Understanding Social Innovation in Short Food Supply Chains: An Exploratory Analysis

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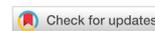
Abstract

Short food supply chains (SFSCs) are alternative food chains that have gained ground and contribute to the global food system's sustainable transition. To explore how to enhance their capacity to act and benefit society at large, we turned to scholarly and policy work on Social Innovation (SI). We concentrated on understanding what SI in SFSCs is and how it may stimulate their potential, following a two-phase approach. In Phase 1, employing a two-step systematic literature review, we generated a rich database of SI definitions, but no suitable definition was found. We proceeded to craft a domain-specific systems-centred definition, positing that SFSCs can be seen as social living systems, while SIs in SFSCs may be seen as processes that bring about change (e.g., new mentalities) and result in the creation of sustainable value for the actors involved and beyond. With the aid of an additional scholarly review, we also determined that the drivers of SI that matter are those that secure actor engagement in the co-design and co-development stages of SI (e.g., training). In Phase 2, we attempted to empirically validate the findings from Phase 1 in 12 Community of Practice (CoP) events in nine European countries. We found partial support for the SI definition, strong support for the vital role of trust, and concluded that, in any SFSC, it is critical to have a group of dedicated actors that have realized their role as (co-)leaders in co-shaping their own future.

Keywords: Short food supply chains; Social Innovation; Social living systems; Community of Practice; Actors' engagement; Trust

1 Introduction

Unlike contemporary zoonotic diseases (e.g., bird flu, foot-and-mouth disease, listeria), the COVID-19 pandemic did not spread directly through livestock or agricultural commodities and did not disrupt on-farm production (FAO, 2020). Still, it compromised the ability of producers and agri-food enterprises to supply global markets consistently due to enforced closures,

labour shortages, and slowdowns in operations (OECD, 2020). Alternative circuits of food provision, where food is produced near the consumer, are seen as a potential answer to the food distribution challenges posed by the ensuing lockdowns and international restrictions (Cappelli & Cini, 2020). Actually, such alternative agri-food networks, commonly known as short food supply chains (SFSCs), have emerged as a response to the prevailing conventional agri-food system and its multiple crises of environmental, economic, and social nature (Aggestam et al., 2017; Berti & Mulligan, 2016; Vitterso et al., 2019). Although there is no single definition of what constitutes a SFSC, it is undoubtedly assumed by academics and practitioners alike that SFSCs are associated with local food and fewer (if any) intermediaries than conventional supply chains (Rucabado-Palomar & Cuellar-Padilla, 2020; Sellitto et al., 2018). In reality, SF-SCs customarily embody direct marketing configurations, like farmers' markets, on-farm sales, food box schemes, online sales, pick-your-own arrangements, and community-supported agriculture (Giampietri et al., 2018; Lioutas & Charatsari, 2020; Mundler & Jean-Gagnon, 2020). Not surprisingly, in recent years, SFSCs have increasingly gained ground, particularly in Europe, where, on average, about 15% of EU farms sell more than half of their produce directly to consumers (EC, 2019).

Recent studies have highlighted the abundant merits of SFSCs. Notably, such alternative chains increase the transparency of and restore consumer confidence in food provision systems (Giampietri et al., 2018), benefit the environment through supply proximity (Sellitto et al., 2018), ensure a fair income to farmers and equitable distribution of added value among network actors (Berti & Mulligan, 2016), and enhance farmers' job satisfaction and social recognition (Mundler & Jean-Gagnon, 2020). Nevertheless, SFSCs are not without challenges. They often maintain an exclusivism status (Vitterso et al., 2019), predominantly appealing to select types of consumers (Giampietri et al., 2018), producers' participation is perplexing as competency needs (e.g., technical, marketing, and financial skills) are typically high (Charatsari et al., 2020), and adoption of innovations (e.g., smart farming

technologies) is met with scepticism, as it might hurt their distinct "alternative" character (Lioutas & Charatsari, 2020). Not unexpectedly, it is frequently contested whether SFSCs are in a position to commit actors and make a significant socio-economic and environmental impact (Aggestam et al., 2017; Rucabado-Palomar & Cuellar-Padilla, 2020). Therefore, understanding how to enhance SFSCs' capacity to act and engage actors without jeopardizing their unique character is crucial for their ability to continue making meaningful socio-economic and ecological contributions.

To address this issue, we turned to research on social innovation (SI). SI is about the satisfaction of social needs and the achievement of common interests, comprising the processes needed to address such interests and empower groups in society (Castro-Arce & Vanclay, 2020). SI involves participatory processes and outcomes that provoke changes in social relations, facilitate collective empowerment, lead to new or improved capabilities and relationships, and ultimately improve the social system (Caulier-Grice et al., 2012). Although extant studies (e.g., Giampietri et al. (2018) and Vitterso et al. (2019)) and policy briefs (e.g., EIP-AGRI (2019)) recognize that SFSCs should place emphasis on transformative and participatory social processes, such as nurturing actor relationships and building shared values, no study investigates how to enable such processes in SFSCs, let alone how to cultivate them in order to enhance SFSCs' capacity to act and benefit society at large. In this research, we drew from SI literature and explored how SI may change SFSC systems and stimulate their potential without altering their distinct character. The principal objective of this paper, therefore, was to provide a conceptual analysis of SI in SFSCs and empirically inquire how SI can be fostered in SFSCs.

To delve into the area of interest (i.e., that of SFSCs), we drew upon the premise that SF-SCs may be viewed as coherent and collaborative systems of interconnected producers, processors, and consumers, distinguished - but also demarcated - by geographical and social proximity (Rucabado-Palomar & Cuellar-Padilla, 2020). Thus, our point of departure for the understanding of SI in SFSCs was a systems-centred per-

spective, grounded in the domain-specific social systems of SFSCs. Systems theory is an interdisciplinary theory about every system in nature and society, as well as a conceptual lens through which we can investigate phenomena from a holistic perspective (Capra & Luisi, 2014). It is rooted in Aristotle's claim that knowledge is derived from the understanding of the whole and not that of the single parts (Aristotle's holism) (Mele et al., 2010). A system must have elements (different parts, processes), interconnections (between these elements), and a function or purpose (Onat et al., 2017). In other words, systems maintain certain characteristics that differentiate them from mere collections of single parts: (a) they have a purpose that holds the different parts together; (b) no single part can fulfil the purpose alone, but, in so doing, each part relies on others to maximize performance (so, the different parts are interrelated and interconnected); and (c) all parts, as well as their arrangements (e.g., feedback flows), within the system are important (Meadows, 2008).

Unlike mechanistic systems, SFSCs can be viewed as social living systems that are created by the interactions of several parts, and they are themselves parts of larger systems (e.g., local communities) (Vitterso et al., 2019). A living system like a SFSC group is an integrated whole whose essential properties arise from the interactions and relationships between the parts (Capra & Luisi, 2014). SFSCs share all the defining characteristics of systems, as they constitute groups of stakeholders (i.e., the parts of a system) that are interrelated, interconnected and interdependent, and form a unified whole that has a specific purpose. Moreover, SFSCs may be treated as complex systems, given that complexity in a social system is distinguished by the high levels of interrelationships and interactions among the system's components (Meadows, 2008). Actually, in a world where supply chains are getting increasingly connected and complex, it should come as no surprise that systems-thinking provides a suitable perspective to unveil the complexity within and between different social systems (Onat et al., 2017). Hence, SFSCs should not be seen as plain alternative food networks or mere direct marketing configurations, as their scope is broader and inextricably linked to the sustainable transition of the complex global food system (Vitterso et al., 2019).

To better understand SI in SFSCs, we also reviewed research on the drivers of SI. We explored the literature on the drivers of SI, but placed our focus on actor engagement, as the latter is a crucial process that ensures SI is tailored to the needs of the very people whose needs it is supposed to serve. Moreover, it is an important and flexible process that meets existing social needs because it guarantees that a SI is adopted by a crucial mass of actors and thus has a high potential to result in systemic social change (Westley & Antadze, 2010). Notably, the engagement of actors in SIs has attracted the interest of researchers, policymakers, and practitioners alike (e.g., Moulaert et al. (2017), Neumeier (2017), Peris-Ortiz et al. (2018), and Sinclair and Baglioni (2014). In fact, scholarly and policy studies have emphasized that the drivers of actors' participation are among the top factors influencing the success of the SI process (e.g., Butkevičienė (2009), Davies et al. (2012), and Neumeier (2017)).

2 Materials and Methods

We advanced the SI conceptualization in two phases. In Phase 1, we performed a systematic review of pertinent literature, documenting a wealth of SI definitions. We then encountered the outcomes with a systems-centred, theory-building exercise and created a new domain-specific definition that did justice to the SFSC specificities. In Phase 2, we empirically validated the definition from Phase 1 as well as the SI drivers in 12 Community of Practice (CoP) events, which took place in nine European countries.

2.1 Phase 1: Understanding SI in SFSCs

To understand SI in SFSCs, we first set out to create an operational definition. Strikingly, at the outset of our attempt, we realized that even though SI has entered mainstream policy discourses and become a major research topic, there is still confusion about what it is (Periac

et al., 2018; Sinclair & Baglioni, 2014; Van der Have & Rubalcaba, 2016). In fact, despite the numerous contributions on defining SI in different fields, such as sociology (Bock, 2016), welfare economics (Pol & Ville, 2009), and organizational studies (Grimm et al., 2013), a common understanding of the term has not yet emerged (Edwards-Schachter & Wallace, 2017; Neumeier, 2012). Moreover, few SI studies have centred on the area of agri-food chains, let alone on SF-SCs. Consequently, to lay the ground for sound theoretical foundations in the study of SI in SF-SCs and, simultaneously, overcome the ambiguity encompassing the meaning and scope of SI in present work (Van der Have & Rubalcaba, 2016), we placed the definitional focus on the specific area of SFSCs.

We performed a two-step systematic review to generate a database of definitions (i.e., extraction of literal texts). In Step 1, a search was conducted for documents related to SI in major electronic databases, namely "Google Scholar", "WorldCat", "Web of Science Plus", "AGRIS", and "SSRN". The technique of keyword search was favoured, as it is standard practice in systematic reviews (Russo-Spena et al., 2017), particularly when encompassing a specific topic that is present in various academic disciplines (Seuring & Gold, 2012). All types of scientific documents were targeted, such as articles, book chapters, conference proceedings, editorials, reviews, research reports, policy reports, and dissertations. The search was performed using the keywords "social innovation" in combination with two sets of other keywords (see Table 1). Two rounds of brainstorming among the author team members were organized to determine both sets, followed by a screening test with different SFSC stakeholders (e.g., policymakers, producers) and academics. The first set of 20 keywords related to the definition of SFSCs by the European Commission in Regulation (EU) No 1305/2013 (e.g., short chain, economic operators, social relations, trace food), while the second set of 19 keywords related to various aspects of alternative agri-food chains (e.g., fair trade, social needs, trust, collective decisions). Search parameters were equal in both sets, such as document type (e.g., article, chapter, proceedings) and search fields (i.e., title, abstract, and keywords). The "AND" operator was used in all cases. Only English written records were selected, which is typical for systematic reviews, given the practical difficulties of translation and the replicability of the review. Moreover, we used a publication time window from 1980 to 2019.

In Step 2, we refined our search from Step 1 to distinguish the documents that contained SI definitions. Given the large number of documents and to ensure reliability and consistency, we adhered to the following process: (a) documents that contained the term "social innovation" and "review" or "definition*" in their title or abstract were first selected; (b) the documents extracted in (a) were divided into two categories, one containing review articles on SI (generated by the combination of the terms "social innovation" and "review") and one containing articles explicitly containing a SI definition; (c) the documents from the first category in (b) were assigned to three of the authors for critical reading and independent coding based on the full content, while the ones from the second were assigned to another three authors; (d) each author individually reviewed the documents assigned to them and archived all the definitions contained in each document; (e) the definitions extracted were reciprocally evaluated (i.e., each author received the archives prepared by the other five authors and reviewed them). This elaborate coding process reduced the risk of including articles with low relevance to the topic. Moreover, it raised the chances that important articles would not be disregarded.

As soon as the systematic review on the SI definition was complete, we focused on the drivers of actors' engagement to design and implement successful SIs in SFSCs. We performed a comprehensive review of scholarly and policy work, but, naturally, many of our sources were drawn from the material gathered during the systematic review on the SI definition.

2.2 Phase 2: Empirical validation of the definition and drivers of SI in SFSCs

Based on the findings from Phase 1 and the associated literature reviews, we developed three

Table 1: Keywords used for retrieving data in Step 1

Set 1: Based on the definition of SFSCs used by the European Commission in Regulation (EU) No 1305/2013	Set 2: Based on various aspects of alternative agri-food chains
1. short chain	1. competition
2. short food supply chain	2. fair trade
3. food	3. hybrid
4. economic operators	4. solidarity
5. cooperation	5. basic needs
6. local development	6. social needs
7. rural development	7. resilience
8. economic development	8. trust
9. local economic development	9. social responsibility
10. geographical proximity	10. collective decisions
11. social relations	11. collective needs
12. social relationships	12. values
13. community	13. social values
14. rural community	14. empowerment
15. alternative rural	15. gender
16. agriculture	16. sustainability
17. bargaining	17. justice
18. trace food	18. health
19. consumers	19. environment
20. producers	

core propositions and tested them with multiple SFSC actors, such as producers, policymakers, consumers, and food experts. Our first proposition related to the central premise from Phase 1 that SFSCs can be viewed as social living systems. We, thus, inquired with different actors whether SFSCs exhibit and maintain properties of social living systems (e.g., interrelations, interconnections, and interdependencies between actors). The second proposition related to the key finding from our additional scholarly review on the instrumental drivers for a successful SI process. We explored whether the drivers that matter are, indeed, those that secure actor engagement in the co-design and co-development stages of SI in SFSCs. In our third proposition, we centered on the SI definition developed in Phase 1, and asked the various SFSC actors to discuss and evaluate it.

We organized Community of Practice (CoP) events to test the three propositions. A CoP is a co-creative learning process in which varied stakeholders from diverse parts of a system (e.g., sectors, different parts of SFSCs) that share a concern or a passion about a topic, come together and deliberate. Essentially, CoP participants mutually guide one another into their understanding of common problems, create a common ground of thinking, and discuss solutions to the problems (Berti & Mulligan, 2016). We followed a multi-actor approach for the validation of the definition and the drivers of SI. To maximize the potential benefits of the CoP process, we opted for the "World Café" variant, where people are placed in a fitting context, explore questions that matter to them, and in regular intervals switch to a different discussion table and point, until they have deliberated about all topics in the discussion agenda. The World Café method has turned out to be a rather effective qualitative data-collection technique, as it blends different creative aspects of other, more traditional

qualitative data-collection techniques, such as interviewing, drawing, and narration. In addition, it allows time to reflect on what is shared during a discussion (Koen et al., 2014). Thus, a World Café discussion is an easy-to-use method of conducting discourses around issues that matter to the participants.

Twelve CoP events were conducted in nine European countries (see Table 2). We chose all these different countries as the diversity of the EU agrifood sector - also in terms of farm involvement in SFSCs (EC, 2019) - would allow us to examine the robustness of our findings from Phase 1. To test for differences within a single country, we conducted four events in a country where SFSCs have largely gained ground in recent years (i.e., Italy; Giampietri et al. (2018)). As we can see in Table 2, on average, almost 14 people took part across all countries, meeting the suggested threshold for data-collection purposes (Koen et al., 2014). Moreover, in almost all events, participation was balanced in terms of gender and professional representation.

Before the events, the author team provided CoP organizers with extensive guidelines and conducted a training session. At the events, organizer teams successfully managed the deliberation sessions, following a mutually agreed datacollection protocol (e.g., informed consent procedures were followed for all participants; all notes taken were electronically stored). After the events, each organizer team prepared a brief report and shared it with the author team and the participants. At the latter's request, organizers also sent in visual material, such as photos of the events and copies of the notes taken during the deliberations. To ensure consistency in the ensuing content analysis, two researchers independently reviewed the brief reports and the translated transcripts of the notes. Data were open-coded and categorized into themes according to the three research propositions. Transcripts were closely read multiple times to gain a broad overview of the discussions and develop an understanding of the key themes related to the participants' perspectives (Adler & Clark, 1999).

3 Results and Discussion

3.1 Phase 1 results

The search in Step 1 yielded 5,597 entries, each of which was assigned to a category depending on the keywords used. We located 588 duplicated records and excluded them from further consideration. Similarly, the selection process in Step 2 prompted us to retain 145 documents in total. Additionally, we had to delete 29 records containing no definition or being of low relevance, attaining a final sample of 114 documents (see Figure 1). The majority of the latter contained more than one definition, however. As a result, as many as 272 definitions were derived. Of course, quite a few of the definitions appeared multiple times. Figure 1 summarizes the selection process.

It should be stressed that no definition was found for SI in SFSCs. Furthermore, a careful inspection of the definitions revealed that only a handful of them related to social living systems. Likewise, although quite a few of the definitions, particularly those that appeared multiple times, were, to some extent, context-based, they remained generic and would probably fuel the discursive fluidity associated with SI conceptualizations (Edwards-Schachter & Wallace, 2017). Hence, we decided to abstain from adopting any of them, departing from the broad redefinition pursuit in which most past studies in SI had engaged (Voltan & De Fuentes, 2016). Instead, attesting to the view that domain specificity advances the understanding of a certain concept and affords additional problem-solving ability to a specific area of interest (Kidwell et al., 2008), we chose to stay close to our original conceptualization and crafted a domain-specific systemscentred definition that would do justice to SFSCs' idiosyncratic elements.

Besides, systems-thinking shows how system outcomes arise naturally from the interconnections between system elements and involves multi-stakeholder collaboration to tackle complex problems and decision-making (Mele et al., 2010). It has a natural fit with SI, whose underlying intent is to trigger a system-level change in order to solve complex social problems (Voltan & De Fuentes, 2016), and whose preponderance

Table 2: Overview of the CoP events

Country[a]	Participants	Gender	Professional representation
France	15	10 female, 5 male	producers, consumers, consultants, policymakers, academics
Germany	10	5 female, 5 male	producers, co-operatives, non-profit organizations, academics
Greece	15	9 female, 6 male	producers, co-operatives, consumers, consultants, policymakers, academics
Hungary	21	11 female, 10 male	producers, consumers, consultants, policymakers, academics
Italy (I)	15	6 female, 9 male	producers, consumers, consultants, policymakers, academics
Italy (II)	15	8 female, 7 male	producers, co-operatives, consumers, policymakers, academics
Italy (III)	20	9 female, 11 male	producers, co-operatives, consumers, policy advisors, academics
Italy (IV)	9	4 female, 5 male	policymakers, policy advisors, consumers, academics
Serbia	16	9 female, 7 male	producers, retailers, consumers, policy advisors, policymakers
Spain	10	5 female, 5 male	producers, co-operatives, food companies, policymakers, academics
Switzerland	15	6 female, 9 male	producers, co-operatives, policymakers, academics
The Netherlands	8	1 female, 8 male	consultants, policy advisors, co-operatives, producers

[a] Countries have been alphabetically ordered.

is the creation of social relationships between multiple and previously separate individuals and organizations (Mulgan et al., 2007). Systems-thinking also enhances our capacity to recognize patterns and interrelationships between parts of a bigger mechanism, and restructure these interrelationships in more effective and efficient ways (Onat et al., 2017). In this sense, a systemic conceptual lens allows us to understand SIs as processes that redesign actors' interactions and result in transformative changes for SFSCs. That said, and in line with the ontological immateriality of SIs (Cajaiba-Santana, 2014), SIs in SFSCs can also be considered as immaterial. In fact, SIs' tangible outcomes (e.g., a new product or service) are fundamentally a supplementary result (Neumeier, 2012), while their essence transcends technological, economic, or organizational artefacts (Rover et al., 2017). Inevitably,

although SIs in SFSCs typically result in some kind of tangible improvement, they are originally manifested in changes of collective attitudes, behaviour, or perceptions of the actors involved (Neumeier, 2012). In a similar vein, the loci of SIs can be expected to lie within the social system inhabited by SI actors and their enterprise(s) (Phillips et al., 2015). Consequently, the stage is set for SI to unleash its true potential, engendering beneficial, transformative change, rather than solely improvements in products and services (Grimm et al., 2013; Moulaert et al., 2017). In view of the above, we put forward the following working definition of SI, in the context of SFSCs: "SIs are processes that change SFSC systems by changing the relationships, perspectives, and ways of thinking and acting of the actors involved, leading to the achievement of, primarily, social goals that benefit all the SFSC actors and

the broader community".

Right after crafting the new definition, we concentrated on the drivers of SI and the results of the additional scholarly review. Our central finding and what most SI scholars seem to agree on is that when actors are engaged in a manner that solutions are co-developed - and master the corresponding methods and tools to do so - successful SIs are generated (Moulaert et al., 2017; Voltan & De Fuentes, 2016; Westley & Antadze, 2010). What this insight implies is that the drivers of actor engagement that really matter for a successful SI process in SFSCs are those that ensure actor engagement in the co-development or co-design process. Accordingly, some distinctive, bottom-up drivers that matter for a successful SI process in SFSCs and ensure actor engagement in the co-development and co-design process are the following: Commitment of the participating actors (e.g., transparency and trust); an organisational structure that ensures co-ordinating processes and communication (e.g., participative decision making, group of initiators); climate of acceptance/co-operation (e.g., interactive events); enhancing the abilities of the participating actors (e.g., communication, responsibility, training); maintaining social and physical proximity (e.g., sharing spaces, organizing fun activities). Interestingly, all of these are compliant with systems theory, as systems-thinking prompts us to improve our ability to understand systemic elements (e.g., processes, indicators) and their interconnections, ask "what-if" questions about possible future impacts, and mentally prepare for the redesign of our systems (Onat et al., 2017). Hence, embracing a systems-thinking perspective to engage as many actors as possible might be instrumental in producing a successful SI in a SFSC context.

3.2 Phase 2 results: Empirical validation

We started with the first proposition and the validation of SFSCs as social living systems. The main assumption was that SFSCs have all the attributes of such systems. The parts of these systems are groups of stakeholders that are interrelated, interconnected, and interdependent and form a unified whole that has a specific purpose. World Café participants were asked to evaluate the relative importance of these attributes for their SFSCs. The prevailing thematics were "co-operation/synergies" and "trust". The value of "creating relationships", "interconnected ecosystems", and "trust" among members of the SFSCs (including the customers) was pointed out in the discussions held in all countries. Some SFSC participants proclaimed the worthiness of "sharing the same vision and agreeing on how to reach set goals", while others insisted that working alone can be an actual barrier to the growth of SFSCs. Building on trustworthy relationships and co-operation has been opted by all World Café discussions as being the ingredient for building successful SFSCs; this is the absolute requirement for staying interconnected, interrelated, and interdependent, and form a whole (system) that has a specific purpose. However, being interdependent does not imply that SFSC participants lose their autonomy; it suggests that attention is paid not only to their own needs but also to the system's needs and purpose. The validation process acknowledged the value of building strong, trustworthy relationships and the merits of relying on co-operation rather than competition. We could, hence, conclude that if SFSCs are seen as complex social living systems, new lenses are provided to design new business models and strategies as well as novel policy instruments that could create opportunities for SFSCs to grow.

The second proposition we validated was the importance of actor engagement and participation for a successful SI process. Our research question was framed around the notion that the drivers of actor engagement that matter for a successful SI process are those that ensure actor engagement in the co-development or co-design process. The thematic that emerged for this question was again "co-operation/synergies". SI provides solutions to existing social problems, and these must be developed and implemented by the interested parties themselves (e.g., Moulaert et al. (2017), Voltan and De Fuentes (2016), and Westley and Antadze (2010)). This insight was also validated by CoPs whose participants see communication and co-operation as important factors that drive change and transformation of the old way of doing business. Another thematic that
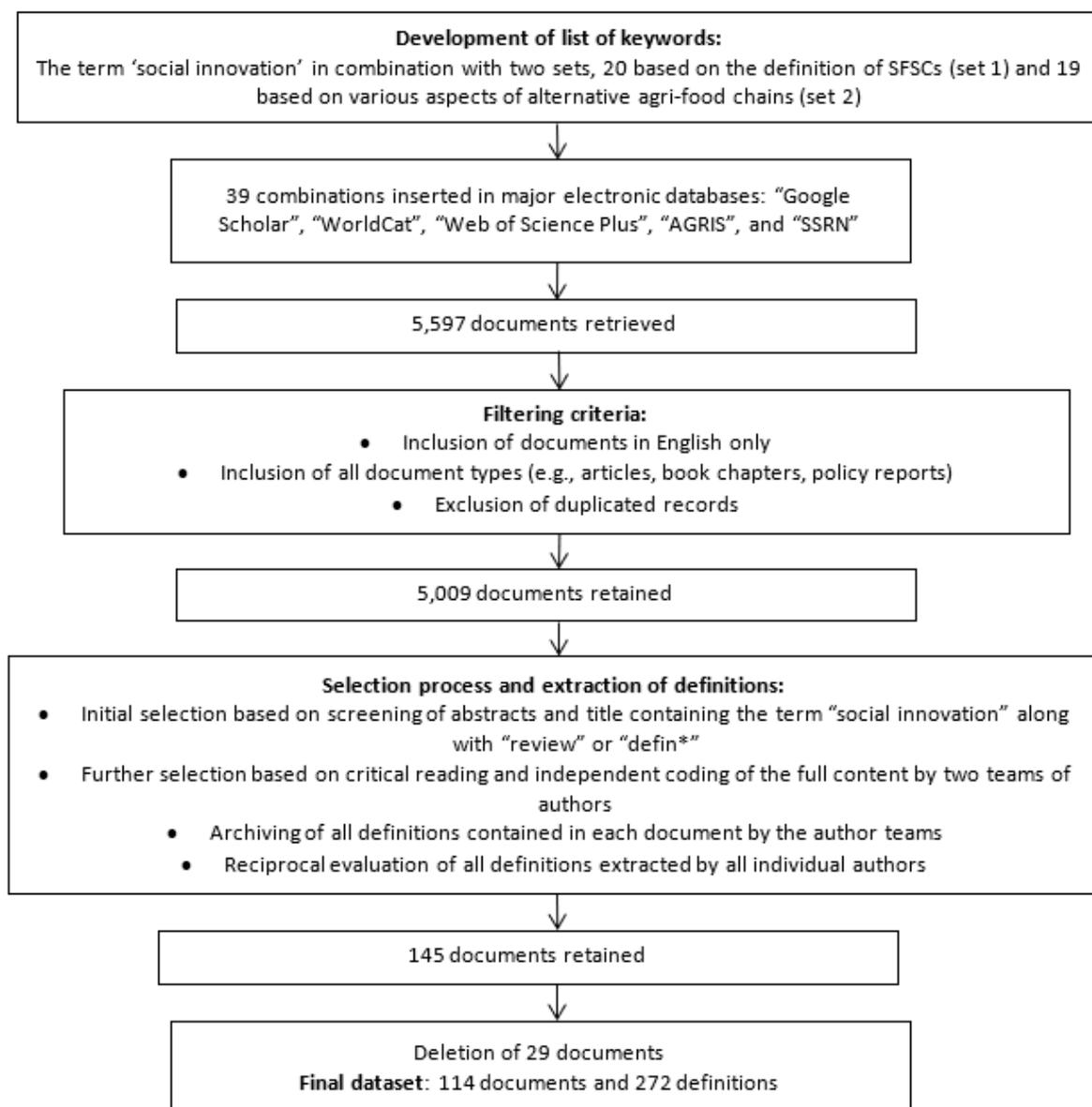
Figure 1: The selection process of Social Innovation definitions

surfaced was "leadership"; it has been argued by many scholars (Senge et al., 2015) that a dedicated leadership or a small group of "initiators" may shift the conditions through which people who share a problem can start learning collectively how to act and resolve it.

The final proposition we sought to validate referred to the definition of SI. The suggested statement was that SI is a process that brings fundamental changes in the way actors think and interact. The thematic that emerged was "co-operation/synergies". In general, the CoPs agreed that SI is a social process that adds value and creates something new. The development of relationships, networking, and co-operation, is vital for this process. However, there were communities whose members understand SIs as "set of practices and solutions" that aim at achieving social goals; in general, validating the definition of SI proved to be challenging and follows the conceptual ambiguity of SI. We have set to providing a context-based definition of SI since we attest to the view that domain-specificity advances the understanding of a certain concept and affords additional problem-solving ability to a specific area of interest (Kidwell et al., 2008). It seems, though, that practitioners are still puzzled by the concept of SI in SFSCs. This is an essential point to be considered by policymakers who want to encourage SI in SFSCs. Admittedly, more discussions with SFSC actors need to take place to help establish a broader understanding of SI among SFSCs.

Another thematic that emerged from the content analysis was "education and training" in the context of communication and co-operation. This need is a request that could also become a public policy goal: to engage as many actors as possible in co-developing SI, policymakers should consider facilitating their communication and co-operation. Furthermore, throughout the deliberations, the concept of "values" emerged frequently. Although not directly connected to the validation process, many participants recognized the need to re-engineer food supply chains, by altering our perceptions and mental models and embracing social, economic, and environmental sustainability. Notably, one of the participants pointed out the following: "We need to invent new ways to transform food produc-

tion into a sustainable and more humane process. Food has value that goes beyond nutrition; food blends tradition, culture, civilization, humanity, and people need to understand this...".

Finally, both the prevailing thematics linked to the validation of the propositions and the extra thematics that emerged from the analysis appeared to be robust, not only across the different countries but also across the different samples in the same country (i.e., Italy). Besides, we were careful to test our propositions with various SFSC actors in all countries. Nevertheless, there is a need to gather further evidence of generalizability to guarantee our findings' accuracy.

4 Conclusions

The Covid-19 outbreak is changing consumers' perspective and demand towards food by directing their intentions into a more local supply. SFSCs are one alternative that is a direct response to these dynamics. SFSCs restore consumers' confidence in the food chain and offer a fair return to farmers. However, they have limitations, especially when trying to appeal to, let alone to commit, ample actors (e.g., different consumer groups, policymakers). Thus, it is necessary to understand how SFSCs may impact the changing dynamics in society, particularly in the last year, and how SI, which is purported to be a dynamic that fosters adaptive governance by provoking changes in the system (Castro-Arce & Vanclay, 2020), could be used to enhance SFSCs' capacity to act and engage actors. Hence, the main goal of this study was to understand SI in the context of the SFSCs. To meet our study's goal, we followed a two-phase approach.

In Phase 1, a systematic review of SI's definition was conducted. The review offered a wide range of SI definitions, but no definition for SI in SFSCs was available or suitable. As a result, we created a new domain-specific systems-centred definition, conceptualizing SIs in SFSCs as processes that change SFSC systems by altering the ways actors think, relate, and act, ultimately resulting in the creation of sustainable value in the SFSC's economic and social performance. Moreover, the review allowed us to understand that some of the main SI drivers are those that ensure actor

engagement in the co-development or co-design process. Still, as several scholars have noted, actor engagement is a necessary but not sufficient condition for an innovation process to materialize (Davies et al., 2012). The critical issue is to have a group of dedicated stakeholders that have realized their role as leaders in co-shaping their own future and in collectively "working their way" to secure the benefits of the transformative, albeit elaborate, SI process.

In Phase 2, a CoP method was employed through the "World Café" variant to empirically explore SI in SFSCs. In all 12 World Café meetings and nine countries, trust emerged as the single most important determinant of success in SFSCs and the SI generation. Without trust, any collective endeavour is doomed to fail. At the same time, trust is both an input and an outcome in SFSCs, where trust leads to more trust and vice versa. Sometimes, SFSC actors simply need to begin trusting other SFSC members and promptly reap the rewards of showing trust first. Interestingly, the World Cafés lent partial support for the definition of SI in SFSCs. Of course, although the definition we crafted could not be fully supported, the World Café participants agreed that SI is a process that brings fundamental changes in the way actors think and interact.

Actually, providing a SI definition in the context of SFSCs is complex since organizing SFSCs is also complex, diverse, and dynamic. Besides, SFSCs are living organisms, not merely commercial transactions or technical solutions. The change SI attempts to bring to SFSCs relates to social and living entities, aiming to improve how SFSC actors think, relate, and act. Inevitably, more research is necessary to better understand SI in SFSCs. Such research would be equally instrumental for directing SFSC-related national and international policies, the absence of which is conspicuous.

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