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Factors of Competitiveness in the Wine Industry: an Analysis of Innovation Strategy

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***Abstract*—**The search for competitive advantages as one of the main activities of a company has become a principle of contemporary theories on Strategic Management. Innovation facilitates a company's adaptation to the global competitive environment, representing the important strategic role that it has to play in relation to managerial performance and, as such, underlines the growing importance of innovation and the use of a company's technological assets. This paper therefore studies the effect in the results of four dimensions of technological innovation strategy on a sample of Spanish wineries, situated in the Castilla La-Mancha region of Spain, all of which are registered under the La Mancha Designation of Origin (DO).

***Keywords*—**Company´s strategy, factors of competitiveness, innovation strategy, wine industry

I. Introduction

THE competitiveness of companies is influenced by a series of common conditions applicable to all, and under these conditions, each organization achieves very different levels of competitiveness as a consequence of the way in which it is associated with a group of factors, part of which has a direct or indirect relationship with innovation and technology: novelty and quality of the products, process technologies employed, organization of production, delivery terms, and so on. It would seem clear from this that innovative capacity is possibly one of the most important factors of competitiveness for a company, helping it to maintain its levels of results [1], as a low adoption level in terms of innovation could be the cause of economic and organizational decline [2]. Above all, bearing in mind the case of companies that compete in mature industries which, albeit they have been characterized as industries where the pace of technological change is slow [3], the quest for differentiation among these necessitates that they develop strategies of innovation.

In fact, the strong competitive pressures in some markets force companies that want to survive and maintain sustained growth to introduce new products and processes in a periodical way [4], being all too high the pressure to which they are subjected to from the increasingly short life cycles of products and processes. In addition, the competitiveness of a nation depends on the capacity of its industry to innovate and improve, as companies are able to achieve competitive advantages through innovation [5]. The environment, characterized by its high turbulent nature, dynamism and complexity, demands that companies provide a strategic answer to innovation in order to maintain and increase their competitiveness, allowing them to respond quickly to society and market demands, whilst combining effectiveness and the principles of efficiency.

The concept of innovation has always been a subject of constant interest in the most discerning industrial sectors in terms of the maturity and the loss of competitiveness that is associated with it. In relation to this aspect of innovation, the main objective pursued within this work is to confirm the importance of strategies of technological innovation in the competitive development of an industrial sector that is mature, as is the case with the wine industry, a sector which is also subjected to strong competitive pressures.

From a strategic approach, we attempt to analyze the implications of a series of variables on business performance. Many works portray the relevance of technology as a basic core of the capacities of the company [6], through the introduction of innovation factors in the definition of the managerial strategy, or basing research in technological sectors. Despite the wine industry being one in which products and basic productive processes are generally standardised, our interest in studying the strategy of technological innovation lies in the fact that technology is a highly important factor. In addition to this, activities based on technological innovation fundamentally contribute to improving the quality of wines by enabling wineries to create distinct and unique wines, ultimately catering for the new demands of the market.

II. The Implications Involved In The Adoption Of Innovation Activies On Company Performance

Achieving an acceptable level of organizational performance or effectiveness constitutes the key objective of all organizations, so the implications involved in the adoption of innovation strategies on results represent an aspect that interests academics, as well as those responsible for managerial administration. The importance of innovation has gradually increased over the last twenty years, and has come to be considered as a form of enabling the attainment of sustainable competitive advantages [7]-[8]-[9]. A notable aspect therefore in the study of innovation is its impact on organizational performance.

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The quick emergence of new technologies plays an important role in the changes of markets and industries [10], as technological change is currently considered to be one of the main factors that have an impact on competitiveness [11]-[12]. In this sense, empirical studies have shown the importance of the innovative behaviour of companies, recognizing the impact of innovation on certain aspects, such as international competitiveness, the employment level, capabilities required and the rate of benefit of companies [13]-[14]-[15], among others.

Many studies in the sphere of the technological strategy and business performance relationship have a conceptual or theoretical character. While Miller [16] has pointed out the existence of several lines of research which have made a connection between aspects of technological strategy and business strategy or results, efforts to integrate works of such a kind have been few. As a result of this disparity, a level of uncertainty remains as to how these factors are related to one another in global terms.

Conceptually, Porter [17] pointed out that technology has the power to significantly influence results and to alter the industry's structure. Metcalfe and Gibbons [18] examined the links between technology and industry results in the long-term, and found that the long-term competitive advantage is based on the capacity of the company to maintain an ongoing impulse of technological improvements through the development of a sequence of innovations and further improvements later on [19].

A great deal of the previous research into technological strategy has mainly been focused on R&D, and not in an extended view of technological innovation. For example, Pavitt [20] established the idea that if companies fail to invest in basic research, the future cost of obtaining results could be greater. Malekzadeh, Bickford and Spital [21] showed that consistent investment in R&D creates positive results, and Dowling and McGee [22] found an important direct relationship between investment in R&D and sales increasing. An analysis of 320 published studies, which address the relationship between strategy and other organizational factors and their impact on organizational performance, also concurred that R&D investment leads to financial success [23]. In general, other studies supported the proposition that investment in technological resources is positively related with technical performance and therefore increases long-term profitability [24]-[25]. Although R&D constitutes an important dimension of technological strategy, a focused research on a wider multidimensional concept of innovation strategy and its relationship with performance is necessary in order to overcome the simplicity of one-dimensional studies [26]-[27]-[28].

As Zahra and Das [29] pointed out in relation to the research that had been carried out up until then, although certain works have tried to examine the connection between specific aspects of innovation strategy and company performance, no one has published a study that considers the collective effect of the dimensions of innovation strategy resulting from the synergy among innovation activities. In order to make up all of the dimensions of the concept that we propose to study, taking as a starting point some works and others carried out later [29]-[30]-[31]-[32], innovation strategy must be considered as a multidimensional concept.

A review of studies on technological innovation strategy in a multidimensional way has enabled us to differentiate two main perspectives. Alongside works that have studied the strategy of innovation and its impact on organizational performance without considering other influential factors (e.g., [29]-[33]-[34]), that is to say, from a universalistic approach, there is another group of studies that encompass others variables in the analysis of the innovation strategy-business performance relationship, in order to improve the explanation of results, -a contingency approach-, where one or more variables moderate the relationship between this strategy and business performance.

Taking these previous considerations into account and in accordance with a model that assumes the direct and simultaneous influence of the different dimensions of the innovation strategy in the organizational performance [35]-[36]-[29], we propose the following research hypothesis:

> *The development of a coherent technological innovation strategy, formally-defined through a whole conception of technological posture, innovation type, innovation sources and innovative effort dimensions, will be positive and significantly associated with business performance.*

In addition, one of the more interesting subjects for academics, as well as for managerial environment professionals, is knowledge regarding the factors and variables that make up company competitiveness. Therefore, as technological innovation strategy has been established as a multidimensional concept by current literature, the aim of our contribution is to establish the influence of the main competitive dimensions of this strategy on business performance. Hence, we shall analyze which innovation strategy dimensions contribute, in a more decisive way, to the business performance of a group of companies in the wine industry.

III. Dimensions Of Innovation Strategy

The strategy of technological innovation is a multidimensional concept [17]-[29]-[37]-[38], so that its configuration is associated with a group of dimensions, making this one of the aspects that has stirred up considerable controversy in literature on the matter [26]. Technological strategy is the sum of the decisions of the company with regard to different dimensions [30], and although there is no general agreement on this, literature on the matter has conferred a special pre-eminence on some of them. Maidique and Patch established one of the most complete definitions of these dimensions [39], pointing out six factors: technology type, wanted competition level, internal technology sources vs. external, investments in R&D, time of introduction of the technology and organization of R&D.

A. Innovation Leadership Orientation

Leadership orientation is regarded as one of the dimensions of technological strategy more broadly studied within related literature [11]-[26]-[31]-[32]-[33]-[40]-[41]-[42]-[43]-[44]. This dimension makes reference to the posture which is adopted by the company in connection with its innovation activities, considering products or process technologies, in order to strengthen or defend its position in the relevant markets [45]-[46], and this indicates whether a firm adopts a first-to-the market or an imitator posture [11]. These terms represent the two ends of the technological posture of a company, but there are some intermediate positions between them that reflect different imitator postures [16]-[39]-[47]. Although the notion of technological leadership orientation is relatively clear when we consider a company as being the first one to introduce a number of technological changes, it is different when a firm follows a technological imitator posture. The last one would be a conscious and active strategy according to which a company decides not to be first-to-the-market in its innovation activities, although, sometimes we consider all the companies that do not have leadership orientation as technological imitators, including those firms that do not bear technological change in mind [11].

Many authors [17]-[26]-[27]-[28]-[31]-[43]-[44]-[48] point out that a pioneering posture is one of the key dimensions in technological strategy. This advantage enables the redefinition of the rules of competition in the sector, and establishes product and market parameters that force competitors to follow the pioneers. In other words, a pioneering company tries to increase its differentiation politics, introducing certain innovations to be positioned in the market, while the follower, on the other hand, wants to incorporate new technologies that have already been tried and tested by other enterprises in order to place themselves on a similar footing to their competitors, thereby rationalising its production system or even overtaking competitors, [48]. However, in order to be among the leading companies that invent and market new technologies requires these companies to make a considerable financial investment, an acceptance of the risks involved and a dedication to the establishment of new markets and distribution channels, as well as different management and organizational abilities. In contrast to this, the companies that focus on being followers or late-entrants in a certain technology should have the capabilities to copy the technology of the pioneer and possibly add value to it through new applications [30]. A company that adopts an orientation as a technological follower usually monitors innovations introduced by its leading rivals and quickly copies these innovations, meaning that this orientation stresses the speed in imitating its rivals' brands and models [39]. In this case, companies do not undertake leading-edge research, but focus on improving their competitors products instead [29], using the incremental innovation to add value for customers [49].

Porter [11] explained that the decision to be a leader or a follower is based on three factors that interact to determine the best choice for the company: the level to which a company can support its advantage over its competitors, the advantages to be gained from being the first-to-the market in adopting new technological innovation and the disadvantages attached to being the market leader rather than waiting on others to go first. As Teece [50] points out, although there are advantages to adopting a first-to-the-market approach, and even more so when secure systems of property rights are in place, sometimes it is more advantageous to adopt a follower orientation, when the product configurations are not totally stable, allowing followers to learn from the leaders' errors. For Grant [4], the costs and the relative advantages of being first-to-the-market depend on the characteristics of the technology, the industry structure and the resources of the company. In accordance with his aim to determine the profit-sharing of pioneers and followers, he reached the conclusion that the profit-sharing depends on the effectiveness of the legal systems of protection (patents) and on the technology or innovation characteristics (tacit or explicit knowledge).

B. Types of Innovation

The importance of this dimension is due to the far-reaching implications that innovation types can achieve in terms of organizational effectiveness [30]. This dimension places the firm's emphasis on product or process technologies [31]. Product innovation relates to the company's efforts to introduce new products or services or to modify existing ones, while process innovation refers to those activities that alter manufacturing processes. They usually involve the incorporation of new machinery and production teams, and in many cases the introduction of new organization and planning production systems are also a source of process innovation [51].

Some companies are based on the introduction of new products as the main core for the creation of their competitive advantage, while others use process technologies as a method of standing out of the rest. However, while those in management openly admit the importance of the development of new products [49], some of them fail to recognise the value of process innovations with the same ease, albeit, in recent years, the importance of process innovation as a source of competitive advantage has increased [31]. In fact, for Zahra and Das [29] success in a global environment is based on abilities within process innovation, meaning that this type of innovation can ultimately be more important than product innovation. In this sense, as Skinner points out [52], innovation in operations equipment and process technologies can be strategically used as an important competitive weapon. Process innovations lead to new operative methods through new manufacturing technologies or the improvement of those already in place. In addition, they can help companies to achieve economies of scale or scope that can be used to reduce costs and prices [29]. In this respect, Porter [11] suggests that companies frequently make the incorrect assumption that technological change in relation to process is exclusively oriented towards cost and that technological change of the product only serves to increase the differentiation. This goes to show that product technology can be critical in achieving lower costs, while altering process technology can be key in terms of differentiation.

Developing a formal innovation strategy allows companies to consider product and process innovations simultaneously.

Zahra and Das [29] highlighted the importance of the integration of both innovation types due to the connection that exists between them, as frequently, a new product cannot be manufactured without undertaking new developments in the corresponding processes as well.

C. Sources of Innovation Strategy

This dimension refers to the locus of development of innovation activities in a company. Associated literature [29]-[30]-[33]-[42]-[53]-[54] classifies the sources of technological innovation under internal and external. The internal sources of innovation represent a dimension that develops knowledge, resources and capacities by means of a continuous effort to improve the abilities possessed [23]-[26]-[28]-[31]-[53]. In this case, a company relies on its own internal R&D efforts to generate product and process innovations. External sources, however, encompass free technology, acquisition of high technological equipment or products**,** licensing agreements, patents, and the acquisition of other firms or joint ventures with customers, suppliers or other enterprises [26]-[28]-[30]-[39], all of which can complement and improve the firm's internal technological capacities, develop products and provide opportunities for learning [55]. Nevertheless, while these appear to be incompatible suggestions, in reality, they should be considered as complementary, insomuch as the capacity of the company to integrate both procedures constitutes the basis of a competitive advantage [29]. On the one hand, the high complexity and speed of technological change make it very difficult for the company to generate and develop all of the knowledge the firm needs. While on the other hand, the combination of both types of technological sources can create synergies that can enhance the use of both [56].

The internal sources guarantee the ownership and control of key knowledge, allowing the company to exploit the benefits of their innovations [28], as well as the development of lines of research for future success. By contrast, the interest of the company in external sources is based on obtaining technology that enables it to improve its production processes or to develop new products quickly, thus obtaining greater benefits [55]. This leads to a particular technological advantage through the development of key attributes of the product by other companies, allowing a great number of products to hit to the market [33]. However, in many cases, external acquisition not only involves written information, but also incorporated capacities in terms of individuals and knowledge, as well as the adaptation of the technology to the conditions and local markets [57], which in turn means that firms must have the sufficient capabilities to apply and make use of this knowledge in the production and commercialisation of products [58]. To sum up, the choice of internal or external sources constitutes a strategic decision of the utmost importance, with the company placing the appropriate emphasise on internal and external sources to fit in with a number of variables, such as the availability of skills, the nature of their own technology, and the position of their competitors [59].

D. The Level of Investment in Innovation

This dimension encompasses the financial investments (spending on R+D projects and purchasing of external innovations sources), technological investments (expenditure on equipment and basic facilities required for innovation) and human capital investments (salaries, training and other costs associated with developing R&D staff), connected with the development of innovation activities [29]. This expenditure on internal and external acquisition of technologies is crucial for achieving technological results, such as patents and new products and new process technologies that contribute to the results and global success of the company [31], through strengthening its competitive position, meeting the needs of the clients and removing barriers in the way of entering into the competitive environment. A company which is recognized for its technological capabilities will enjoy a good reputation thus preventing other companies from gaining access to its markets. In addition, the efficiency of technological investments depends on the firm's ability to transform them into a source of competitive advantage, as otherwise this would mean a downturn in benefit.

IV. Empirical Study

A. Industrial Context and Sample Object of the Study

The food and agricultural industry, within which the companies of our study are based, constitute a mature sector, wherein the level of interfirm rivalry is relatively high [59]. The nature of the function that the product satisfies dictates that it is a market wherein the offer is conformed by a high number of references, where the grade of existent similarity among the products is very high, and is one which is in a constant stage of maturity. Nevertheless, the high number of stable consumers in the market makes it interesting, attracting a great number of companies and raising the grade of competitiveness, thus making it difficult to attain an increase in the market share.

The wine-growing industry constitutes a sector with a strong tradition within agricultural production and in the transformation of activities of the agribusiness, derived from the viticulture, it has constituted an agricultural alternative adapted to the predominant ecological conditions in the majority of Spain. We must also consider the fact that, traditionally, wine has always been one of Spain's most popular beverages, a factor which has arguably favoured the continued development of viticulture throughout the majority of the country.

The region of Castilla La-Mancha possesses the largest expanse of vineyards in Spain and in the world. The extensive territory of this region has well-defined characteristics, something that has been brought about by the similarity of a group of factors (climate, space, cultivated varieties and production systems) all of which give the wines made in this region characteristics which are both common and at the same time distinctive, being as they are tinged by the particularities of each of the individual integrated areas. For certain geographical areas, viticulture constitutes one of the possible

alternatives in relation to the rural development that the EU is trying to promote, as it is one of the industries that retains, to a greater extent, the expectations and inherent potentialities of quality products. Quality is thus considered to form an essential part of the future of the rural sphere and the food and agricultural industry, especially considering the growing trend of the economic value of the commercialization of agricultural products helped by quality assurance systems. With this in mind, we have focused on a sample of Spanish wineries, situated in the Castilla La-Mancha region of Spain, all of which are registered under the La Mancha Designation of Origin (DO).

The group of interest for the study comprised all of the wineries included in the Council Regulator of the DO La Mancha area, which is made up of a total of 285 organizations, classified under four different categories, recognized in its regulations, according to the kind of activity carried out.

B. Data Collection

The empirical research was undertaken via a postal survey sent to the firms and addressed to company managers of the sample. We considered this technique to be the most appropriate, although it does have certain inconveniences, such as the low response rate, a small number of questions, wrong and/or incomplete questionnaires or responses not received back in the stipulated timeframe make this a slow process, however, its utility is based on the ease of access to the sample, in addition to flexibility in respect of replies, since the questionnaire can be responded to in the most suitable timeframe as dictated by the interviewee. With the end aim of increasing the number of replies, in some cases it was necessary to phone the companies, as well as visiting them in others.

In total, 102 valid questionnaires were received back, which represents a response rate of 35% in relation to the total number of companies that were sent a questionnaire. In order to determine the non-answer bias, that is to check that there is not a different behaviour pattern between companies that answered the questionnaire and those that did not, we used the *T-test* to establish a comparison in relation to size between the companies that responded more quickly than those that took longer, as it is possible to place the behaviour of the latter on a level with those that did not answer [61]. We found no significant differences between the two, and therefore deduced that no significant bias exists.

C. Measures

Technological Innovation Strategy. An innovation strategy is a multidimensional concept [29] that embodies different dimensions, so that the innovation strategy is configured as the sum of the decisions adopted by the company with regard to those dimensions [30]. After reviewing literature on the matter, the lack of consensus in relation to the content of technological innovation strategy has prompted us to develop a scale, based on the dimensions proposed by Zahra and Das [29], which is also justified by the fact that these have been included with a more reiterated character in the different works reviewed.

Therefore, in accordance with the approaches discussed in section 3 of this paper, relative to the dimensions of technological innovation strategies, we have analysed five dimensions, the content of which is shown in Table 1. In order to value each of the variables corresponding to the different considered dimensions, the items included in the different dimensions were developed by borrowing them from previous research [29]-[31]-[33]. The items were estimated using a five-point scale, from "1", "very low importance" to "5", "very high importance", enabling the central values the choice of intermediate positions between the two extremes.

TABLE I
TECHNOLOGICAL INNOVATION STRATEGY VARIABLES

LEADERSHIP ORIENTATION	
TECHNPOST1	1. Be first to introduce new (or improved) products /processes into the market
TECHNPOST2	2. Building abilities to introduce new products and process ahead of the competition
TECHNPOST3	3. Commitment to conducting cutting-edge research and development in the industry
TECHNPOST4	4. Achieve a reputation for being the industry's leader in pioneering product or process changes
PROCESS INNOVATION	
PRODINNOV1	1. Develop new products
PRODINNOV2	2. Modify/improve existing products
PRODINNOV3	3. Introduce more new or improved products than its major competitors
PROCINNOV1	1. Develop or introduce new production methods and procedures
PROCINNOV2	2. Develop improvements for existing production methods and procedures
PROCINNOV3	3. Introduce more new or improved production methods than its major competitors
INTERNAL INNOVATION SOURCES	
INTSOURC1	1. Internal development in new products and technologies
INTSOURC2	2. Agreement to depend on R&D internal activities to develop new products and technologies
INTSOURC3	3. Maintenance of an R&D unit for product and processes technology development
EXTERNAL INNOVATION SOURCE	
EXTSOURC1	1. Acquisition of product, equipment, machinery and technologies developed outside your company
EXTSOURC2	2. Acquisition of products/technologies through cooperation agreement , acquisition of patents, licenses, etc.
EXTSOURC3	3. Imitation/copy of products or technologies from its competitors
INNOVATIVE EFFORT (INVESTMENT)	
INVESTM1	1. Level of expenditure assigned to research and the development of processes and products.
INVESTM2	2. Level of expenditure on personnel training in connection with new products and technologies.
INVESTM3	3. Level of expenditure in relation to the acquisition of machinery and equipment, as well as other external sources of knowledge.
INVESTM4	4. Level of expenditure aimed at the research and development of processes and products compared with your major competitors.

We measured *leadership orientation* using a four-item index. A high score of the value of the index shows a pioneering attitude in product and process innovations. While

a low score is indicative of a strong disposition to adopt the follower's or imitator approach.

The variable *product innovation* was measured using a three-item index, derived from one previously developed by Zahra and Das [29]. These authors recommend that measures of this dimension should consider the intensity of product innovation, as well as the company's emphasis on modifying existing products, both in absolute terms and in comparison with the competition.

As regards *process innovation*, three items were used. Research suggests including the firm's investments in acquisition and its adoption of new production methods and technologies [29].

For the variable *internal innovation sources*, an index of three items was developed, which enabled us to evaluate the importance the company attached to R&D activities, directly concerned with the development and introduction of new products and proprietary technologies. Another three items were also used to measure the *external innovation sources*. These items included the acquisition of products, teams, machineries and technologies developed outside of the company or carried out through cooperation agreements, as well as the imitation of product or process technologies of the competition.

Finally, we consider the *innovative effort* based on four items that reflect the company's commitment resources in respect of R&D activities, staff training in relation to new processes and technologies and the acquisition of machinery, equipment and knowledge, both in absolute terms, and compared to its competitors, thus helping to overcome a shortcoming of previous research: the use of absolute measures of R&D.

Business Performance. A revision of literature within this field has revealed that the applied measures have been based on primary sources of information - obtained from subjective valuations [31]-[33]- [62] or from objective data [27]-[29]-[59], as well as secondary sources [44], used in some cases for the validation of the initial sources [28]-[29]-[33]-[34]-[38]. In addition, while there are some works based on financial index, others works have included operative indicators as measures of performance [28]-[32]-[33]-[34]-[63]-[64]-[65].

Among the different variables that can be used for operationalizing the companies' performances, in our case, and in line with Zahra and Das [29], we used the following financial indicators: return on sales (ROS), return on assets (ROA) and growth in sales. ROS is one of the most frequently used measures [27]-[32]-[59]-[66] and allows the following to be shown: the company's ability to improve its margin as a result of differentiated products, the development of new production processes or the introduction of innovations. ROA reflects the firm's capacity to use innovations to obtain greater profitability from its assets [29]. Finally, the growth in sales shows the acceptance in the market of the company's products, reflecting positively on how a company is positioned within its sphere through innovation, that is, the effectiveness of the management decisions related to technological innovation strategy [28]-[29]-[44]-[59]. Although this measure can be affected by certain factors, such as inflation, it is a broadly used measure, and is also less susceptible to the distortions caused by internal decisions than other indicators. An operative indicator was also considered and was gauged as the degree of fulfilment of managerial objectives [32]-[63].

Furthermore, in agreement with authors like [28]-[29]-[31] Zahra and Bogner (1999), the performance measures are defined as the average of the most recent three-year period, with the aim of capturing, as far as possible, the subsequent effect of the innovative activities on business performance [67]. For example, process innovations can improve profitability quickly, because they help the management to energize operations and to increase the company's efficiency, productivity and economies. In contrast, product innovations can reduce the short term profitability due to the big investments that are necessary to develop and position the products [31]. For this reason, the data were averaged for a three-year period to reduce the possibility of obtaining inexact results due to short term fluctuations.

V. Results

Before making the contrast of the hypothesis outlined, which was carried out through a multiple lineal regression analysis, we made a descriptive approach of the variables that are integrated in the technological innovation strategy construct. In table 2, we show the description of the different variables that configure the six dimensions analyzed.

TABLE 2. TECHNOLOGICAL INNOVATION STRATEGY VARIABLES: DESCRIPTIVE ANALYSIS

VARIABLES	MODE	*MEAN*	SD
TECHNPOST1	4	3.56	1.07
TECHNPOST2	3	3.21	1.09
TECHNPOST3	4	3.43	1.11
TECHNPOST4	3	2.78	1.12
PRODINNOV1	5	4.37	0.77
PRODINNOV2	4	3.95	0.87
PRODINNOV3	4	3.62	1.03
PROCINNOV1	4	3.84	1.01
PROCINNOV2	4	3.98	0.92
PROCINNOV3	5	4.23	0.84
INTSOURC1	4	3.15	1.03
INTSOURC2	3	2.66	1.07
INTSOURC3	3	2.90	1.16
EXTSOURC1	4	4.05	0.85
EXTSOURC2	3	3.79	0.98
EXTSOURC3	4	3.72	1.07
INVESTM1	4	3.15	1.16
INVESTM2	3	2.60	1.14
INVESTM3	5	4.30	0.81
INVESTM4	4	4.03	0.86

In general, it is possible to point out that the score of most of the items that define the innovation strategy is high. With a few exceptions, the averages are located above the central value of the scale, and the data dispersion is not very high.

The technological posture has a proactive character, shown through the higher than the average scores achieved by the items which characterize firms as the *first in introducing new or improved products/processes in the market*, for its *commitment to be in the vanguard of the sector*, as well as in the *development of abilities to introduce new products ahead of the competition*. We are talking about innovative

organizations, as much of product as process innovative organizations, which show the biggest average scores in the items *development of new products and introduction of more new or improved methods of production than its major competitors*. Based on specific decisions, development and incorporation of the technological innovation decisions, the politics in innovation of the sample studied show a marked orientation towards external acquisition. The variables with higher averages are those corresponding to these options. Finally, in respect of the expense level, the items which are highlighted correspond to the *acquisition of machinery, equipment and external knowledge*, as well as the *expenditure level dedicated to the innovative activity compared with its major competitors*.

The contrast of the research hypothesis was carried out through a multiple linear regression analysis, where the dependent variable corresponds to the organizational result and the independent variables to the different dimensions of the technological innovation strategy.

With the aim of summarizing the information contained in the variables, we have carried out a principal components factor analysis, allowing us to reduce the number of variables used and minimise the resultant loss of information. In the first place, we computed the correlations between the different variables and it was observed that most of them were significant and higher than 0.3. The next step consisted in evaluing the significance of the correlation matrix, using the contrasts for the individual variables and for all of these. The measure of sampling adequacy for the individual variables indicated an unacceptable value for one of the items (*reputation for being the industry's leader in pioneering product and process changes*). For this reason, this item has been dropped, with the purpose of obtaining a group of variables, the lower levels of which were acceptable for the measure of sampling adequacy. A post-analysis revealed some acceptable values for the individual variables, as well as an appropriate index for the matrix.

The procedure used to carry out the factor analysis was the principal components method, applying a varimax rotation. The results of the analysis appear in the rotated component matrix (table 3), in which, following the Kaiser approach, factors with eigenvalues above 1.0 have been conserved [68]. The results of the Kaiser-Meyer-Olkin test (KMO), as well as the Barlett test of sphericity, together with the great percentage of explained variance, show the suitability of this analysis.

Next, before carrying out the regression analysis, it is necessary to analyze the properties of the measures to be used, in terms of their reliability and validity. This way, it is possible to reduce any potential error in the measure which may lead to erroneous conclusions. To explore the convergent validity, a correlation analysis was applied among proposed scales and theoretical-related measures. We used data included in the questionnaire, as well as other data taken from secondary sources.

TABLE III
TECHNOLOGICAL INNOVATION STRATEGY. FACTOR ANALYSIS

VARIABLES	***FACTORS***						***KMO***
	F1	F2	F3	F4	F5	F6	
TECNPOST1	.783						.716
TECNPOST2	.741						.701
TECNPOST 3	.588						.617
PRODINNV1		.697					.679
PRODINNV2		.622					.635
PRODINNV3		.575					.534
PROCINNV1			.713				.557
PROCINNV2			.656				.536
PROCINNV 3			.638				.457
INTSOURC1				.715			.610
INTSOURC2				.638			.597
INTSOURC3				.579			.547
EXTSOUR1					.762		.589
EXTSOUR2					.697		.564
EXTSOUR3					.517		.587
INVESTM1						.714	.552
INVESTM3						.578	.582
INVESTM4						.419	.461
Eigenvalues	3.53	2.49	2.17	1.72	1.43	1.16	
% Explain. variance	18.191	13.741	10.977	9.348	8.235	8.159	
Total explained variance: 73.649% Kaiser-Meyer-Olkin test: 0.670 Bartlett's test of sphericity χ^2: 143.117; significant: 0.000							

With regard to product innovation, the correlation of this variable with the number of innovations in products obtained by the company over the past three years –which was included in the questionnaire as an open question- was calculated, and it was significant (r = -0.387; p <0.01). In the same way, the correlation between process innovation and the number of new processes that the company has incorporated over the past three years was significant (r = -0.342; p <0.01).

In relation to the internal development of technological innovation, the existence of a positive and significant correlation with the number of people in the company dedicated to innovation activities was proven (r =0.246; p <0.01). For the construct external acquisition of technology, the correlation of this variable with the importance given by management to the acquisition of technology developed by others firms was significant (r =0.314; p <0.01).

The variable of innovative effort was positively correlated to the average expenditure in innovation activities in relation to sales over the past three years (r =0.334, p <0.01). Finally, the technological posture was contrasted through the agreement index among referees, taking as starting point 10 questionnaires filled out by two members of the same company[1]. The correlation was close to 70%.

The discriminating validity was proven through the factor analysis, which allows grouping the different items into six factors, showing the unidimensionality of the different constructs and confirming the capacity of each of them to measure the considered concept in an unequivocal way.

The Cronbach alpha coefficients, which prove the reliability of the scales[2], are shown in table 4. These instruments present values above 0.7, with the exception of one of them that takes a value close to the reference, and as such, these can be considered to be inside the acceptability limits.

As a final assessment, the results achieved through the study of reliability and validity allow us to consider the factors obtained in the factor analysis as being sufficiently

representative of the reality contained in the group of original variables. For this reason, once the different measures were validated and after checking the execution of the different metric suppositions, we directed all our efforts into the contrast of the innovation hypothesis that was made through a multiple regression analysis.

TABLE IV
RELIABILITY ANALYSIS OF THE SCALES

VARIABLES	ÍTEMS	ALPHA
Leadership orientation	4	0.7836
Product innovation	3	0.9124
Process innovation	3	0.7425
Internal sources	3	0.6842
External sources	3	0.7390
Innovative effort (investment level)	3	0.8714

We analyze the impact of the innovation strategy on organizational performance, taking a universalistic approach, and also try to examine the unique contribution of the different dimensions of innovation strategy towards company performance, identifying the dependence structure that can best explain its behaviour. The statistical technique used has been the multiple linear regression which, bearing in mind business performance as a dependent variable and a group of independent variables corresponding to the different dimensions of the innovation strategy, enable us to achieve a linear function of such variables, and to explain or to predict the value of the dependent variable. We have also used control variables corresponding to the size and age of the company.

TABLE V
MULTIPLE LINEAR REGRESSION ANALYSIS

INDEPENDENT VARIABLES	***MODEL 1***		***MODEL 2***	
	SD	*t* value	*SD*	*t* value
Constant	4.603	12.643***	4.238	11.256***
Size	0.181	1.998**	0.129	1.341*
Age	-0.076	-0.846	-0.113	-0.845
Technological posture			0.139	2.134**
Process innovation			0.358	2.173**
Product innovation			0.125	1.442*
Internal sources			0.133	2.127**
External sources			0.175	1.031
Innovative effort			0.217	2.158**
F	2.882*		2.499**	
R^2	0.068		0.215	
Ajusted R^2	0.044		0.129	
Increase R^2	0.068		0.147	
Increase F	2.882*		2.278**	

* Significant p<0.10; ** Significant p<0.05; *** Significant p<0.01

The introduction of the variables has been undertaken in two stages, which implies the specification of a departure model with the control variables, and an additional model, in which the variables of innovation strategy were introduced. In the first stage, the control variables were inserted and a significant global model was obtained, explaining 4.4 % of the variability of the business performance, with the coefficient for the company size variable also being significant.

The second stage consisted in introducing the technological innovation strategy variables into the model. As can be appreciated, the model is adjusted to the data, insofar as the significance level associated with the statistic value used for this contrast (F=2.499, p <0.05) allows the null hypothesis that the multiple correlation coefficient is zero to be rejected. The second model explains 12.9% of the variance, which is reflected in the value of the adjusted R^2. This supported the research hypothesis that is to say that the innovation strategy has a positive influence on business performance.

Regarding the standardised coefficients associated with the independent variables that represent the innovation strategy, we can observe that not all of them contribute in the same way to the explanation of the dependent variable, in accordance with its significant levels. This way, all of the variables were significantly associated with the business performance, with the exception of the *external sources of innovation* variable. In respect of the variables that have a significant, positive influence in the company performance, the strongest relationship occurred in relation to the *process innovation* variable, followed by the variables of *innovative effort*, *technological posture*, *internal sources of innovation* and *product innovation*.

VI. Discussion And Conclusions

As was to be expected and in accordance with previous research [27]-[28]-[29]-[30]-[31]-[32]-[33]-[64]-[65]-[69], it is evident that the innovation strategy has a positive and significant effect on company performance, providing empirical support for the hypothesis outlined, and also giving support to the call for companies to develop an innovation strategy that is adequately designed. In other words, the development of a formal technological innovation strategy is of great importance to the company obtaining competitive advantages.

In addition, the results support the importance of five of the dimensions of innovation strategy that were considered. With the exception of the external sources of innovation, components of innovation strategy are positively related to business performance and explain a significant part of its behaviour.

Although the external acquisition of technology constitutes an important source of innovation in the company, if it is able to integrate this into its own knowledge base and combine it appropriately (the incorporation of the innovations acquired outside of the firm into the company involves more than the simple acquisition of machineries and technologies or designs of products and the assimilation of the related knowledge, but also represent a continuous change that is both gradual and technical, allowing the original innovations to adjust to conditions of own use and as such, are optimized to achieve standards of higher yields than those initially achieved), a non-significant relationship with the business performance becomes evident, in keeping with some research [29]-[32]-

[64]-[65]-[70]. Different factors may have contributed to this lack of significance [2]: failure in the integration of the external innovations within the company (in relation to the capacities implied in the production, Zahra and Nielsen [71] highlight the innovation sources - internal and external – which will influence performance the more integrated they are to each other); large expenditure on external acquisition of technology that does not then convert into the corresponding financial performance; firms can expect early results in areas in which a lot of time is necessary in order to attain improvements in financial performance; and finally, making errors in selecting external sources.

Additionally, the fact that the technological assets are acquired outside of the company, suggests that this type of innovative capacity is easily imitable and does not represent a sustainable advantage in the long-term, playing a secondary role in company performance. That is, it could be interpreted in terms of their non-distinctive character, when one considers that in the measure it is not one of the more difficult sources to acquire or imitate, but instead, a necessary activity for all the companies, even though it does not make a significant contribution to attaining the best results.

The impact of process innovations on business performance has been significant, which is consistent with the fact that this kind of innovation may be considered as a key strategic instrument for the company [52], enabling them to achieve an increase in efficiency, quality and customer services [11]-[72]. Similarly, the product innovation variable also has a positive and significant influence on the dependent variable, but the relationship with process innovation is stronger. The reason for this could be that process innovation outcomes reveal themselves in the organizational performance prior to the effects of product innovations, because the first of these can almost immediately be converted into profitable terms, while for the latter, the uncertainties of the market can delay obtaining positive results [33]. These findings agree with those obtained by Zahra and Das [29] in relation to their simultaneous model. According to these authors, process innovation could prove to be more important than the product innovation [29]. However, a formal strategy of innovation should allow companies to simultaneously consider both kinds of innovation owing to the links that exist between them.

Another of the elements that has contributed to the explanation of the results has been the technological approach, in such a way that the orientation of the company towards technological leadership is configured as a fundamental factor that allows them to obtain technological advantages that can be difficult for imitators to eliminate [73] and it implies the possibility of accumulating technological knowledge more quickly than competitors. These factors, in conjunction with the complementary aspects of the commercial knowledge stock of the company, could potentially suppose the success of the innovation and the attainment of Schumpeterian rents [74].

Finally, the effort made in terms of innovation also revealed a significant relationship with the results. Indeed, investment in innovation not only makes possible the generation of innovations, but also aids the assimilation and productive use of external knowledge [70].

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[1] General Manager and another executive involved in innovative processes.

[2] In relation to the validity of the scales of measure, there is no general agreement on the value from which we can confirm its reliability. We take into consideration the contribution of George and Mallery (1995), that point out: if the value is higher than 0.9 the scale is excellent; if it's above 0.8, the instrument is good; if it's greater than 0.7 acceptable; above 0.6 it's uncertain; and lower than 0.5, it won't be acceptable for use.

[3] In relation to the explanation of the estimated coefficients through ordinary lowest square (OLS), it should be pointed out that, in the multiple regression analysis, the independent variables coefficients are explained by keeping the rest of the variables constant, which means that we assess the causality relationship between the dependent and independent, controlling the impact of the rest of the independent variables incorporated in the model.

REFERENCES

[1] R. M. Kanter, The change masters: Innovation and entrepreneurship in the American corporation, New York: Touchstone, Simon & Schuster, 1984.
[2] R.H. Hayes, W.J. Abernathy, "Managing our way to economic decline, Harvard Business Review, vol. 58, no 4, pp. 67-77, 1980.
[3] R.M. Grant, Dirección estratégica: conceptos, técnicas y aplicaciones. Madrid: Civitas, 2004.
[4] P.A. Geroski, S. Machin, "Do innovating firms outperform non-innovators?", Business Strategy Review, vol. 3, no 2, pp. 79-90, 1992.
[5] M.E. Porter, La ventaja competitiva de las naciones, Barcelona: Plaza and Janés, 1991
[6] H. Itami, T. Numagami, "Dynamic interaction between strategy and technology", Strategic Management Journal, vol. 13, Special Issue, pp. 119-135, 1992.
[7] E. Bueno, P. Morcillo, Fundamentos de Economía y Organización Industrial, Madrid: McGraw-Hill. 1994.
[8] C. Camelo, F. Martín, P. M. Romero, R. Valle, "Relación entre el tipo y grado de innovación y el rendimiento de la empresa. Un análisis empírico", Economía Industrial, vol. 333, pp. 149-160, 2000.
[9] H. Molina, F.J. Conca, "La necesidad de innovar y sus efectos en las empresas manufactureras alicantinas: introducción a una realidad", Revista de Dirección, Organización y Administración de Empresas, vol. 24, pp. 61-75, 2000.
[10] M.M. Berry, J.H. Taggart, "Managing technology and innovation: a review", R&D Management, vol. 24, no 4, pp. 341-353, 1994.
[11] M. Porter, "From Competitive Advantage to Corporate Strategy", Harvard Business Review, vol. May/June, pp 43-59, 1987.
[12] F. Meyer-Krahmer, K. Hornschild, Evaluation of economic effects: relevance and impacts of EC-Programmes Promoting Industrial R&D with special emphasis on small and medium sized enterprises. Luxembourg: Office for Official Publications of the EU, 1992.
[13] R. Vernon, "International investment and international trade in the product cycle", The Quarterly Journal of Economics, vol. 80 no mayo, pp. 190-297, 1966.
[14] N. Capon, J.U. Farley, D.R. Lehmann, J. Hulbert, "Profiles of product innovators among large U.S. manufacturers", Management Science, vol. 38, no 2, pp. 157-169, 1992.
[15] E. Duguet, N. Greenan, Skill biased technological change: An econometric study at the firm level. Paris: INSEE working paper, 1997.
[16] Miller, D. (1988). Relating Porter's business strategies to environment and structure: analysis and performance implications. Academy of Management Journal, 31(2), 280-308.
[17] M.E. Porter, Competitive Strategy: Techniques for Analysing Industries and Competitors, New York: Free Press, 1980.
[18] M.E. Porter, Cases in competitive strategy, New York: Free Press, 1983.
[19] J.S. Metcalfe, M. Gibbons, "Technology, variety and organization", Research on Technological Innovation, Management, and Policy, vol. 4, pp.153-193, 1989.
[20] K. Pavitt, "What makes basic research economically useful", Research policy, vol. 20, pp. 109-119, 1991.
[21] A. R. Malekzadeh, D. J. Bickford, F.C. Spital, "Integrating environment, competitive strategy, and structure with technology strategy", Academy of Management Best Paper Proceedings, vol pp. 27-31, 1989.

[22] M. Dowling, J. McGee, "Business and technology strategies and new venture performance: a study of the telecommunication equipment industry", Management Science, vol. 12, no 40, pp. 1663-1677, 1994.
[23] N. Capon, J.U. Farley, S.M. Hoenig, "Determinants of financial performance: a meta-analysis", Management Science, vol. 36, no 10, pp. 1143-1159, 1990.
[24] E. Mansfield, "Composition of R&D Expenditures: Relationship to Size of Firm, Concentration, and Innovative Output", Review of Economics and Statistics, vol. 63, no November, pp. 610-615, 1981.
[25] R. Nelson, "The co-evolution of technology industrial structure and supporting institutions", in G. Dosi, D.J. Teece, J. Chytry, (Eds.), Technology, Organization and Competitiveness. Oxford: Oxford University Press. 1998.
[26] P. Adler, "Technology strategy: a guide to the literature", in R. Rosenbloom, R. Burgelman, (Eds.), Research on Technological Innovation Management and Policy (pp. 25-151). Greenwich, Conn.: Jai Press, 1989.
[27] S.A. Zahra, J. Covin, "Business strategy, technological policy, and company performance". Strategic Management Journal, vol. 14, no 6, pp. 451-478, 1993.
[28] S.A. Zahra, W.C. Bogner, "Technology strategy and software new venture's performance: exploring the moderating effect of the competitive environment". Journal of Business Venturing, vol. 15, no 2, pp. 135-173, 1999.
[29] S.A. Zahra, S.R. Das, "Innovation strategy and financial performance in manufacturing companies: an empirical study", Production and Operations Management, vol. 2, no 1, pp. 15-37, 1993.
[30] S.A. Zahra, J.G. Covin, "The financial implications of fit between types and sources and competitive strategy", Journal of High Technology Management Research, vol. 5, pp. 183-212, 1994a.
[31] S.A. Zahra, "Technology strategy and financial performance: examining the moderating role of the firm's competitive environment", Journal of Business Venturing, vol. 11, no 3, pp. 189-219, 1996a.
[32] M.J. Donate, Gestión estratégica del conocimiento, tecnología y resultados, Toledo: Consejo Económico y Social de Castilla La Mancha, 2008.
[33] S.A. Zahra, "Technology strategy and new venture performance: a study of corporate-sponsored and independent biotechnology ventures", Journal of Business Venturing, vol. 11, pp. 289-321, 1996b.
[34] A. Chamanski, S.J. Wagoo, "Organizational Performance of technology-based firms: The role of technology and business strategies", Enterprise and Innovation Management Studies, vol. 2, no 3, pp. 205-223, 2001.
[35] D.C. Hambrick, I.C. Macmillan, R.R. Barbosa, "Business Unit Strategy and Changes in the Product R&D Budget", Management Science, vol. 29, no 7, pp. 757-769, 1983.
[36] D.C. Hambrick, I.C. Macmillan, "Efficiency of Product R&D in Business Units. The Role of Strategic Context", Academy of Management Journal, vol. 28, no 3, pp. 527-547, 1985.
[37] A. West, Innovation strategy, Londres: Prentice Hall International, 1992.
[38] S. Gopalakrishnan, "Unraveling the links between dimensions of innovation and organizational performance", The Journal of High Technology Management Research, vol. 11, pp. 137-153, 2000.
[39] M.A. Maidique, P. Patch, "Corporate strategy and technological policy", in M.L. Tushman, W.L. Moore (Eds.), Readings in the management innovation, Cambridge: MA, Ballinger, pp. 236-248, 1988.
[40] C. Bell, J. McNamara, High-tech ventures: the guide for entrepreneurial success, Massachusetts: Addison-Wesley, 1991.
[41] R.A. Burgelman, M.A. Maidique, S.C. Wheelwright, Strategic management of technology and innovation. Nueva York: McGraw-Hill,2001.
[42] C. Christensen, "Exploring the limits of the technology s-curve. Part I: Component technologies", Production and Operations Management, vol. 1, pp. 334-357, 1992.
[43] J.M. Utterback, Mastering the dynamic of innovation, Cambridge, MA: Harvard Business School Press, 1994.
[44] A.R. Parker, "Impact on the organizational performance of the strategy-technology policy interaction", Journal of Business Research, vol. 47, no 1, pp. 55-64, 2000.
[45] S.A.Zahra, R.S. Sisodia, S.R. Das, "Technological choices within competitive strategy types: a conceptual integration", International Journal of Technology Management, vol. 9, no 2, pp. 172-95, 1994.
[46] S.R. Das, S.A. Zahra, "Technology strategies for global firms", Journal of Transnational Management Development, vol. 4, no 1, pp. 25-50, 1998.
[47] R.A Kerin, P.R Varadajan, R.A. Peterson, "First mover advantage: a synthesis conceptual framework, and research propositions", Journal of Marketing, vol. 56, pp. 35-52, 1992.
[48] P. Morcillo, Dirección Estratégica de la Tecnología e Innovación. Un Enfoque de Competencias, Madrid: Civitas, 1997.
[49] A. Ali, "Pioneering versus incremental innovation: Review and research propositions", Journal of Product Innovation Management, vol. 11, pp. 46-61, 1994.
[50] D.J. Teece, "Profiting from technological innovation: Implications from integration, collaboration, licensing and public policy", Research Policy, vol. 15, pp. 285-305, 1986.
[51] M. Nieto, Bases para el estudio del proceso de innovación tecnológica en la empresa. León: Universidad de León, 2001.
[52] W. Skinner, "Operations technology: blind spot in strategic management", Interfaces, vol. 14, no 1, pp. 116-125, 1984.
[53] J. McCann, "Patterns of growth, competitive technology and financial strategies in young ventures", Journal of Business Venturing, vol. 6, no 3, pp. 189-208, 1991.
[54] M.E. McGrath, Product strategy for high-technology companies: How to achieve growth, competitive advantage, and increased profits. Burr Ridge, IL: IRWIN, 1994.
[55] M. Dogson, "Organizational learning: a review of some literatures", Organization Studies, vol. 14, pp. 375-394, 1993.
[56] J.E. Navas, L. A. Guerras, La dirección estratégica de la empresa. Teoría y aplicaciones, Madrid, Civitas, 2004.
[57] K. Pavitt, "Sectoral patterns of technical change: Towards a taxonomy and a theory", Research Policy, vol. 13, no 6, pp. 343-373, 1984.
[58] E. Fernández Sánchez, Innovación, tecnología y alianzas estratégicas, Madrid: Civitas, 1996.
[59] S.A. Zahra, J.G. Covin, "Domestic and international competitive focus, technology strategy and company performance: an empirical analysis", Technology Analysis and Strategic Management, vol. 6, no 1, pp. 39-53, 1994b.
[60] H.C.M.Van Trijp, J.B. Steenkamp, M. Candel, "Quality labelling as instrument to create product equity: The case of IKB in the Netherlands", in B. Wierenga, A. Van Tilburg, K.G. Grunert, J.B. Steenkamp, M. Wedel, Agricultural marketing and consumer behaviour in a changing world, Dordrecht, The Netherlands: Kluwer Academic Publishers, pp. 201-216, 1997.
[61] J. S. Armstrong, T. S. Overton, "Estimating non response bias in mail surveys", Journal of Marketing Research, vol. 14, pp. 396-402, 1977.
[62] F.C. Spital, D.J. Bickford, "Successful competitive and technology strategies in dynamic ad stable product technology environments", Journal of Engineering and Technology Management, vol. 9, pp. 29-60, 1992.
[63] A. González, "La consistencia entre la estrategia de negocios y la estrategia de innovación tecnológica", in J.E. Navas, M. Nieto (Eds.), Estrategias de innovación y creación de conocimiento tecnológico en las empresas industriales españolas, Madrid: Civitas, pp. 47-176, 2003.
[64] M.L. Flor, M.J. Oltra, "La influencia de las capacidades de innovación tecnológica sobre el desempeño exportador de la empresa. Una aplicación en la industria de baldosas cerámicas", in J.E. Navas, M. Nieto (Eds.), Estrategias de innovación y creación de conocimiento tecnológico en las empresas industriales españolas, Madrid: Civitas, pp. 177-199, 2003.
[65] M.L., Flor, C. Camisón, M.J. Oltra, "El efecto de la estrategia de innovación tecnológica y de la estrategia exportadora en el desempeño internacional de la empresa", Cuadernos de Economía y Dirección de la Empresa, vol. 20, pp. 151-174, 2004.
[66] A. Sáinz, Análisis de los factores explicativos del éxito empresarial: una aplicación al sector de la DO calificada Rioja, Tesis Doctoral: Universidad de La Rioja, 2002.
[67] R. M. Kanter, The Change Masters. Reino Unido: International Thomson Business Press, 1996.
[68] M. Ferrán, SPSS para Windows. Programación y análisis estadístico, Madrid: McGraw-Hill, 1997.
[69] P. Gibbons, T.O´Connor, "Strategic posture, technology strategy and performance among small firms", Journal of Enterprise Culture, vol. 11, no 2, pp. 131-146, 2003.

[70] W.M. Cohen, D.A. Levinthal, "Innovation and learning: The two faces of R&D", The Economic Journal, vol. 99, no 397, pp. 569-596, 1990.
[71] S.A. Zahra, A. Nielsen, "Sources of capabilities, integration and technology commercialization", Strategic Management Journal, vol. 23, no 5, pp. 185-203, 2002.
[72] C. W. Hill, G.R. Jones, Administración estratégica: un enfoque integrado, México: McGraw-Hill Interamericana, 2005.
[73] S.A. Zahra, S. Nash, D.J. Bickford, "Transforming technological pioneering into competitive advantage", Academy of Management Executive, vol. 9, no 1, pp. 17-31, 1995.
[74] A. Nerkar, P. Roberts, "Technological and product-market experience and the success of new product introductions in the pharmaceutical industry", Strategic Management Journal, vol. 25, no 8-9, pp. 779-799, 2004.