

Innovation as a Competitive Attribute within Viticultural Cooperatives

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This current project analyses the strategy of innovation that has been utilized by the viticultural cooperatives of the denomination "La Mancha". We mailed a survey to the Cooperative's Administrating Directors of 50 local cooperatives. The data was statistically organized and analysed through the statistical program SPSS, V.19. In our analysis we categorize the strategy of innovation as a variable, multidimensional determinant for the entirety of the adopted decisions in relation to technology, product & process innovation, internal & external sources of innovation, and innovative force. The most relevant results in relation to innovation are that the majority of the viticultural co-ops present a positive attitude towards innovation and that they already positively link said innovative force with long-term improvement. The principal implications of our study are that the co-ops should continue to increase in size, improve the professionalism of their workforces and formulate strategies to expand into multi-country markets in order to achieve improvements to their bottom line results.

Keywords: Viticultural cooperatives, innovation strategies, innovation of product and process, technological posture, sources of innovation, innovative effort

Introduction

In recent years we have witnessed an intensification of interdependence between individual countries as a consequence of globalization (WTO, 2008). This process stems from, among other factors, technological advances, improvements made to communications and infrastructure, liberalization of international trade, appearance of new instruments of finance, etc. (Cañas et al., 2000). This is causing changes in models of enterprise management which should take into account the wider dissemination of information which entails a growing homogenization of consumer tastes throughout the world, an excess of supply over demand, a reduced lifecycle for some products in certain geographical areas, a search for competitive advantage on a global scale through a change of corporate vision, etc. (Levitt, 1983; Alonso, 1991, Bueno, 1992; Churruca et al. 1995; Laguna, 1997; Buckley & Ghauri, 2004). Definitely, all these aspects are causing changes both in the models and the forms of corporate management. These changes are not foreign to cooperatives and much less to the wine sector. If we analyze the cooperative model, we can, according to Bueno (1993), affirm that these businesses are suitable to provide answers

to major problems, and that they can also by their very nature be considered valuable instruments for implementation of policies of economic development and social welfare in local communities (Vara, 1994). This paper analyzes the strategic behavior in the context of wine cooperatives with the designation of origin "La Mancha" without getting into questions about the cooperative entity per se, such as that of the most or least productive efficiency (Salazar and Galve, 2007), competitiveness (Bruque, Hernández, Moyano & Vargas, 2002), adaptive capacity (Bernabeu, 2002), etc. In Castilla-La Mancha, although agrarian cooperatives encompass practically all areas of agricultural and livestock, it is within the wine sector where one finds the most entities of this type (219). This is followed by olive oil (123), arable crops (91), supplies (89) fruit (58), feed (49), dairy (34), sheep and goats (12) and nuts (7), as well as other sectors of minor implementation. Undoubtedly, agrarian activity in Castilla-La Mancha is a determining factor in contributing to the gross domestic product, with cooperative entities occupying an important place in its agro-alimentary industry, such as in the viticultural sector (as can be seen in Table 1, Castilla-La Mancha is one of the regions where cooperatives enjoy a major presence, especially in the production of wine). Quoting the Union of Agricultural Cooperatives of Castilla-La Mancha (UCAMAN, 2012), many wine cooperatives

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are leaders of the regional economy, and, as a whole constitute the largest foodstuff group of the region due to their social importance, the employment they generate and for the level of investment in their facilities.

Observation of the production data of wine companies of Castilla-La Mancha enables us to appreciate that most wine is produced within cooperatives. For example, during the last growing season they they were responsible for more than 70% of total production, with only 28.9% of production coming from corporations. Regarding products, we can speak of the superiority of firms of social economy in the production of table wines. So last season, the total table wine produced in Castilla-La Mancha production by cooperatives and S.A.T. represented 74.1%, while production from the rest of the companies reached 25.9%. Continuing along the same lines within the table wine group, local and home-grown wines produced by social economic groups accounted for 68.3% of the total, with 31.7% coming from the rest of the sector.

In contrast, the amount of "quality wines produced in a certain region" (vcprd), from cooperatives and farms (SAT) accounted for 43.4%, while the production from other wine companies accounted for 56% of vcprd. It is noteworthy that for cooperatives and SAT a 20% increase that has taken place between the 2003 and the 2005 seasons. This indicates that this group has increased its orientation towards producing wines of higher quality and, accordingly, wine of added value.

Strategic Management of Technological Innovation in Viticultural Cooperatives

Strategy is the instrument for achieving the ends or purposes of the people who make up a company: it forms the pattern for major objectives, purposes or goals, and essential policies and plans to achieve those goals (Andrews, 1984). Effectively, a purpose or determined outcome underlies every business, one which is shared and understood by all members and which is carried to fruition through the design of system objectives (Miles and Snow, 1978). The strategic purpose aims to set what the position of the company will be in the future, as well the criteria to be taken into account when determining the way forward.

Like all other organizations, cooperative societies have to formulate a purpose, one which will be the result of a process of negotiation and consensus among company members based upon each person's own philosophy. This philosophy, which must regulate the cooperative behavior to

define its purpose, is based in General Principles of Cooperatives (PGC). These are not simple rules or criteria to be applied by a cooperative; rather, they constitute the foundation upon which the cooperative philosophy is supported.

But the principles that really mark the difference between cooperatives and corporates are the principle of distribution of surplus (which constitutes one of the aspects of the principle of member economic participation, together with compensation being limited to capital), and democratic control. Although these principles may be a potential advantage to corporates that apply them as opposed to cooperatives, it does not guarantee an actual competitive advantage, because cooperatives also need to exploit the above mentioned potentials.

We need to keep in mind that these cooperative principles have shaped the strategic behavior of these businesses since their inception. Below we base this belief upon input from Sanchis (1995, 2000), as well as upon interviews held with managers and presidents of various wine cooperatives and professionals, and we refer to the competitive strategies of innovation have been conducted by this type of company.

In a broad sense, technology is any method to solve a problem previously identified, having applied the technology to the development of new products and improved production processes. The technological concept involves the methods which are linked to a process to make something, the materials which are transformed and the knowledge which is applied. In turn, the expression 'technological innovation' is understood to mean the entire process pertaining to achieve new products or processes, whether they're entirely new or they've been merely improved.

There is no doubt that cooperatives, in general, encounter considerable limitations in the development of major R&D projects; however, we should not for that reason consider cooperatives as being non-innovative, since the concept of innovation is broader than the simple effort in such activities. Table 2 displays a summary of the advantages and disadvantages of the cooperative society business structure in managing their strategy of technology innovation.

Overall, the disadvantages noted above make reference to technologies both tangible and intangible (Coque, 2002). As noted by the author, (Coque, 2002: 9), intangible technology gaps can create worries, and they become more acute in relation to problems within business management, sometimes to the point that management as well as the directing partners of the cooperatives go so far as to ignore the questions they should formulate to the providers of technology, which reduces the technological transfer process to nothing more than mere purchase and sales

agreements. Likewise, societal cooperatives, due to their reduced financial capacities and scarce resources to access sources of information, do not have those characteristics best suited to carrying out innovations. However, these weaknesses can be viewed as strengths if one considers the cooperative's capacity for survivability, taking as a base the

cooperative organizational culture which synthesizes the cooperative principles of the International Cooperative Alliance (1995). Thus, their moderate size, in combination with certain degrees of flexibility and participation, highlight characteristics that many corporates tend towards when pursuing the capacity for innovation of technology.

Table 1. Strengths and weaknesses of Cooperatives in order to access technology.

Weaknesses	Strengths
<ul style="list-style-type: none"> -Little differentiation among the factors of capital, labor and management. -Weak division of work: everybody tends to do everything. -Computerization of activities -Production techniques intensively done by hand, yet too simple. 	<p>Flexible to changes in the environment, given their moderate size and their participatory organization which is based on the labor force as well the sharing of capital ownership and eventual distribution of benefits.</p>
<ul style="list-style-type: none"> -Low levels of intangible technology (competencies, knowledge and abilities) -Little time and less inclination to look for technical training. -Training methods which are unsuitable or too generalized for partners or workers in many cooperatives. 	<p>Special importance given by the cooperative movement regarding education in particular and training in general.</p>
<ul style="list-style-type: none"> -Paucity of financial resources, neither to generate nor to acquire technology, both of which are capital-intensive. 	<p>Ease with which cooperative societies can organize themselves with each other through their own networks (inter-cooperation) and with other public or private entities, in order to access sources of funding.</p>
<ul style="list-style-type: none"> -Lack of information by management and directing partners to strategically decide while in the middle of continual technological changes. -Non-computerization of activities. -Slow decision-making. 	<p>Ease with which cooperative societies can organize themselves with each other through their own networks and with other public or private entities, providers and/or users of technology.</p>

Source: Adapted from Coque, (2002).

Research Approach

Cooperative organizations have reached a high degree of maturity as regards both accumulated experience as well as their having resolved important issues which corporate business enterprises were incapable of resolving. This has meant that each time a greater concern has arisen for the study of cooperatives and the Social Economy in general, these types of entities have become field investigations in noticeably different areas of study.

Castilla-La Mancha is one of the regions where cooperatives have the largest presence and which focuses mainly on winemaking. We are cognizant of the importance of the wine sector in Castilla-La Mancha, of its socio-economic implications and of the role that cooperatives play in this context, as well as the necessity for strategic analysis of the

cooperative enterprise facing this turbulent environment while being traditionally accustomed to managing in a form both intuitive and spontaneous, which forces it to systematize the strategic vision of its businesses. Thus, the fact that cooperative entities, unlike corporates, act according to the needs of the partners and have as their main purpose not the maximizing of profits, but rather attempt to offer the most and best service at the lowest cost, is what leads us to ask ourselves about the disparity that may exist regarding the strategies followed by these types of entities as opposed to the rest, and therefore our goal is to study the comparison between the two groups of companies considered, namely social economy enterprises and corporates, in relation to the strategies of business, the innovation of technology and the exports of both types.

The study area chosen to develop this current research is limited to a group of companies belonging to the wine sector as it corresponds to the subsector of quality wines, and within this subsector as it integrates with in a very precise designation of drigin, namely the DO-La Mancha.

Information gathering

In this treatise the collection of information was performed by sending a survey by mail addressed to the manager of the cooperative enterprise. In order to increase the number of responses, in some cases it was necessary to perform telephone interviews and face-to-face visits.

A total of 50 valid responses were obtained, which represents a response rate of 35% of the all the cooperative enterprises to which the questionnaire was sent. This figure can be considered a reasonable representation of the whole.

To determine the non-response bias; that is, to check that there is no different behavior pattern between companies that responded and those that didn't, we opted for the t-test in order to compare the size of the companies that responded more quickly than those whose responses were more delayed, since the behavior of the last to answer often equates to not answering at all (Armstrong & Overton, 1977). We found that there were no significant differences between these groups for the variable considered; therefore it follows that there is no significant bias resulting from non-response.

Measurement of variables

Technological innovation is a multidimensional concept (Zahra & Das, 1993) determined by a set of dimensions, so that the strategy of innovation is set to the sum of the decisions taken by the company with respect to these dimensions (Zahra & Covin, 1994). In our case, basing our work on Zahra and Das (1993), we considered the technological orientation, the innovation in product and process, internal and external sources of innovation and innovative effort. To measure each of the variables corresponding to the dimensions considered different scales were developed from adapting those used by (Zahra & Das 1993; Zahra, 1996a, 1996b), taking various items values between "1" for "very low importance" and "5" for "very high importance", permitting the central values to be chosen as intermediate positions between the extremes.

In addition, other variables were analyzed, such as (a) firm size, measured by the combined capacity of fermentation and aging, as well as by the number of employees, (b) the category "professional",

defined by the number of managerial, technical, administrative, and commercial operators; (c) qualification of the workforce, defined by the number of upper and intermediate degree graduates and those having completed professional and beginning studies, (d) qualification of managers, such as the number of managers with upper and intermediate degrees, and those having completed professional and beginning studies, (e) age of the firm, as described by the number of years since its founding, (f) the expansion rate, measured by the geographical area of the distribution of its products; (g) degree of vertical integration, as measured by the assessment, according to a five-level graduated scale, from "1" meaning no integration to "5" meaning total integration, indicating a level of achievement by the business itself of activities of cultivation of the vine, wine harvesting, wine aging and distribution, as well as the existence of formal strategic planning.

Analysis of Results

Once the information in the survey was coded, tabulated and verified, the results were analyzed.

We start with firm size. In Table 4 we organize the distribution of the companies according to their joint capacity for fermentation and aging. As follows from that information, cooperative enterprises are small (54% of those shown). Only 5 cooperatives have a fermentation capacity which exceeds 200,000 hl along with aging capacity of over 50,000 hl.

Table 2. Distribution according to fermentation and aging capacity*

Business Category	Frequency	
	Frequency	Percentage
Micro	4	8,00
Small	27	54,00
Medium	14	28,00
Large	5	10,00
Total	50	100,00

* The sizes are as follows: Fermentation = F, Aging = A, all quantities in hecaliters. Micro denotes a capacity less than 1000 F&A, Small denotes between 1000-25000 F & 1000-10000 A, Medium denotes between 25000-200000 F & 25000-50000 A, Large denotes greater than 200000F and 50000A

When the business dimension measurement was the number of employees (Table 3), one may say that as in the previous case, small-sized companies dominate the results (62% are companies with less than 9 employees). The truth is that companies with highly technological and seasonal activities do not require many employees.

Table 3. Distribution according to the number of workers.

Number of workers	Frequency	
	Frequency	Percentage
Up to 9	31	62,00
10-25	16	32,00
>25	3	6,00
Total	50	100,00

The following table shows the distribution of employees by category. Most remarkable is the high proportion of staff workers.

Table 4. Distribution according to total workforce.

Professional Category	Percentage
Managers	10,91
Technicians	12,07
Secretaries	16,40
Salespeople	6,50
Workmen	54,12

Regarding the qualification of the workforce, the majority of workers have elementary education (55.75%) and only 13,27% have a college degree.

Table 5. Distribution according to the qualification of the workforce.

Qualifications of the general workforce	Percentage
College Degree	13,27
High School Graduate	13,50
Professional Certificates Held	17,48
Completion of Junior High School	55,75

With respect to the qualification of managers, most have higher education (41.02%), which allows us to state that management has a high degree of professionalization.

Table 6. Distribution according to the qualification of the managers.

Managers' Qualifications	Percentage
College Degree	41,02
High School Graduate	24,49
Professional Certificates Held	19,21
Completion of Junior High School	15,28

For the year of creation clarify that the largest number of cooperative enterprise were created in the 1950's, 1985 and between 1986 and 2000.

Table 7. Distribution according to the year founded

Year Founded	Frequency	
	Frequency	Percentage
Before 1900	1	2,00
Between 1901 & 1950	12	24,00
Between 1951 & 1985	18	36,00
Between 1986 & 2000	17	34,00
Between 2001 & 2005	2	4,00
Total	50	100,00

The analysis of the distribution of sales geographical segments shows that most cooperative production were destined for the national domestic market and the autonomous community (33.87% and 28.80% respectively).

Table 8. Distribution according to sales segmented regionally

Geographical Market	Percentage
Local Market	12,66
County-wide Market	12,81
State-wide Market	28,80
National Market	33,87
E.U. Market	11,12
International Market	0,74

With respect to the degree of vertical integration we try to determine the level of implementation of the activities of the value chain of the wine sector. Table 9 collates the mean scores for each of these activities. As can be seen, the results suggest the existence of a high degree of vertical integration of activities of vine cultivation, harvest, aging and distribution.

Table 9. Distribution according to the degree of vertical integration

Operational Areas	Value
Wine Cultivation	4,06
Wine Harvesting	4,02**
Wine Pressing	4,50
Wine Fermentation	4,81
Wine Aging	3,46
Wine Bottling and Labeling	4,13
Wine Distribution	4,18**

** significant < 0,05

As for obtaining quality certification (ISO 9000, ISO 9001 and ISO 9002), as can be seen in Table 10, only 11.5 per cent of social economy enterprises are in compliance.

Table 10. Distribution according to compliance with rules of quality.

Have already obtained certificates of quality	Percentage
Yes	11,50
No	88,50

Another issue we considered was the performance or nonperformance in formal strategic planning firm. The results are listed in Table 11. According to them, we can determine that only 19.2% of the wine cooperatives have strategic plans.

Table 11. Establishment of strategic plans.

Does the company have a strategic business plan?	Percentage
Yes	19,20
No	80,80

With reference to the time horizon of strategic planning -Table 12 -, when companies have a strategic plan, 80% of the surveyed cooperatives state that it looks forward more than one year.

Table 12. Strategic plan horizon.

Planning Time-Horizon	Percentage
One Year or Less	20,00
Greater than One Year	80,00

When we focus on the strategy of technology innovation, the data is revealing. As we can see, the average scores for all variables we considered to determine the level of innovation that lead to cooperatives out in the wine sector.

As noted by Pavitt (1990), managing the innovation process in the business involves a number of important organizational issues: first, it requires cooperation among individuals in the company;

second, it involves developing a set of activities which are of uncertain results, and therefore which have a high degree of risk; third, it is a cumulative activity and subject to historical dependencies (Dosi, 1982). Due to all that, the establishment of innovative strategies is a complex task that should provide responses to such questions as how to innovate, with what, at what time, etc.. In short, it is a complex decision that should be the object of determined planning (Kanter, 1996). It is a process that needs to be guided in a certain direction for a timeframe of sufficient duration so as to bear fruit (Dosi, 1982). One aspect to consider is the attitude of the company towards innovation or technological posture. As we can see, the cooperatives certainly possess a positive attitude toward innovation, but one not particularly elevated due to several conditions such as adoption and implementation of an innovation strategy. On one hand, the realization of strategic planning in the company and on the other, the financial resources to carry it out may be hard to obtain because of the small size of cooperatives. We cannot even ask ourselves if they are opting to be pioneers or followers.

We can even try to link this position with other specific aspects relative to innovation such as how to get the technology (internal development or external acquisition) or the type of technology to obtain (process or product). Regarding the first aspect, it is said that technological posture is more related to innovation of product than to innovation of process, which also supports with the highest number of new products coming to market by the wine cooperatives. Regarding the second element we also observe a closer link between technological posture and external innovation. This result is logical because, it is small businesses that do not have internal capacity to develop an internal innovation process.

Table 13. Variables of innovation considered in study.

	Value	Level of Significance
Technological posture	3,28	0,558
Product innovation	3,68	1,393*
Process innovation	3,53	0,435
Internal sources of innovation	2,79	-0,630
External sources of innovation	3,71	1,722**
Innovative force	3,29	0,652
Average annual number of new products o mejorados	1,23	-2,035**
Average annual number of new processes mejorados	0,55	0,542

Conclusions

The work has been based upon the cooperative wineries with a denomination of origin D.O. "La Mancha". We have focused on aspects of the general character of the businesses, such as the business dimension, the firm size, the age of the cooperative, the level of qualifications, workforce competence, level of integration and strategic planning processes. The most relevant conclusions of the research which was carried out are the following:

- It deals with small-sized companies as if measured through fermentation capacity such as aging and number of employees.
- These are companies with a scarce level of professionalization of management, although better than if we analyze the skill levels of employees.
- These are cooperatives which mostly were created between 1951 and 1985.
- The majority of sales were destined for the national market and to a lesser extent to international markets. However, this must change because Spain's wine consumption continues to decline year after year.
- These are companies with a high level of vertical integration, including activities ranging from grape cultivation to distribution.
- They have a limited development of a culture of quality, which is one of the issues needing strengthening, especially because with a product like wine, quality is a strategic variable of the first magnitude.
- Most of these companies do not perform strategic planning. However, when they do, the time horizon is for more than a year.
- In relation to innovation, it can be said that the attitude towards innovation is positive in most wine cooperatives, and above all focuses on products (in fact, a higher-than-average number of new products and new processes). Above all they utilize external sources of innovation, mainly due to the fact that their small size precludes having their own area of innovation. On the other hand, the majority of cooperatives possess an innovative force, considering that this effort is positively linked to improved results in the long-term.

The principal implications of this paper are derived from, in the first place, the sector where the businesses operate, namely, in viticulture, which one can categorize as mature, with stalled or declining levels of sales in the national market. If the cooperatives wish to increase their sales levels, they should continue to design innovation strategies that permit improvements in competitiveness. For this, they should continue to increase the size of their businesses, increase the level of professionalism of their workforces, and secure additional sources of financing

in order to be able to accommodate greater innovation in products and production processes. When all is said and done, they should directly link innovation to improvement of their bottom line results.

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