

# PERFORMANCE OF INNOVATION IN COOPERATIVES

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MANUEL SÁNCHEZ PÉREZ

MIGUEL HERNÁNDEZ ESPALLARDO

CRISTINA SEGOVIA LÓPEZ

*msanchez@ual.es, migher@um.es, csegovia@ual.es*

*University of Almeria, University of Murcia, University of Almeria*

## SUMMARY

*Cooperatives differ substantially from investor-owned firms in terms of their organisational structure, systems of governance, and operating dynamics. Within producer cooperatives, these issues are complicated by the existence within the cooperatives of members who assume a 'triple role' as partners-owners, suppliers, and internal customers. In theory, the heterogeneous interests of the cooperative and its main stakeholders are likely to have a deleterious influence on organisational decision-making. The present study explores these theoretical difficulties by examining the types and intensity of innovations carried out by producer cooperatives in Spain and the extent to which these innovation activities contribute to their performance. The results reveal that radical innovations make a greater contribution to performance than do incremental innovations; however, the study finds that the cooperative firms continue to engage in incremental innovation rather than radical innovation. The paper concludes with a discussion of why this is so, and the remedies required.*

## Key words:

Innovation, Performance, Cooperatives, Stakeholders

## 1. Introduction

Research in the field of strategic organisational behaviour in general, and innovation in particular, has been largely confined to studies of privately owned organisations (Olson, Slater & Hult, 2005; Narver & Slater, 1990; Gatignon & Xuereb, 1997). Nevertheless, the systems of governance and operational dynamics of cooperative business entities are also worthy of research attention.

In general terms, cooperatives are an alternative form of business organisation, whose system of governance and managerial decision-making are profoundly influenced by their strategic relationships with a variety of stakeholders (including partners, suppliers, and internal customers). The configuration of these relationships in producer cooperatives is complicated by the existence of members who assume a triple role within the cooperative as: (i) *partners-owners*; (ii) *suppliers* of products commercialised by the cooperative; and (iii) *internal customers* of a range of services offered by the cooperative. The complex relationships between the cooperative and these stakeholders largely determine the strategic organisational behaviour of cooperative firms.

The heterogeneous (and perhaps conflicting) interests of the cooperative and its main stakeholders can make strategic management of these organisations extremely complex. Indeed, these conflicting interests can cause strategic decision-making to become rather inefficient if the cooperative adopts ‘organisation-oriented’ decisions, rather than ‘market-oriented’ decisions. This can become a particular problem in the case of strategic decisions related to innovation activities, which are generally recognised as being essential for the competitive survival of firms in the contemporary marketplace (Damanpour, 1991; Calantone, Cavusgil & Zhao, 2002). If strategic decisions with respect to innovation are focused on the complex relationships between the cooperative and its stakeholders, they are unlikely to take proper account of the requirements of consumer markets. In these circumstances, cooperatives are unlikely to adopt the market-driven innovation strategies that are typical of investor-owned firms.

The rationale for the present study is two-fold. First, there have been few in-depth studies of the role of innovation strategies and activities in organisations (such as cooperatives) that have little direct contact with the end-consumers of their products. Secondly, it is apparent that there are fundamental differences between cooperative entities and investor-owned firms with respect to their objectives, organisational structure, forms of governance, and operational practices—all of which affect the ease with which new ideas can be incorporated and innovation encouraged.

The present study therefore investigates the types and intensity of innovation activities in cooperative firms whose customers are not the end-consumer. More specifically, the study examines the extent to which the adoption and implementation of innovation activities contribute to the performance of these firms.

The remainder of the paper is organised as follows. First, a literature review and conceptual framework is presented. This covers such topics as: (i) the nature of cooperatives; (ii) stakeholder theory; (iii) the application of stakeholder theory to cooperatives; (iv) strategic challenges for cooperative firms; (v) innovation decisions in cooperatives; and (vi) the relationship between innovation and performance. The conceptual framework is concluded by the formulation of two research hypotheses. The paper then describes the research setting and methodology for an empirical study that examines the issues raised in the conceptual framework and tests the two research hypotheses. The paper concludes with a discussion of the results, implications, and recommendations of the study.

## 2. Literature review and conceptual framework

### 2.1. The nature of cooperatives

A ‘cooperative’ can be defined an autonomous organisation of persons united voluntarily to meet their common economic, social, and cultural needs and aspirations through a jointly owned and democratically controlled enterprise (International Cooperative Alliance, 2008). Cooperatives thus have *members*, rather than *capital*, at the heart of their business activities. In doing so, cooperatives

have a broader set of values than merely making a profit. Because cooperatives are owned and democratically controlled by their members, they balance the quest for profitability with the needs of their members and the wider interests of the community (International Cooperative Alliance, 2008).

The marketing decisions of cooperatives depend on specific cases and circumstances (Sexton; 1995; Boyle, 2004); however, in general, the following principles apply: (i) cooperatives usually accept the entire production of their members; (ii) members are treated equally; (iii) members are bound contractually to deliver their entire production to the cooperative; and (iv) members act as ‘price takers’ in dealing with the cooperative.

Through collective action, cooperatives assist members to optimise their returns from the goods they produce to an extent that would be unachievable for individual members operating alone. Joining with other producers in a cooperative can give individual producers greater power in a marketplace that would otherwise be dominated by large agribusinesses or food companies purchasing their products. Cooperatives are thus faced with two types of demand: (i) demand from members for marketing services; and (ii) demand from consumers or other firms for their output (Kebede & Schreiner, 1996). The strategic management of producer cooperatives can thus be categorised as so-called ‘industrial marketing’ (Gaski & Ray, 2001; Simpson, Siguaw & Baker, 2002)—because their production is oriented towards business-to-business markets, rather than business-to-consumer markets.

Managerial decision-making in cooperative firms is profoundly influenced by the organisational and structural context in which it is embedded (Kyriakopoulos, Meulenbergh & Nilsson, 2004). As a result, the strategic objectives and behaviour of cooperatives are largely determined by how these organisations manage their stakeholder relationships (Freeman, 1984, 1999; Tangpong & Pesek, 2007). Because the preferences of these stakeholders are inherently heterogeneous, decision-making processes can become unwieldy and inefficient—thus generating high transaction costs (Hansmann, 1988; Benham & Keefer, 1991) and unstable agreements (Hansmann, 1996). Decision-making can become politicised, thus making the organisation vulnerable to the exigencies of certain stakeholders. Ultimately, this can adversely affect the organisations’ overall performance (Hansmann, 1996).

## **2.2. Stakeholder theory**

According to ‘stakeholder theory’, an organisation is a collection of internal and external groups (shareholders, employees, customers, suppliers, creditors, and neighbouring communities) who influence (and are influenced by) the organisation’s purposes and achievements (Freeman, 1984, 1999; Evan & Freeman, 1988). In accordance with this view, the organisation is responsible for the well-being of all its stakeholders, and managers are therefore posited as decision-making agents who are responsible for protecting the rights (and balancing the legitimate interests) of *all* stakeholders (Tangpong & Pesek, 2007).

A major theme of stakeholder theory is the nature of the relationships between the firm and its stakeholders, whose interests often diverge considerably not only from those of the firm but also from each other. Stakeholder theory recognises that decision-making with respect to this variety of interests can be fraught with tension and that trade-offs in the allocation of benefits and burdens are inevitable (Jones, Felps & Bigley, 2007). In this regard, the theory also recognises that stakeholders are not independent of each other. As Rowley (1997) has noted, an organisation does not respond to each stakeholder individually; rather, it responds to the interaction of multiple influences from the entire stakeholder network. Moreover, certain stakeholders might make similar, or complementary, claims upon the organisation, and this can reinforce the salience of individual claims (Neville & Menguc, 2006).

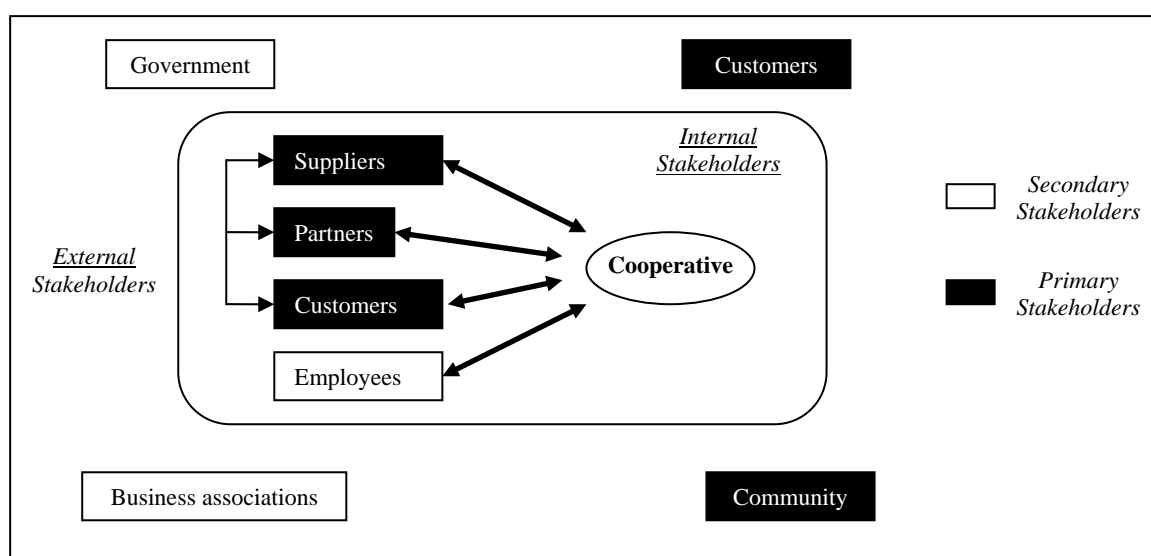
## **2.3. Application of stakeholder theory to cooperatives**

These general statements about the nature of stakeholder theory become even more complex in the case of cooperative entities. Many members of cooperatives assume a ‘triple role’ within the organisation—operating simultaneously as *partners-owners*, *suppliers*, and *internal customers*. This triad of roles can generate conflicts of interests that can have important repercussions on the strategic management of these organisations.

In cooperative firms, stakeholders generally have complex intra-organisational relationships, and many are intimately involved in the development of organisational goals and marketing strategy. Moreover, marketing strategies within cooperative organisations differ from capitalist businesses as cooperatives pursue a variety of marketing objectives, including 'social well-being'. Marketing in cooperatives is thus more contingent upon a wide range of influential stakeholders, and the determination of the relative importance of various stakeholders is a crucial first step in developing marketing strategy (Gallagher & Weinberg, 1991).

Two groups of stakeholders can be identified in cooperative firms (see Figure 1). In the internal context, stakeholders include the partners, suppliers, and internal customers (recipients of services provided by the cooperative)—all of whom can be differentiated into primary and secondary stakeholders, depending on their relevance and importance to the cooperative. In the external environment, stakeholders include end-consumers, business associates, community members, and government.

FIGURE 1  
Stakeholders in cooperative firms (adapted from Donaldson & Preston, 1995)



The sustainability of the cooperative depends on its ability to create and distribute value to these various stakeholders in proportion to their relative importance in the organisation (Clarkson, 1995). This is complicated by the interdependence of relationships within the various groups of stakeholders (Donaldson & Preston, 1995; Evan & Freeman, 1988).

#### 2.4. Strategic challenges for cooperative firms

Cooperatives are created and managed for the benefit of their members (White, 1997). The primary objective of a producer cooperative is therefore to increase the economic well-being of producers who have joined together to control and receive the benefits of their patronage (Barton, Schroeder & Featherstone, 1993). In theory, cooperatives achieve this through economies of scale (by reducing transaction prices and increasing returns per unit to members) and organisational democracy (which generates incentives and motivation among workers inside the organisation) (Bonin, Jones & Putterman, 1993; Simons & Ingram, 1997).

However, cooperatives are currently facing considerable internal and external organisational challenges. Internally, greater heterogeneity among members has exacerbated property rights problems (Cook, 1995), and many cooperatives are apparently facing a decline in member commitment (Fulton, 1999). Externally, organisational challenges include increasing industrial concentration and vertical integration (Fulton & Giannakas, 2001). At the same time, technological advances and the growth in e-commerce are providing new challenges to traditional cooperative arrangements (Saba, Rosati & Vassallo, 2000; Baourakis, Kourgiantakis & Migdalas, 2002).

Faced with these challenges, cooperative organisations must continuously invest in new resources, reduce cost inputs in production processes, and market their members' outputs more effectively and efficiently (White, 1997). In all of these matters, innovation plays a key role.

With regard to innovation, many studies have shown that the success of new products depends on the ability of firms to adopt a 'market orientation'—that is, to understand (and cater to) the needs of the market (Cooper & Kleinschmidt, 1987; Atuahene-Gima, 1995, 1996; Wrenn, Souder & Berkowitz, 2000). A firm must tailor its own change program to the particular challenges it faces in understanding, attracting, and keeping its valuable customers. However, such a market orientation has traditionally played a more important role in consumer-goods industries than in intermediate markets, such as those in which cooperatives operate (Homburg, Workman & Krohmer, 1999).

Other fundamental differences in business strategy exist between cooperatives and investor-owned firms. Most importantly, cooperatives aim to provide a service to their members rather than a return on investment (Boyle, 2004). The ownership and governance structures reflect this difference—with cooperatives being constituted as 'democratic' organisations on the principle of one member having one vote, whereas capitalist organisations are characterised by the number of votes being determined by the size of a shareholding (Barron, West & Hannah, 1998). The 'democratic' ownership structure of cooperatives can impose significant costs (Benham & Keefer, 1991) and generate several problems for these organisations (Nuñez & Moyano, 2004). These include: (i) reduced efficiency in leadership (Williamson, 1987); (ii) increased agency costs (Rao & Neilsen, 1992); (iii) difficulties in implementing change-management processes; and (iv) unstable decision-making.

## ***2.5. Innovation decisions in cooperatives***

Numerous studies in the literature have confirmed a positive and direct relationship between innovation and organisational performance (Damanpour, 1991; Han, Kim & Srivastava, 1998; Cooper, 2000; Calantone et al., 2002; Desphandé, Farley & Webster, 1993). Similarly, numerous studies have contended that innovation makes a positive contribution to the creation and maintenance of a competitive advantage (Hurley & Hult, 1998; Weerawardena, 2003; Lee & Grewal, 2004). The generation of innovation is thus recognised as one of the main factors in the implementation of organisational change and in the maintenance of a competitive position (Calantone et al., 2002). In other words, firms that continuously innovate their products and processes through a clear commitment to a change-oriented mindset achieve a stronger position in the market.

Innovative products or processes can be differentiated into incremental innovations and radical innovations (Deward & Dutton, 1986; Lambin, 1996; Damanpour, 1991). The former are based on extant knowledge and permit existing products to continue being competitive, whereas the latter involve the breaking of established frameworks by products or processes that are drastically different from what would be expected from natural evolution.

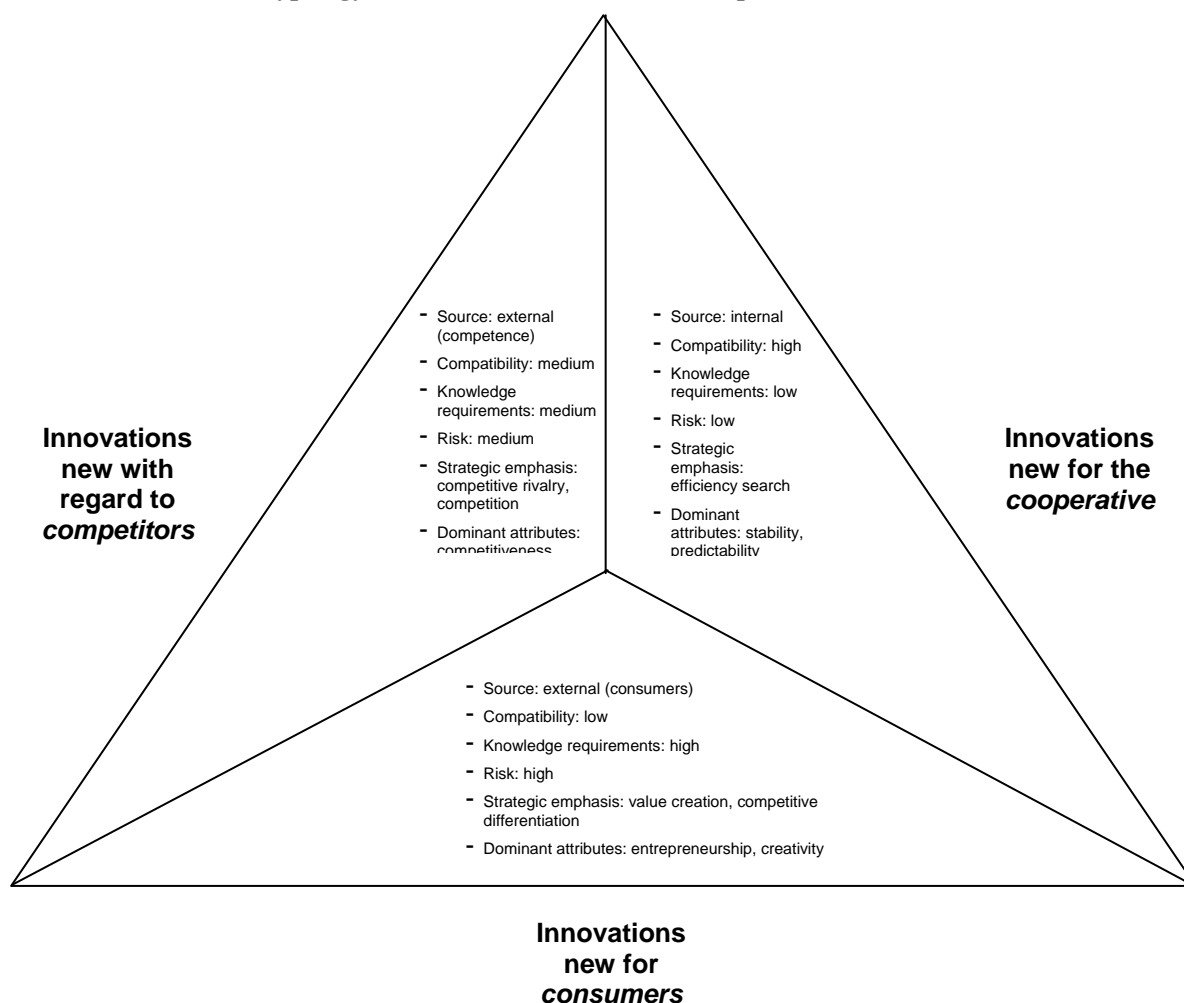
Product newness can also be assessed from: (i) the customer's perspective (that is, the extent to which an innovation is compatible with the experiences and consumption patterns of customers and the extent of behavioural change required by users for adoption of the new product) (Lawton & Parasuraman, 1980); or (ii) the firm's perspective (that is, the degree of difference between an innovation and products already on the market) (Atuahene-Gima, 1996). Several authors have suggested that the adoption of a market-oriented business philosophy stifles the development of original new products and encourages the development of product modifications (Bennett & Cooper, 1981; Hayes & Abernathy, 1980; Atuahene-Gima, 1996).

An alternative view is to consider innovations from the perspective of comparison with competitors' products. A so-called 'competitor orientation' involves identification, analysis, and response to competitors' actions (Narver & Slater, 1990). This enables the identification of competitive advantages in terms of quality or specific functionalities (Cooper, 1984; Gatignon & Xuereb, 1997).

In view of the above discussion, Figure 2 illustrates a proposed typology of newness of innovations in cooperative firms. Three dimensions are posited, which represent a merging of the major theoretical traditions from the innovation literature (Damanpour, 1991; Calantone et al., 2002)—(i) innovations that are new for the cooperative; (ii) innovations that are new with regard to competitors; and (iii)

innovations that are new for consumers. These dimensions are not mutually exclusive; rather, most cooperatives can (and do) have elements of several types of innovation.

FIGURE 2  
Typology of newness of innovations in cooperative firms



Innovations that are new for the cooperative do not primarily reflect a new product's impact on either competitors or customers (Kotabe & Swan, 1995); rather, such innovations have an internal origin (within the cooperative) and represent the maximisation of the operative efficiency of internal activities and the maintenance of organisational stability. This type of innovation can thus be characterised as low-risk incremental development that aims to maintain the financial targets of the cooperative.

Innovations that are new for consumers imply the development of a differentiated offer that provides superior value (compared with competitors) to consumers. Creativity, flexibility, and a willingness to assume risk play fundamental roles in this type of (more radical) innovation. Moreover, cooperatives engaging in this type of innovation require superior knowledge of the market. In many instances risky decisions that disrupt organisational stability are required, and the control objectives projected by the cooperatives might have to be changed.

Innovations that are new with regard to competitors reflect a strong strategic emphasis on competitive rivalry and superiority. Such innovations have an external origin (competitors' actions). Because their competitor orientation, they represent innovations neither exclusively new for the cooperative nor for consumers. According to this view, innovations of this type are mid-way between the two preceding types in terms of the assumed risk and the resources required for their practical implementation.

## 2.6. Innovation and performance: formulation of hypotheses

Previous studies of the presumed link between innovation and performance have produced mixed results—some have demonstrated a positive relationship, some a negative relationship, and some have shown no relationship at all (Capon, Farley & Hoenig, 1990; Li & Atuagene-Gima, 2001). Damanpour (1990) argued that the association between innovation and firm performance depends on the performance measurement and the characteristics of a given organisation. In addition, radical innovation and incremental innovation might also influence performance in different ways. For example, incremental innovation has been seen as the backbone of company performance because it is concerned with new ways of reading and serving existing markets and the accumulation of day-by-day improvements (Pratali, 2003; Terziovski, 2000). In contrast, the adoption of radical innovation might not show positive effects on performance in the short term, and might even have a negative impact on short-term company performance (Freel & Robson, 2004). Radical innovations imply considerable research expenditure and a greater risk of failure in the markets. Although radical innovations might promise high potential demand, such results are difficult to predict and often require sophisticated sales promotions for the education of consumers.

On the other hand, various scholars have contended that radical innovations provide the engine for long-term growth (Leifer, O' Connor & Rice, 2001). According to this view, the development of radical innovations requires management practices, technologies, and ideas that differ substantially from those required for incremental innovation (Deward & Dutton, 1986). These, in turn, provide the foundations upon which future generations of products are built and long-term growth ensured (McDermott & Colarelli, 2002).

In the case of cooperatives, any innovative change requires a creative and risk-taking attitude on the part of senior management to overcome the inherently inward-looking and risk-averse orientation of a membership organisation (Kyriakopoulos et al., 2004; Fulton, Fulton, Clark & Parliament, 1995). As previously noted, these organisations emphasise the protection of members' interests and well-being in a manner that goes beyond the simple optimisation of the profitability of their contributions (James & Sykuta, 2005; Michelsen, 1994; Guzman & Arcas, 2008). Nevertheless, despite these difficulties, the contemporary pressures (both internal and external) that are being experienced by all businesses require cooperative firms to be innovative in the strategic marketing of their business if they are to develop strong customer relations, customer value, and customer loyalty (Dalgic, 2000) while remaining focused on serving their targeted markets (Webster, 1994). Academic and industry research has shown that consumers desire and value new and original products (Dahl & Moreau, 2002) and that the perceived newness of a product can have a major impact on the product's diffusion and adoption (Gatignon & Robertson, 1991; Rogers, 1976). Moreover, new products can motivate consumers to seek more information, stimulate positive word-of-mouth recommendation, and enhance consumers' receptivity to marketing activities surrounding the innovation.

In these circumstances, the effective development of radical innovations is thus critical to the long-term survival of cooperatives—as it is for the success of all contemporary firms (McDermott & Colarelli, 2002). Such radical innovations provide greater differentiation than do incremental innovations. Radical innovations thus have a greater capacity to provide a competitive advantage through superior offers for customers.

On the basis of the above discussion, the following hypothesis is proposed:

**H1: Radical innovations have a greater positive effect on organisational performance than do incremental innovations.**

A related (second) hypothesis regarding innovation and performance can also be derived from the literature review. It is apparent that cooperative firms focus their efforts on the satisfaction of their members' demands and needs in a search for harmony within partner relationships. However, it is also apparent from the literature review that this approach constitutes a significant diminution in what might be called 'market vision'—because the end-consumer's requirements and demands are invariably relegated to a secondary position. This is in accordance with studies that have shown that business-to-business firms are less likely to adopt a market orientation than business-to-consumer

firms (Weerawardena & O'Cass, 2004). Moreover, studies indicate that industrial goods manufacturers: (i) are not inclined to generate customer-derived intelligence through regular market research; (ii) tend to neglect the individual needs of their customers; (iii) tend to price products on the basis of their production costs; and (iv) diminish the role of the marketing department in the company's efforts by reducing its participation in long-term planning and the number of activities for which it holds responsibility (Avlontis & Gounaris, 1997; Gounaris & Avlontis, 2001). In summary, industrial goods producers tend to focus on the technology of their product and its technical superiority as a means for developing a competitive advantage.

Therefore, it seems reasonable to hypothesise as follows:

H2: The best business performance of cooperatives is associated with innovations that are new for the consumers, an intermediate performance is associated with innovations that are new for the cooperative, and the worst performance is associated with innovations that are new with regard to competitors.

### 3. Methodology

#### 3.1. Research setting

To examine the issues raised in the conceptual framework and test the research hypotheses, an empirical study was conducted among cooperatives operating in the fruit-and-vegetable industry in the Almeria region of Spain. According to the data from the General Confederation of Agricultural Cooperatives in the European Union, approximately 40,000 cooperative companies exist in the EU, and they employ approximately 660,000 workers with a turnover of more than €300,000 million. Cooperative companies account for more than 50% of the production, transformation, and commercialisation of agricultural products in Europe (General Committee for Agricultural Cooperation in the European Union, 2008). Within this broader European setting, Spain has 4,175 cooperatives, which have a turnover of more than €14,000 million. The production of fruit and vegetables in the Almeria region represents approximately 25% of all production in Spain (Department of Agriculture, Fishery and Food, 2007).

#### 3.2. Data collection

Data were collected from 50 large Spanish producer cooperatives (selected using a non-probabilistic procedure) by means of personal interviews with general managers. These cooperative may hold other companies.

The operationalisation of the constructs and the performance measures are detailed in Appendix 1. The constructs that were examined were: (i) newness of innovations (for consumers, organisation, and competitors); and (ii) intensity of innovations (radical/incremental). The newness scale was adapted from Atuahene-Gima (1996) and Gatignon & Xuereb (1997). The intensity of innovations scale was measured in accordance with the methodology of Weerawardena (2003).

The performance scale was adapted from Atuahene-Gima (1996) and Weerawardena (2003) to measure the contribution of innovation activities to such broad performance measures as: (i) entering new markets; (ii) increasing the market share; (iii) increasing customer satisfaction; (iv) gaining a higher return on investment; and (v) above-average gross profits. For convenience, the performance scale was reduced to a combination of three self-evaluations (on a five-point Likert-type scale) of: (i) sales; (ii) market share; and (iii) profitability.

### 4. Results

#### 4.1. Description of innovation activities

With regard to technical innovations (see Table 1), a majority of the cooperatives in the sample had implemented innovations that related to the implementation of quality principles and norms in products (77.6%) and process management (71.4%). The incorporation of barcode standards (EAN/UCC) was also common (71.4%). In contrast, the adoption of design systems for product customisation was relatively uncommon (25%), as was the adoption of electronic commerce (18.7%).



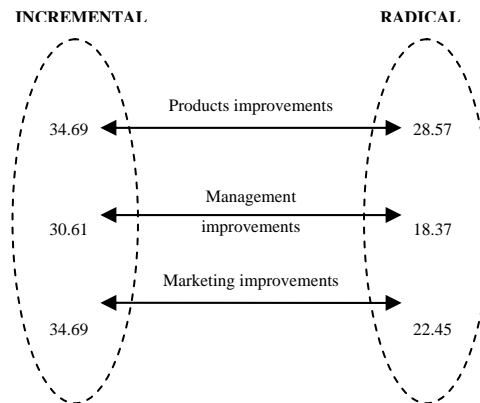
With respect to administrative innovations (see Table 1), the elaboration of databases with information about different customers was common (73.9%), and the creation of web pages was also relatively popular (57%).

TABLE 1  
Implementation of technical and administrative innovations (% cooperatives)

Technical innovations	%	Administrative innovations	%
Product customization systems	25.0	Electronic data interchange systems (EDI)	30.4
Value engineering analyses	27.6	Webpage on Internet	57.1
Technical improvement of products (biotechnology)	27.6	Database with information about customers	73.9
Quality norms in management processes	71.4	Formalized retroalignment systems about customers' informations	37.8
Quality norms in products	77.5	Continuous formation programmes for employees	48.9
Barcode standards EAN / UCC	71.4	Job rotation	23.4
Electronic commerce	18.7	Incentives programmes for employees	34.8

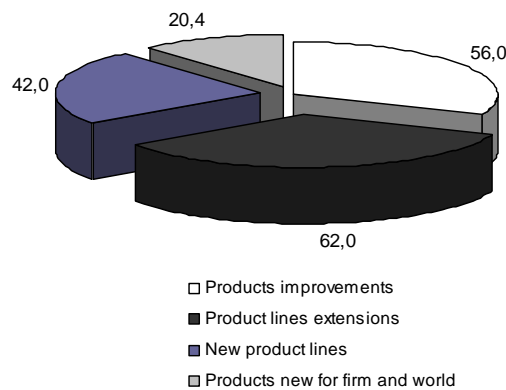
With respect to radical or incremental innovations (see Figure 3), the data show that the cooperative firms had a strong preference for the introduction of gradual and progressive innovations.

FIGURE 3  
Incremental/radical innovations in the product, management, and marketing areas (%)



As shown in Figure 4, more than 40% of the sample stated that their innovation process habitually involved the introduction of improvements in their own products and the extension of their existing product lines. Only 20% had attempted to deliver really novel or original products to consumer markets.

FIGURE 4  
Implementation of various innovations types



As shown in Table 2, the implementation of innovations new for the cooperative was more common than innovations that were new with regard to competitors. The development of innovations new for consumers was least common.

TABLE 2  
Innovations new to consumers, cooperative, and competitors

	Mean (1-5 scale)	S. D.
Innovations new for consumers	2.56	0.956
Innovations new for the cooperative	3.23	0.739
Innovations new with regard to competitors	2.81	0.768

Table 3 shows the correlation analysis between the turbulence (technological, market, and competitive) of the environment and the newness of the innovations implemented (with regard to the end-consumer, the cooperative, or immediate competitors). It was apparent that environmental variability influenced the firms in the development of innovations with regard to the cooperative and competitors; however, innovations regarding end-consumers were not significantly affected by the environment.

TABLE 3  
Relationship between environmental turbulence and newness of innovations

	Technological uncertainty	Market uncertainty	Competitive uncertainty
Innovations new for consumers	0.126	0.179	-0.018
Innovations new for the cooperative	0.303*	0.373**	0.083
Innovations new with regard to competitors	0.126	0.217	0.339*

#### 4.2. Testing of hypotheses

Testing of Hypothesis H1 was conducted by comparing several regression models. These models examined the relationship between the intensity of innovations developed in the cooperative firms and their competitive contribution to the organisations. The following equations were utilised:

- [1]  $C_A$  (Entering new markets) =  $\beta_0 + \beta_1 \times \text{Radical Innovation} + \beta_2 \times \text{Incremental Innovation} + \varepsilon$
- [2]  $C_B$  (Increased market share) =  $\beta_0 + \beta_1 \times \text{Radical Innovation} + \beta_2 \times \text{Incremental Innovation} + \varepsilon$
- [3]  $C_C$  (Increased customer satisfaction) =  $\beta_0 + \beta_1 \times \text{Radical Innovation} + \beta_2 \times \text{Incremental Innovation} + \varepsilon$
- [4]  $C_D$  (higher return on investments) =  $\beta_0 + \beta_1 \times \text{Radical Innovation} + \beta_2 \times \text{Incremental Innovation} + \varepsilon$
- [5]  $C_E$  (Profits higher than industry average) =  $\beta_0 + \beta_1 \times \text{Radical Innovation} + \beta_2 \times \text{Incremental Innovation} + \varepsilon$

As shown in Table 4, the results showed that radical innovations made a greater contribution to competitive outcomes in cooperative firms than did incremental innovations. This finding confirmed the validity of the first hypothesis.

TABLE 4  
Results of regression analyses

		Unstandardised coefficient	Standardised coefficient	t	Sig.
<i>Model A</i>	Constant	1.831		2.988	.004
	Radical innovation	0.474	0.383	2.566*	.014
	Incremental innovation	-0.066	-0.054	-0.364	.718
<i>Model B</i>	Constant	1.940		3.268	.002
	Radical innovation	0.462	0.382	2.577*	.013
	Incremental innovation	-0.006	-0.005	-0.034	.973
<i>Model C</i>	Constant	1.603		2.925	.005
	Radical innovation	0.667	0.546	4.031**	.000
	Incremental innovation	-0.040	-0.033	-0.246	.807
<i>Model D</i>	Constant	1.670		3.091	.003
	Radical innovation	0.475	0.424	2.915**	.005
	Incremental innovation	-0.010	-0.009	-0.063	.950
<i>Model E</i>	Constant	1.216		2.222	.031
	Radical innovation	0.557	0.473	3.371**	.002
	Incremental innovation	0.019	0.017	0.120	.905

To test Hypothesis H2, a discriminant function was used to classify cooperatives as ‘high’ and ‘low’ performers on the basis of newness of innovations with regard to consumers, the cooperative, and competitors. Table 5 shows the correlation of each explanatory variable with the discriminant function (partial correlation of each variable with the performance index).

TABLE 5  
Makeup of the discriminant function

	Pooled within group correlations of function and independent variable	P-value for univariate F-test
Innovations new for consumers	0.316	0.044
Innovations new for the cooperative	0.247	0.110
Innovations new with regard to competitors	0.198	0.209

Overall, the discriminant function classified 84% of the firms correctly into the two performance groups. This outcome is significantly better than chance on the basis of the proportional chance criterion (Morrison, 1969), which predicts 52% correct classification. Given the small sample size, these results are strong, especially in terms of the correct ordering of newness of innovations with regard to business performance.

The results show that the correlation value was greatest for innovations new for consumers, which was also the only type of innovation for which the findings were statistically significant. These findings suggest that the second hypothesis should also be accepted.

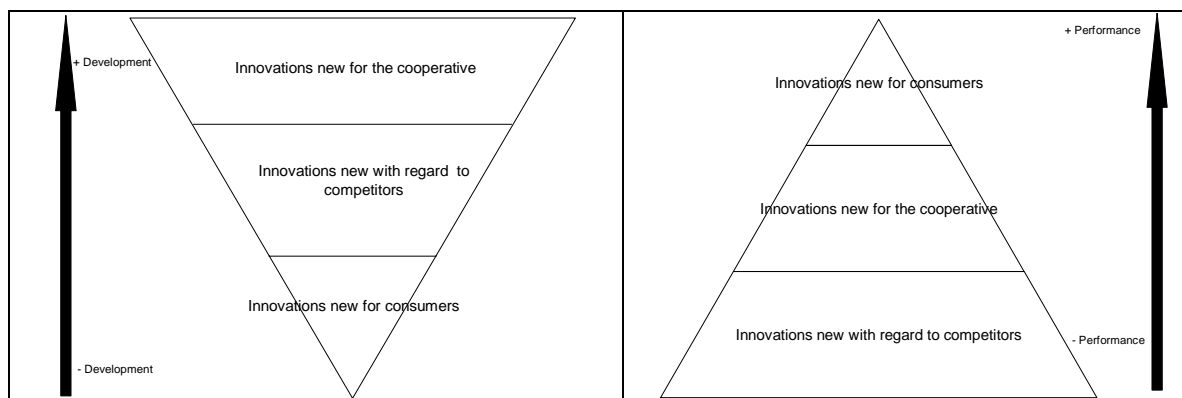
## 5. Conclusions and implications

This study of innovation in cooperative forms has contributed to the filling of a gap in the literature, which has previously focused on innovation in investor-owned firms. Cooperative firms are significantly different from investor-owned firms in terms of: (i) their governance structure (democratic control, collective decision-making, and so on); (ii) their relative lack of contact with the end-consumer of their products; and (iii) their basic orientation (which is the satisfaction of the cooperative’s members and stakeholders, rather than profit for investors). These differences affect all aspects of the business strategy of cooperative firms, including the development and implementation of innovation activities in order to secure a competitive advantage.

In general, change-management processes are considerably more difficult for cooperative organisations. Firms that do not maintain close contact with the end-consumers of their products (as is the case with cooperatives) tend to relegate the consumer’s requirements and demands to a secondary position in their strategic planning. In other words, a ‘consumer orientation’ is not as important as an ‘industrial orientation’ in the management of their marketing activities. In addition, the governance structure and operational configuration of cooperatives involves complex inter-organisational relationships (between the cooperative and its main stakeholders), which is another significant organisational barrier to innovation and effective change management.

Despite these inherent difficulties with regard to innovation and change management, the present study has found that radical innovations provide a greater contribution to the performance of cooperative firms than do incremental innovations. A comparative analysis of the actual behaviour of cooperative firms in terms of innovation and the potential contribution to organisational performance is illustrated in Figure 5.

FIGURE 5  
Comparative analysis of actual innovation development in cooperative firms and the potential for their business performance



These findings suggest that a gap exists between the actual strategic behaviour of cooperative firms with respect to innovation and the strategic orientation that they should assume in order to achieve better levels of performance. This differential gap can be explained by the structural and governance characteristics of cooperatives, their relationships with their main stakeholders, and the triadic role assumed by many members inside the cooperative (as suppliers, customers, and partners). All of these factors make the strategic management of these entities (including the management of change processes) more difficult.

Nevertheless, in a challenging global environment, cooperative entities must find a balance between the requirements of excellent business performance and the requirements associated with a traditional cooperative. Cooperative societies must deploy a shared consumer-oriented vision throughout the organisation and they must attain a more prominent role in contemporary consumer markets. Cooperative entities will only be able to satisfy the changing wishes and requirements of consumers if they listen to their customers' demands and offer solutions to their problems.

There is thus a need for cooperative entities to elevate the common interest above the particular interests that are inherently generated by the heterogeneity of purposes that exist among a variety of stakeholders.

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### Appendix 1: Measures and operationalisations

INNOVATION ACTIVITIES. Source: Weerawardena (2003)						
	Low			High		
1. Product innovations introduced have been...	1	2	3	4	5	
2. Management innovations introduced have been...	1	2	3	4	5	
3. Marketing innovations introduced have been...	1	2	3	4	5	
	Incremental			Radical		
1. Product improvements have been mainly...	1	2	3	4	5	
2. Management improvements have been mainly...	1	2	3	4	5	
3. Marketing improvements have been mainly...	1	2	3	4	5	

PERFORMANCE. Source: Adapted from Athuahene-Gima (1996) and Weerawardena (2003)						
	Not at all			A great deal		
1. Entering new markets	1	2	3	4	5	
2. Increased market share	1	2	3	4	5	
3. Increased customer satisfaction	1	2	3	4	5	
4. Gain a higher return on investments (ROI)	1	2	3	4	5	
5. Gross profits higher than industry average	1	2	3	4	5	
	Not at all			A great deal		
A. Sales	1	2	3	4	5	
B. Market share	1	2	3	4	5	
C. Profitability	1	2	3	4	5	

NEWNESS OF INNOVATIONS. Source: Adapted from Athuahene-Gima (1996) and Gatignon and Xuereb (1997)						
	Not at all			A great deal		
1. Innovation required a major learning effort by customers	1	2	3	4	5	
2. It takes time before customers really understand the advantages of the innovation	1	2	3	4	5	
3. The innovation involved high change over costs for customers	1	2	3	4	5	
4. Innovations introduced correspond to products improvements	1	2	3	4	5	
5. Innovations introduced correspond to product line extensions	1	2	3	4	5	
6. Innovations introduced correspond to new product lines to the firm	1	2	3	4	5	
7. Innovations introduced correspond to innovations new to both the company and the world	1	2	3	4	5	
8. Innovations are similar to our main competitors' innovations	1	2	3	4	5	
9. The applications of innovations are totally different from applications of our main competitors	1	2	3	4	5	