

MOTIVATIONS AND BENEFITS FOR IMPLEMENTING THE GREEN GLOBAL STANDARD*

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1. Introduction

Motivated by different stakeholders and the internal improvement of their general and environmental efficiency, an increasing number of companies are implementing an Environmental Management System (EMS). This is an environmental practice that has become increasingly widespread, especially in the European Union (EU) and in Japan.

An EMS is a systematic process that corporations and other organizations use in order to implement environmental goals, policies and responsibilities, as well as regular auditing of its elements (Cascio, 1996). EMSs tend to be based on international models of reference: the most used one is the international ISO 14001 standard.

In recent years ISO 14001 certification has been experiencing major growth on the international stage. By the end of 2007 154,572 had been issued in 148 countries (ISO, 2008). In eight years the number of certificates issued worldwide had increased nearly eleven-fold. Attention should be drawn to the fact that around 40% of ISO 14001 certificates issued worldwide were issued within the EU. The weight of the USA, on the other hand, was confined to 3.5%, while China and Japan are the undeniable leaders in terms of the number of absolute certificates on a worldwide level, accounting for 20% and 18% of the total respectively. Spain ranks third in the number of certificates issued (ISO, 2008), and is the country in the world with greatest intensity of ISO 14001 certification (Marimón *et al.*, 2006; Casadesús *et al.*, 2008).

The phenomenon of ISO 14001 has been studied from very different perspectives. Some authors have studied it from the perspective of the private decentralized institutions (King *et al.*, 2005), selfregulatory institutions and market signaling (Terlaak and King, 2006; King and Toffel, 2007), theory of cartels and clubs applied to voluntary programs (Potoski & Prakash, 2005) and the self-regulation of companies (Christmann and Taylor, 2006; Mendel, 2002; King and Toffel, 2007).

The aim of this article is to analyze the influence of the sources of motivation that lead companies to establish these standards on the benefits perceived from implementation and certification of the model, based on the information obtained from 214 Spanish companies that participated in a survey. A review of the literature available regarding sources of motivation and benefits of ISO 14001 is carried out. In addition, the distinction between internal and external sources of motivation is used to determine their influence on perceived benefits, determining which of them has a higher influence. Previous research in the ISO 14001 field has not analyzed this issue.

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The remainder of this paper is arranged as follows. Following this introduction, the motivations and benefits for ISO 14001 standard are analyzed from a theoretical perspective, involving a review of the academic literature published thus far on this issue and from which the working hypotheses emanate that we attempt to contrast in the article. Thirdly, the results of a survey aimed at Spanish companies are then included. Lastly, the conclusions drawn and contributions made to this work are provided.

2. Motivation and benefits for the implementation and certification of ISO 14001

There is a great deal of literature available regarding the study of the sources of motivation leading companies to implement different self-regulation initiatives in their organizations, such as the ISO 14001 standard or the EMAS regulations, and this has aroused great interest among the academic milieu owing to the increasing use of these self-regulation mechanisms in the private sector.

Bansal and Roth (2000) draw a distinction between three types of motive that lead companies to implement the ISO 14001 standard: ethical, competitive and relational. Ethical motives are a response to feelings related to environmental responsibility, competitive motives arise from the search for competitive advantages and relational motives emerge from the desire on the part of companies to become legitimized and to improve the relationship existing between the different interest groups in the company (stakeholders).

Along similar lines, Neumayer and Perkins (2005) highlight the fact that, broadly speaking, there are two sources of motivation that lead companies to implement this type of standard and to become certified in accordance with them: on the one hand, internal motives related to efficiency (efficiency motives) – that is, with an improvement in performance, productivity and profitability – and, on the other hand, external or institutional motives related to the social pressure exerted by different agents in order for these company management practices to be adopted.

In the empirical literature available there is no clear consensus among specialists as to establishing which are the main drivers for ISO 14001. It would seem that most studies stress the fact that sources of motivation of an external nature are the ones that lead companies to implement and certificate ISO 14001; specifically, attention is drawn to the influence of customer pressure and demands or other those of other interest groups (UNC-ELI, 2001; Chin and Pun, 1999; Corbett and Kirsch, 2001; Gerde and Logsdon, 2001), as well as matters regarding the external image of the company (Schylander and Martinuzzi, 2006; Poksinska *et al.*, 2003; Hamschmidt and Dyllick, 2001), the motivation behind sending out a message to potential consumers by highlighting the company's *environmental concern* (King *et al.*, 2005), or the influence of pressure exerted by public administration (del Brío and Junquera, 2002; Chan and Wong, 2006; Shin, 2005; Uchida and Ferraro, 2007).

Among the sources of external pressure, all studies highlight the influence of coercive pressure on the part of customers in those sectors in which the degree of customer bargaining power is high. Thus, attention should be drawn to the prescriptive role played by major industrial purchasers such as those from the car industry, in which large groups such as the Japanese Honda or the US General Motors or Ford were starting to ask their suppliers by the end of the 90s to become certified in accordance with ISO 14001, which gave rise to a strong chain reaction in the sector (Christmann and Taylor, 2006).

On the other hand, other studies stress the influence of factors of an internal nature (Ruddell and Stevens, 1998; Summers, 2002; Florida and Davidson, 2001), such as an improvement in the environmental behaviour of companies, an internal improvement in the organization, or employee motivation. These factors, however would, as has been stated previously, appear to be in the minority.

On the other hand, the results and benefits associated with the implementation and certification of ISO 14001 have also been analyzed very extensively in academic literature. Generally speaking, empirical studies have corroborated the good qualities inherent in applying these standards for business competitiveness and efficiency, although approaches and critical studies also exist that

stress negative aspects and weaknesses deriving from the implementation of these international standards (Heras *et al.*, 2008).

There are diverse studies that highlight the improvement in the company's competitive advantage as a result of an improvement in the internal efficiency of the company (Kollman and Prakash, 2002; Corbett and Russo, 2001; Montabon *et al.*, 2000; Florida and Davidson, 2001), a reduction in consumption of resources (Bansal and Bogner, 2002; Melnyk, *et al.*, 2002), or an improvement in the performance of certified companies (Rondinelli and Vestag, 2000; Chin and Pun, 1999; Russo and Harrison, 2001; King and Lenox, 2001; Tan, 2005; Link and Naveh, 2006) in the case of those companies that implement and become certified in accordance with ISO 14001, in studies carried out by academics in countries as diverse as Hong Kong, Malaysia, Israel and the USA. Attention is also drawn in such studies to the improvement in awareness-raising on the part of management and employees of companies that results in an improvement in internal efficiency (Rondinelli and Vestag, 2000). In our opinion, all these results and other similar ones must be analyzed with great care, since it proves difficult to assess whether a change in performance is due to the influence of implementation of an EMS or due to other factors.

3. Hypotheses

The sources of motivation leading to implementation and certification in accordance with ISO 14001 are analyzed in this article, together with the benefits of that process. To do so, it is therefore necessary to contrast the relation existing between aspects as complex and inter-related as motivational factors and the results or benefits of the process. A model identifying the key constructs and relationships included in the study based on the literature review analyzed in the previous section is provided in Figure 1.

As has been summarized in the second section of this article, it has been shown in theoretical and empirical literature in the field that the sources of motivation leading to implementation and certification in accordance with the ISO 14001 standard are of a diverse nature, due both to internal and external factors, and it can be stated that there is no clear predominance of certain sources of motivation over others. However, what has been proven in empirical studies on ISO 14001 based on qualitative methodology is that a greater degree of motivation – whether of an internal nature (e.g. an improvement in the internal efficiency of the company) or external (e.g. customer demands) - in turn results in a greater degree of benefits perceived by companies that implement and become certified in accordance with ISO 14001 (Hillary, 2000; Darnall *et al.*, 2001; Heras *et al.*, 2008; Kitazawa and Sarkis, 2008). This previous empirical evidence, also maintained in evidence gathered from practitioner literature regarding ISO 14001 that also proves to be consistent with the previous argument (e.g. Tibor and Feldman, 1996; Cascio *et al.*, 1996; Woodside *et al.*, 2004) leads us to put forward the following two working hypotheses:

H1. Internal sources of motivation are positively related to the benefits of ISO 14001 implementation.

H2. External sources of motivation are positively related to the benefits of ISO 14001 implementation.

On the other hand, it would also be interesting, in our opinion, to analyze which sources of motivation – internal or external – are most related to obtaining the greatest benefits perceived by companies that implement and become certified in accordance with ISO 14001.

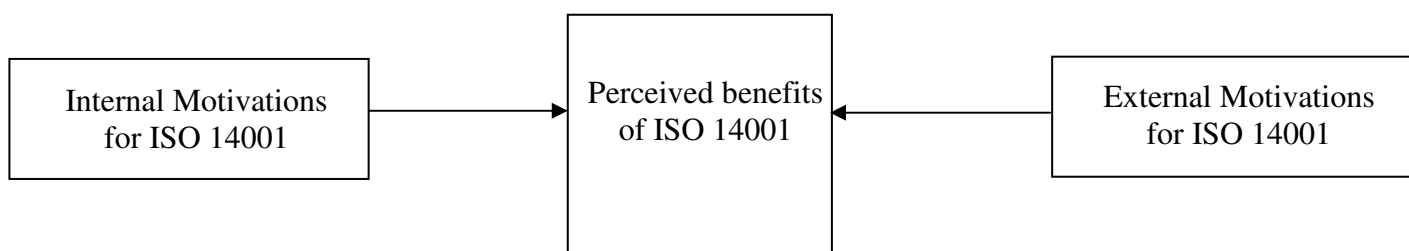
This is an issue that has yet to be analyzed by contributions of a quantitative nature studied in the course of reviewing the empirical literature in the field, although it has been subject to scrutiny in studies carried out on cases (Boiral and Sala, 1998; Rondinelli and Vastag, 2000; Kitazawa and Sarkis, 2000; Hillary, 2000; Heras *et al.*, 2008), from which it may be stated that companies that

implement and certify an EMS due to motives of an internal nature obtain better results than those that implement them only for external reasons. Evidence of this type has also been obtained in quantitative studies related to the implementation and certification of the ISO 9001 standard (e.g. Casadesús and Karapetrovic, 2005; Casadesús *et al.*, 2001) – a standard with which ISO 14001 enjoys well-known similarities in terms of its structure and dissemination process (Corbett, 2006; Marimón *et al.*, 2006), given that quality management philosophy and methods have been imported into ISO 14001 from ISO 9000 (Fryxell and Szeto, 2002). Furthermore, this aspect to be analyzed may also, in our opinion, be related to recent studies that establish a pattern in terms of depth or substance with which ISO 14001 and ISO 9001 are implemented (Christmann and Taylor, 2006; Boiral and Roy, 2007; Jang and Ling, 2008), in the sense that internal sources of motivation give rise to certain types of implementation of more substantial quality control systems or EMSs with benefits that are also greater than less substantial types of implementation, which would be more related to sources of motivation of an external nature.

We shall put forward the following hypothesis, taking the above evidence as a reference point:

H3. Internal sources of motivation are more positively related to the benefits of ISO 14001 implementation than external ones.

Figure 1. Model of motivations for ISO 14001 and perceived benefits of ISO 14001 implementation and certification.



4. Research methodology

4.1. Sample and data collection procedure

The survey was carried out in the Basque Autonomous Region of Spain, which is considered to be one of the regions in Spain where ISO 14001 registrations are most concentrated (Heras *et al.*, 2008). ISO 14001 certification data was gathered from the database of certified firms of the Basque Government that is maintained by Ihobe, the publicly-owned Basque Agency of Environmental Management.

The survey was designed in accordance with the objectives set out in the study, the international literature (especially Delmas, 2002) and Spanish literature available¹ (del Brío and Junquera, 2002; and Giménez *et al.*, 2003), the carrying out of certain exploratory case studies (Heras *et al.*, 2008) and prior research work undertaken by the authors themselves in the field of ISO 9001 (Heras *et al.*, 2003; Casadesús *et al.*, 2001).

Pre-tests were conducted belonging to the questionnaire and the survey was sent with an accompanying introductory letter to the 658 companies with 815 currently valid certificates. Following intense monitoring via telephone, the survey was concluded definitively at the end of

¹ It should be stressed that the previous empirical work carried out in Spain regarding the implementation of ISO 14001 was undertaken over a very different period to that of this study, as it was carried out during the first phase of introduction of ISO 14001, at a time when Spanish companies did not hold the leading position in terms of certification intensity.

2007, with the receipt of 214 valid responses in total from companies with valid ISO 14001 certificates. This means a response rate of 32.5% - a very high rate in the case of Spanish companies, since there is not a strong tradition of collaboration among firms with researchers (del Brío *et al.*, 2002).

This survey was completed with some field work of a qualitative nature in seven case studies in which different stakeholders were interviewed in depth from the companies who are involved in the implementation and certification of ISO 14001; this field work was completed in September 2008.

4.2. Measurements and analysis

In our survey, the issue regarding the main reasons why companies decided to implement the ISO 14001 standard and the benefits obtained from such implementation and certification were initially considered via open questions and later via closed ones, with responses assessed on dimension 5 of a Likert scale (with values 1 to 5 being from least to greatest importance). The main responses to the open motivational question were relatively heterogeneous, although practically 80% of them were able to be homogenized into seven sources of generic motivation that almost coincide with the closed questions – which is an indicator of the internal consistency of the questionnaire (Taylor *et al.*, 2007).

Conversely, the responses given by certified companies regarding the benefits of implementing and becoming certified in accordance with ISO 14001 were less heterogeneous, and were in over 95% of cases in accordance with the five factors regarding the main benefits of ISO 14001 that had been referred to in the academic literature consulted. Interviewees also subsequently gave their ratings in closed questions on dimension 5 of the Likert scale. The specific factors assessed were: improvement in the external image of the company, improvement in compliance with laws and regulations, improvement in environmental efficiency (e.g. reduction in consumption and residues), minimization of internal environmental problems in the company (e.g. leaks and dumping) and improvement in the competitive capacity of the company, plus an additional evaluation item regarding company satisfaction with the ISO 14001 implementation and certification process.

The motivational factors in favour of implementing and certifying ISO 14001 were grouped together into sources of motivation of an internal and external nature, according to both theoretical and practitioner literature (Tibor and Felman, 1996; Woodside *et al.*, 2004) and academic literature (e.g. Delmas, 2002), in addition to the empirical literature analyzed (especially Giménez *et al.*, 2003). In the case of sources of motivation of an internal nature, the following types were grouped together: motivation related to environmental improvement and sustainable development, the factor regarding corporate level decision-making, previous experience in the field of quality control and other motives of an internal nature. As for external motives, in contrast, the following were grouped together: those related to customer demands, the external image, compliance with the legislation in force, demands made by public administration, and other factors of an external nature included in the response to the open option “Others.”

Apart from the independent and dependent variables included in the model of figure 2 in the analysis whose results are shown below, different control variables were also used such as the size of the certified companies (measured via the indicator of number of employees) and the distribution according to sector of certified companies based on a very aggregate sectorization according to which we classify companies into industrial, service or construction companies.

In order to test for internal consistency, a reliability test was carried out using the Cronbach's alpha as a statistic. For a test to pass, it this indicator tends to be deemed to have to be a value of over 0.6 and a value of over 0.7 is advisable (Robinson, 1991). Thus, in our case regarding internal sources of motivation construct, the indicator is given a value of 0.915, while in the case of external sources the value is 0.708, meaning that the questionnaire has suitable internal consistency.

By way of a complement to the above and to test the construct validity, a factorial analysis was carried out in which it was shown that in the case of the internal and external motivation construct, the percentage variance of the first component was 86.9% and 52.6% respectively, with the variance

values of the rest of the components being low – meaning that both factors can be considered to be unifactorial (Fornell and Lacker, 1981).

5. Results

The means provide indication of the most common sources of motivation for seeking ISO 14001 certification. By grouping together the motivational variables into two categories of external and internal factors, a slight predominance is apparent of factors of an internal nature over external ones (3.77 and 3.35 respectively). On a disaggregate level, the strongest source of motivation for seeking certification was related to matters of external image of the company (4.04), environmental proactivity (3.93) and an improvement in the internal efficiency of the company (3.61). Other factors that are frequently referred to in the relevant literature such as demands made by customers (3.31) and public administration (2.76) were not rated so highly.

As for the benefits perceived by companies, it is very interesting in our opinion to note the fact that the most highly rated benefit is related to compliance with environmental laws and regulations (4.32). This is a point that had also been detected in the qualitative studies carried out (Heras *et al.*, 2008) and which has also been proven in other empirical studies conducted in countries with very disparate economic and administrative structures (e.g. Hamschmidt and Dyllick, 2001 in Switzerland; Fryxell and Szeto, 2002 in Hong Kong; Welch *et al.*, 2002 in the USA).

Although some practitioner perspectives tend to identify ISO 14001 with an environmental compliance standard (e.g. Whitelaw, 1998; Woodside *et al.*, 2004), the standard does not establish absolute requirements for environmental performance other than a commitment to compliance with applicable regulations (Delmas, 2002). This point has been given greater importance with the review of the standard in 2004, as the requirement for establishing a “Systematic process for evaluating compliance with applicable regulations and other requirements” (ISO, 2004) has been included in point 4.5.2. of the standard “Evaluation of Compliance.”

It is because of this that ISO 14001 is defined as a *procedure standard* rather than a *performance standard* although, in our opinion, this affirmation should be reconsidered and analyzed in greater depth if the importance is also stated in other studies of the implementation and certification of ISO 14001 in terms of compliance with environmental legislation and regulations, as we ourselves have stated in this survey and also in the qualitative field work carried out (in this respect, see Heras *et al.*, 2008). For some authors (e.g. Clapp, 2001), the requirement related to commitment to comply with environmental regulations may not lead to much improvement as firms should in theory already be complying with such regulations, but in our opinion the fact is that in some western countries –and in our opinion Spain is a good example of that–, there are too many environmental regulations that are not fulfilled systematically, specially in SMEs, due to a lack of adequate public resources for monitoring and sanctioning those non-fulfilments (Heras *et al.*, 2008).

Once the sources of motivation and the main benefits have been detected that lead companies – in our opinion – to implement and certify the ISO 14001 standard, we then move on to analyze the statistical regressions made so as to contrast the hypotheses that have been put forward. Table I contains a summary of the correlation existing between the variables subject to analysis.

Table I. Descriptive statistics and correlations for motivations and benefits of the process of implementation and certification of ISO 14001*

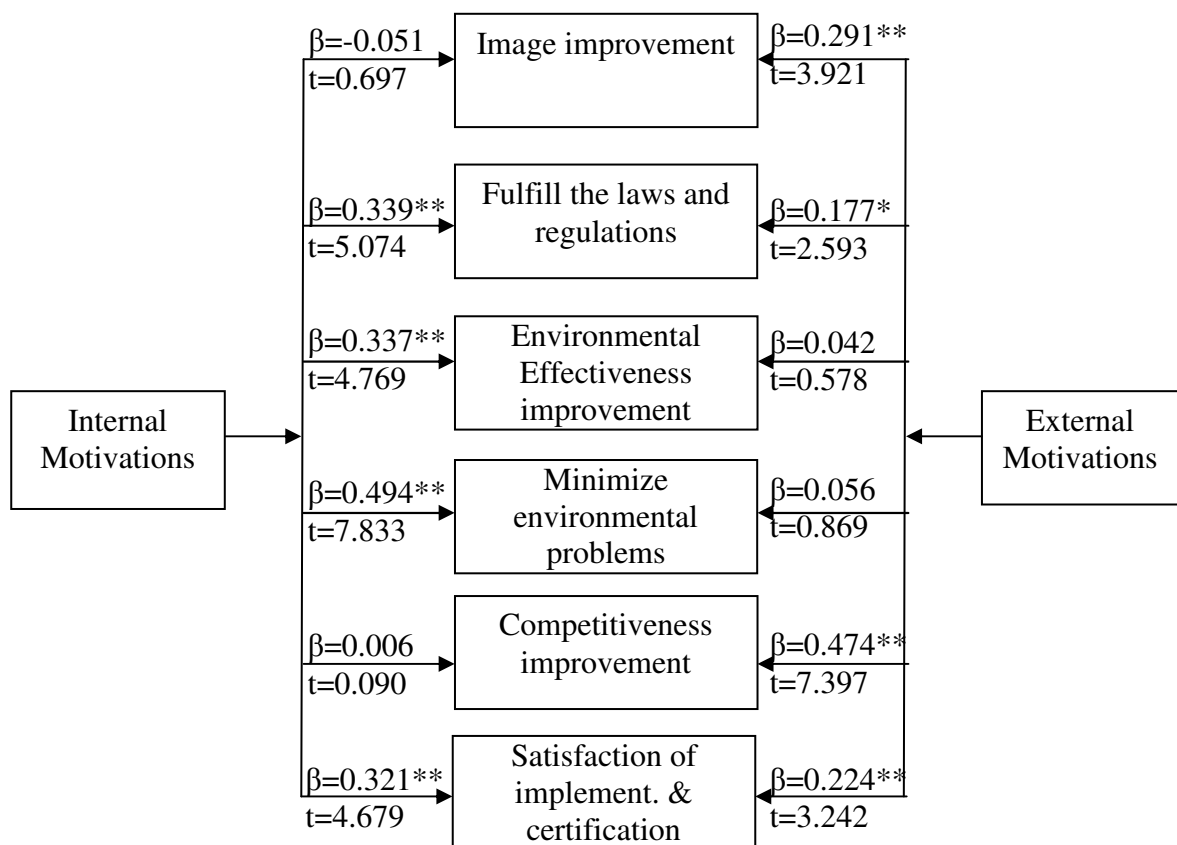
	Media	SD	1	2	3	4	5	6	7	8	9
1 Size of the firm	2.78	0.81	1.000								
2 Internal motivations	3.77	1.08	0.067	1.000							
3 External motivations	3.35	0.82	-0.018	0.556**	1.000						
4 Image improvement	3.85	0.96	-0.101	-0.001	0.307**	1.000					
5 Fulfill the laws and regulations	4.32	0.89	0.023	0.401**	0.180*	0.090	1.000				
6 Environmental effectiveness improvement	3.93	0.96	0.071	0.346**	0.051	0.080	0.281**	1.000			
7 Minimize environmental problems	3.58	1.20	-0.006	0.521**	0.120	0.069	0.390**	0.481**	1.000		
8 Competitiveness improvements	3.08	1.18	-0.137	0.041	0.525**	0.340**	0.060	0.133	0.255**	1.000	

*Cell entries are standardized coefficients; * $P < 0.05$; ** $P < 0.01$. two-tailed test.

In all cases, the control variables are not significant. However, it is observed that company size does appear to have a positive influence on the internal sources of motivation and on the internal benefits of ISO 14001 such as the minimization of environmental problems and, to a lesser extent, also on an improvement in environmental efficiency of companies and compliance with the legislation in force. As far as distribution according to company sectors is concerned, a clear significant difference is noted in terms of a higher rating on the part of industrial companies of the benefits of compliance with environmental regulations following implementation and certification of ISO 14001 and an improvement in their competitive capacity (see table I).

Although generally speaking the correlation coefficients are not very strong, there would fairly obviously seem to be a positive relation between the degree of internal motivation (Hypothesis 1) and external motivation (Hypothesis 2) and the benefits of ISO 14001, although this relation is not statistically significant in all the items analyzed. Thus, the results of these analyses provide partial support for both Hypothesis 1 and Hypothesis 2.

Figure 2. Results of regression analysis for motivations for seeking ISO 14001 certification and the benefits of implementation and certification*



*Cell entries are standardized coefficients; * $P < 0.05$; ** $P < 0.01$. two-tailed test.

As for Hypothesis 3, this would seem to be confirmed with greater clarity, given that the correlation and regression coefficients in the case of internal sources of motivation are statistically significant and greater than those for external sources of motivation in four of the six benefits analyzed - specifically, for factors that, according to Christmann and Taylor (2006), might be deemed substantial as far as the implementation and certification of an environmental management standard is concerned. In particular, we are referring to factors involving the minimization of problems

(correlation coefficients 0.521 as opposed to 0.120 and regression coefficients 0.494 as opposed to 0.056, respectively), an improvement in environmental efficiency (correlation 0.346 as opposed to 0.051 and regression 0.337 as opposed to 0.056) and compliance with laws and regulations (correlation 0.401 as opposed to 0.180 and regression 0.339 as opposed to 0.177). On the other hand, attention should also be drawn to the greater satisfaction obtained by those companies that implement and become certified in accordance with 14001 from the process in relation to those that implement it due to external factors (correlation coefficients of 0.332 and 0.193 and regression coefficients of 0.321 and 0.224, respectively). It is also interesting to highlight the fact that this relation would appear not to be influenced by the control variables of the model – that is, by the size of companies and their sector of activity.

As far as the adjustment of the two regressions used to contrast the working hypotheses is concerned, it should be pointed out that they are acceptable for an explanatory model with these characteristics (Davis, 1996), since it explains between 10% and 40% of the variance of the dependent variables and the adjusted R^2 , which accounts for the fact that the number of parameter estimates relative to the sample size are not very different, ranging from 7% to 30% (see Figure 2).

6. Discussion and conclusions

In the survey that has tried to be summarized in this paper, it has been shown that there is a positive relation between the level of internal and external motivation of Spanish companies when implementing and certifying the ISO 14001 standard and the benefits that, in the companies' opinion, they obtain from that process.

On the other hand, the conclusion has also been drawn that there is a greater relation between the sources of motivation of an internal nature in the implementation and certification of the standard and the benefits obtained from that process, among which is included customer satisfaction with the process – an issue which, in our opinion, is a relevant one, as it would corroborate some previous theoretical proposals both in academic and practitioner literature regarding the implementation of ISO 14001.

The implications of the evidence detected are, in our opinion, of great interest to the main stakeholders involved in the implementation and certification of ISO 14001, especially for managers, consultants, certified bodies and public administration. We have found out that instances of implementation and certification due to different motives give rise to different benefits for companies certified in accordance with ISO 14001, irrespective of the size of the company and the sector of activity. Furthermore, companies motivated by factors of an internal nature perceive superior benefits, including a higher satisfaction with the process itself.

In the case of public administration, there is in our opinion another important added implication – it is important to point out that the implementation and certification of an EMS in accordance with ISO 14001 has for many organizations entailed the chance to make advances in terms of compliance with the environmental legislation and regulations in force, as we have been able to corroborate in the survey, the results of which have been summarized. It is clear that the main prescriptive and sanctioning work in compliance with the legislation and regulations in force corresponds to public administration. However, those management system standards subject to a certification procedure by a *third party*, such as the ISO 14001 standard –in which a commitment to compliance with the legislation in force is requested –or standards of reference such as EMAS – in which compliance with such legislation is demanded– are tools that also provide support for public administration for such purpose, given that it is becoming increasingly apparent that public administration has in practice certain clear limitations in terms of resources when enforcing environmental legislation and regulations. These limitations increase in periods of economic crisis, such as the one we are currently experiencing. This of course is the case with Spain, and this fact has been highlighted for quite some time now (OECD, 1997; Fundación Entorno, 1998; Heras *et al.*, 2008).

However, it is in this area where the auditing or verification procedure of EMS standards takes on special importance, given that it is essential for them to function properly by conveying a sense of

confidence that is central to normalization and certification plans, with certain homogenous criteria for courses of action that do not corrupt the system. This, unfortunately, has occurred in other areas of economic activity such as accountancy (e.g. the Enron and WorldCom case) and also in the financial sector (e.g. the work carried out by credit rating agencies in the current financial crisis). Rigorous and demanding actions on the part of the different levels of competence of public administration, as well as the different national accreditation agencies, prove essential in this field in order for the entire supply chain of global standards such as ISO 14001 or ISO 9001 to continue enjoying the credibility they need.

Lastly, we shall mention two possible limitations to our survey and possible lines of work. In our opinion, the methodology itself that has been used to obtain the quantitative information, even though it may be more conventional and generally accepted, does have limitations. As is the case with the vast majority of quantitative studies, the information used in this paper is based on the perceptions given by specialized managers that had taken part in the EMS introduction process, and any analyses of the effect of EMSs conducted in this way are subject to possible weakness and methodological distortion, a bias problem that Wayhan *et al.* (2002; 2007) and Heras *et al.* (2002) have pointed out in the case of the ISO 9001 standard. With a view to avoiding this problem, it would be interesting for the information gathered in the field studies to be triangularized in future surveys with the participation of other company managers and other stakeholders such as middle managers, employees, suppliers, customers and auditors, etc.

There is also a limitation in terms of the geographic area in which the survey has been carried out. Although on a Spanish level there are many surveys that have been carried out in different regions that have obtained similar results using similar or identical study methodologies (e.g. Casadesús *et al.*, 2001; Gimenez *et al.*, 2003; Bernardo *et al.*, 2008), the extrapolation of results to other international environments is not so simple. In this respect, and given the degree of maturity of dissemination of ISO 14001, we consider it would be very interesting to carry out a global survey about the organizational incidence of this standard along the lines used by Corbett (2006) in the case of ISO 9001 (a global survey of over 5,000 firms in nine countries), for which purpose it would be important to establish active networking among researchers in the field.

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