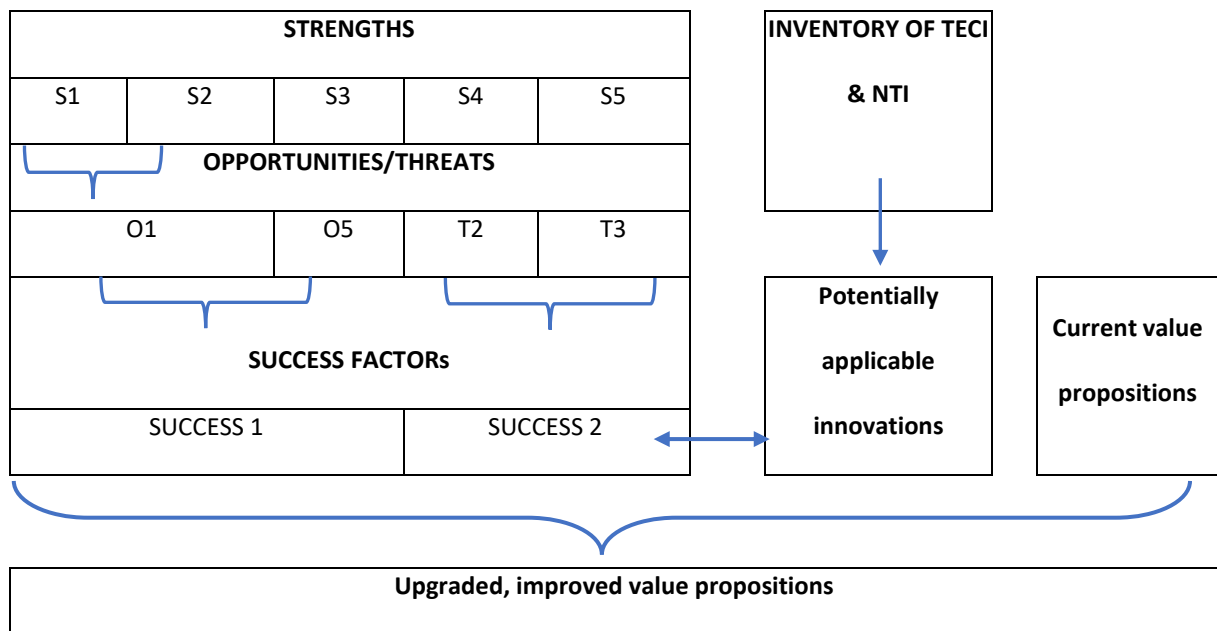
W-T: To what extent does this weakness make more threatening the threat? - High W-T: crisis, the threats are serious, and the business does not have the means to deal with them.

Step 2: Identification of the typical success factors and bottlenecks

Before explaining the identification of SFs and BNs, it is necessary to give the definition.

Success factors are those strengths that can be enhanced by an innovation (Figure 2)

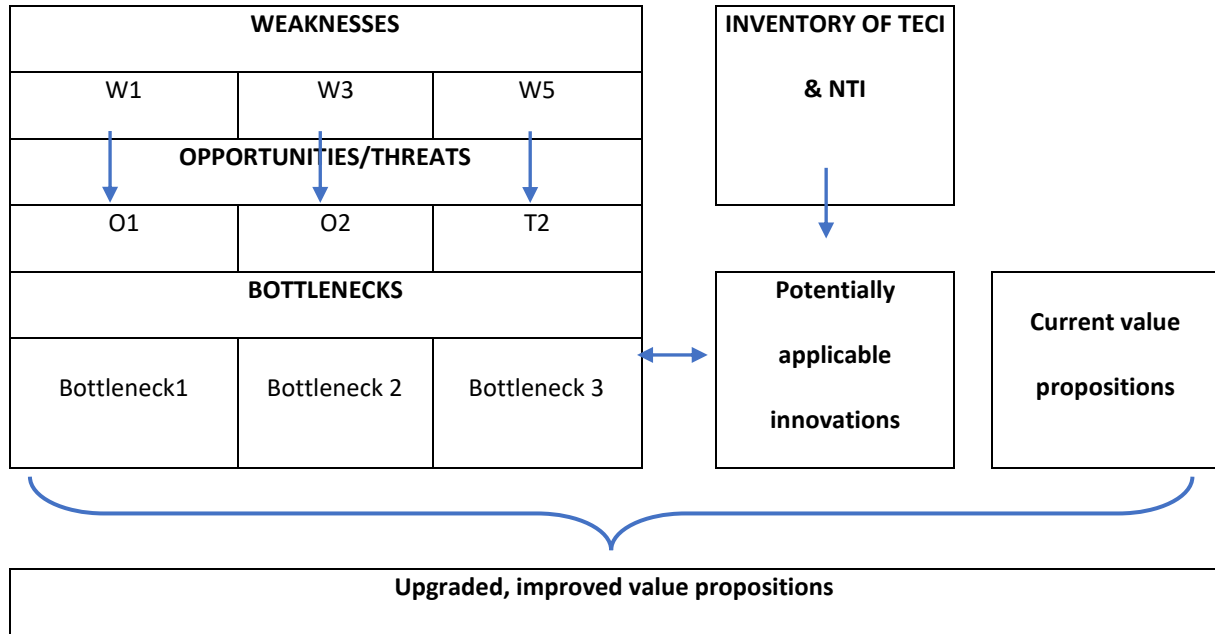
- to support the exploitation of an opportunity to improve the performance of the SFSC (S+O)
- to eliminate or reduce a threat that can decrease/spoil the performance of the SFSC (S-T)



3. Figure: Method to identify the success factors

Bottlenecks are outcomes of those weaknesses:

- that can be eliminated or reduced by an innovation (Figure 3)
- that can hamper the exploitation of an opportunity to improve the performance of an SFSC (W-O)
- that can increase the impact of a threat, that will reduce/spoil the performance of the SFSC (W+T)



4. Figure: Method to identify the bottlenecks

Step 3: Identification of the current value propositions

A value proposition refers to the benefits of a company's promise to deliver to the consumers and customers (“**consumer-focused value propositions**”). “What value the business offers to the consumers, why the consumer will choose their product?”

These can be clearly distinguished from those value propositions, which can provide benefits to the members of the short-chain (“**short food chain members focused value propositions**”).

First, the current value proposition was identified, which is currently provided by the short-chain business for the consumers. If relevant innovations can be identified, new, upgraded value propositions can be developed and strategies can be elaborated for the implementation of these innovations. The current value propositions of each SFSC can be upgraded to improve their performance and to provide more attractive value propositions compared to the current value propositions, thus meeting the consumers’ needs better.

The method for developing SFSCs

The SFs and the BNs of a Short Food Chain can be evaluated whether some of the SFs can be enhanced or the BN can be eliminated, through the application of innovations. If relevant innovations are identified new, upgraded value propositions can be developed and strategies can be elaborated for the implementation of these innovations (Figure 1). Through the application of innovations (which can be technological - TECIs and non-technological innovations - NTIs, new methods, activities, tools, etc.) the current value propositions of the SFSC members can be upgraded to meet the consumers’ needs better. These results offering the increasing added value of SFSCs to the consumers. The steps of the method can be seen in Figure 1.

Step 4: Identification of proposed additional activities, tools, and methods for developing case studies using innovative solutions

In this step, the work is focused on developing a strategic action plan for each organization. At first, the current value propositions should be evaluated for potential application of TECI and NTI to enhance the SFs and to reduce the BNs. Subsequently, proposed additional actions, tools, and methods for improving the operation and products and services of the organizations using innovative solutions can be identified.

Step 5: Identification of a potential, upgraded, additional value proposition

Based on the potential application of innovations, which were previously identified as means for enhancing the SFs and/or eliminating the BNs, one or more upgraded value propositions can be elaborated for each organization. They are for improving the organizations’ performance and to provide more attractive value propositions compared to the current value propositions.

Step 6: Identification of the strategy(ies) to achieve the possible value propositions.

Finally, after understanding the status and the performance of the organizations, their SF and BN, and the application of potential innovations, the work in this step focuses on the description of a detailed strategy for achieving the proposed upgraded value propositions. The outcome of this step should be carefully considered by the organizations as the success of the organization depends on the application of the innovations proposed in the previous steps.

Step 7: Preparation of the action plan

An action plan can be developed for the implementation of the method. First a list of the steps required to implement, the targeted strategy in chronological order, which also includes an assessment of the resources required (including the human resources, financial resources, equipment resources, other resources needed).

RESULTS

The data were analyzed for 18 case studies from 9 different countries as part of the SMARTCHAIN project.

General value propositions of the Short Food Supply Chains:

The general value propositions of the SFSCs are fresh, tasty, natural, high quality, niche products with high nutritional value from authentic, organic, transparent sources. Because of the less transport and local supply, the greenhouse gas (GHG) emission is less, than in the conventional food chains. Specific diet trends like vegan/vegetarian, following diet trends based on local plant-based food production as an innovative approach, can strengthen the farmers' and producers' position.

1. Fresh, tasty, natural, specific high quality, niche products, produced/processed responsibly, traditional – **Food quality and value**
2. Genuine, authentic, non-manipulated, protected with particular care from (chemical) contaminations associated with the global food supply, organic, transparent – **Food from an authentic source**
3. Fresh, high nutritional value, natural, safe – **Nutrition, health, and well-being, safety**
4. Less transport and distribution, local supply, less Greenhouse Gas (GHG) emissions, less distribution cost, the fairer price for producers, social responsibility in food production (less use of chemicals, less environmental impact from technologies, no GMO), and in employing underprivileged, disabled people, consumer empowerment – **Sustainability, resilience and food security**
5. Local, supporting the local community, long term viability – **Sustainability, resilience, and food security**
6. A potential place to learn about food production, about nature, place to educate children through playing – **Skills and knowledge**
7. Specific, satisfying food consumer diet trends from local plant-based food production e.g. vegan, vegetarian - **Sustainability, Nutrition, health and well-being**

SUMMARY LIST OF THE TYPICAL SUCCESS FACTORS

The list of success factors in the context of INDIVIDUAL STEPS OF SFSCs:

- high-quality local product
- fresh and natural product
- sustainable production and animal welfare
- authenticity, traditionality, cold-resistant
- diverse selling points, accessibility
- good marketing positions on local and international levels
- low transaction costs and fair price
- the steep increase in the interest to purchase from local and regional sources by consumers as a consequence of the COVID-19 epidemic

The list of typical success factors in the context of the SFSCs AS A WHOLE:

- authentic, local, traditional, and quality products
- sustainable production
- organic production
- strong profile on social media and transparency
- easy and fair communication with consumers: website, social media
- a common brand of the producers
- promoting healthy and sustainable eating habits and diets
- following the current food trends
- food chain management and networking

- **employment of disabled and handicapped people**
- **common marketing: logo, website, presence in events**
- **interaction with different partners: e.g. agritourism**
- **exploiting, combining fragmented and complementary resources to achieve strategic objectives**
- **operating a uniform quality assurance system**
- **close communication with members**
- **strategic collaboration with different institutions (e.g. territorial collaboration for developing territorial food systems)**
- **solidary participation of producers and consumers**
- **sharing economic responsibility**
- **experience and education, shared learning, and innovation**
- **well known in the local community**
- **acting as an interface for matching supply offer of SFSCs with customer demand**

SUMMARY LIST OF THE TYPICAL BOTTLENECKS

The list of typical bottlenecks in the context of INDIVIDUAL STEPS OF SFSCs:

- **lack of expertise:** difficulties in achieving a good quality of raw materials, lack of expertise not just in quality, but in production methods, product development, adaption of new technologies, marketing, etc.
- **the unpredictability of the weather:** in one-year surplus of products, in another year lack of raw material, high risks of drought, heavy rainfall, frost, or hail
- **lack of knowledge about farming and technology:** difficult to find and apply innovative solutions
- **perishable goods:** there is no effective post-harvest technology
- **ensuring the cold chain by cost-effective solutions:** from farm to final consumer
- **limited availability of technological systems**
- **limited availability of innovative solutions**
- **lack of knowledge about technology on the part of the producers:** it is difficult for them to identify the exact technological problems and solutions
- **lack of investment in storage technology**
- **low negotiation power with big retailers and big service provider companies**
- **the supply is not always matching the demand**
- **limited knowledge about the demand for new or traditional products**
- **seasonality:** fluctuating product volume and quality
- **match consumer needs and expectations:** the supply not always operates the demand-driven system
- **lack of reliable information on local products and local production:** consumers have less information
- **prices:** consumers compare the prices of the SFSCs' products to the conventional ones

The list of typical bottlenecks in the context of the SFSCs AS A WHOLE:

- **low adaptability with the changing demands**
- **difficult segmentation of niche products:** a limited number of possible customers
- **communication skills of the producers:** producers are not able to communicate effectively the authenticity and transparency of the products
- **price:** consumers refuse the higher price of SFSCs
- **lack of product variety:** limited choice

- **the volume of production:** not satisfactory large enough to be able to manage the high costs of quality systems/labels
- **limited marketing budget**
- **weak marketing activities**
- **weak marketing and communication tools:** cannot reach consumers continuously and effectively
- **limited knowledge about target consumer groups**
- **lack of understanding for differentiation of the products and services from the conventional chains:** lack of knowledge about the value for money concept
- **lack of knowledge of food chain management**
- **low adaptability to changing demands**
- **lack of cooperation and low level of networking**
- **high costs of production, transport, marketing due to smaller volume**
- **individual producers alone are not able to introduce innovations separately**
- **generational gap:** innovativeness, limited ambitious mentality, lack of open-mindedness, and new ideas
- **lack of combined use of the complementary resources, competencies, capabilities**
- **cooperative philosophy:** complicated and slow decision making
- **competition:** the actors of SFSCs fall behind in the competition
- **limited knowledge and experience in how to manage and develop human resources**
- **lack of professional staff for the design and operation of business model**
- **lack of business models for recruitment and human resources management**
- **lack of understanding and conscious use of the business models as a tool for improvement**
- **the rural development policy:** does not operate as a supporting system for SFSC's actors
- **lack of available financial resources at EU and national level:** barriers to investments and the use of innovative methods
- **the lack of specific legislation for SFSC**
- **different interpretations of the relevant legislation at the EU level**
- **regulations on food hygiene, food information, and various products:** very complex
- **farmers and producers are not able to meet the requirements of the regulations without the help of national and EU institutions**
- **operating food quality systems:** very costly for small-scale producers
- **lack of national regulations for the quality:** in some countries
- **lack of understanding and proper interpretation of the requirements**
- **lack of national regulation on label system on local and traditional products in some countries**

CONCLUSIONS

With the step-by-step analysis of the operation of SFSC organizations, it is possible to identify how to develop their value propositions. The analysis was carried out with the participation of the 18 case studies in the SmartChain project, based on the knowledge, experiences of the project partners participating in this task, publicly available information, literature review, results of other projects. Several solutions can be found for the elimination of bottlenecks. The producers of the SFSCs have limited access to resources such as material, infrastructure, technology, technical knowledge, and funding. Not only the resources but lack of information and knowledge of product development skills, advanced technologies, marketing, awareness of public funding opportunities, understanding of and compliance with legal requirements are barriers to the success of the short-chain. Bottlenecks in short chains include limited product volumes, one of the consequences of which is a weak bargaining position vis-à-vis retailers, low bargaining power vis-à-vis intermediaries, and municipalities.

The identified bottlenecks can be traced back to the lack of knowledge of the individual producers on technology, marketing, and food safety. Most of the farmers/producers have limited knowledge on the use of IT which is a barrier to efficient communication among the actors of the short food chain and to access the consumers.

There are several good examples of the cooperation of the peers of the SFSCs. The current value proposition of SFSCs generally offer locally produced products (fresh fruit and vegetable, honey, juices, jams, wine, meat products, dairy products, bakery products, etc.) and in some cases, special services to residents and tourists of the region. Some of them are organizing open days and events on the farms throughout the year. Information about the dates and programs announced by the short chains is available on the operating website of the organizations. Further good solutions, methods, tools, and activities for developing the operation of the short chains can be found in the Inventory of technological and non-technological innovations developed within the SMARTCHAIN project.

Through differentiation from the other competitors in the food system and through the application of the value for money concept, the short food chain organizations can be developed, can be more competitive, and the consumers' purchase can be increased. Based on this method, the possible strategy can be built, and the action plan to achieve the strategy for development.

The method developed was applied for the 18 case studies of the project and it is suitable and works in improving the development of the short food chain organizations.

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Further information is available on the SMARTCHAIN online platform: <https://www.smartchain-platform.eu/>.

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