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Farmers' Participation in Operational Groups to Foster Innovation in the Agricultural Sector: An Italian Case Study

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Abstract: Recently, the interpretation of the innovation process has changed significantly. Its linear model has evolved to a dynamic and ongoing participatory approach where cooperation, oriented to generate co-ownership, is the essence to co-produce knowledge among multiple actors. Farmers' direct participation in the process is widely accepted since they contribute with first-hand information, perceptions, field experiences, and feedback that are essential for the design and implementation of a project. The European Union encourages their participation through the European Rural Development Policy that promotes competitiveness and sustainability in the agriculture and forestry sectors, building bridges among heterogeneous stakeholders that complement each other to find an innovative solution to a given problem. Thus far, despite participation importance, few details have been provided about producer's contributions within the process. Consequently, this paper attempts to explore the modus operandi of an Italian Operational Group to get insights about the farmers' participation and identify the factors that could influence and foster the interactive innovation process. The results, based on a participatory observation, key informants' interviews, and theory reflection, revealed that farmers are active players in the design and implementation phases. Yet, their participation is not constant throughout the entire process. Empower them to find solutions with different players is a complex challenge as it requires motivation, commitment, trust, and an open communication among different actors.

Keywords: farmers' participation; interaction; innovation; co-creation; operational group; Italy



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1. Introduction

Innovation is a key to make agriculture provide healthy, safe, and nutritious food for a growing population, but also preserve land, water, and biodiversity [1]. However, evidence on past experiences has shown that traditional innovation approaches, in which ideas are developed and tested by researchers and then implemented by farmers [2], did not promote producers' empowerment [3], were not built on local farming experiences [4], and did not deliver innovations tailored to the needs of farmers and society [5]. While traditional approaches have adopted a 'linear' vision of innovation [6], 'circular' models have proposed new interaction patterns [7] based on participation and knowledge-sharing [8]. Hence, new methods have progressively emerged to address complex problems and participatory approaches [9]—in which innovation is co-produced through interactions among different stakeholders who create, adapt, and diffuse knowledge [10]—have been proposed. This open and inclusive perspective requires participation of a wide range of players [11] to learn together and stimulate innovation and knowledge in a collaborative way [12].

In the European Union context, the participatory approach attempts to consider farmers' objectives and constraints in the entire project life, addressing problems that are relevant to them and their circumstances [13]. This approach should enable learning for all involved

actors and call for more integration to form partnerships, follow bottom-up initiatives, and link actors in different types of projects such as the Operational Groups (OGs) [14]. An OG is intended to be farmer driven. It is established to tackle a certain (practical) problem in the agri-food sector by applying innovative practices, technologies, processes, and/or products. The goal is to generate creativity that may lead to innovation [15]. An OG is formed with different stakeholders (farmers, researchers, advisors, businesses, etc.—its composition will vary from project to project) to implement an innovative initiative within the framework of the Agricultural European Innovation Partnership (EIP-AGRI).

The EIP-AGRI is part of the EU's growth strategy [16] where the participatory approach has become the focal point [17]. To create new ideas and solutions, EIP encourages the use of interactive models based on participation, cooperation, and knowledge sharing [18], where actors with complementary expertise develop opportunities to be disseminated [19]. The EIP-AGRI encourages farmers to play a role in this process and participate, get exposed to new ideas and ways of thinking [20], and make others aware of their problems, needs, and barriers to innovation [21]. One of the key actions of the EIP is to support OGs to tackle bottom-up specific practical issues [22] according to the needs of the farming sector.

To analyse and understand producers' participation determinants are vital to policy makers to design attractive programs [23], to make visible that co-produced innovations have potential to respond to emerging obstacles [24], and to generate promising economic solutions in the agricultural sector [25]. Nonetheless, empirical experiences reveal that producers' integration in participatory approaches is not a simple task [26]. Multiple partners imply diverse interests that can influence the extent to which actors can equally contribute and co-determine the innovative agenda.

This paper aims at exploring the potential and the barriers of participatory projects by analyzing Farmers Lab, an OG that sought to design a collective laboratory for vegetables and fruits transformation to grow market access, build economic sustainability for producers, and increase availability to healthy local food. This OG was located in Veneto, one of the 20 regions of Italy (north-eastern), with a population of five million people (8.2% of the total number of inhabitants)—of which 17% live in rural areas, approximately [27]. There is a prevalence of agricultural zones (57.2%), wooded land and/or semi-natural environments (29.1%), and urban, industrial, and infrastructural territories (8.2%). Veneto is the third richest region of Italy after Lombardy and Lazio, with a strong industrial vocation that promotes participatory processes in topics related with innovation, environment, and climate change [28]. It has been considered a typical example of the so-called "Third Italy", a macro-region characterized by local networks of small and medium sized firms with a mix of competitiveness and cooperation [29]. The principal challenges of the regional agricultural sector are the loss of business activity, labor force migration, demographic changes, inertia and adaptation to work in isolation with small and poorly coordinated producers, and environmental care [28].

This research explores the *modus operandi* of the OG, analyses the dynamic of producers' participation, and identifies the factors that influence the innovation process to expand our understanding about farmers' involvement, their organization, decision-making, knowledge sharing, and learning experiences. For this, first we define the key concepts for our research. Then, the followed methodology is explained. After that, the results are presented and discussed. Finally, based on the evidence gathered for this case, we draw some conclusions on what influences participation and highlight suggestions on how active participation to innovation processes can be encouraged.

2. Conceptual Framework

2.1. Defining Participation

Participation has a multiplicity of meanings and uses in the literature [30]. It has increased in popularity from the 1970s [31] as a tool for reaching the poorest of the poor (putting the last first) [32]. Since then, as it encourages bottom-up initiatives and shifts the

focus to the so-called beneficiaries (marginalized groups that aim to improve their quality of life) [33], it has become part of the development jargon (a trendy buzzword that attracts) and the center of contemporary development discourse [34].

We regard participation as the involvement of individuals interested in a particular intervention to respond to their felt needs [31]. From an ethical point of view, participation gives individuals the possibility to express their views with regard to a range of social, economic, political, or environmental issues [35]. Moreover, it is also recognized as a human right (to give people a meaningful role in decisions that affect them) [36]. Participation is a personal but also a social action (take part of a process through action and interaction) [37]. Wenger (1998) used this term to describe the social experience about membership in communities and active involvement in social enterprises [38].

It has been stated that participation is crucial to a projects' success, and that it can transform development, empowers the poor, etc. [26]. At the same time, some authors such as Defrancesco et al. (2008), Howley et al. (2012), Franzén et al. (2016), and Suvedi et al. (2017) suggest that it can be constrained by lack of knowledge, communication, motivation, confidence, and time [35]. The concept of participation and its practical implementation have been also criticized, for example, by Cooke and Kothari (2001) and Hickey and Mohan (2005), who consider participation itself as a form of power [39]. Others, as Kesby (2007) have emphasized its potential to empower participants and change their lives through the production, exchange, and use of knowledge that allowed, according to Cristóvão et al. (2009), them to learn through shared experiences from actors with different backgrounds, what brings farmers into the process, and strengthen their role in the innovation process [21]. Other qualitative studies suggest that, when adequately implemented, participation projects can lead to innovation, empower participants, encourage learning, raise networks' awareness, strengthen social capital [40], build trust, co-create knowledge, and generate social awareness [36].

Many studies argue that, even within a participatory innovation process, farmers tend to be mere adopters of agricultural innovations: they participate more in implementing than in shaping innovation process [41]. Cullen et al. (2014) showed that farmers participate in innovative initiatives as implementers, but not as designers, and their participation, compared to other actors, is weak and non-stable [42]. Oladele and Wakatsuki (2011), in turn, revealed that farmers may participate as testers of innovations [18]. Adekunle et al. (2012) stated that while farmers are recognized as sources of innovation, their participation and interaction with other actors is still often limited [43]. Other studies, however, provide evidence of farmers as promoters of innovative initiatives [44], and Spielman et al. (2009) has shown that farmers can be equally weighting sources of knowledge among diverse interacting players.

The present study conceptualizes participation as a complex interplay among different players into innovation projects in which producers are a fundamental component [32] as they contribute to understand the complexity of farm level constraints and to find solutions to ensure that their limitations are addressed [36]. Although empirical evidence has revealed that end-user participation does not always lead to innovation [6], and producers' cooperation depends on their level of engagement in the process, their social embeddedness, and their levels of social capital [40], the remaining challenge is to identify when farmers' inclusion would be beneficial [45], and when they are willing and interested to be part of a specific initiative [21].

2.2. Factors That Influence the Participatory Innovation Process

When working with farmers, and in general, with a heterogeneous group of people, some specific factors can facilitate the innovation process (Figure 1) [46]. Although these factors are not enough to ensure a project's success, they might make the process more fluent and co-creative [33]. Literature review has allowed us to identify some of the factors that can stimulate and facilitate participation [47]. While the results of a participatory process are relatively well-defined [35], the elements that contribute to it have received

less attention. We are aware that factors, other than the ones visible in Figure 1, can also influence participation, like the size of the farm, the crop type, growers' age, income, etc. However, we have focused on those subjective factors, related to personal attitudes that *ceteris paribus* influence participation. The choice reflects the fact that these types of factors were cited by the interviewed actors as the key determinants.

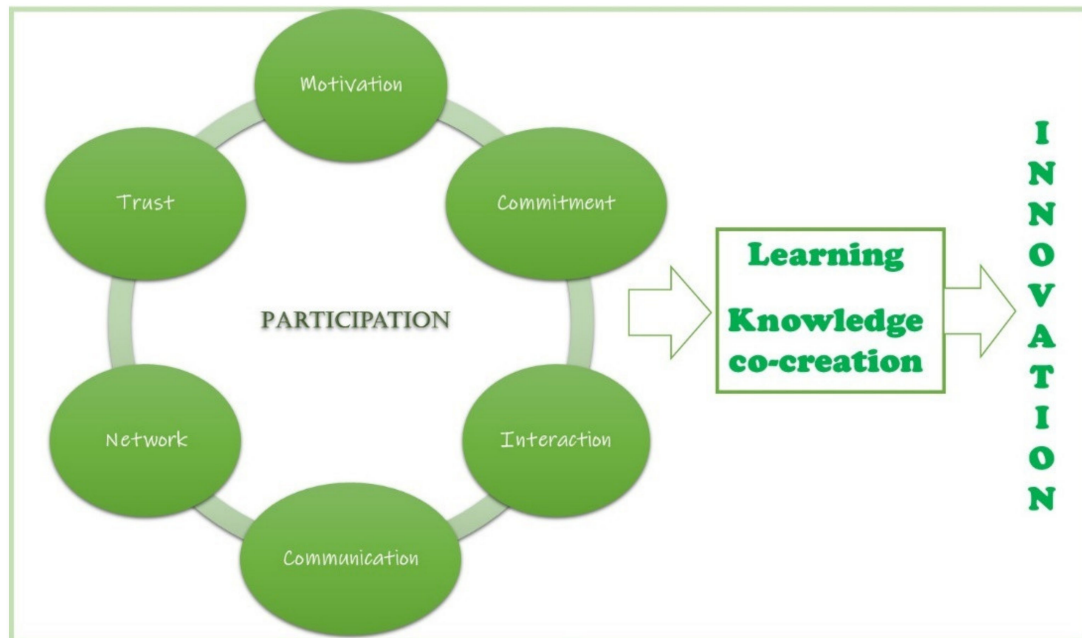


Figure 1. Factors that influence the participatory innovation process. Source: Own elaboration based on Breetz et al., 2005; Klerkx et al., 2009; Knickel et al., 2009; Brunori et al., 2010; Moschitz et al., 2015; and Dolinska et al., 2016.

In addition, while each factor encourages participation differently, they may also be a pre-condition for, or a result of, other factors. For instance, trust and interaction are drivers for networking. However, trust can also be a driver for interaction or knowledge co-creation. That is to say that one factor could be a driver for another, in a multi-directional relational pattern, while retaining its specificity. This complexity is simplified in Figure 1, where interactions among the six factors are not explicitly represented.

2.2.1. Motivation

Motivation originates from needs and desires [48] but can be also driven by curiosity, an urge to know and learn, and explore looking for answers [49]. Within a participatory process, to encourage motivation, group members must know and realize that their inputs are considered in the project activities, line up their personal goals with those of the initiative, set clear and meaningful objectives, have sufficient resources (economic and social), and helpful partners to develop a useful job [50].

Empirical examples prove that motivation is a decisive factor in the efficiency and performance of different agents within a project [49] because it allows them to accept changes, adapt to them, and get to work [8]. Greiners (2009) stated that motivation relates to personal or internal characteristics such as skills, abilities, emotions, and aspirations, as well as to external ones (opportunities, available resources) [51]. Therefore, within a group, not all the members are willing to collaborate at the same level. Willingness depends on motivation, usually until some goal is reached [48]. Literature also demonstrates the influence of cultural norms, identity, social contexts, values, goals, and worldviews [52] or personal philosophy as motivational devices that affect peoples' attitudes and behaviors towards participation to obtain personal or collective goals [51].

2.2.2. Commitment

Commitment has received much attention in the social sciences [53]. It can be described as acting towards fulfilling mutual, self-imposed, or explicitly stated obligations [54]. It is influenced by attitudes, identification with the group [55], and the project objectives, as well as personal values, loyalty, and expected benefits and costs [56]. Literature provides evidence that individuals with higher levels of commitment to participate in a project are more likely to contribute towards the achievement of its objectives [57]. The intensity of members' participation depends on their commitment level—the higher it is, the greater contribution towards achieving shared goals—that in turn, impacts the project success [55].

2.2.3. Interaction

As its name suggests, interaction is a dynamic sequence of social actions exercised reciprocally between two or more individuals [58] that modify their actions and reactions based on the actions of the person with whom they interact [59]. There is no participation without interaction [38]. Literature indicates that interacting with players from outside the agricultural sector prevents isolation [9], allows farmers to be aware of what is happening in their fields, and leads to build up their personal networks [60]. However, interaction requires time, and when it comes to reaching cohesion, common understanding and coordination [56].

2.2.4. Communication

Communication is the conscious action of exchanging information or opinions between two or more people to create understanding or convey a certain idea [47]. Within a participatory process, the communication flow should be dynamic (multi-directional), with multiple interacting sources of knowledge [61]. As an interactive project involves numerous goals, values, and interest from a group of actors [17], it needs an organized communication in which players know about each other's opinions, preferences, priorities, and concerns [62]. Being communicative and using an understandable language are considered crucial tools to facilitate the entire participatory innovation process [24], which requires a continual open and honest dialogue to share information, perceptions, experiences, and opinions to explore and generate new knowledge among the parties involved [63]. Written evidence witnesses that having straightforward and truthful communication is greatly valued by members of a project [64].

2.2.5. Networks

A network is a space where multiple stakeholders can interact and participate [65], know and listen others' perspectives, be aware of new trends, and maintain a constructive long-term position to cooperate rather than compete [57]. Literature suggests that networks encourage learning since interacting and participating with diverse agents permits working in an environment where continuous feedback loops are produced [66] over an extended period. Pittaway et al. (2004) stated that networks have become an important external source of innovation as they can expand access to knowledge and other resources [67]. Hence, it is assumed that diverse actors (within and outside the agricultural sector) could benefit being part of them. Notwithstanding, the literature shows that farmers' participation in networks is often limited [20]. Small and medium producers experience difficulties in networking because they rarely interact, for instance, with Universities or research organizations [68]. Based on this, being part of a participatory process could open doors for farmers to learn about the importance of building [53], expanding, or strengthening networks, increase their willingness to share information and experiences with diverse agents, and learn from it [69].

2.2.6. Trust

Trust is the belief a person has that another individual will be able and willing to act appropriately in a given situation [47]. It implies a suspension, at least temporarily, of uncertainty regarding others' actions [70]. In this sense, trust can be strengthened or weakened according to the actions of other people [54]. Luhmann (2001) defined it as the willingness to accept some risk and vulnerability towards others (rely other people to display some competence or develop certain things) [71]. Thus, trust simplifies social relationships as it flourishes when there is the feeling of belonging to a group [72], and there is a space to share thoughts, experiences, and feelings [73].

As some authors argue, trust increases the opportunities for cooperating with others and for benefiting from that collaboration [74]. Furthermore, it could remove the incentive to check up on other people activities, what makes participation less complicated (i.e., make cooperation possible, rather than easier) [75]. While the process of building trust is often slow and difficult as it is an emotional and logical act, being part of a participatory project could make its members feel eager to constitute a team with a shared purpose and increase or improve their willingness to trust each other [22].

A review of the literature suggests that a participatory innovation process facilitates relationship-building among diverse partners [76] that can lead to a continued exchange and cooperation [73]. Trust depends on the context, the group, the settled activities, etc. [77], and since each partnership is unique, its members influence the outcome of each initiative in a different way [72].

2.3. Outcomes of Participatory Innovation Processes

If we look at innovation as an obvious final outcome of an innovation process, learning should be considered a key outcome as well. Learning is the act to acquire knowledge (more and more considered as a lifelong process) which aids in obtaining critical thinking skills [78]. It explores different and challenging horizons where people discover new ways to perform tasks [79]. According to Neels et al. (2017), it is important that members of a group are open to fundamental changes in values, attitudes, and behavior so that learning becomes a continuous process among all actors [80]. Contrary to the conventional learning theory, which conceives it as an individual, separable, hierarchical, and abstract undertaking [81], Lave and Wenger (1991) demonstrated that effective learning takes place through participation in social groups as they encourage it across belonging, becoming, experiencing, and doing [82].

Nonaka and Takeuchi (2005) defined knowledge co-creation as new knowledge from interaction between different parties in a joint task [83], which can result in mutual learning [79]. Participatory projects are considered a relevant mean for obtaining access to knowledge, and other important resources for innovation [58]. As Moschitz et al. (2015) argued, interacting with different actors, interchanging information, collaborating within networks, and promoting peer-to-peer knowledge exchange is an opportunity to acquire ideas and knowledge that can contribute to develop solutions to certain problems [20].

Since innovation rests on learning, as well as on discovery [19], a successful participatory process can conduct to it [10]. Innovation may be technological but also organizational or social [84], and it can be based on new but also on traditional patterns [85]. Literature claims that innovation is made possible by a combination of knowledge from different sources [56]. While putting together actors with diverse skills also implies risks, there is no innovation without it [61]. According to Pittaway et al. (2004) a successful innovation requires continuous integration of new knowledge and knowledge exchange [20], and it depends on some characteristics related to farms, environment, and producers (access to information, capabilities, preferences) [86].

3. Methodology

The methodology follows the objective of our research, which aims to get insights about farmers' participation determinants and to identify the factors that influence and

foster the interactive innovation process. The case study method was selected as a suitable tool for the collection and presentation of detailed data. First, for acquiring information about the initiative, desk research was carried out. Then, a map of the participants was developed to identify its main players, their roles, and core activities. After that, a standard questionnaire was prepared with a set of predetermined, and open, questions that sought to identify the OG organization, including the decision-making and learning processes with particular attention to the participatory approach followed during the two-year life of the project. Later, with the contribution of the innovation broker, the OG's partners were contacted by email and asked for an interview. The interviews started following a structured questionnaire. The scope was to gather information about partners' selection, their characteristics, their contributions, their motivations to be part of the initiative, their communication procedures and channels with external stakeholders, etc. (Appendix A).

The interviews were divided in two rounds. In the first one, three of the seven actors within the partnership, willing to be interviewed, were approached. The selection criteria focused on their sector of provenance, their contribution to the project, and their availability of time. The coordinator, the researcher, and the innovation broker were interviewed in the Italian Farmers Confederation—CIA facilities in Padua, under the same conditions, 50–60 min, in Italian, in February 2020. Then, depending on the gathered data and to get more details about interaction, participation, and co-creation, additional actors within and outside the partnership were contacted (3 farmers and the market player, plus an external stakeholder) for the second round of interviews. Once more, based on their time availability, the interviews were held in different dates during May 2020, under the same conditions, by Zoom (40–50 min).

Altogether, 13 actors were asked to participate. With 8 respondents in total and based on the convergence of the provided information, no more interviews were conducted (Table 1). The answers of the respondents were recorded, with their previous consent. Next, the data were analyzed by the research group. The responses were transcribed considering all details and pieces of information, while different colors were given to each respondent for identification purposes. When needed, clarifications were done through email. Once completed, responses were grouped according to their similarity or divergence, classified under categories and then, separated by themes. The classification was made according to the terms used by the interviewees, which were used as a base for a manual coding, to describe the participatory process followed in Farmers Lab. Then, patterns were identified to find connections and associations among the respondents' answers (Appendix B).

Table 1. Main characteristics of the respondents.

Respondent	Sector	Previous Participation Experience
Farmer (coordinator)	Agriculture	No
Farmer	Agriculture	No
Farmer	Agriculture	No
Farmer	Agriculture	No
Researcher	Design & Engineering	Yes
Trader	Commerce, tourism, services	Yes
Innovation Broker	Manufacturing, industry 4.0, agri-food	Yes
External Stakeholder	Education	Yes

4. Results

4.1. Farmers Lab Background

Farmers Lab was born from small farms willing to address their difficulties in the fruit and vegetable sector in the province of Padua, a vibrant rural (and industrial) area with about 940,000 inhabitants, with many medium and small-sized farms. Its main agricultural products are corn, wheat, barley, tobacco, tomatoes, strawberries, green beans, apples, peaches, and grapes [87]. Short shelf life of raw materials, food loss, and low added value

pushed them to start thinking about products' transformation to improve productivity and foster innovation throughout the agri-food chain, maintain wealth within the territory, increase sensitivity to the quality and seasonality of the products, and reduce the ecological footprint. The idea of having a common laboratory was born from the exchange of thoughts among small farmers (mainly producers of vegetables, apples, cherries, strawberries, sugar beets, forage, milk, grapes, and peaches) associated with the Italian Farmers Confederation (CIA)—a farmers' organization which represents a significant share of primary producers.

This OG was chosen as a case study since it follows a bottom-up approach and innovative ways of working. This project offered a promising solution for producers who were used to selling their agricultural raw products in local markets and to their neighbors directly. When sales were not as planned and supply exceeded demand, and food was used as animal feed or thrown away, the result was an economic loss. Processing fruits and vegetables was a way to increase their added value, to extend their shelf life, and to facilitate an efficient logistics, thus increasing farmers' revenues.

Once the idea of the project was clear, the coordinator, with support of an innovation broker, identified partners external to the agricultural sector—based on their skills, background, and history of cooperation—to be part of Farmers Lab. At the beginning of the initiative, farmers did not have in mind to include external actors, nonetheless, according to the coordinator, one of the requirements of the funding call was to involve partners from outside the agricultural sector. Hence, the group was formed with seven members from heterogenous fields, all of them inspired by the initial idea, and willing to contribute with their experience, complementary competences, and knowledge to design a common laboratory for transforming fruits and vegetables. The farmers who took part in the OG were not selected by any internal or external stakeholder, or under any specific criterion. Since the initiative was presented to the CIA members, those who felt motivated and found benefits in the activities to be carried out, became part of the initiative on a voluntary basis. The innovative element, especially for the agricultural world, was to put them together to design collectively (Table 2).

Table 2. Farmers Lab partnership.

Project Actor	Role
Pioneer farmers	Coordinator
Researchers	Food design brand and packing prototype
Researchers	Products' sensory analysis
Vocational training institution	Analyze and segment farms by product type
Innovation support	Innovation broker
Non-Governmental Organization	Designer
SME's association	Trader

External stakeholders were also essential since, without economic resources, a location for the lab and a business guidance, it would not have been possible to realize the initiative. In a second phase, the same partnership is planning to begin with the transformation of fruits—peaches, apricots and strawberries—and vegetables—tomatoes, chicories, and pumpkins—to continue building the capacity of the innovation actors to self-organize, create, experiment, test, and make use of their and others' skills and knowledge.

4.2. Factors That Influence the Participatory Innovation Process

As extensively argued in Section 2, the literature suggests that factors such as motivation, commitment, interaction, communication, among others, can stimulate participation (the intention and actual action). With the data collected, so far, it can be inferred that each of the named factors influence the project in a different way depending on its phase. Moreover, these factors are built on personal characteristics and the context in which the initiative is developed. Within this section, quotations in *italics* are taken from the interviews.

4.2.1. Motivation

The engine that encouraged producers to be part of the initiative was mainly to determine if it was possible to run a shared laboratory with other farmers to increase their profitability adding value to fruits and vegetables. Besides that, Farmers Lab was a perfect alternative to reduce food waste and offer a quality product directly to consumers. For the coordinator, linking the agricultural world with those from different backgrounds was a challenge, but also an opportunity and a proof that being isolated is useless.

The farmers involved were often very enthusiastic about the project approach. They committed significant time to the initiative activities. For most of them, physical proximity guaranteed their attendance to the scheduled meetings even if it meant leaving their workplace. While the motivations for being part of the project were important, they were not enough for some producers, who did not continue in the OG. Some farmers did have time constraints, but others were not interested in doing unremunerated work (in January 2018, there were around 25 farmers interested on the initiative and followed its activities. In December 2019, there were around six producers, most of them women, who faithfully believed that the common laboratory could be a reality).

On the other hand, the interviewed partners identified certain components that sometimes hindered their motivation level. They stated that the rigidity of the process, meaning that what was written had to be done in that way (even if there was an option of simplifying procedures), was one of the main difficulties for the project. For the innovation broker, clear commands and guidelines were missing, and this caused several actors to doubt the future of the OG. Additionally, different expertise, language (technical terms), working habits, and methodologies of the partners caused discomfort and confusion when the project started.

4.2.2. Commitment

The entire partnership was committed to a common cause, they were very enthusiastic about the OG approach, and perceived the initiative as their own. However, producers were not always well represented in the assemblies, and even if they were present, not all of them were able to voice their views. Since they had to leave their lands to attend to physical meetings (*“lost day of work”*), for them, being part of the project required extra commitment and coordination. Producers argued that the most difficult task was to integrate themselves in the system and increase their availability and desire to participate. As it was a new and stimulating experience, they contributed by providing information and inputs that allowed them to evaluate their situation and identify what was missing. Each partner was committed to succeed in the bottom-up initiative and working with actors from different backgrounds.

According to the innovation broker, the commitment of each member enabled them to listen and know what was happening in other areas they were working in. For the interviewees, a good attitude, teamwork, open mind, motivation to cooperate, meticulous coordination, belief in the essence of the project, and partners' skills aligned with the initiative needs were the core ingredients to work within a committed team to achieve the common goal.

4.2.3. Interaction

For the interviewed producers, agricultural mindsets are still focused on technology transfer (there is someone who transfers and someone who is transferred) with no co-planning, co-creation, co-designing, nor cooperation in the process. The majority of them emphasized the isolated and individualistic character of their activities: *“we work alone”*, *“everyone has their own ideas”*, *“we do not discuss”*, and *“when needed, we help each other, but when we have to work as a team, we get lost”*.

The relationship among partners within the OG was satisfactory (balance between formal and informal relations). They were not constant, but there were continuous interactions, either in the meetings or by phone, to determine how to carry out the planned

activities. The innovation broker was the facilitator of the group who collaborated to identify and complement different needs, interests, ideas, competencies, and actions to arrive to the commonly agreed objectives. Collaborative discussions were the space where actors expressed openly and exchanged views and knowledge to reach agreements and contribute to solutions. Everyone had a voice (*"nobody was excluded"*). All the interviewees felt heard. They perceived their views, experiences, opinions, and suggestions were considered to a great extent.

A Special Collective Mandate Agreement, with representation for the establishment of a Temporary Association of Purpose (ATS), was stipulated to carry out Farmers Lab activities through interaction and systematic comparison between all partners along the entire path of the development, implementation, and dissemination of the innovation. Decisions related to the contents, management, and coordination of the initiative were defined in a collaborative way and based on a democratic discussion where all the actors had the chance to comment and share their point of view without restrictions or discrimination. Occasionally, there were disagreements about some activities to be carried out. In that case, according to the coordinator, the partners reviewed the issue together and found collectively the best possible solution for the project. After listening each ones' arguments, a decision was taken in consensus. For a farmer, *"the clue was to be open minded, be focused on finding the solution, share what the limits were, and propose ways to address the inconvenient"*.

As already mentioned, external stakeholders were also involved in the process as observers and advisors. Their mission was to analyze and determine the project's importance for the region (technically feasible, economically and socio-culturally viable, and politically acceptable). The aim was to involve them to know their perspectives, comments and suggestions, to be aware of financing opportunities, and to solve some bureaucratic and administrative issues. Although they attended to the project meetings, a producer stated that there were not enough opportunities to interact with them: *"it would have been positive to find a space to meet them bilaterally to strengthen the relationship"*. These events did not open the chance to approach them and deepen on some topics about the initiative. Usually, time was the big constraint (attendees had busy agendas). Notwithstanding, farmers also admitted that they did not look for opportunities to interact with these players because at that time they did not consider it necessary.

4.2.4. Communication

Beyond reaching agreements, communication allowed the team to learn, develop esteem, empathy, trust, and friendship: *"at the beginning, it seemed difficult to understand each other. We did not have a common language. The technical terms were hard to comprehend (design expressions), but partners were able to explain with simple words what they wanted to do and their proposals. We put ourselves in each other's shoes"*, said a farmer. For all the interviewees, the bases for taking decisions were direct and multi-directional communication (with multiple interacting sources of knowledge), cooperation, and motivation to achieve something different and recognizable for the sector. The entire project was an ongoing discussion that facilitated productive dialogue over time to resolve the partnership issues as a team (spaces for coordination).

4.2.5. Networks

Besides the provision of funding, the Veneto region allowed Farmers Lab to be known nationally and internationally. It contributed for dissemination activities and let the initiative make use of existing networks and platforms to gather information. There were events where the representatives of the OGs were invited to be informed how other projects were implemented. The coordinator and the innovation broker participated representing Farmers Lab. Yet, they recognized that the interaction with other OGs was minimal. Even if these events had an environment of cordiality and partnership, once they were over, there was no stable communication, no cooperation, no further relationships, or interaction

with other initiatives. *“The objectives of each Group were very different, and everyone was focused on their own businesses”*, said the innovation broker.

4.2.6. Trust

Since the initiative of establishing a shared laboratory was born (2016), the creators started to work with an innovation broker to identify possible funding sources and partners, determine what to fulfil for the application, and prepare a solid proposal. The project players were identified and selected by the coordinator, with support of the innovation broker. Everyone carried out their activities, which were well defined right from the start and encouraged members to trust the different actors in the OG. For the researcher, there were no doubts of what to do and when (*“everything was well organized”*). Every participant had their own space to work, and farmers were engaged from the start of the project. Trust on the others' skills and expertise was particularly important to move forward with the settled activities. For a producer, the mere fact of being part of Farmers Lab already meant trusting that the partners would collaborate to achieve the proposed objective. Based on the trust they built during the project, one of their goals is to continue cooperating on a second phase of the initiative.

4.3. Outcomes of Participatory Innovation Processes

The lead partner, with support of the innovation broker, was in charge of ensuring the circulation of information among the participants. Their constant involvement (opinions and remarks) on the activities, as well as periodic sharing of progress, for the innovation broker, were the pillars in the learning process of the initiative. Regularly, the coordinator verified that all the actors shared the technical, organizational, and operational choices adopted. When processes and results were not fully communicated/understood, discussions were promoted using available multimedia tools (e-mail, phone calls, project website, etc.). The main objective was to observe whether the tasks brought the desirable outcome and reflected as a group on what went well and what could be improved.

In the view of the innovation broker, even though there was not a formal established instrument to learn from each other, the written reports promoted the need for a space to exchange, intervene, discuss, and ask questions and clarifications. Open and democratic conversations were the basis for peer-to-peer learning (all the actors were well prepared in their fields). Therefore, for him, open cooperation, collaborative attitude, motivation, and empathy among the participants added up to a better understanding of each partner progress and achievements.

According to the respondents, all of them learned something from Farmers Lab. A producer, for instance, recognized the importance of some tools she had underestimated in her own laboratory related to marketing and business planning: *“by nature, I am not a merchant, therefore, I did not know how to value my product. With Farmers Lab, I realized that I produce high quality food and I have to sell it in this way”*. Another producer learned about the upstream steps needed for selling his products. He noticed the importance of knowing the market and contacting traders in advance to find out what their needs are: *“I am aware that not everything I produce matches with the reality we live in. I have to keep my eyes open to go in the same direction as the demand does”*. The market actor, instead, learned how agriculture works on the field. In this way, a micro-system was created where knowledge did circulate openly.

5. Discussion

In this paper, we explore the modus operandi of Farmers Lab to get insights about farmers' participation and identify the factors that influence and foster the interactive innovation process. Figure 2 summarizes the ways in which the six factors influence learning, knowledge co-creation, and innovation, as discussed in this section. Producers' involvement in the OG emerged as a response to economic opportunities, which is, in fact, one of the major incentives for farmers to be part of innovative projects. While producers can indeed be active participants in the co-creation of innovative solutions, there is still

the need to learn from successful experiences to build farmers' capacities that should be strengthened with practice and time.



Figure 2. Factors' influence on the outcomes of the participatory innovation process. Source: Own elaboration based on Farmers Lab interviews.

5.1. Motivation

When farmers are aware that they could have a chance to learn something from a collective activity, this encourages them to be part of innovative initiatives. However, in the case of Farmers Lab, the main motivations for being part of the project were mainly practical, such as reducing food waste and improving farm income rather than sharing knowledge with other actors. Since one of the challenges in a participatory process is to keep motivation at a high level, it seems even more challenging to keep farmers motivated when they look for tangible and short-term goals, which may need a long time to be achieved within a participatory process. If the farmer does not see tangible positive results in the short term, he/she is very likely to leave the process, as it happened in our case study. Although the OGs provide the necessary conditions for producers to be part of the process, there is a lack of strategies to motivate them to actively participate and work with other stakeholders when this dynamic is not part of their way of working. In fact, motivating producers requires concrete results, and the short time span of the projects does not seem to focus on this issue.

Being motivated to be part of something not only depends on individual attitudes and expectations, but also on external elements such as farmers' geographical location and transport facilities to join the project activities, which in this case, was a limitation. Although motivation directs the action towards an end, in the case of participatory projects, producers, beyond being motivated to improve their economic activities, must be motivated to learn and recognize the challenge that this implies. For actors who are not familiar with participatory processes, a guidance by policy makers or support organizations can help to keep motivation high despite possible failures that may occur along the way.

5.2. Commitment

When producers are confident that their ideas can create positive impact for them and the community, their level of commitment is strengthened. Providing farmers an opportunity to voice their opinions and develop innovative solutions could reinforce their commitment what contributes to build a healthy team and working environment. In Farmers Lab, being part of the project required extra commitment and coordination for producers who not always had a clear vision of the pathway and were not fully aware that a participatory process requires constant actions and interactions with other actors.

A positive factor that encourages farmers' commitment is to define each partner's role and responsibilities since the beginning of the initiative. Hence, actors are clear about what is expected from them and they commit themselves to comply with what is agreed. Strengths and weaknesses of each actor must be known in advance to make realistic decisions considering possible impediments, opportunities and risks, and propose tailored solutions. When members commit to achieve a goal, prompt responses or advances are important to sustain their engagement and enthusiasm. While commitment levels may vary, the challenge is to make use of the opportunity and be open to catch up with the rhythm of a participatory process. The challenge with commitment, as well as with motivation, is to take early actions to promote the desire of learning and collaborating to reach common goals.

5.3. Interaction

Despite the fact that the European Union encourages the formation of innovative and interactive projects, for many farmers being part of an initiative still means that someone transfers knowledge to them. Nonetheless, Farmers Lab supports the finding that the participatory approach can lower the innovation barriers that agriculture faces. This project influenced the producers to interact with other individuals from different backgrounds, boost their entrepreneurial behavior, and strengthen their adaptive capabilities. Through interaction, partnership members become aware of the importance of cooperation, recognize its role in the innovation process and the importance of being part of something to achieve change. Although not all the members have equal discussion and communication skills, the project gatherings open the door to exchange information and knowledge. The acquisition of interactive competences is essential for the optimal functioning of an OG since active members contribute much more to shared goals than passive ones. This initiative witnesses that producers' participation must be conceived more broadly than simply in terms of farmers' experiments or farmers' presence. What is useful to remember is that innovation can emerge as a result of exchange, use, and production of knowledge through interaction and cooperation. While interacting, farmers make others aware of their problems, thus expanding the opportunities to find solutions. In addition, mutual trust can be strengthened.

For some farmers, this project is the first experience of collective work. Hence, the role of the innovation broker is vital to encourage interaction and achieve a degree of confidence so that partners can express their ideas without fear of being judged. It is also important to create links to continue working as a partnership on future initiatives, which in turn could leave the door open to the creation of new networks. Interaction contributes to reach agreements, but it can also create conflicts or misunderstandings. The key is to recognize potential drawbacks and communicate openly to make consensus decisions. Before being part of a participatory process, all the actors should be aware of what actual interaction means in practice.

5.4. Communication

Farmers' field work is normally considered a solitary task. Although many farmers have learned to communicate with others to develop activities in favor of their farms, not all of them have done so. Therefore, they might not know the keys for a good communication to interact with other actors. Within the partnership, there are a significant number of

farmers that are not able to communicate openly due to their shyness or lack of confidence. No matter how motivated they could be to be part of the team, if they are not able to communicate their ideas, opinions, issues, and limitations clearly, the interaction with other players would become a bottleneck. Attention must be paid also to the terms that are used. In the ideal scenario, time allows partners to speak the same language since practice contributes to develop a shared vocabulary.

Improving communication skills is not an easy task, even less when long-term changes are required. To achieve an active participation from producers, the focus should be on strengthening their capacities, so that they realize the importance of assertive communication.

5.5. Networks

Interaction takes place through internal and external networking. While being part of a network provides the possibility to get in touch with new issues, skills, solutions, and knowledge, unless farmers are conscious of these possible benefits, they do not participate actively. Farmers Lab was a good example to realize why being surrounded by different actors helps them to be informed of what is going on around. The focus should be quality rather than quantity. The objective of belonging to a network is to increase the ability to act collectively, encourage learning, and be a catalyst for development. For a producer, being linked to a network can be challenging because, once more, some guidance on how to be part of the process and be related to the group is often necessary, and sometimes not available to all farmers. Farmers Lab actors were not focused on creating or expanding their network. However, the participation to the project gave them the opportunity to appreciate the benefits new networks might offer.

5.6. Trust

In the partnership, lack of trust diminishes motivation to invest effort and energy in the process. Farmers, as other actors, have learned to trust in other partners over time. Given that each player varies in personality, desires, and needs; each one develops trust in a different way. As seen in Farmers Lab, delivery of accurate information in a timely manner, and transparency about actions and intentions through clear communication contribute to increase mutual trust, which supports the groups' cohesion and durability. In addition, defining tasks to be fulfilled for each actor is a fundamental aspect to carry out all activities on time and focus on the common objective.

Involving all the partners from the beginning strengthens trust in the team capabilities. While building trust seems an easy process, it can be a long and laborious approach if actors are used to work alone, as it is often the case for farmers. Actors must be aware that trust makes people more willing to be part of a straightforward participatory process, understand its complexity, work together to pursue goals, and lay the groundwork for future collaborations.

5.7. Learning and Knowledge Co-Creation

It is on the base of this case study that heterogeneous actors can complement each other's knowledge. Farmers Lab partners assured us they had learned something during the project. This is indeed a positive aspect since the first step is that partners realize that being part of an innovative initiative provides new knowledge and opens doors to learn about specific issues. Particularly for farmers, discussions are one of the key tools in their learning process. Nevertheless, if they do not continue developing their activities under a participatory process, they will most likely return to work in isolation as they did before. Therefore, it would be useful to monitor and follow-up on the partnership activities even when the project is over. Yet, at the policy level, we are conscious that it is challenging to check all the initiatives that have been financed. Once again, time is the main constraint. However, if a learning, collaborative, and innovative society is desired, we must not only implement foundations for it, but also support producers in the long-term process.

5.8. Innovation

Innovation is not just something achievable at the end of the project, rather, it is a progressive outcome, present in the entire participatory process. In Farmers Lab, although designing a laboratory for common use is something innovative, the principal novel aspect is working together and creating links with different stakeholders in a region where it is not normally done in that way. Having partners with different skills to design collectively is a new way of working for some actors who are not familiar to develop their activities as a team. This experience is valuable to recognize that innovation goes beyond a final product. It is not only related with technology development, but also with the dynamic of doing things, the way of organizing multiple tasks within the group, the way of reaching objectives, etc.

6. Limitations

Despite the contributions of this research, we identify two general limitations. First, the primary limitation is that a single case study was used for this investigation. Therefore, general conclusions cannot be drawn based on a two-year project only. Nevertheless, it contributes to expand our knowledge about farmers participation in OGs, initiatives that sometimes are not considered in other research but are important for the insights they can provide. Second, our sample attained for interviews was small ($N = 8$), and it could make it harder to substantiate our findings. In addition to the individual interviews, the initial plan was to conduct a focus group with farmers to validate and corroborate if our interpretation was aligned with their approach and, if possible, get more insights about the followed process. However, it was not feasible due to mobility constraints from one region to another within Italy. These encountered limitations offer an interesting road for future research where practitioners and scholars are encouraged to replicate these results with larger samples to increase credibility related to the generalizability of our findings.

The study presented here analyzes farmers' participation in the first phase of Farmers Lab. The OG's plan is to continue in a second phase of the project to begin processing its products in the common laboratory. Further research on how producers and other actors participate in the continuity of this type of initiatives would be advisable. While our findings contribute to expand our knowledge about farmers' participation within the OG in Veneto, Italy, the question that remains is whether the observed organizational structure, dynamics, and approach can be the roadmap by other farmers that belong to other Groups or innovative projects.

7. Conclusions

The collected qualitative data allows us to conclude that farmers were active and critical players in the inspiration and implementation phases of Farmers Lab. However, motivation, communication, interaction, commitment, trust, and networks are fundamental elements that should be considered and triggered throughout all the different stages of a project so that farmers participation allows to learn from each other, learn with each other, co-create, and innovate. Table 3 provides an overview on the main elements highlighted by the different actors in relation to each factor.

Table 3. Summary of the main findings of the interviews.

Actors/Factors	Farmers	Stakeholder	Innovation Broker	Researcher	Trader
<i>Motivation</i>	Increasing farms' profitability Adding value to fruits & vegs No food waste	Knowing and compare diverse perspectives	Replicating the initiative around the territory	Contributing to the agri-food sector	Liaising and working with different partners
<i>Commitment</i>	Leaving farms to attend to meetings Provide info/inputs	Learning of what happens in other areas	Dedicating time and energy around a common goal	Contributing with previous experience	Succeeding in a bottom-up initiative
<i>Interaction</i>	Interchanging ideas with professionals outside agriculture	Listening each ones' arguments	Resolving issues as a group Keeping balance between formal and informal relations Identifying needs, interests, competencies	Interacting in meetings, teleconference, skype, OG website, social networks, e-mails, SMS, and calls	Sharing ideas to define how to carry out activities Merging different perspectives Sharing: no restrictions/discrimination
<i>Communication</i>	Building a shared language Focusing on finding solutions, and share the limits	Discovering opportunities Ongoing discussions	Using terms closer to everyday life	Resolving issues as a team- productive dialogue	Making use of spaces for coordination (physical and virtual)
<i>Network</i>	Finding out who has succeeded, their results, what worked and what did not	Gathering information	Knowing other groups' activities and implementation process Interacting with other OGs	Disseminating activities	
<i>Trust</i>	Clear responsibilities and roles Skill partners contributions	Partners have their own space Cooperation between different actors	Each partner had an assigned task Inclusive decision-making process	No doubts on what to do and when No internal conflicts Specific objectives for each actor	Time needed Partners' disposition towards the group Partners' skills aligned with project needs
<i>Learning</i>	Meetings: active discussions	Partnership discussions Space to learn from different partners	Open and democratic conversations Jointly reflect on what could be improved	Knowledge expansion about unknown topics	Information circulation Activities' involvement
<i>Knowledge co-creation</i>	Periodically dissemination progress among partners	Physical meetings and open discussions Positive attitude and willingness to cooperate	Written reports promoted the need for a space to exchange, discuss, and clarify	Democratic discussions Through available multimedia tools	Awareness of what each partner completed or wanted to accomplish
<i>Innovation</i>	Teamwork where it is not common New links between stakeholders	New way of working	Synergy among actors with different skills to design collectively	New packaging tech for agricultural products	

Moreover, these elements are all interconnected. An effective communication enforces actor's commitment to networking and interact, which in turn is a base to develop mutual trust and to realize mutual learning in practice. The other way around, successful innovation outcomes reinforce the attitudes towards interaction and knowledge sharing. Farmers need to be aware that innovation is highly social, thus, problems and opportunities should be addressed collectively. If farmers regard an OG as a credible option to access to knowledge, to trigger change, and to create value, this strongly enhances their motivation, commitment, and trust.

When ideas are turned into practice and functional, this is the opportunity to show farmers that bringing people together with the appropriate skills is the clue to succeed. Since the beginning of an initiative, farmers must be aware that despite all the effort done to develop a great idea, something could go wrong, as risk is inevitable. Nonetheless, what is a failure today may contribute to an important innovation tomorrow. If success is not possible, there is a lot to be learnt from the experience. The key is to define common interests, challenges, and clear goals to maintain a social belonging to the group and ensure its future. If this dynamic is not well understood from the start, there is always the possibility to adjust goals, approaches, rules, or procedures. Farmers' participation is a dynamic process that requires continuous reflection to encourage learning.

What was just argued raises the issue of time as a key aspect to consider in the setting-up of such projects. We refer to the time to be spent in the project for people with busy agendas, as well as to the project timeframe, especially the time to wait before benefits are visible (including the risk of failures). Policies (funding, support to organizations, promotion of best practices) can reduce the time-related obstacles in both these aspects, in the awareness that the short timespan of a project is often a limitation. Policy support to these initiatives should be as flexible as possible, given political and administrative constraints. Flexibility means designing a long-term cooperation (also beyond the timeframe of the project itself) when adequate to the challenge to address but also to the actor's attitudes and focusing more on short-term goals when the scope is to tackle specific time-bound challenges.

Finally, farmers are not homogeneous, what could work for a group of farmers could not work for another one. Different actors, even within farmers' community, not only have diverse agendas and priorities, but also different jargons and communication styles. For achieving a long-lasting participatory process and avoiding the risk of being part of solitary initiatives, programs are required that not only ensure long-term sustainability but also increase farmers soft skills and competencies, minimizing communication barriers (which entails sharing a common language with agreed rules), and developing clear procedures for decision making process. Additionally, it is important to provide physical or virtual spaces for sharing an idea to support farmers on establishing a partnership where their concerns are addressed, and they can feel and see the added value of cooperation.

These observations highlight the importance of tailoring the policy support and design of OGs, as well as of other similar participatory innovation processes, to the actual needs and capabilities of the actors involved. Dedicating some resources to the engagement of external facilitators and professional innovation brokers can effectively support these processes, helping the actors to share respective knowledge, but also to identify most adequate rules and procedures, for an attractive and effective innovation pathway.

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Appendix A. Questionnaire

INTERACTIVE INNOVATION IN AGRICULTURE

Interview date: _____ Interviewee code: _____

Interviewee role in the project: _____

Interviewee gender: M ___ F ___

THE RELATIONSHIP WITH THE FINANCING BODY

1. How are relations with the funding body (Region and AVEPA)? Who maintains the formal relationships? How are the doubts or problems addressed between the funding body and the project?
2. Did the funding agency have any other roles besides project selection and funding disbursement? Which? Was support provided by the region? Of what type?

THE RELATIONSHIP WITH THE PARTNERSHIP

3. Analyzing the partnership, why were these partners chosen? In retrospect, there would have been a need to include other partners: who and why?
4. What are the characteristics of the different actors and their role in the co-creation project?
5. What type of organization and decision-making process has been adopted by the partnership? Are there formal contracts/agreements among the partners in your project? Are there formal rules or regulations governing relationships?
6. How are the relationships between the partners? How is the communication between the different partners in your project? Do you share a common language? What happens if there is disagreement or conflict? How do you find a solution? How do you cooperate with each other?
7. How has the innovation process outlined in the project evolved over time? How and when were the partnership goals established?
8. What are your goals and motivations for participating in the project? What is in the project for you? To which extent are they fulfilled?
9. How are the decision-making processes within the project? What do the different partners think? Describe the organizational and decision-making process (procedures, meetings, whether one actor is in charge) Who are the key decision-makers and why? Personally, do you think you have an influence on the partnership, why? Is your opinion considered when decisions are made? In what way? Do you have an influence on what is happening in the partnership? (why not?)
10. The different actors, what kind of knowledge did they bring? Was it relevant? How was it shared? How did the different actors learn from each other (with what tools and methods)? What worked and what did not work in the interaction between the different actors?

11. How and when were the project goals set? How were they kept up to date? Process toward setting them? Who was involved or excluded?
12. How do you feel in terms of being considered and heard? Example Would you collaborate with these partners again? Why? Were your opinions, knowledge, or skills considered? Did the interaction between the partners go smoothly or somewhat difficult? Why?
13. What are the three success factors of the partnership (regarding interaction within the partnership) and what are the three most difficult factors?

THE RELATIONSHIP WITH STAKEHOLDERS

14. How is communication with stakeholders organized? To what extent (and how) are they involved in the project? Has their opinion/ involvement affected the project? What is their role?
15. Were there sufficient opportunities to interact with stakeholders and vice versa? Why (not)? How and how often were communications/relationships developed?
16. Why were stakeholders involved in the project case?

THE CONTEXT

17. Do you believe that the overall context in which you operate is capable of supporting interactive innovation initiatives? Who were the stakeholders you interacted with and why? What kind of support did you receive or would you have liked to receive from external actors? What obstacles did you encounter?
18. Do you feel that your experience has had or is likely to have any effects on the context? Which ones? What is your next step?
19. What is the relationship with other Operational Groups?
20. Have there been opportunities to connect with other multi-actor innovation projects? Why (not)? Are there any official networking events relevant to your project? Have you participated in any events? Why (not)? In your opinion, who should organize or provide these types of opportunities? What do you think are the benefits of linking or networking with other innovation projects? Who participates in these meetings?

Appendix B

Table A1. Summary of the interviews' main findings (extended version of Table 3).

Actor	Motivation	Communication	Interaction	Commitment	Trust
Farmer 1	Increase farms profitability Decrease food waste Relate with actors from different backgrounds Increase participation Show that a future in agriculture is worthy	Know new ways of organizing, cooperating, and learning	Idea's interchange with professionals outside the agricultural world Recognize equality among actors	Leave farms to attend to meetings Be part of a new and stimulating experience Provide information and inputs Give direction for innovations Reach the set objectives	Each partner carried out their activities Partners available to listen what was happening in each area Clear rules and pathway to follow
Farmer 2	Achieve something different and recognizable	Difficult to understand each other- not a common language Technical terms were hard to understand Use of simple words	Work together also for future opportunities Farmers were not always constant	Contribute to build a culture of innovation	Responsibilities and roles were clear since the beginning of the initiative
Farmer 3	Share experiences Offer a quality product Put aside individualistic behavior Work on a project with a common goal	Define and understand activities to be developed	Compare different realities Cross information Identify existing opportunities	Succeed in a bottom-up initiative Discover agriculture potential Share ideas to put them into practice	Time developed esteem and friendship Responsibilities were Shared Knowledge, experience and professionalism Good leadership
Farmers 4	Succeed in bottom-up initiative Know more about product processing Preserve farms in the territory Cooperate with others to respond to a need	Be open minded, focus on finding the solution, share what the limits are, and propose ways to address possible inconvenient	Difficult to set up timetables for everyone (meetings)	Keep motivation up Understand the activities to be developed	Example that a non-collaborative context can change Skilled partners contribute for the development of an innovative context

Table A1. Cont.

Stakeholder	Know and compare diverse perspectives	Discover opportunities	Connect the education system with practice	Work in what is needed without complication Reach agreements Move from words to action	Every partner had their own space Cooperate between different actors and get positive results
Innovation Broker	Provide expertise to the project Build a network Replicate the initiative around the territory	Use of technical words with caution Use terms closer to everyday life	Look for a solution for a specific topic Resolve partnership issues as a group No continuous interaction with other OGs (all were focused on their own businesses)	Dedicate time and energy around a common goal	Each partner had an assigned task Partners listen to the group reactions Inclusive decision making process Flexibility in the activities to be performed
Researcher	Contribute to the agri-food sector	Use common and simple words Learn to speak the same language Farmer's availability to attend to the project meetings was prioritized	Spaces to interact: meetings, teleconference, skype, OG website, social networks, e-mails, cell phone messages and calls	Contribute with previous experience	Not conflicts within the partnership Lean relationship among partners Specific objectives for each actor
Trader	Liaise and work with different partners Make known small shops	Know the reality of the field	Define how to carry out the planned activities Merge different perspectives	Comply with the proposed schedule Do not get lost along the way	Time was needed to gain some confidence Disposition of partners towards the group Excellent coordination Partners' skills aligned with the project needs

Table A1. Cont.

Actor	Network	Knowledge Co-Creation	Learning	Innovation
Farmer 1	Dissemination activities Find out who has succeeded, their results, what worked and what did not	Financial reporting was a critical aspect	Meetings where the space to discuss and learn	Work together in a region where it is not normally done in that way Create a link between stakeholders who previously did not speak to each other or had difficulties in doing so
Farmer 2	Involvement with other actors Build a climate of cooperation	Common language based on achieving the project's goals Involvement of agricultural enterprises and consumers	Written reports promoted the need for a space to exchange, intervene, discuss, and ask questions and clarifications	Farmers' interventions were considered for improving their realities
Farmer 3	Build the capacity of innovation actors	Periodically progress dissemination among the partners (e-mails, written reports, SMS)	Not taking anything for granted Each one has a different method and way of doing things Observing others	New practices of marketing
Farmer 4	No time to expand the network	Farmers were the main actor Clue: avoid ruling over each other	Extend knowledge on how to transform products	Interact with other partners and be aware of their farms improvements
Stakeholder	New opportunities	Physical meetings and open discussions Positive attitude, open mind, and motivation to cooperate	Partnership discussions Space to learn from different partners	Way of working new to the context in which it developed

Table A1. Cont.

Innovation Broker	Start looking at each other and get involved to cooperate	Share ideas, dialogue, make adjustments Topics or ideas to be discussed could be anticipated by an e-mail Each partner spoke for his/her own competence	Peer to peer learning	Put together actors with different skills to design collectively
Researcher	Know other groups activities and implementation process	Decisions related to the contents, management, and coordination of the project Democratic discussions (no restrictions or discrimination)	Communication skills to understand the needs of producers and consumers Knowledge expansion about topics out of their fields of expertise	Inform producers about the packaging technology for their products
Trader	Share skills and knowledge	Disposition, cooperation, collaborative attitude, motivation, and empathy among participants Understanding of what each partner completed or wanted to accomplish	Circulation of information among the partners Involvement (opinions and remarks) on the developed activities Actors well prepared in their fields	

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