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"INNOVATIVE CULTURE, MANAGEMENT CONTROL SYSTEMS AND PERFORMANCE IN YOUNG SMEs"

Antonio Duréndez*, Domingo Garcia**

* Ass. Professor in Accounting and Finance at the Polytechnic University of Cartagena, Spain, *antonio.durendez@upct.es**

** Professor in Accounting and Finance at the Polytechnic University of Cartagena and Director of Observatory Small and Medium Enterprise in Murcia, Spain, *domingo.garcia@upct.es*

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Domingo García-Pérez-de-Lema
(corresponding author)
Antonio Duréndez

Faculty of Business
Technical University of Cartagena
Paseo Alfonso XIII, 50
30203 Cartagena (Spain)
Tel. + 34 968 325606
Fax. +34 968 325782
e-mail: domingo.garcia@upct.es
e-mail: antonio.durendez@upct.es

ABSTRACT:

We identify organizational culture and assess the relationship between organizational culture, management control systems (MCS) use and their effects on performance. With this purpose, we carry out an empirical analysis on a sample of 89 young SMEs. Results show that young firms' predominant culture is clan, whereas adhocratic culture is less relevant. Additionally, we found some evidence that the innovative culture (mix of clan and adhocratic culture) and the use of MCS have positive effect on firm performance.

Keywords: Organizational culture, management control systems, innovation, performance.

1. Introduction

Research focus on young firms within the field of entrepreneurship is a common topic, due to the relevance and potential for growth, innovation and economic force (Diambeidou, 2007). The analysis of young firms' performance, principally growth, has received substantial empirical and theoretical attention (Steffens et al. 2006). Usually, young firms should be inside the period of expansion, so these firms are characterized by their ability to identify new business opportunities (Penrose, 1959). According to Knowledge-Based view of the firm young firms accumulates knowledge through a learning process which constitutes the driving force for growth, in order to achieve a sustainable competitive advantage, that is seen as the source of change and dynamism in the society and the economy (McQuaid, 2002).

Besides, analysing young firms is particularly relevant due to the high level of failure this kind of firms show (Brown et al., 1990; Philips and Kirchhoff, 1989). Previous economic research literature confirms bankruptcy is inversely related to the age of the company (Dunne et al., 1988; Philips and Kirchhoff, 1989; Mata and Portugal, 1994; and Audretsch and Mahmood, 1994). According to Henderson (1999) there are some different approaches to analyze the relationship between business age and failure: a) liability of newness approach, failure is higher at the start-up stage; b) liability of adolescence approach, failure reaches the maximum some years after the business foundation and decreasing subsequently; c) liability of obsolescence, failure is expected to increase in accordance to the growing of the firm. So, it is relevant that young firms are aware of the importance to develop an organizational culture to innovate in order to get a competitive advantage and to survive. Innovation lets companies to achieve sustainable advantages (Vermeulen, 2004) and represents a key factor for economic growth (Cheng y Tao, 1999). Organizational culture stands for collection of beliefs, expectations and values shared by the people in a company (Leal, 1991). These beliefs and expectations generate behavioural rules which make the company different. The culture encompasses values and preferences about the goals the company must achieve (De Long and Fahey, 2000). The most studied hypothesis by academicians is that broadly established cultures strengthen business performance (Rosenthal and Masarech, 2003). This hypothesis is based on the idea that organizations benefit from having motivated employees aimed to achieve common goals (Kotter and Heskett, 1992).

Additionally, management control systems are crucial elements in the decision-making process. According to Henri (2006), an extensive literature argues that organizational culture has an important effect on Management Control Systems (MCS). In addition, a well developed and structured information system is a sustainable competitive advantage (Barney, 1991, Morikawa, 2004). As management decisions should be based on unbiased information, managerial techniques such us financial planning, cost accounting and financial diagnosis should be common tools in the decision-making process. Nevertheless, several studies show that management accounting systems are not broadly used in SMEs (Choe, 1996; Chenhall and Langfield-Smith, 1998a).

This study analyses the influence of innovative culture and management control systems on the performance of young small and medium enterprises. The research shows the results of an empirical study on a sample of 89 Spanish young SMEs. The main questions this work wants to answer are the following: Which is the culture the young SMEs present? How does organizational culture influence young SMEs performance?, Do MCS help young SMEs to achieve competitive success?, Does innovative culture improve firm performance?.

The remaining of the paper is organized as follows. Firstly, we determine the theoretical framework. We make a review of the empirical literature, then we define our hypotheses. Secondly, we explain the methodology used in the empirical study: sample description and variables definition. Thirdly, we carry out the analysis of results and finally, we include the main conclusions.

2. Theoretical framework and empirical evidence

Organizational Culture and performance

The organizational culture is a key factor that can help companies to achieve the planned goals. If managers change the values, rules and customs of the company, they could modify employees' behaviour and attitude, leading to an improvement in the firm performance (Rosenthal and Masarech, 2003**).** The central issue associated with organizational culture is its linkage with organizational performance. An increasing body of evidence supports a linkage between an organization's culture and the firm performance. Whiting the process of economic globalization, firms can not provide sustainable performance unless an organisation's culture and people are fully prepared and aligned to support changes. Culture is what distinguishes truly high-performing organisations from the pack (Jeuchter et al. 1998).

In this sense, organizational culture is becoming a key managerial instrument to enhance performance. On the one hand, companies constantly look for a sustainable competitive advantage. On the other hand, organizations depend on innovation to grow and to obtain a high performance. The most studied hypothesis by the literature is that broadly established cultures strengthen organizational performance. In support to this argument, some empirical studies show that companies with well established cultures achieve higher performance than those characterised by weak cultures (Kotter and Heskett, 1992; Gordon and Di Tomaso, 1992). Indeed, Kotter and Heskett (1992) reveal that during a 10-year period, companies that deliberately designed their cultures, obtained higher performance than those that did not have a well developed culture.

Sonrensen (2002) shows companies with strong cultures face a trade-off regarding to their adaptation skills to the changing environment. The well developed organizational cultures facilitate the stability of the performance in uncertainty environments. However, as the volatility increases, these benefits dramatically decrease. This pattern is consistent with the main trade-off between exploration and exploitation pointed by March (1991). This author suggests that companies with strong cultures are extremely good at taking advantage of established competences, but they find difficulties in order to discover new competences that best fit with the changing environment conditions. These results suggest that the best strategy for companies would be to develop cultures clearly based on an exploratory learning attitude and innovation (Gordon and Di Tomaso, 1992).

The innovative culture is based on values that enhance a shared view of the organization. Managers and employees feel part of a unique project, where benefit and individual improvements return directly on benefit and improvement of the team and, in short, of the organization as a whole. Nemeth (1997) considers that innovative culture strengthens the cohesion, the loyalty and some clear rules of attitudes and appropriate behaviours. Furthermore, innovative culture promotes the autonomy of working teams, the managers' support to research projects, departmental relationships, trust, sincerity, and consideration, as

well as recompense and recognition (Shirivastava and Souder, 1987). This type of culture decreases the resistance to change and facilitates the introduction of new technologies. In this framework, the managerial leadership is a key factor in the creation of a cultural context and an organizational structure that encourages innovation (Van de Ven, 1986). On the contrary, in a non-innovative culture, the feeling of individualism prevails on the team's feeling. The employees feel as isolated agents who defend individual goals, thus the consideration of the organization as a whole is lost. The employees are unable to assess the consequences of their individual actions on the rest of the organization. Their rules and customs enhance the organizational routines (Argyris, 1977). The employees wait for somebody to tell them what to do, instead of having the initiative to carry out actions for their own. In addition, the management stresses the values of stability (even opposing the changes) and rejoicing in the past successes.

These arguments lead to the formulation of the following hypothesis,

h_1: The innovative culture influences positively the young SMEs performance.

Management Control Systems (MCS) and performance

Once the culture has been defined, the second step implies using the MCS to transmit and reinforce the culture of the firm throughout the organization to manage strategic and operational decisions and actions (Flamholtz, 1983). The relationships between an organisation's control system and culture are two-way because once created, they have an impact on the way values are subsequently changed, this means culture is regarded as something manageable thought partly created through the passage of the organization (Herath, et al. 2006).

Firms need to establish control tools to help managers make right decisions. The strong competition due to market globalization and technological change is forcing firms to develop MCS (AECA, 2005). MCS balance the trade-off between creative innovation and predictable goal achievement, thus MCS address the organizational antagonism between control and flexibility (Simons, 1995a). A cost accounting system allows managers to elaborate information, regarding to inventories assessment, cost control, income-cost-benefit analysis, and products and markets performance, for the decision-making process. Financial planning lets firms assess their financial requirements in advance. Thus, firms are able to efficiently consider the different financing choices. Finally, financial analysis helps the company to realise what its strengths and weaknesses are, as far as liquidity, solvency, indebtedness and performance are concerned.

Kennedy and Affleck-Graves (2001) show how the implementation of Activity Based Costing systems has a positive effect on performance. These authors compare two matched samples composed by 37 British companies. Those companies that implemented cost systems significantly achieved a 27% higher performance than those without this system. Bright, Davies, Downs and Sweeting (1992) find a significant relationship between the development of new cost techniques and the improvement of product performance. Chenhall and Langfield-Smith (1998b), on a sample of 140 Australian manufacturing companies, find evidence on the positive relationship between MCS use and company performance. Adler, Everett and Waldron (2000) show, after analyzing 165 manufacturing companies of New Zealand, that MCS positively influences product performance. Finally, McMahon and Davies

(1994), state a positive correlation between amplitude and frequency of accounting information elaborated by the company and the net profit per employee.

MCS are not only tools used in a planning-and-control cycle, but MCS are also used by firms to foster and control innovation, creativity, change and learning (Henri, 2004). According to Miller and Friesen (1982), apart from getting information by means of MCS, managers correctly assessing this information is essential. For example, if managers ignore relevant information that indicates the need to innovate, then this innovation will not be implemented. Planning and correct information analyses are key aspects for the decision-making process. The greater the analysis made by managers, the greater the tendency to investigate the real roots of the problems and to work on the best alternative solutions. Thus, the chance of discovering and implementing innovation opportunities will increase. Dávila (2000) positively connects MCS with innovation and performance. Finally, MCS are especially necessary to ensure innovation effectiveness (Simons, 1995b). Using data from a sample of 120 Spanish companies, Bisbe and Otley (2004) show that the greater the use of MCS is, the higher the effect of innovation on SME performance. Shields and Young (1994) find, on a sample of 160 US companies, that MCS (budgets and management accounting) increase innovation effectiveness. Taking into account these premises, this research considers the second hypothesis,

h_2: The use of MCS positively influences young SMEs performance.

3. Methodology

3.1. Sample

Data was obtained from the project "Introducción de la cultura innovadora en las empresas", funded by the European Union. This database contains qualitative and quantitative information gathered through a self-administered questionnaire that was addressed to the company manager. The field work was developed from May to June 2003. Our target population was composed of companies whose number of employee varies between 10 and 250. The distribution of companies in the population has been considered starting from the "Directorio de Empresas del Instituto Nacional de Estadística" (Business Directory). The sample is composed by 89 young Spanish SMEs up to 10 years old. Following the same criteria of previous research studies that considers young when the firms in the sample are not more than 10 years old, being the cutoff for new ventures (Covin and Slevin, 1990; Certo et. al, 2001; Yli-Renko, 2001; Beckman et al. 2007).

In table 1, we show the profile of the sample. To test for non-response bias, we use late respondents as surrogates for non-respondents (Nwachukv et al. 1997). Responses of firms answering to the initial mailing (85% of the sample) were tested with those responding to the follow-up (15% of the sample). No responses were significantly different between the two groups using t and chi-squares tests for all the variables in the models.

[Insert Table 1]

3.2. Measurement of variables

Organizational Culture

This concept is measured by the "Organizational Culture Assessment Instrument" (OCAI) proposed by Cameron and Quinn (1999). These authors identify four cultures: market, hierarchy, clan and adhocracy, in relation to two dimensions. The first dimension shows the company orientation towards control, stability and order. The companies within this dimension fluctuate between, on the one hand those with high stability, predictable and order emphasis, and on the other hand those maintaining high flexibility levels, organic structures and adaptation skills. The second dimension regards the internal versus external business orientation. Considering these two variables, we obtain the four types of culture (see figure 1).

[Insert Figure 1]

The clan culture is typical in companies that look for the internal control of the organization but with flexibility, worrying about its employees and showing a special customer concern. The adhocratic culture is related to companies focused on external aspects of the organization, looking for a high degree of flexibility and innovation. The market culture appears in those organizations that stress the external orientation of the business, but considering at the same time the need for control and internal stability. The hierarchical culture pays special attention to internal aspects requiring control and stability. The literature states that in any organization, in spite of sharing values of the four cultures, there is usually one culture prevailing over the others. In the questionnaire, managers were asked to distribute 100 points among four possible answers in relation to "company definition", "managerial style", "shared values by personnel" and "key successful aspects of the business" (see table 2).

[Insert Table 2]

The total value of the clan culture is obtained by adding the relative points to the answer "a" for the 4 questions; the total value of the adhocratic culture implies the sum of the points associated to the answers "b"; the total value of the market culture contains the points of the answers "c"; and the total value of the hierarchical culture is the sum of the "d" answers:

Clan culture value = (a1 + a2+ a3+ a4) = P_1
Adhocratic culture value = (b1 + b2+ b3+ b4) = P_2
Market culture value = (c1 + c2+ c3+ c4) = P_3
Hierarchical culture value = (d1 + d2+ d3+ d4) = P_4

Innovative Culture

The values, rules and customs of an innovative culture are in accord with those of the adhocratic and the clan cultures. Innovative companies hold a clear and flexible orientation and are prone to changes. For this reason, a new variable "innovative culture" has been calculated through a mathematical algorithm. According to the results of a panel of organisational research experts, this algorithm is composed by three components that measure the value of the innovative culture. This variable ranges between 0 and 1. The more innovative the company is, the higher the variable value is.

Innovative culture = $(Z_1 + Z_2 x100 + Z_3 x100)/300$

Where:
Z_1 reflects the total importance of clan (P_1) and adhocratic (P_2) cultures. $Z_1 = P_1 + P_2$.

Z_2 measures the importance of adhocratic culture in relation to the sum of cultures that conforms the innovative culture (adhocratic and clan cultures). This component is needed because the panel of experts consider that the adhocratic culture is more important than the clan culture in the definition of the innovative culture. $Z_2= P_2/(P_1+P_2)$.
Z_3 includes the difference between the importance given to both, clan and adhocratic cultures. According to the panel of experts, the smaller the difference between adhocratic and clan cultures is, the more innovative the company is. $Z_3 = 1–[(|P_2-P_1|)/(P_1+P_2)]$

Management Control Systems (MCS)

In order to analyse the level of MCS use, we measure the subjective perception of the manager about three items, through a 5-point Likert scale. The items considered are: management accounting techniques, short-term cash-flow budgets and financial analysis. The variable is the average of those 3 items, ranging from 1 to 5. This type of measure has been used by Choe (2004) and Hoque and James (2000). Table 3 shows the reliability of the scales, verifying the consistency of the variable. Furthermore, by means of a factorial analysis, we prove that the previous indicators sum up in a single factor, able to properly reflect the considered measure about the use of MCS.

[Insert Table 3]

Performance

We have used the performance variables proposed by Quinn and Rohrbaugh (1983). These authors set a framework for the organizational analysis, distinguishing three dimensions within organizational efficiency. The first dimension relates to the organizational approach, from an internal point of view, based on a "micro" perspective about good understanding and development of personnel, to an external one, whose emphasis relays on a "macro" level of business success. The second dimension is focused on the organizational structure, making emphasis on business stability and flexibility. The third dimension is based on organizational means and aims. Four performance models arise from the combination of these three dimensions:

Model of internal processes: this model is focused on internal control, giving high importance to the information communication, and considering stability and control as the main goals.

Model of open system: this model is laid down on external flexibility, considering as main goals: growth, resources and external support.

Rational model: this model is related to control from an external point of view, focusing on efficiency and productivity criteria.

Model of human relations: this model pays attention to flexibility from an internal point of view, with the purpose of the human resources development within the firm.

In order to assess these models, 12 items are used (3 items per each model) through a Likert scale from 1 to 5. We build a global performance variable, as the average of the 12 items, with a theoretical rank from 1 to 5. Table 4 shows the items used as well as the reliability of the scales and the statistic tests.

[Insert Table 4]

4. Results

Before we start testing the research hypotheses, a primarily objective consist on determining the prevalent type of culture for the young SMEs. In table 4, we can observe that values coming from clan culture are the predominant (reaching a mean value of 34,99 over a maximum of 100). This type of culture characterizes by having a managerial style which promotes working as team, consensus and participation, followed by hierarchical culture (Respect towards established rules and company policies as well as accomplishment with organizational hierarchy) reaching a mean value of 24,78. Nevertheless, market culture (aggressive competitiveness and the achievement of ambitious goals) and adhocratic culture (individual initiatives, risk taking, and innovation) maintain a less significant influence on the behaviour of young SMEs.

To verify the effect of organizational culture (h_1) and MCS use (h_2) on young SMEs performance, we use the hierarchical regression analysis. This method allows us to introduce the independent variables in different steps, so that the effects of each group of independent variables can be analyzed. In our case, firstly we introduce the culture variables, and later on we introduce the MCS use variable. The standardized coefficients express the expected change in the dependent variable for each variation unit in the independent variables. The comparison between the two models is carried out through the change in R^2, that indicates if the new variable (MCS use), incorporated to the second model, has influence on the analyzed dependent variables (Performance).

Model 1: $Performance_i = b_0 + b_1 \cdot culture_i + \varepsilon_i$

Model 2: $Performance_i = b'_0 + b'_1 \cdot culture_i + b_2\, MCS + \varepsilon'_i$

Where, $Performance_i$ corresponds to 5 types of performance considered (internal process approach; open systems approach; rational goal approach; human relations and global performance). $Culture_i$ identifies the 5 types of culture considered (Clan, Adhocratic, Hierarchical, Market and Innovative cultures).

We estimate one model for each type of culture (see table 5). We note in all the models independent variables have a variance inflation factor (VIF) below 1.106, so we discard the presence of multicollinearity. The test of White (1980) has not rejected homocedasticity in all the models. Therefore, coefficients show consistent standard error, which ensures the relevance and reliability of our estimations.

With regard to the h_1, relating to global performance measure, results show that adhocratic ($p < 0.1$) and innovative culture (as a mix of adhocratic and clan cultures) ($p < 0.05$), have a positive influence on global performance. We can not obtain significant evidence regarding to the relationship between clan, market and hierarchical culture and global performance. Therefore, we can accept our hypothesis that considers those young companies with more innovative cultures achieve a higher performance.

If we analyse in detail the different kinds of performance, we can observe the major effects of innovative and adhocratic cultures appear within the internal processes and open system performance models. These results are showed in table 5 or each model 1, where the

standardised coefficients associated to the adhocratic culture variable are positive and significant for the model 1 of internal processes ($p<0.01$); and open system ($p<0.05$). The same behaviour occurs in relation to the coefficients associated to innovative culture variable (internal processes: 0.339***; and open system: 0.261**).

Additionally, we find a negative and significant relationship between hierarchical culture and performance of internal processes. Where the standardised coefficients related to the hierarchical culture variable are negative and significant for the model 1 estimations (internal processes: -0.337***. Our results are in line with those of Bhaskaran (2006), Hsueh and Tu (2004), Rosenau et al. (1996), Morcillo, (1997), DiBella and Nevis, (1998) and Tushman and O'Reilly (2002), who support innovative firms perform better.

Models 2 reveal the results of the regressions to test the use of MCS (Table 5). These results validate the positive and significant effect of MCS use on performance, once the influence of culture has been taken into account. This is so, because the change in R^2 is significant for each type of estimation, as F statistic values disclose. In models 2, MCS use has a significant and a positive coefficient for all the different performance models analysed. Therefore, h_2 is confirmed according to previous literature results, Kennedy y Affleck-Graves (2001), Bright et al. (1992), Chenhall and Langfield-Smith (1998b) and Adler et al. (2000).

5. Conclusions

This research analyses the relationship between organizational culture, management control systems and performance of young SMEs, using a sample of 89 firms from Región de Murcia (Spain). In order to measure culture, we base our research on the "Organizational Culture Assessment Instrument" proposed by Cameron and Quinn (1999), in which four cultures can be identified: *market, hierarchical, clan and adhocratic*. This model has been improved by building a new type of culture called "innovative culture". Besides, in order to measure performance we use the methodology proposed by Quinn and Rohrbaugh (1983) which identifies four qualitative performance models: *internal processes, open system, rational and human relations.*

Organizational culture can become a definitive factor to assure the survival of young firms. In that sense, implementing a culture lead to promote innovation could help young SMEs to gain a competitive advantage. However, our results show that these firms culture is predominantly clan, that characterizes by having a managerial style which promotes working as team, consensus and participation, while adhocratic culture (more innovative) is less important. The cause of these results should be associated with the specific characteristics of "Región de Murcia" industry since prevails low technology businesses.

On the other hand, we contrast organizational culture has influence on young SMEs performance, though results are not conclusive for the different performance models. The empirical evidence proves that an innovative culture (a mixture of clan and adhocracy) affects positively on young firm global performance, while a hierarchical culture influences negatively on internal process model of performance.

Additionally, our findings show that management control systems allow the young firms to achieve higher organizational performance. Thus, we verify that management control systems become an essential factor for young firms, since they provide essential information for decision-making process.

We expect our results to be useful for young entrepreneurs, in the sense they should be aware of benefits from the implementation of an innovative culture and the use of management control systems. They should understand that an innovative attitude implies the adoption of new ideas and values that are not threats but strengths, in order to gain competitiveness and assure the future of the firm. The best strategy could be to focus on exploratory learning and innovation. We also expect the results of the study help policy makers to drive their efforts in continually facilitating the progress of young SMEs, knowing they are main contributors to welfare and well-being of developed economies.

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Figure 1. Organizational Culture (Cameron and Quinn, 1999)

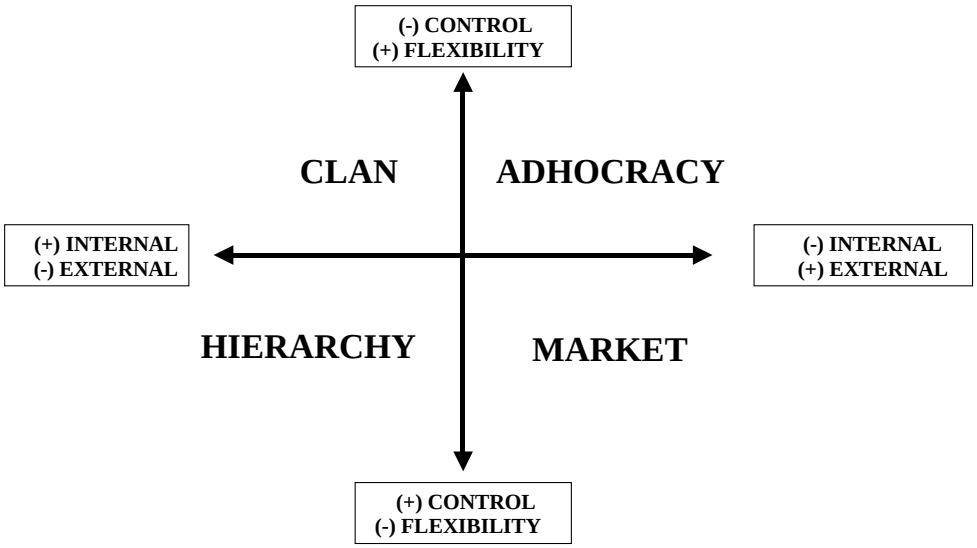

Table 1. Organizational culture measurement

Company definition:	**Present**
a.1) It is like a great family. People share a lot of values with the others.	
b.1) It is dynamic and adventurous firm. People defend their ideas and take risks.	
c.1) It is leaded to obtain results. People are very competitive and focused to accomplish with targets.	
d.1) It is very hierarchical, formalized and structured company. There are procedures and rules for any operation.	
TOTAL	**100**
Company managerial style:	**Present**
a.2) To promote working as team, consensus and participation.	
b.2) To promote individual initiatives, risk taking, and innovation.	
c.2) To promote aggressive competitiveness and the achievement of ambitious goals.	
d.2) To promote employment stability and little uncertainty.	
TOTAL	**100**
Shared values by personnel:	**Present**
a.3) Loyalty, commitment, each other trustiness and team work.	
b.3) Commitment to innovation and continuous development.	
c.3) Aggressiveness, winner attitude and the achievement planned goals.	
d.3) Respect towards established rules and company policies as well as accomplishment with organizational hierarchy.	
TOTAL	**100**
Key issues for the business success:	**Present**
a.4) Team work, commitment and employee satisfaction.	
b.4) Development of new and innovative products.	
c.4) Market entrance and market share. Maintain leadership in the market.	
d.4) Efficiency, manufacturing planning and low costs strategy.	
TOTAL	**100**

Source: Cameron y Quinn (1999)

Table 2. Management control system variables

Indicate to what extent your company uses the following management control techniques (1 = Minimum, 5 = Maximum).		**Scale Reliability**
Management control system use	- Implementation and control of a system of cost accounting - Establishment of short-term cash-flow budgets - Analysis of the economic-financial situation	Cronbach □ = 0.751 Factorial: 1 factor Explained variance:67.36 Sig. Bartlett: 0.000 KMO: 0.676

Table 3. Performance variables

Indicate the evolution of the following aspects in your company in the last two years in relation to the competition: (1=Very unfavourable situation, 5= Very favourable situation)		**Scale Reliability**
Model of internal processes	-Product quality improvement -Internal processes coordination improvement -Personnel tasks organization improvement	Cronbach α = 0.784 Factorial: 1 factor Explained variance: 70.22 Sig. Bartlett: 0.000 KMO: 0.657
Model of open system	-Customer satisfaction increase -Increase in the ability to adapt to market needs -Improvement of corporate and products image	Cronbach α = 0.694 Factorial: 1 factor Explained variance:62.06 Sig. Bartlett: 0.000 KMO: 0.660
Rational model	-Market share increase -Profitability increase -Productivity increase	Cronbach α = 0.805 Factorial: 1 factor Explained variance:72.13 Sig. Bartlett: 0.000 KMO: 0.698
Model of human relations	-Personnel motivation increase -Staff turnover decrease (voluntary resignation) -Absenteeism decrease	Cronbach α = 0.775 Factorial: 1 factor Explained variance:69.34 Sig. Bartlett: 0.000 KMO: 0.605

Table 4. Cultura empresarial in young firms

Culture Young Firms (n=89))	**mean value**	**Desviación típica**
Clan Culture (C)	34,99	15,68
Adhocratic Culture (A)	19,53	9,11
Market Culture (M)	20,66	11,51
Hierarchical Culture (H)	24,78	11,80

* p≤0.1; ** p≤0.05; *** p≤0.01
Prueba de los rangos con signos de Wilconson
Diferencia C - A: ***
Diferencia C - M: ***
Diferencia C - H: ***
Diferencia A - M: n.s.
Diferencia A – H: **
Diferencia M –H: ***

Table 5. Culture and MCS use influences on firm performance

	Model of Performance									
	internal processes		open system		rational		human relations		Global performance	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Clan Culture	0.123	0.083	0.079	0.043	0.001	-0.032	0.021	-0.013	0.068	0.020
	(1.155)	(0.821)	(0.737)	(0.417)	(0.009)	(-0.310)	(0.195)	(-0.121)	(0.640)	(0.207)
MCS		0.341***		0.307***		0.285***		0.288***		0.412***
		(3,365)		(2.976)		(2.735)		(2.766)		(4.166)
Highest VIF		1.014		1.014		1.014		1.014		1.014
F	1.333	6.406***	0.543	4.724**	0.000	3.741**	0.038	3,845**	0.410	8.920***
R^2	0.015	0.130	-0.005	0.078	-0.11	0.059	-0.011	0.061	-0.007	0.153
Change R^2		0.115***		0.093***		0.080***		0.082***		0.167***
	Model of Performance									
	internal processes		open system		rational		human relations		Global performance	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Adhocratic Culture	0.293***	0.277***	0.261**	0.247**	0.056	0.043	-0.014	-0.027	0.185*	0.166*
	(2.860)	(2.871)	(2.521)	(2.491)	(0.523)	(0.414)	(-0.127)	(-0.262)	(1.758)	(1.720)
MCS		0.337***		0.300***		0.279***		0.287***		0.406***
		(3.494)		(3.030)		(2.697)		(2.781)		(4.204)
Highest VIF		1.002		1.002		1.002		1.002		1.002
F	8.180***	10.722***	6.354**	8.065***	0.274	3.783**	0.016	3.875**	3.092*	10.680***
R^2	0.075	0.181	0.057	0.138	-0.008	0.059	-0.011	0.061	0.023	0.180
Change R^2		0.114***		0.090***		0.078***		0.082***		0.165***
	Model of Performance									
	internal processes		open system		rational		human relations		Global performance	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Market Culture	-0.050	-0.095	-0.152	-0.194*	-0.005	-0.041	-0.002	-0.039	-0.63	-0.116
	(-0.464)	(-0.936)	(-1.432)	(-1.914)	(-0.047)	(-0.391)	(-0.023)	(-0.372)	(-0.586)	(-1.183)
MCS		0.362***		0.336***		0.286***		0.291***		0.428***
		(3.578)		(3.321)		(2.746)		(2.297)		(4.366)
Highest VIF		1.016		1.016		1.016		1.016		1.016
F	0.215	6.522***	2.051	6.657***	0.002	3.772**	0.001	3.912**	0.343	9.738***
R^2	-0.009	0.112	0.012	0.114	-0.011	0.059	-0.11	0.062	-0.088	0.166
Change R^2		0.129***		0.111***		0.081***		0.083***		0.181***
	Model of Performance									
	internal processes		open system		rational		human relations		Global performance	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Hierarchical Culture	-0.337***	-0.253**	-0.154	-0.62	-0.040	0.052	-0.015	-0.081	-0.171	-0.047
	(-3.342)	(-2.467)	(-1.454)	(-0.593)	(-0.375)	(0.475)	(-0.144)	(0.746)	(-1.617)	(-0.460)
MCS		0.272***		0.292***		0.297***		0.311***		0.399***
		(2.653)		(2.716)		(2.734)		(2.874)		(3.874)
Highest VIF		1.106		1.106		1.106		1.106		1.106
F	11.168***	9.491***	2.113	4.822***	0.141	3.812**	0.021	4.140**	2.616	9.022***
R^2	0.104	0.162	0.012	0.080	-0.10	0.060	-011	0.067	0.018	0.154
Change R^2		0.067***		0.077***		0.080***		0.088***		0.144***
	Model of Performance									
	internal processes		open system		rational		human relations		Global performance	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Innovative Culture	0.339***	0.316***	0.261**	0.240**	0.049	0.029	0.027	0.008	0.212**	0.184*
	(3,356)	(3.310)	(2.520)	(2.417)	(0.453)	(0.280)	(0.257)	(0.073)	(2.020)	(1.905)
MCS		0.328***		0.295***		0.279***		0.286***		0.401***
		(3.345)		(2.967)		(2.691)		(2.758)		(4.162)
Highest VIF		1.005		1.005		1.005		1.028		1.005
F	11,263**	12,268***	6.351**	7,862***	0.205	3.732***	0.066	3,840**	4.080**	11.084***
R^2	0.104	0.204	0.057	0.135	-0.009	0.058	-0.011	0.061	0.034	0.186
Change R^2		0.107***		0.087***		0.078***		0.081***		0.160***

Since White's test for Heteroskedasticity has not been rejected in any regression, homoskedasticity is assumed in all of them.
Associated t-student statistic (between brackets) below each standardised coefficient.

* $p \leq 0.1$; ** $p \leq 0.05$; *** $p \leq 0.01$