



# Towards innovation-driven and smart solutions in short food supply chains

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The agri-food industry is of particular strategic interest in Europe, being essential for rural development as it provides jobs and incomes in many remote regions. However, a more sustainable and competitive European agri-food industry is urgently needed, addressing its impacts on the environment, health and climate. A major transformation of the whole sector is required to respond to these challenges, with important changes in both production and consumption of agricultural products.

In recent times, short food supply chains (SFSCs) and local productions (e.g. farmers' markets, farm shops, community-supported agriculture, direct sales and delivery schemes) have flourished in all European countries, both in rural and urban areas. They represent a constructive alternative to conventional longer food chains where farmers or small cooperatives often have little bargaining power, and the consumers cannot trace their food back to a known producer or local area. Such food systems are of considerable interest, responding to a number of needs and opportunities, both of farmers and consumers.

The current COVID-19 crisis has brought to light the need to explore the development of collaborative SFSCs further, stressing the need to adopt a number of sustainable, innovative solutions to practical problems faced by farmers and food producers. The effective implementation of collaborative SFSCs—bringing together farmers, farm cooperatives, food producers, consumers and other stakeholders for their mutual benefits—may offer an additional

mechanism in coping with food availability issues as local productions are less affected by international restrictions. This will help create a richer ecosystem of foods in the territory, closer to consumers.

Given the complexity of the European food system—with many different involved actors and several interrelated factors (e.g. the socio-economic and political context, the scarcity of natural resources)—all its challenges cannot be met by individual

actions. A multi-stakeholder perspective and coordinated initiatives are required along the entire value chain—from farmer to consumer.

## Supporting collaborative SFSCs in Europe

By bringing together 43 partners from 11 countries across Europe, of a distinctly multi-actor mix, and including key stakeholders from the SFSC domain,



Figure 1: SMARTCHAIN consortium at the first annual meeting in Utrecht.





SMARTCHAIN project unites the necessary multidisciplinary knowledge, expertise and skills to constitute a complete value chain of actors. Therefore, it can capitalise on the opportunities of transitioning towards collaborative SFSCs at a systems level. In particular, the project sees the collaboration of farmers and their associations, food processing industries, technology providers, agricultural and environmental consultancies, consumers and beyond. A key feature of the project is its focus on 18 representative case studies of widespread SFSC models that have remarkable social, economic and ecological impact on their rural, peri-urban and urban communities. Thanks to its truly multi-actor nature, SMARTCHAIN can adopt a holistic approach to address the multi-faceted challenges of the agri-food system. The analysis takes place both at the national level, through the cooperation of nine innovation and collaboration hubs located in France, Germany, Greece, Hungary, Italy, the Netherlands, Serbia, Spain and Switzerland, as well as at a European-wide level.

The central objective of SMARTCHAIN is to foster and accelerate the shift towards collaborative SFSCs as well as, through specific actions and recommendations, to introduce new robust business models and innovative, practical solutions that enhance the competitiveness and sustainability of the agri-food system in Europe. To achieve this objective, SMARTCHAIN leverages an overarching open innovation concept where the various actors involved work together in a trust-enhancing environment to make the best use of complementary types of knowledge for the co-creation and diffusion of solutions that are ready to implement in practice.

The results of SMARTCHAIN will unlock the potential for sustainability by stimulating practical, innovative solutions to problems in the SFSC domain. The SMARTCHAIN consortium will identify the main needs and instruments required to implement collaborative SFSCs, with a view to providing an exhaustive inventory of practical solutions and to inspiring the approval of policy recommendations, ultimately leading to an increase in farm incomes.

## Multi-perspective analysis of 18 short food chains

As the starting point for the project, multi-perspective analysis of the 18 case studies has been carried out in terms of technological and non-technological innovation potential, social innovation, consumer perceptions, sustainability, business and their national and regional regulatory contexts in seven EU and two associated partner countries. Based on nine multi-actor workshops to refine results towards the needs of end-users under regional conditions, the project has identified:

- challenges and barriers of SFSCs
- existing innovations ready to implement in practice
- factors of success (technological, regulatory, social, economic and environmental).

From this initial information, additional studies and analysis have been performed.

All these results, together with those of future studies during the project, will allow the SMARTCHAIN consortium to identify the key factors that influence sustainable food production and rural development among different regions across Europe.

## Policy framework and social innovations in SFSCs

As an initial step, the specific regulatory context (e.g. obstacles, facilitations, regulatory and institutional settings) of the regions where the 18 case studies are situated has been analysed to determine the influence of the regional governance in successful SFSCs models. Currently, SMARTCHAIN is exploring the policy, legal and regulatory requirements for SFSCs, taking into account the different national and regional contexts. Building on this analysis and the regulatory barriers that currently hamper the scaling up of SFSCs, the project will develop evidence-based recommendations for policymakers at the EU, national and regional levels.

In the meantime, SMARTCHAIN has provided an operational and inclusive definition of what social innovations are in the context of SFSCs, as well as their key drivers and best practices. These were validated by SMARTCHAIN partners and relevant stakeholders during 12 community

of practice events (World Café) that took place in nine countries.

## Consumer perceptions toward SFSCs

Consumer perceptions and attitudes to SFSCs have been examined to understand underlying mechanisms and define perceived risks, benefits and opportunities related to SFSCs. Eight focus groups (rural vs urban) investigated consumer views regarding SFSCs, their attitudes, preferences and value perceptions in Germany, Greece, Spain, and Hungary. To create a more holistic view of opportunities and risks involved in SFSCs offerings, 32 expert interviews were conducted with consumer, producer, intermediary, associate and policy stakeholders in Belgium, Switzerland, Germany, Greece, Spain, Hungary, the Netherlands, and at the EU level. Among other findings, it was felt that consumers would be more willing to purchase from SFSCs if it was more convenient for them to do so.

## Assessment of the environmental, economic and social impacts of SFSCs

The project has adopted a life cycle assessment (LCA) approach for the assessment of SFSC innovations from an environmental perspective in comparison to conventional food chain practices considering, among others environmental impacts, GHG emissions, energy demand (e.g. transportation), land use and loss of local biodiversity. Additionally, SMARTCHAIN is evaluating the overall sustainability from selected case studies taking into account the social and economic impacts related to SFSCs. Based on the results, recommendations to reduce the environmental and socio-economic impacts of different SFSCs will be developed.

## New business models and opportunities for SFSCs

Based on the analysis and identification of key factors (organisational, economic, social, etc.) concerning their successful application, SMARTCHAIN has produced an inventory of successful cases focusing on the application of innovative solutions in SFSCs. Additionally, the project has started to compile another catalogue of

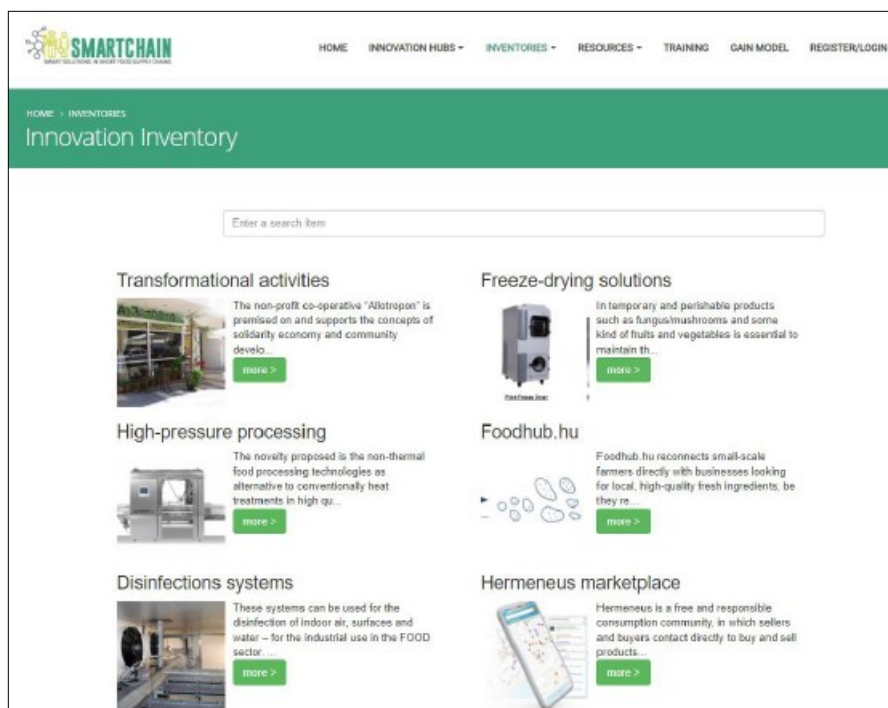


Figure 2: The Innovation Inventory collecting 150 available technological and non-technological innovative solutions for SFSCs.

reference exploitation models for SFSCs, that draws on the business models of the 18 case studies. The final inventory will also include new reference models for novel business approaches and will be available by the end of the project.

## SMARTCHAIN innovation platform

As its main dissemination tool, the project has developed a sustainable virtual environment, the SMARTCHAIN innovation platform. This entirely digital platform was created as a major channel for building a stakeholder community, facilitating engagement, communication, knowledge exchanges and dissemination across stakeholders (farmers, processors, consumers, etc.). The digital platform serves as a forum for knowledge exchange between key stakeholders in the SFSC domain and allows the dissemination of the results generated by the project, the collection and sharing of relevant information, best practices, innovations and successful initiatives related to SFSCs. It is also a place for interaction among the project's hubs and their respective case studies.

A key feature of the innovation platform is the 'Innovation Inventory', a searchable catalogue of around 150 available technological and non-technological innovative solutions for SFSCs. A second database, the 'Initiative Inventory', is

also available on the platform. It collects information regarding relevant and successful initiatives related to SFSCs for all types of stakeholders (e.g. projects, networks, best practices).

In the 'Publication' section of the platform, the results of the project are available in different formats, also including presentations with summaries of the most relevant analysis and studies carried out by the SMARTCHAIN consortium.

## SMARTCHAIN workshops

SMARTCHAIN will generate concrete actions for knowledge transfer through the organisation of **18 national multi-stakeholder workshops in France, Germany, Greece, Hungary, Italy, Serbia, Spain, Switzerland, and the Netherlands**. The first round of workshops, aimed at an internal audience of stakeholders involved in the 18 SMARTCHAIN case studies, is organised for this autumn, between September and November 2020.

The second round of nine workshops will take place between April and June 2021 and is open for the participation of all farmers, food producers and audiences interested in SFSCs and local production. Any stakeholder wishing to take part can keep up to date on the latest information by following SMARTCHAIN activities on social media or signing up to the project's newsletter.



## PROJECT SUMMARY

The SMARTCHAIN project aims to support collaborative SFSCs through specific recommendations and actions, increasing the competitiveness and sustainability of the European agri-food system. The project started in September 2018 and ends in August 2021.

## PROJECT LEAD PROFILE

The Hohenheim Research Center for Bioeconomy aims to strengthen the University's scientific potential in the field of bioeconomy with special emphasis on the food chain. It brings together the numerous scientific activities from agricultural sciences, biology, food sciences, to socio-economic sciences to establish new interdisciplinary research projects. The center is especially strong in European research and cooperation activities.

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