

NEW MEDIT



MEDITERRANEAN JOURNAL OF ECONOMICS, AGRICULTURE AND ENVIRONMENT

SPECIAL ISSUE / SEPTEMBER 2021

**SPECIAL
ISSUE**

Innovation and Sustainability
of Agri-Food System
in the Mediterranean Area

New Medit 2021 / Issue n. 3



Editor-in-chief

MAURIZIO RAELI

Director CIHEAM Bari

Managing Editor

GIULIO MALORGIO

University of Bologna

Associate Editors

ABDELKADER AIT EL MEKKI, National School of Agriculture, Meknes, Morocco

JOSÉ MARIA G. ÁLVAREZ-COQUE, Universitat Politècnica de València, Spain

AHMED BENMIHOUB, Centre de Recherche en Économie Appliquée pour le Développement - CREAD, Alger, Algérie

FABIAN CAPITANIO, University of Naples Federico II, Italy

ALI CHALAK, American University of Beirut, Lebanon

BOUBAKER DHEHIBI, ICARDA, Jordan

SALVATORE DI FALCO, University of Geneva, Switzerland

STEFANO FAROLFI, CIRAD, Montpellier, France

ABDELHAKIM HAMMOUDI, INRA-ALISS Paris, France

AHMET ALI KOC, Department of Economics, Akdeniz University, Turkey

KOSTAS MATTAS, University of Thessaloniki, Greece

SAMIR MILI, Centre for Human and Social Sciences CSIC Madrid, Spain

APOSTOLOS G. PAPADOPOULOS, Harokopio University, Greece

RACHA RAMADAN, Faculty of Economics and Political Science, Cairo University, Egypt

PAOLO SERTOLI, Italian Agency for Development Cooperation, Italy

CHOKRI THABET, Institut Supérieur Agronomique Chott Mériem, Tunisie

MURAT YERCAN, Ege University, Izmir, Turkey

Honorary Advisory Board

OULD AHMED ABDESSALAM, Assistant Director-General and Regional Representative, FAO Regional Office for Near East and North Africa, Cairo, Egypt

ALY ABOUSABAA, Director General, ICARDA, Jordan

GEORGE BAOURAKIS, Director, CIHEAM-Chania, Greece

PASCAL BERGERET, Director, CIHEAM-Montpellier, France

GIUSEPPE BLASI, Head of European and International Policies and Rural Development Department, Ministry of Agriculture, Food and Forestry, Rome, Italy

PAOLO DE CASTRO, University of Bologna, Italy

ABDELHAMID EL-ZOHEIRY, EMUNI University, Portoroz, Slovenia

FABIO FAVA, University of Bologna, Italy

MIGUEL GARCÍA-HERRAIZ, Deputy secretary-general, Union for the Mediterranean, Barcelona, Spain

LASSAAD LACHAAL, African Development Bank Group, Ivory Coast

PAOLO MAGRI, Director, Italian Institut for International Political Studies, Milan, Italy

STEFANO MANSERVIZI, Director, DEVCO, EU Commission, Bruxelles, Belgium

GRAMMENOS MASTROJENI, Coordinator for the Environment and Head of the Science-Policy Interface, MAECI, Rome, Italy

ÁRNI MATHIESEN, Assistant Director-General, Fisheries and Aquaculture Department, FAO, Rome, Italy

PLÁCIDO PLAZA, Secretary General, CIHEAM, Paris, France

ANGELO RICCABONI, Chair, Fundación PRIMA, Business Administration and Management Department, University of Siena, Italy

DOMINICK SALVATORE, Fordham University, New York, USA

RAÚL COMPÉS LÓPEZ, Director, CIHEAM-Zaragoza, Spain

ABDALLAH SROUR, Executive Secretary, GFCM, Rome, Italy

NEW MEDIT

MEDITERRANEAN JOURNAL OF ECONOMICS, AGRICULTURE AND ENVIRONMENT

SPECIAL ISSUE / SEPTEMBER 2021

Innovation and Sustainability
of Agri-Food System
in the Mediterranean Area

New Medit 2021 / Issue n. 3

Editor-in-chief
Maurizio Raeli

Managing Editor
Giulio Malorgio

Institutional Relations Manager
Debora Degl'Innocenti

Editorial office
Bononia University Press
Via U. Foscolo, 7
40123 Bologna (Italy)
tel.: +39 051 232882
fax: +39 051 221019
email: newmedit@iamb.it

Paper submission
<http://www.newmedit.iamb.it>

Copyright
© CIHEAM – Istituto Agronomico Mediterraneo di Bari

The contributed articles do not imply the expression of any opinion whatsoever on the part of CIHEAM – IAM of Bari. They report the author's opinion.

The editorial office reserves the right to revise the contributions, in view of adapting them for the publication.

Publisher
Bononia University Press
Via U. Foscolo, 7
40123 Bologna (Italy)
tel.: +39 051 232882
fax: +39 051 221019
email: comunicazione@buponline.com

Subscription rate
Print: Italy: € 40; Foreign: € 90.

Subscription office
ordini@buponline.com

Abstract and Index citation
NEW MEDIT is indexed in: SCOPUS, EBSCO, ISI Web Science, CAB Abstracts, EconLit, AGRIS/FAO database

Web page
<http://www.newmedit.iamb.it>

ISBN: 978-88-6923-859-8

ISSN: 1594-5685

ISSN online: 2611-1128

Graphic Layout
DoppioClickArt – San Lazzaro (BO)

Cover design
Debora Degl'Innocenti

Registrazione
Tribunale Ordinario di Bari, n. 1546 del 4/1/2002

Direttore Responsabile
Giulio Malorgio

NEW MEDIT è associato alla



Dimensions of social innovation in agricultural cooperatives: A model applied to the Spanish olive oil industry

JUAN ANTONIO PARRILLA-GONZÁLEZ*, DIEGO ORTEGA-ALONSO**

DOI: 10.30682/nm2103h

JEL codes: M13, O15, Q17

Abstract

The Social Economy plays a fundamental role in the implementation and development of social innovation practices, especially in the field of cooperatives. In the case of agri-food cooperatives in the olive oil producing areas of Spain, a substantial share of the business is based around the social economy, with CIRIEC reporting a cooperativization rate of 70%. As such, there are increasing opportunities for these cooperatives to adopt tools that enable the potential development of social innovation actions. In the present article, we conduct a literature review to explore the definitions of social innovation provided in the last decade. We then analyse the results relating to a proposed model of social innovation applied to the olive oil industry, involving the participation of an expert panel composed of people with a position on the board of directors or managers of olive oil cooperatives and companies in the olive oil industry. From the analysis of the data collected, we identify four dimensions of Social Innovation that are particularly relevant to the olive oil industry: the Economic Dimension, the Cultural Dimension, the Environmental Dimension, and the Technological Dimension. These dimensions give rise to a methodological model for the implementation of Social Innovation actions in the olive oil industry.

Keywords: Social innovation, Cooperativism, Social economy, Expert panel, Olive oil, Artistic research, Cultural dimension, Social dimension, Economic dimension, Environmental dimension.

1. Introduction

As in the other countries of the Mediterranean basin, the agricultural cooperative sector in Spain has undergone a series of major transformations over the last decade, which are bringing about a change in the productive model, especially with regard to the primary sector (Petruzzella and Jawhar, 2020). The new paradigms imposed by globalization on a hyperconnected society require the proactive participation of all agents involved in the production and commercializa-

tion of agri-food products (Vázquez-Barquero and Rodríguez-Cohard, 2019).

In the case of olive oil, many agricultural cooperatives are beginning to incorporate new models that offer assurances when facing up to the challenges posed by the markets. These innovative and disruptive models, based on quality and excellence, have appeared in the cooperative sector, where they have become essential for achieving differentiated value in an extremely competitive market (Sánchez-Martínez *et al.*, 2020).

* Department of Economics, University of Jaén, Spain.

** Department of Didactics of Artistic Expression, University of Jaén, Spain.

Corresponding author: japarril@ujaen.es

These new business models adopted by the agricultural cooperatives are grounded in the social economy, which is made up of private organizations created by people to respond their own social demands, provide solutions to their fundamental problems and reflect their societal aspirations. Given their joint social and private nature, these organizations are in an economic and decision-making context that sets them apart from traditional private companies, which are guided by the logic of capital (Chaves and Monzón, 2018).

As noted by Antonelli *et al.* (2020), the application of social innovation in the agri-food sector enables the development of systems that are capable of providing sufficient food of good quality, while also being culturally accepted and respectful of the environment and the available natural resources, and without generating social inequalities, despite any fluctuations that may occur in the markets. In this respect, the creation of social value fosters the empowerment of farmers and the improvement of their social, economic and labour conditions; accordingly, one of the biggest challenges facing the sector is how to integrate socio-cultural, environmental, economic and technological aspects into the innovation ecosystems that are being developed in the territory, using the mechanisms of innovation and development to enhance the sustainability of agricultural value chains (Petrizzella and Jawhar, 2020).

The research objective of this study focuses on the definition of the concept of social innovation in the olive sector, the assessment of the impact of its application in agricultural cooperatives and the establishment of a model of social innovation that can be extrapolated. To do this, the methodology used consists of conducting an expert panel, based on the systematic literature review. The relevance of this article lies in the advancement in the field of knowledge of social innovation and contribution to the academic literature.

2. Theoretical framework

For a better understanding of development analysis, it is necessary to introduce a brief context analysis. In previous studies centered in the Spanish concept (Parrilla-González and Ortega-Alonso, 2021), there are many undiffer-

entiated private brands on sale. Almost 70% of all olive oil in this country is sold under a store brand (Alimarket, 2019); thus, with few exceptions, producing companies' private labels do not have much of an impact, so it is necessary to introduce innovative strategies that bring a differential added value to both the production and commercialization of olive oils. One such strategy may be social innovation.

As an entrepreneurial ecosystem, cooperatives assume the role of institutional entrepreneurs (Leick, 2020), the collective action in support of rural economic development and, at the local level, these companies are a central pillar of the development potential of rural areas (Mozas-Moral and Rodríguez-Cohard, 2000). For regions that are highly specialized as producing areas, as well as the case of olive oil in various parts of Andalusia, the cooperatives act as organizations that not only promote the economic performance of the municipalities where they are (Sánchez-Martínez *et al.*, 2020), but are also instruments of social cohesion (Mooney, 2004). Therefore, the actions undertaken by cooperatives are collective goods in the sense that they benefit rural society as a whole due to its multiplier effect on farmers and other local activities (Parrilla-González and Ortega-Alonso, 2021).

2.1. Social innovation: recent reviews of the term

The term "social innovation" first appeared in the nineteenth century and has been the subject of study and debate among the scientific community ever since it was coined (Godin, 2012). No consensus has been reached on a fixed definition, despite numerous attempts to establish one (BEPA, 2010; Bonilla and Rojas, 2012; Christensen *et al.*, 2006; Godin, 2012; Mulgan *et al.*, 2007; Moulaert *et al.*, 2010). To that end, and given the sheer number of descriptions provided in the literature, as noted by Hernández-Ascanio *et al.* (2016), in this study we centre on the most recent definitions of social innovation, specifically those that have emerged in the last decade.

In 2013, the European Commission published its *Guide to Social Innovation*, in which the concept was defined as the development and imple-

mentation of new ideas (products, services and models) to meet social needs and create new social relationships or collaborations, in a process that involves correctly identifying social needs, developing innovative solutions for those needs, evaluating their effectiveness, and scaling up effective solutions (European Commission, 2013).

Buckland and Murillo (2014) developed a conceptual framework for the definition of agents of social innovation in Latin America. While re-emphasizing the ambiguity of the term, their study made a series of contributions regarding the approach to the concept of “social innovation”, focusing on shared value, the type of product or process, collaboration, the generation of systemic change and market proposals.

In 2016, Conejero and Redondo, similarly studying social innovation at a conceptual level, examined it from a governance perspective, centring on the different approaches, its application in national public policies, and the obstacles to social innovation in the public sector (Conejero Paz and Redondo Lebrero, 2016). These authors interpret social innovation as participatory public leadership which generates novel results (services, products, processes and models) that are oriented to solving social needs (more effectively than traditional solutions) and that simultaneously entail a shift in social relationships and the creation of public value.

In their study of the key factors for the development of social innovation in a territory, García-Flores and Palma Martos (2019) proposed a definition based on a fundamental view of the community as a principal social and political actor, with the collective element elevated over the individual and with the pursuit of alternative answers set as a primary objective in order to achieve groundbreaking solutions to the social problems that affect the territory.

More recently, Hernández-Ascanio (2020) has addressed the collaborative nature of social innovation from the point of view of action research, in his recent review of social innovation as a participatory research method. In the same year, other authors conducted in a wide-ranging bibliometric analysis of what they call “the intellectual structure of social innovation”, proposing a research framework based on what they

have identified as the four most important components of social innovation: opportunity, innovation practice, opportunity exploiter and value (Foroudi *et al.*, 2021).

2.2. Dimensions of social innovation

In this research, we attempt to define a framework or scale that allows us to identify social innovation practices in a context of socioeconomic development applied to the olive oil industry. To do so, we have selected some of the definitions compiled by the abovementioned authors, classified according to the approach taken to the subject. Going beyond the social dimension, which is inherent to all interpretations, we have identified four dimensions of Social Innovation on the basis of the definitions provided and the review of the academic literature. These four dimensions are the Economic Dimension, the Cultural Dimension, the Environmental Dimension, and the Technological Dimension. The appearance of these dimensions varies depending on the definition in question, as can be seen in Table 1.

Economic dimension

Social innovation practices in the economic sphere not only have an impact in terms of generating profits for the cooperative sector, but also address the sustainability issues highlighted by Schandl and Walker (2017), both at the production level and in terms of fair wages for the workforce employed in the processing of the products. As such, they have a high social value and constitute a key element for social cohesion in rural areas. The influence of cooperatives in stimulating rural development has been dealt with in several studies (Alonso Logroño and Bautista Puig, 2012; Montero Aparicio, 2008; Puentes Poyatos and Velasco Gámez, 2009), and there are numerous examples of social innovation focused on promoting the renewal of the cooperative movement in order to compete in global markets based on decentralized capitalist economic models (Rodríguez-Cohard *et al.*, 2020).

Cultural dimension

Hawkes (2001) points to the essential role of culture in the field of sustainability, especial-

Table 1 - Definitions of social innovation proposed in the 2010s, listed by author and institution.

<i>Author / institution</i>	<i>Definition</i>	<i>Dimensions of social innovation</i>
SIX (Social Innovation Exchange, Young Foundation), 2010	Social innovations are innovations that are social in both their ends and their means.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Howaldt and Schwarz, 2010	Social innovations are new combinations and/or configurations of social practices in certain areas of action or social contexts, intentionally promoted by certain actors or constellations of actors with the aim of better meeting needs and solving problems.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Hubert, 2010	Social innovations are new ideas (products, services and models) that simultaneously meet social needs (more effectively than the alternatives do) and create new social relationships and collaborations, enhancing society's capacity to act.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Cahill, 2010	Social innovation is an initiative, product, process, or programme that profoundly changes the basic routines, resources, and authority flows or beliefs of any social system (for example, individuals, organizations, neighbourhoods, communities, and entire societies).	Economic Dimension Cultural Dimension Technological Dimension
Andrew and Klein, 2010	Social innovation involves the desire to do things differently, to think in terms of transformations to social institutions and practices. Social innovation requires learning and the institutional capacity to learn. As such, "learning regions" and "learning institutions" are critical elements in social innovation processes.	Cultural Dimension
Murray, Caulier-Grice and Mulgan, 2010	Social innovations are innovations that are good for society and that enhance the capacity of society to act. They are new ideas (products, services and models) that simultaneously meet social needs and create new relationships or collaborations.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Dawson and Daniel, 2010	In general terms, social innovation can be described as the development of new concepts, strategies and tools that support groups in their efforts to achieve the goal of improving well-being; social innovation is about how to solve social problems and achieve social goals to improve social well-being.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Sinnergiak, 2011	Attitudes, ideas, initiatives, activities, organizations, services or products that are driven by the motivation of responding to social, economic, cultural or organizational needs, and may also seek and produce social, economic, cultural or organizational benefits.	Economic Dimension Cultural Dimension
Agnés Hubert, BEPA, EC, 2011	Social innovations are innovations that are social in both their ends and their means. Specifically, social innovations are products (new ideas, services and models) that simultaneously meet social needs (more effectively than the alternatives do) and create new social relationships or collaborations. They are innovations that are not only good for society but also enhance the capacity to act collaboratively	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Rockefeller Foundation, 2011	Social innovation really refers to innovation in the social sector - in other words, innovation applied to environmental, social and health problems, as opposed to business.	Cultural Dimension Environmental Dimension
OECD, 2011	Social innovation is innovation that can bring about changes in concept, process or product, in organization and in financing, and can deal with new stakeholder and territorial relationships. It seeks answers to social problems by: a) Identifying and delivering new services that improve the quality of life of individuals and communities. b) Identifying and implementing new labour market integration processes, new competencies, new jobs, and new forms of participation, as diverse elements that all contribute to improving the position of individuals in the workforce	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension

<i>Author / institution</i>	<i>Definition</i>	<i>Dimensions of social innovation</i>
Harayama and Nitta, 2011	New strategies, concepts, ideas and organizations that respond to all kinds of social needs (including working conditions, education for community development and health) that extend and strengthen civil society.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Saul, 2011	Social innovation is about the ability to innovate creative, market-based solutions to social problems, which generate major growth and profitable business opportunities.	Economic Dimension
European Union, 2012	Social innovations are new ideas, institutions or ways of working, which meet social needs more effectively than existing methods. Social innovation often consists of remaking and reusing existing ideas: the new application of an old idea or the transfer of an idea from one party to another.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Arenilla and Garcia, 2013	Development of novel products or processes that are oriented towards solving people's most pressing problems and satisfying their primary needs; social innovations entail an improvement of previous conditions as well as a transformation of the social environment and human relationships.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
European Commission, 2013	Social innovation can be defined as the development and implementation of new ideas (products, services and models) to meet social needs and create new social relationships or collaborations.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Estrada, 2014	Social innovation is the set of plans, policies, agreements, social mechanisms, and organizational forms of civil society, which creates successful new services and processes aimed at solving specific social problems relating to social and political organization, justice, health, work, civic participation, access to public services, education, access to culture, leisure, recreation, and a healthy environment, at the local, regional, national or global level. It also entails verifiable indicators and targets regarding the impact and social transformation resulting from the application of innovation, and complies with agreed limits; that is, it respects the UN agreements in the fields of application, or at a minimum is not incompatible with these agreements.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Social Innovation Centre, Toronto, 2015	Social innovation refers to new ideas that solve social, cultural, economic and environmental challenges for the benefit of people and the planet. A real social innovation is one that changes the system and permanently alters the perceptions, behaviours and structures that originally gave rise to these problems. In short, a social innovation is an idea that works for the public good.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension
Center for Social Innovation, Stanford, 2016	A novel solution to a social problem that is more effective, efficient, sustainable, or just than current solutions, with the value created accruing primarily to society rather than the private sector.	Cultural Dimension Environmental Dimension
World Economic Forum, 2016	The application of an innovative, practical, sustainable, market-based approach that benefits society as a whole, with a special focus on the vulnerable and low-income populations.	Economic Dimension Cultural Dimension
García-Flores and Palma Martos, 2019	Practices or initiatives carried out by the community, which, using the products, services or models generated, or through a process designed to achieve their goals, yield solutions that better respond to social needs or problems in an alternative, creative way.	Economic Dimension Cultural Dimension Environmental Dimension Technological Dimension

Source: By the authors based on the cited papers.

ly with regard to localism and its relationship with social and economic systems. According to Echevarría (2008), social innovations enhance the cultural, artistic and educational wealth of citizens and countries, if the improvements af-

fect broad levels of the population. In this regard, social innovation processes of a cultural or artistic nature should be evaluated by quantifying the time invested in the development of these innovative activities. Social innovation has

also been explored recently as a tool for achieving cultural or artistic outcomes; this involves reflective, creative and interpretative processes applied in areas such as the social communication of scientific knowledge through artistic, inclusive expression, as well as in the field of heritage or projects focused on marketing in the cooperative sector (Ortega-Alonso, 2020).

Environmental dimension

According to Mehmood and Parra (2013), social innovation in this context relates to how individuals, groups and communities can act in response to the problems of unsustainable practices and unmet social needs while at the same time focusing on the challenges of environmental degradation and climate change. Authors such as Jaeger-Erben *et al.* (2015) point out that reducing the environmental impact is one of the issues that resonates most with families when it comes to committing to sustainable consumption, giving rise to “concerned consumers” (Porter and Kramer, 2019) who are willing to pay a fair price that translates into a social, ecological or environmental benefit. Spanish agricultural cooperatives have an undeniable responsibility to contribute to the achievement of the Sustainable Development Goals, especially considering that Spain produces 51% of total olive oil worldwide and has a cooperativization rate of 70% (Mozas-Moral, 2019).

Technological dimension

The technological dimension of social innovation relates to the functionality of the products or services offered by companies. Freeman (1997) approached innovation as the process of integrating existing technology with attempts to create or improve a product, process or system. In 2008, the Economic Commission for Latin America and the Caribbean pointed out that social innovation tends to be identified with the social applications of technological innovation, even in the part relating to the participation and management of human talent (ECLAC, 2008). The technological dimension of social innovation has traditionally been one of the main elements in the construction of the concept, although it is usually viewed through a prism outside of busi-

ness structures, which explains the emergence of R&D in organizations (Hernández-Ascanio *et al.*, 2016). This perspective implies that, in addition to generating competitive advantages, innovative actions developed in companies transfer innovation through products and services to the social sphere.

As can be seen in the table above, we have incorporated the four dimensions – economic, cultural, environmental and technological – along with the more general definitions of social innovation. This is because these definitions can be extrapolated to any of the dimensions, whether individually or in combination.

3. Methodology

This section presents the methodological process carried out in this research, which follows the guidelines set out by Parrilla-González and Pulido-Fernández (2017) in his proposal for the implementation of a territorial intelligence model. Given the characteristics of the research conducted, an expert panel was chosen as the appropriate methodological tool. It has allowed us to validate the proposed model of social innovation, in order to reinforce its application to the companies in the olive oil industry. The aim of this research is thus to be able to build a model of social innovation applied to the cooperative sector in the olive oil industry.

To that end, we convened a group of experts of different types, who have added value to the model initially proposed and checked its contents. A questionnaire was drawn up and given to the experts, providing them with an initial proposal of the strategies that should guide the content and implementation of this model of social innovation applied to the olive oil industry. It was emphasized that the objectives and strategies are based on the principles of social innovation defined in the conceptual framework of this article.

An expert panel can be defined as a group of independent specialists with experience in the subject to be evaluated, who are asked to reach a conclusion on the subject through consensus (Berg, 2001; Bogdan and Taylor, 1975; Sancho, 2001; Parrilla-González and Pulido-Fernández, 2017).

Table 2 - Expert panel technical sheet.

Sample size	19 experts
Profile	Board members and managers of olive oil cooperatives
Date of empirical work	January 2021
Type of study	Expert Panel

Source: By the authors.

The advantages of this method primarily lie in the experts' in-depth knowledge of the subject under evaluation, which leads to considerable time savings, lower costs, greater credibility regarding the conclusions and an ability to adapt to the different situations that may arise during development.

Some of the limitations of this method worth noting include the fact that the opinions of experts who are older or of higher professional standing may carry more weight than others, or that there is no guarantee of the consistency of the results with other data on the variable studied (Sancho, 2001).

The group of experts involved in this research contained 19 people (Table 2). It was considered a *sine qua non* that the participating experts were people with a position on the board of directors or managers of olive oil companies and cooperatives, and were recognized as being knowledgeable on the subject in question, applied to the sector under study.

Although the final number of experts who participated in this research is small, it can be considered adequate, given that the research on the subject in question is in its early stages, the studies addressing it are recent, and there are few experts to consult with sufficient knowledge to reliably answer the questionnaires provided (Parra, 2008; OPTI, 2002; Parrilla-González and Pulido-Fernández, 2017).

Regarding the characteristics of the questionnaire, it is structured in two parts. The first part deals with defining the dimensions of social innovation applied to the olive oil industry, and the second part presents 15 items or statements corresponding to the definitions formulated in the theoretical framework on social innovation. The mean scores for both the four dimensions established and the 15 items are based on a

7-point Likert scale, where 1 corresponds to "strongly disagree" and 7 "strongly agree". Each expert replied by indicating one of the options proposed. The resulting graph depicts the mean value of the responses to contextualize the social innovation practices as viewed from the perspective of the olive oil industry.

The procedure for administering the questionnaire involved selecting the experts and e-mailing them the questionnaires, with a follow-up phone call to check that the wording of the questionnaires was clear and that the experts could comply with the timelines and answer the questions, before the subsequent statistical treatment of the data.

Said statistical treatment was carried out using an Excel spreadsheet in Microsoft Office 2020 software, assigning numerical values ranging from 1 to 7 depending on the answer options presented in the questionnaire. The arithmetic mean was used as a measure of the concentration of the opinions expressed by the experts; that is, the sum of all the scores divided by the number of values. As a measure to assess the statistical significance of the agreement in the expert panel, the Pearson coefficient of variation was used, which is the ratio between the standard deviation and the mean. Thus, the higher the value of this coefficient, the greater the heterogeneity reflected in the experts' opinions. A consensus was considered to have been reached when the level of agreement over the mean was significant; that is, when the Pearson coefficient of variation was less than or equal to 0.3.

4. Results and discussion

Several authors (Mozas-Moral and Rodríguez-Cohard, 2000; Mozas-Moral *et al.*, 2017; Fetoui *et al.*, 2020; Nedanov and Žutinić, 2018) have pointed out the problems linked to the absence of innovation existing in the agri-food sector, especially in the olive sector. The recommendations of these studies are mainly focused on the commercial and technological progress of the cooperative sector companies. As of these authors, after detecting the need to apply innovation in this sector, it is necessary to define social innovation and how it is valued and con-

textualized by experts in the olive oil sector, as it appears in the methodology used.

After the expert panel had been consulted and the proposed items evaluated using the scoring system, we extracted the centrality and dispersion measures that allow us to interpret and design a definition or model of social innovation practices applied to the olive oil cooperative sector.

To do so, we first estimated the dimensions to which the literature refers, which can be seen in the theoretical framework of this article. The result is Table 3, which allows us to explore in greater depth which dimensions carry the most weight in the cooperative sector of the olive oil industry when referring to the term social innovation.

To explore these dimensions in more depth, 15 items related to social innovation have been extracted for experts to evaluate their connection to and uptake in the olive oil cooperative sector. According to the experts, the biggest influence of social innovation in the olive sector corresponds to the economic and cultural dimensions, with these dimensions understood to involve an innovative, practical, sustainable, market-based approach that benefits society as a whole, with a special focus on the vulnerable and low-income populations, and with creative, dynamic, and socially responsible attitudes, as detailed by the World Economic Forum (2016).

It is striking that the environmental and technological dimensions do not register a high score, despite the fact that some of the main challenges facing this sector are of an environmental or technological nature.

From this table, and based on the thorough review of the literature, we have drawn up 15 statements on social innovation that we refer to as items. The people in the expert panel provided their responses to these items, as shown in Table 4.

As can be seen in the table, the dispersion in most cases is minimal, so the responses lie close to one other. This indicates that most of the experts have a very similar opinion regarding the relevance assigned to the items.

Some items that stand out are *i3*, *i4*, *i9*, *i13* and *i14*, relating to the importance of creation and social entrepreneurship by cooperatives, the orientation of these companies towards a type of social innovation with ethical components, the generation of benefits relating to cultural and social values, and groupings such as cooperatives as a solution to the challenges facing the olive oil industry.

Based on this information, Figure 1, corresponding to the Likert scale, graphically depicts the key elements of social innovation in cooperative olive oil companies.

After the experts provided their responses, the analysis of the results indicates that social innovation is a novel term in the olive oil industry, with farmers showing the greatest interest in achieving organizational, economic and cultural outcomes, where cultural is understood as a set of creative and artistic initiatives that energize and transform a product, service, or organization. This point makes sense of the differentiation strategies that are so crucial in this particularly fragmented industry.

Table 3 - Dimensions of social innovation applied to the olive oil cooperative sector.

	<i>Cultural dimension</i>	<i>Economic dimension</i>	<i>Environmental dimension</i>	<i>Technological dimension</i>
Mean	6.2	6.4	5.3	5
Variance	0.7	0.5	1	0.8
SD	0.9	0.7	1	0.9
CV	0.1	0.1	0.2	0.2
Q1	5	6	4	4
Q2 = Me	6	7	5	5
Q3	7	7	6	5
Range	2	1	2	1

Source: By the authors.

Table 4 - Items of social innovation in the olive oil cooperative sector.

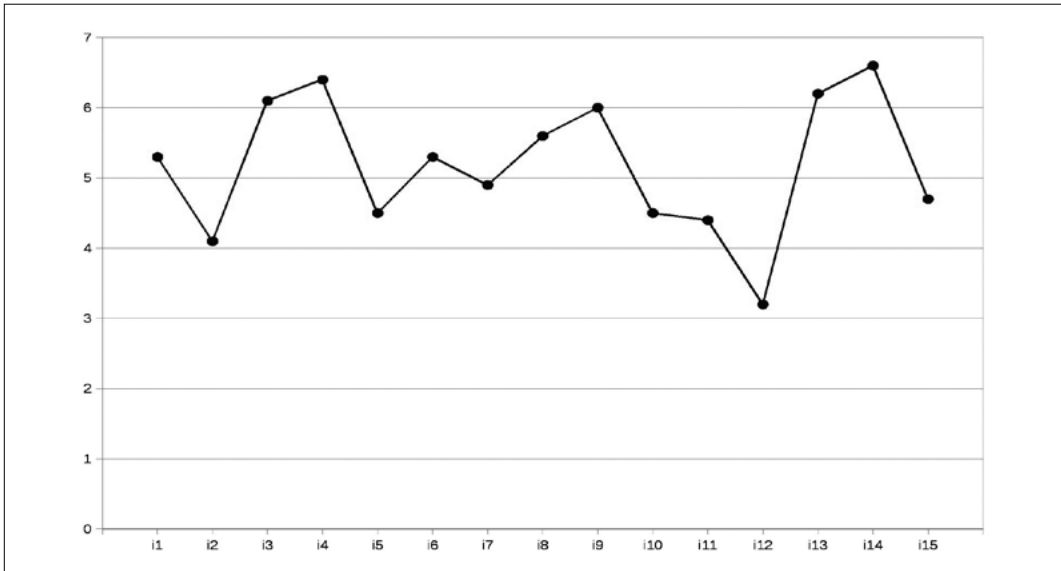
	<i>Item</i>	<i>Mean</i>	<i>Variance</i>	<i>SD</i>	<i>CV</i>	<i>q1</i>	<i>q2</i>	<i>q3</i>	<i>R</i>
i1	Social innovation is considered a set of innovative activities and services guided by the goal of meeting social needs.	5.3	1.6	1.3	0.2	4.0	6.0	7.0	3.0
i2	Social innovation refers to new forms of social relationships through new technologies.	4.1	1.5	1.2	0.3	3.0	5.0	5.0	2.0
i3	Social innovation occurs in social entrepreneurs such as cooperatives.	6.1	0.6	0.8	0.1	6.0	6.0	7.0	1.0
i4	Social innovation centres on the creation of products/services that generate added value and are socially created.	6.4	0.5	0.7	0.1	6.0	7.0	7.0	1.0
i5	Social innovation has a broad and lasting impact on society.	4.5	0.6	0.8	0.2	4.0	5.0	5.0	1.0
i6	Sustainability is a value of social innovation, especially in crops involving organic or integrated production methods.	5.3	0.5	0.7	0.1	5.0	5.3	6.0	1.0
i7	Corporate social responsibility is an intrinsic feature of social innovation.	4.9	0.8	0.9	0.2	4.0	5.0	5.0	1.0
i8	Creativity is an intrinsic feature of social Innovation.	5.6	0.8	0.9	0.2	5.0	6.0	6.0	1.0
i9	Social innovation is understood as the grouping and organization of civil society—such as in cooperatives—to solve problems.	6.0	0.8	0.9	0.1	5.0	6.0	7.0	2.0
i10	Social innovation is considered crucial in the olive oil industry to adapt and create new strategies and production processes.	4.5	1.2	1.1	0.2	4.0	5.0	5.0	1.0
i11	Social innovation involves the application of technology with the aim of improving the company's social environment.	4.4	0.6	0.8	0.2	4.0	4.0	5.0	1.0
i12	Social innovation in the olive oil industry presents solutions to the health problems of the population.	3.2	0.6	0.8	0.3	3.0	3.0	4.0	1.0
i13	Social innovation is relevant insofar as it is oriented to ethical and social values.	6.2	0.7	0.9	0.1	5.0	6.0	7.0	2.0
i14	The benefits of social innovation can be social, economic, cultural or organizational.	6.6	0.4	0.6	0.1	6.0	7.0	7.0	1.0
i15	Social innovation involves new ideas that have the potential to improve both quantity and quality of life.	4.7	0.9	1.0	0.2	4.0	5.0	5.0	1.0

Source: By the authors.

Furthermore, the model of social innovation applied to olive oil cooperativism, extracted in light of the expert panel's opinions, includes ethical components and corporate social responsibility, which is a particularly important aspect when it comes to cooperatives. Lastly, the importance that the expert panel attributes to the environmental and technological dimensions is reflected in items such as crops cultivated with integrated and organic production

methods: such crops accounted for only 6.9% of the total olive cultivation in Spain in 2015. However, there is a growing number of hectares of olive groves that are organic or converting to organic production, and Information and Communication Technologies are being used to support the development of the olive oil industry, particularly in organic farming and in the area of sales and marketing (Mozas-Moral *et al.*, 2017).

Figure 1 - Likert scale of social innovation items in the olive oil cooperative sector.



Source: By the authors.

5. Conclusions

In this study, we carried out an exhaustive review of the literature on a term that has not been widely applied to the olive oil industry, but which is becoming increasingly prominent in the sphere of the social economy, especially in agri-food cooperatives. Following the analysis of the literature, the related papers were grouped in a table according to the four dimensions proposed: cultural, economic, environmental and technological.

An expert panel was then formed, comprising a small group of managers and members of the boards of directors of cooperatives. The panel provided relevant information offering an empirical understanding of the application of the term social innovation to olive oil cooperative sector. The results allowed us to create a model of social innovation focused on the cultural and economic dimensions, wherein creative and ethical values are crucial in order to propose solutions to problems such as the marketing of differentiated agri-food products or the generation of added value in a particularly fragmented sector. Other dimensions are then incorporated on a second level, focusing on environmental values such as the organic or integrated production of crops.

Finally, at a theoretical level, this article sheds light on the term social innovation, clarifying which are its most relevant variables and items, and which are not. At a practical level, companies that wish to implement social innovation strategies can draw on these results to develop initiatives and thereby increase their added value in social, cultural, environmental and technological aspects.

As a recommendation to cooperatives, this article is based on the constitution of an extrapolable social innovation model for the improvement of marketing, designing agricultural products based on ethical and cultural values, and at the same time, a commitment to technification and digitalization is carried out of the olive oil cooperatives as an indispensable condition to adapt to a new competitive environment.

References

- Alimarket, 2021. Informes y Reportajes de Alimentación. Available online: <https://www.alimarket.es/alimentacion/informe/290401/informe-2019-del-sector-de-aceite-de-oliva-en-espana/15/6f8ef-4248d67a51b2e8244508ae810e3>. Accessed on 07 May 2021.
- Alonso Logroño P., Bautista Puig N., 2012. La significación de las cooperativas agrarias en desarrollo

- del medio rural: El caso de Guissona. In: *Proceedings of the XIII Coloquio Ibérico de Geografía*, Santiago de Compostela, Spain, October 24-27, pp. 1334-1344. https://www.researchgate.net/publication/322357515_.
- Antonelli A., Brunori G., Jawhar J., Petruzzella D., Roma R., 2020. Innovation ecosystems for youth agrifood entrepreneurship in the Mediterranean region. *New Medit*, 19(4): 99-115.
- BEPA (Bureau of European Policy Advisers), 2010. *Empowering people, driving change. Social innovation in the European Union*. Luxembourg: European Commission – BEPA.
- Berg B.L., 2001. *Qualitative research methods for the social sciences*. Boston: Allyn and Bacon.
- Bogdan R., Taylor S.J., 1975. *Introduction to qualitative research methods: A phenomenological approach to the social sciences*. New York: Wiley.
- Bonilla N., Rojas A., 2012. *Una revisión de las tendencias en investigación sobre la innovación social: 1940-2012*. Universidad Militar Nueva Granada. <https://repository.unimilitar.edu.co/handle/10654/7232?show=full>. Accessed on 1 March 2021.
- Buckland H., Murillo D., 2014. *La Innovación Social en América Latina. Marco Conceptual y agentes*. Instituto de Innovación Social de ESADE y Fondo Multilateral de Inversiones (Banco Interamericano de Desarrollo). <http://www.transitsocialinnovation.eu/content/original/Book%20covers/Local%20PDFs/177%20ESADE-FOMIN-La-innovacion-social-en-America-Latina-Marco-conceptual-y-agentes.pdf>. Accessed on 3 March 2021.
- CEPAL (Comisión Económica para América Latina y el Caribe), 2008. *Claves de la innovación social en América Latina y el Caribe*. Santiago de Chile: Naciones Unidas.
- Chaves R., Monzón J.L., 2018. La economía social ante los paradigmas económicos emergentes: innovación social, economía colaborativa, economía circular, responsabilidad social empresarial, economía del bien común, empresa social y economía solidaria. *CIRIEC-España, Revista de Economía Pública, Social y Cooperativa*, 93: 5-50. doi: 10.7203/CIRIEC-E.93.12901.
- Christensen C.M., Baumann H., Ruggles R., Sadtler T.M., 2006. Disruptive innovation for social change. *Harvard Business Review*, 84(12): 94-101.
- Conejero Paz E., Redondo Lebrero J.C., 2016. La innovación social desde el ámbito público: Conceptos, experiencias y obstáculos. *Gestión y Análisis de Políticas Públicas*, 8(15): 23-42. <https://doi.org/10.24965/gapp.v0i15.10310>.
- Echevarría J., 2008. El Manual de Oslo y la innovación social. *Arbor*, 184(732): 609-618. <https://doi.org/10.3989/arbor.2008.i732.210>.
- ECLAC, 2008. *Experiences in Social Innovation in Latin America and the Caribbean*, Economic Commission for Latin America and the Caribbean. <https://www.cepal.org/en/topics/social-innovation> (accessed on March 2021).
- European Commission, 2013. *Guide to Social Innovation*. https://ec.europa.eu/eip/ageing/library/guide-social-innovation_en.html.
- Fetoui M., Dhehibi B., Frijia A., Sghaier A., Kassam S.N., Aw-Hassan A., Arbi Abdeladhim M., Sghaier M., 2020. Towards an innovative olive oil value chain: Options for inclusive development in South-eastern Tunisia. *New Medit*, 19(3): 3-20. <https://doi.org/10.30682/Nm2003a>.
- Foroudi P., Akarsu T.N., Marvi R., Balakrishnan J., 2021. Intellectual evolution of social innovation: A bibliometric analysis and avenues for future research trends. *Industrial Marketing Management*, 93: 446-465. <http://dx.doi.org/10.1016/j.indmarman.2020.03.026>.
- Freeman C., 1997. *The Economics of Industrial Innovation*. Cambridge, MA: MIT Press.
- García-Flores V., Palma Martos L., 2019. Innovación social: Factores claves para su desarrollo en los territorios. *CIRIEC-España, Revista de Economía Pública, Social y Cooperativa*, 97: 245-278. Doi: 10.7203/CIRIEC-E.97.14148.
- Godin B., 2012. *Social Innovation : Utopias of Innovation from c. 1830 to the Present*. Working Paper No. 11, Project on the Intellectual History of Innovation. Montréal: INRS. 50 p.
- Hawkes J., 2001. *The fourth pillar of sustainability. Culture's essential role in public planning*. Melbourne: Cultural Development Network & Common Ground Press.
- Hernández-Ascanio J., Tirado-Valencia P., Ariza-Montes A., 2016. El concepto de innovación social: ámbitos, definiciones y alcances teóricos. *CIRIEC-España, Revista de Economía Pública, Social y Cooperativa*, 88: 164-199. <https://www.redalyc.org/articulo.oa?id=174/17449696006>.
- Hernández-Ascanio J., 2020. ¿La innovación social como método de investigación participativo y sociopráctico? *Tendencias Sociales. Revista de Sociología*, 6: 33-63. <https://doi.org/10.5944/ts.6.2020.29157>.
- Howaldt J., Schwarz M., 2010. *Social Innovation: Concepts, research fields and international trends*. Dortmund: Sozialforschungsstelle.
- Jaeger-Erben M., Rückert-John J., Schäfer M., 2015. Sustainable consumption through social innova-

- tion: a typology of innovations for sustainable consumption practices. *Journal of Cleaner Production*, 108: 784-798.
- Leick B., 2020. Institutional entrepreneurs as change agents in rural-peripheral regions? *ISR-Forsch*, 49: 22-35.
- Mehmood A., Parra C., 2013. Social innovation in an unsustainable world. In: Moulaert F., MacCallum D., Mehmood A., Hamdouch A. (eds.), *The International Handbook on Social Innovation: Collective Action, Social Learning and Transdisciplinary Research*. Cheltenham: Edward Elgar Publishing.
- Montero Aparicio A., 2008. *La Economía social y su Participación en el Desarrollo Rural*. Madrid: Fundación Alternativas.
- Mooney P.H., 2004. Democratizing rural economy: Institutional friction, sustainable struggle and the cooperative movement. *Rural Sociology*, 69: 76-98.
- Moulaert F., MacCallum D., Mehmood A., Hamdouch A., 2010. *Social Innovation: Collective action, social learning and transdisciplinary research*. KATARSIS Final Report, European Commission.
- Mozas-Moral A., 2019. *Contribución de las cooperativas agrarias al cumplimiento de los objetivos de desarrollo sostenible: especial referencia al sector oleícola*. Centro Internacional de Investigación e Información sobre la Economía Pública, Social y Cooperativa - CIRIEC España.
- Mozas-Moral A., Fernández-Uclés D., Bernal-Jurado E., Medina Viruel M.J., 2017. La apuesta por la agricultura ecológica en el olivar. Un mercado de futuro. *Boletín del Instituto de Estudios Giennenses*, 216: 353-376.
- Mozas-Moral A., Rodríguez-Cohard J.C., 2000. La Economía Social: Agente de cambio estructural en el ámbito rural. *Revista de Desarrollo Rural y Cooperativismo Agrario*, 4: 7-18.
- Mulgan G., Tucker S., Ali R., Sanders B., 2007. *Social innovation: what it is, why it matters and how it can be accelerated*. London: The Young Foundation.
- Nedanov A., Žutinić Đ., 2018. A correspondence analysis of motivational factors for joining agricultural cooperatives in Croatia. *New Medit*, 17(3): 79-92.
- OPTI (Observatorio de Prospectiva Tecnológica industrial), 2002. *Tecnologías del diseño y producción. Primer informe de prospectiva tecnológica industrial: futuro tecnológico en el horizonte 2015*. Madrid: Miner.
- Ortega-Alonso D., 2020. *Investigación artística e innovación social: herramientas para la transferencia del conocimiento científico*. Tesis Doctoral. Universidad de Jaén.
- Parra D.Q., 2008. Metodología para hacer prospectiva empresarial en la sociedad de la información y el conocimiento. *Economía y administración*, 45(70): 25-44.
- Parrilla-González J.A., Ortega-Alonso D., 2021. Social Innovation in Olive Oil Cooperatives: A Case Study in Southern Spain. *Sustainability*, 13(7): 3934. <http://dx.doi.org/10.3390/su13073934>.
- Parrilla-González J.A., Pulido-Fernández J.I., 2017. Inteligencia territorial y turismo. Hacia la integración de un modelo de transformación económica. *Estudios y perspectivas en turismo*, 26(1): 1-21.
- Petrizzella D., Jawhar J. (eds.), 2020. *MIP Report 2020. Innovation in the Mediterranean agrifood sector: actors, policies and future prospects in a developing ecosystem*. Valenzano: CIHEAM Bari. https://mip.iamb.it/wp-content/uploads/2018/06/Report-MIP2017_def.pdf.
- Porter M.E., Kramer M.R., 2019. Creating shared value. In: Lenssen G., Smith C. (eds.), *Managing sustainable business: an executive education case and textbook*. Dordrecht: Springer, pp. 323-346.
- Puentes Poyatos R., Velasco Gámez M.M., 2009. Importancia de las sociedades cooperativas como medio para contribuir al desarrollo económico, social y medioambiental, de forma sostenible y responsable. *Revesco*, 99: 104-129.
- Rodríguez-Cohard J.C., Sánchez-Martínez J.D., Garrido-Almonacid A., 2020. Strategic responses of the European olive-growing territories to the challenge of globalization. *European Planning Studies*, 28(11): 2261-2283.
- Sánchez-Martínez J.D., Rodríguez-Cohard J.C., Garrido-Almonacid A., Gallego-Simón V.J., 2020. Social Innovation in Rural Areas? The Case of Andalusian Olive Oil Co-Operatives. *Sustainability*, 12: 10019. <https://doi.org/10.3390/su122310019>.
- Sancho A., 2001. *Apuntes de metodología de la investigación en turismo*. Madrid: Organización Mundial del Turismo.
- Schandl H., Walker I. (eds.), 2017. *Social science and sustainability*. Clayton: CSIRO Publishing.
- Vázquez-Barquero A., Rodríguez-Cohard J.C., 2019. Local development in a global world: Challenges and opportunities. *Regional Science Policy and Practice*, 11: 885-897.
- World Economic Forum, 2016. World Economic Forum Annual Meeting. <https://www.weforum.org/events/world-economic-forum-annual-meeting-2016> (accessed on March 2021).