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MOTIVATION AND BENEFITS OF IMPLEMENTATION AND CERTIFICATION ACCORDING ISO 9001 – THE PORTUGUESE EXPERIENCE

Abstract: *The aim of the research is to analyze the different aspects associated with the motivation and benefits of certified ISO 9001 companies in Portugal. A total of 426 certified Portuguese companies were surveyed. The response rate was equal to 61.03 percent. Our results suggest that the main motivation for certification were “improvement of quality”, “marketing advantage”, and “cost reduction”. The main benefits that Portuguese companies have gained from the referred certification have been, among others, the improvement of “procedures”, increase of the “customer satisfaction” and decrease of “production costs”, among others. The surveyed firms belong only to the Minho region of the north of Portugal. This paper aims to provide a contribution to the research related to the motivation and benefits associated to the quality management systems. The selection of the motives and benefits were validated through statistical analysis and the relationship between expected and perceived benefits was discussed.*

Keywords: *Quality Management Systems (QMS), ISO 9001, Benefits of certification, Portugal*

1. Introduction

The strong competitiveness of the world market has caused the quality to become a growing demand of markets and customers. Companies have been forced to open its doors to the culture of quality, a message that is often associated with the ISO 9001 (Casadesus, 2001).

There is a general concern regarding the contribution of ISO 9001 towards quality improvement and customer satisfaction, despite the exponential increase in the number of certified companies.

There are many reasons provided by companies when justifying their decision to obtain ISO 9001 certificate. The requirement of customers and the access to new markets has traditionally been the alleged reasons (Escanciano *et al.*, 2001).

But the arguments raised by companies already certified, when recommending the certification to other companies, regardless of what have been their own reasons to certify, identify the benefits of all types, derived from obtaining certification (Escanciano, 2000).

Studies indicate that, while the main motivations for firms to certify their quality systems are related with the markets, the benefits are generally the improvement of

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the internal organization and reporting procedures and quality improvements (Lipovatz *et al.*, 1999), but to do it, according to Lee *et al.* (1999), after certification, the companies' task is to change the quality's culture throughout the company.

Jones *et al.* (1997) take in account previous work in their analysis and conclude in accordance with Leung *et al.* (1999), that there is a relationship between the company's initial motivation for certification and its perception of the received benefits, so companies that obtain the certification for external reasons get less benefits than companies that obtain the certification for internal reasons, despite finding also internal benefits (Jones, 2000).

A literature review conducted by Escanciano *et al.* (2001) allowed compile many different benefits, such as: attract new customers; increase customer's loyalty; increase customer's satisfaction; improve the understanding of customer's needs and expectations; increase sales; increase their share in the market; increase exportation; increase productivity, improve the company's image in the market; improve the quality of the products and/ or services, cost reduction and reduction of the customer audits. It also allowed compile others important aspects such as: decrease the rate of incidents, rejections, non-conformities and complaints, increase the profitability; improve the use of time and resources, clear definition of responsibilities; increase their training, increase their participation in the management of the company; improve the work environment; decrease absenteeism; establish cooperation agreements with suppliers; and reduce accidents.

However, despite the forementioned benefits, not all certified companies enjoy these with the same intensity (Escanciano *et al.*, 2008); some firms find that the intensity is felt strongly by larger companies, which are more automated and possess a higher technological level (Vloeberghs and Bellens,

1999).

Companies that give importance to certification according to ISO 9001 put a greater emphasis on quality and have a balanced perspective on the internal and external quality (Dick *et al.*, 2001).

The list of benefits from the certification is potentially infinite, but some of the benefits of the certification according to ISO 9001 tend to be vague, such as efficiency or good health of the corporate culture, while others may have measurement problems, specifically the increase of productivity or market share (Jones, 1997).

Despite the difficulties regarding the quantification and measurement of benefits, these can be separated into internal and external, relatively to the company (Tsiotras and Gotzamani, 1996). This differentiation is used in research and studies (Vloegeberghs and Bellen, 1999), but in some investigations, such as performed by Mo and Chan (1997), the internal benefits of certification are the only one's referred.

There are different opinions regarding the importance of internal benefits relatively to external ones. Some authors, namely Vloegeberghs e Bellen (1999), believe that most of the certification benefits (according to ISO 9001) are of internal nature, even when they say, as Brown *et al.* (1998), that companies are certified for external reasons, in particular SMEs, for whom the improvements obtained with the certification are mostly of internal nature: improvements of quality awareness, improvements of awareness of its problems and improvements of the quality of product.

On the other hand, for Quazi and Padijbo (1998), the most important benefits are external, where the top three include: increasing customer satisfaction, improving quality image and market competitiveness, and complying with customer requirements.

Understanding the purpose of the ISO 9001 is an important preliminary step in the process of implementation (Taylor, 1995) to achieve the benefits derived from

certification. Those benefits that help increase the market share and the export market, clarify the working procedures, improve the quality of the product / service, improve the team work, increase efficiency and reduce customer complaints, emphasizes the continuous improvement, communication and customer satisfaction, return on investments, reduction of transaction costs and quality costs (Krasachol *et al.*, 1998; Lee e Chan, 1999; Zuckerman, 2000; Anderson *et al.*, 1999; Mo e Chan, 1997; Weston, 1995).

The ISO 9001 standard is a recognized standard for quality system; although it does not guarantee quality, the ISO certification ensures consistency in the implementation of procedures and promotes the quality, reliability, sustainability and predictability, which are important not only for customers but also for the firm's efficiency and revenue (Goodman, 1998).

The implementation of the ISO 9001 in organizations involves multifaceted changes in labour relations and organizational operations, causing a profound difference in how quality is perceived and measured (Elmuti, 1996; Dick *et al.*, 2002).

The way to the ISO 9001 certification means hard work and effort, but it is worthwhile. However, it is necessary to have simple and straightforward procedures that everyone can understand (Spreha and Helms, 1995).

Productivity, quality, customer satisfaction and quality of life at work will be improved with the implementation of a quality management system according to the ISO 9001 (Elmuti and Kathawala, 1997; Elmuti, 1996). Regardless of the reasons why firms decide to implement certification measures, the fact that companies are satisfied with the decision to certify and do not discontinue (Jones, 2000) confirms that it is worthwhile.

According to several authors (Corbett *et al.*, 2003, Anderson *et al.*, 1999; Buttle and Jayne, 1999; Sun, 1999; Vloeberghs and Bellens, 1999; Brown and Van der Wielle, 1998; Krasachol *et al.*, 1998; Lee and Chan,

1999), the main advantages of certification according to the ISO 9001, even when considered as a starting point for quality assurance, are "quality improvement", "improved procedures" and "improvement of corporate image", which according to these authors is quite consistent from country to country and from sector to sector.

With this in mind, we conducted an empirical study regarding the motivations of Portuguese companies to certify under the ISO 9001 and the benefits obtained from its implementation.

Thus, the aim of this work is to identify the main motivations for Portuguese companies to obtain certification according to the ISO 9001 as well as their advantages or benefits.

2. Methodology - the survey

The data employed in this paper are part of a larger study undertaken as part of a doctoral dissertation (Costa, 2008) that intended to characterize the landscape of quality management in Portuguese companies.

This research began in 2005 with the drafting of a questionnaire; to test its feasibility a pre-test was administered to a few firms and experts. Some changes were made, as some respondents had some difficulty in responding to some of the questions. The questionnaire was mailed to 426 companies obtained from a database compiled by the Portuguese Institute of Quality (IPQ) with information on accredited companies from the north region Minho that had been certified according to the ISO 9001.

Figure 1 shows the different business sectors that participated in this study: 24.6% belong to textile sector, 15.4% construction sector, 12.7% belong to mechanical sector and 39,8% belong to other sectors, such as the pharmaceutical, food or transports sectors (these last sectors were grouped and classified as "others" due to their low percentage).

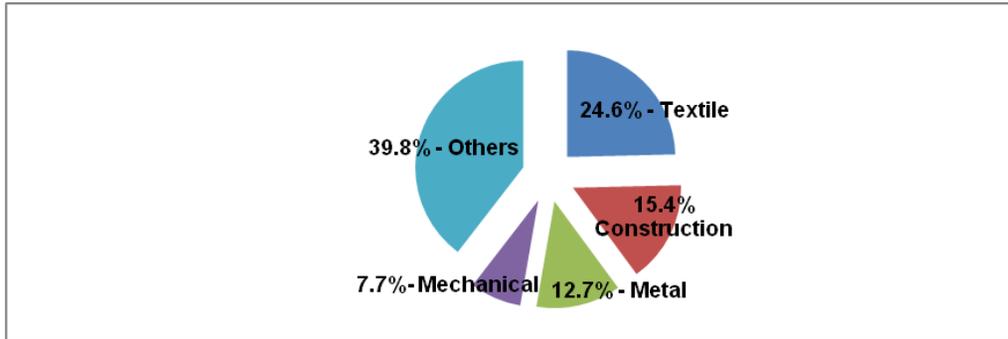


Figure 1. Firm distribution by business sector

Table 1. Main items of the questionnaire on motivations and benefits of certification

Motivations for certification	Cost reduction
	Quality improvement
	Marketing advantages
	Customer pressure
	Many competitors certified
	Benefits experienced by other firms
	Avoid potential export barrier
	Capturing workers' knowledge
	Relations with government authorities
	Relations with communities
	Corporate image
Benefits of certification	Reduction of production costs
	Improvement of productivity
	Improvement of assurance in the company's quality
	Environmental improvements
	Increase in "on time" deliveries
	Increase in customers satisfaction
	Increase in market share
	Maintenance / increase in profit margin
	Better definition and standardization of working procedures
	Improvement in workers' morale
	Improvement in the relationship with authorities
	Improvement in the relationship with communities
	Improvement of corporate image

Two hundred and sixty-five completed surveys were received. Five completed surveys were excluded because they were incomplete.

Thus, the number of questionnaires in our final sample is 260, representing a response

rate of 61.03%, which is higher than that of other studies that have employed comparable methodology (Buttle, 1997; Casadesús and Heras, 2001; Corbett *et al.*, 2003; Escanciano, 2000; Heras, 2001; Leal, 1997). The information for this empirical work was

obtained from a questionnaire based on work done by Corbett (2003). In this work, 21,427 firms from 15 different countries (Australia, Canada, France, Hong Kong, Indonesia, Japan, Korea, Malaysia, New Zealand, Philippines, Singapore, Sweden, Taiwan, Thailand and USA) filled out the questionnaire, which led to 5,389 answers; this corresponded to 25.19% of the total of questionnaires.

The motivation for certification was measured on 11 items while the benefits they received from certification was measured on 13 categories, all of which were expressed on a five-point scale, ranging from 1 for “no benefits” to 5 for “very substantial”.

In order to compare our study with the reference study (Corbett, *et al.*, 2003) the “relative” motivations were calculated, as well as the “relative” benefits, by dividing the score in each motivation by the sum of the scores for all motivations or benefits referred by the firms.

In our data analysis we employed multivariate analyses (statistical program SPSS 14.0 for windows) based on statistical methods that consider simultaneously multiple measures (variable) for each research item. The multivariate data analyses corresponds to a generalization of univariate and bivariate analyses, making multivariate analyses based on one relation or on a group of relations (Torres, 2005).

The prime objective of this work was to determinate the main motivation for certification according to the ISO 9001, as well as, the main benefits that Portuguese Companies, in the Minho Region, achieved after they implemented and certified the quality system according to the ISO 9001.

3. Results

As results of this research are presented, in this paragraph, the main motivations for certification, according to the ISO 9001, as well as, the main benefits of certification.

3.1 Motivation for certification

According to Figure 2, the main motivations for the certification of Portuguese companies in Minho - the north region of Portugal - are, in descending order, “quality improvement” based on the global achievement of companies due to certification; improvement of “corporate image” due to certification; “marketing advantages” due to the increase in the number of customers; “capturing the workers knowledge, as they have a better understanding of how the company works; “cost reduction” due to higher efficiency obtained through certification. As secondary motivations, “relations with the communities” can be considered as an important factor in the social environment of the company; “benefits experienced by others” after certification; “customer pressure” from important customers; and “relationship with the authorities” expecting to be a good argument to improve the relationship with the authorities to fulfill the rules; “many competitors certified” which reduces the loss of business against competitors already certified; “avoid potential export barrier” as certifications seems to be a criteria for exportation.

3.2 Factorial analysis - Motivations

According to table 2, we obtained a Cronbach’s Alpha of 0,772 when we examined the internal consistency analysis of the eleven items used to measure the motivations for a given firm to implement certification; this is a reasonable value.

According to table 3, it is possible to use a factorial model if there is a variable correlation between them. The KMO (Kaiser-Meyer-Olkin) is a statistical procedure that can help determine the quality of the correlation between variables.

In Table 4, we have a KMO of 0,760, which suggests a medium correlation, allowing us to undertake factorial analyses.

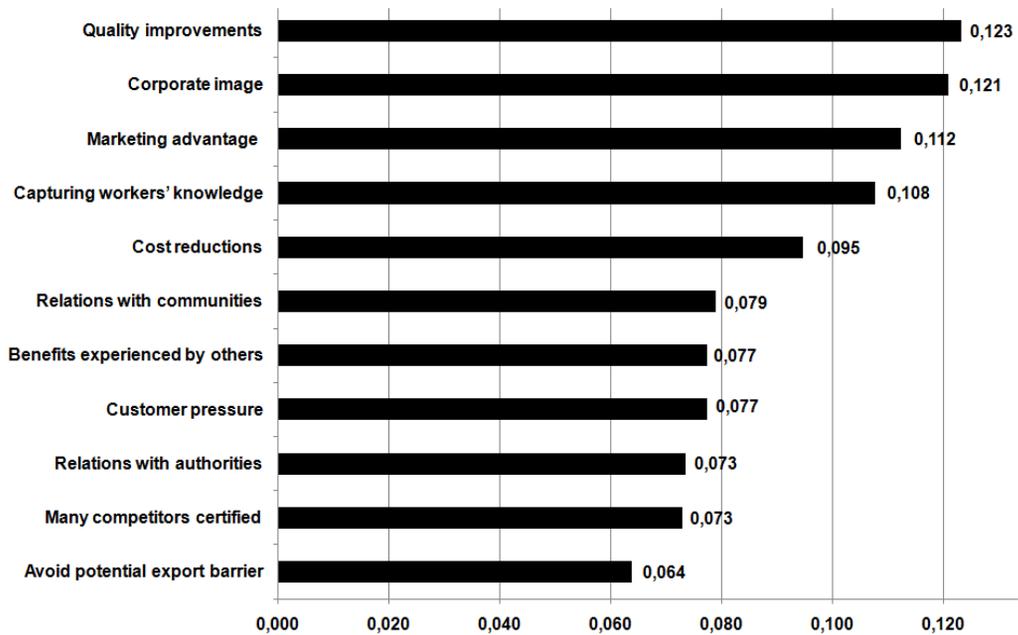


Figure 2. Motivations for implementing ISO 9001 certification

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Table 2. Cronbach's Alpha Score for Firm Motivations

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.772	.775	11

Table 3. Kaiser-Meyer-Olkin of motivations

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.760
Bartlett's Test of Sphericity	Approx. Chi-Square	616.482
	Df	55
	Sig.	.000

Table 4. Principal Component Analysis of Firm Motivations

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.483	31.659	31.659	3.483	31.659	31.659	2.391	21.736	21.736
2	1.531	13.918	45.577	1.531	13.918	45.577	1.967	17.882	39.619
3	1.096	9.964	55.541	1.096	9.964	55.541	1.425	12.956	52.575
4	1.028	9.344	64.885	1.028	9.344	64.885	1.354	12.311	64.885
5	.835	7.590	72.475						
6	.726	6.600	79.075						
7	.647	5.882	84.957						
8	.545	4.954	89.911						
9	.433	3.937	93.848						
10	.395	3.594	97.442						
11	.281	2.558	100.000						

Extraction Method: Principal Component Analysis.

The number of variables are reduced to 4, which explain the 64,88% of the variance of the construct. It is necessary to describe

them and using a Varimax rotation, according to Table 5, we have:

Table 5. Varimax Rotation

Rotated Component Matrix(a)				
	Component			
	1	2	3	4
Costs reduction			0,706	
Quality improvement			0,744	
Marketing advantages	0,518			0,645
Customer pressure	0,795			
many certified competitors	0,787			
Advantages obtained by others	0,631			
Avoid potential export barrier	0,567			
Mobilize the workers knowledge			0,519	
Relations with the authorities		0,854		
Relations with communities		0,851		
Corporate image				0,862

Extraction Method: Principal Component Analysis.
 Rotation Method: Varimax with Kaiser Normalization.
 A Rotation converged in 6 iterations.

From the analysis of the results in Table 5, the companies' certification is mainly due to four reasons:

1. Reaction – customer pressure, many competitors certified.
2. Political reasons - relationships with the

- authorities and with communities
- 3. Efficiency – cost reduction, quality improvement and capturing the workers knowledge.
- 4. Market – marketing advantages and corporate image.

In sum, we can conclude that companies' certification is due to internal reasons (efficiency) and external reasons (reaction, political and marketing reasons).

3.4 Benefits of certification

According to Figure 3, the main benefits for certified Portuguese companies in Minho region, are, in descending order:

“procedures”, that is, improvement of the definition and standardization of working procedures; “image” based on the improvement of corporate image as result of certification; “quality” based on the improvement of assurance in the company’s quality; increase in “customer satisfaction” and “on-time delivery”; increase in workers’ “morale” and in productivity; increase in market share; decrease in “production costs”; improvement in community relationships; improvement in the relationship with authorities; finally “profit margin” was considered the least important benefit.

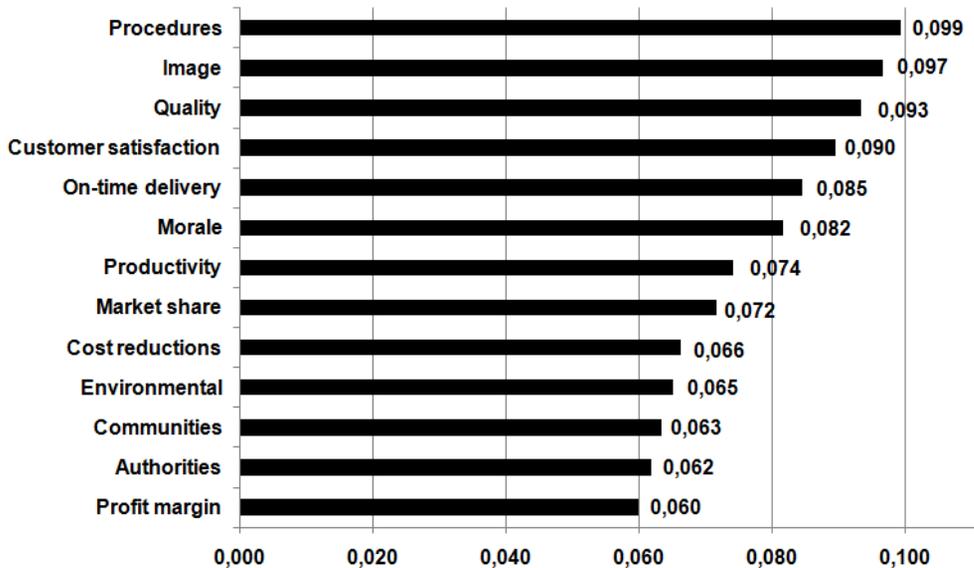


Figure 3. Benefits in implementing the ISO 9001 certification

3.5 Factorial analysis

With the analysis of internal consistency of the thirteen items that evaluate the

motivations for companies' certifications, a Cronbach's Alpha of 0.894 is obtained, that means good.

Table 6. Cronbach's Alpha of Benefits

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
0.894	0.898	13

The factorial model can be applied if there is a correlation between variables; the KMO is one of the statistical procedures that can help

define the quality of the correlation between the variables.

Table 7. Kaiser-Meyer-Olkin of benefits

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.886	
Bartlett's Test of Sphericity	Approx. Chi-Square	1424.242
	Df	78
	Sig.	.000

A KMO of 0,886 suggests a good correlation analysis and thus enables undertaking factorial

Table 8. Principal Component Analysis of benefits

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.892	45.320	45.320	5.892	45.320	45.320	3.163	24.328	24.328
2	1.166	8.966	54.286	1.166	8.966	54.286	2.669	20.531	44.859
3	1.112	8.552	62.838	1.112	8.552	62.838	2.337	17.979	62.838
4	.889	6.835	69.673						
5	.782	6.016	75.689						
6	.658	5.060	80.749						
7	.523	4.026	84.776						
8	.438	3.369	88.145						
9	.413	3.180	91.325						
10	.356	2.736	94.060						
11	.286	2.203	96.263						
12	.256	1.970	98.234						
13	.230	1.766	100.000						

Extraction Method: Principal Component Analysis.

In other words, the variables are reduced to three main categories which explains 62,83% of the variance of the construct; using a Varimax rotation, we obtain the following table.

The three main factors that reflect the benefits obtained from certification according to the ISO 9001 are:

- Global profitability – reduction of production costs, increase in productivity, increase in on-time deliveries; improvement in market share; maintenance / increase of profits.
- Political benefits – relation with the authorities; relation with community and improved environmental

- performance.
- Improvement of marketing image and internal confidence – improvement of confidence on the company’s quality; improvement in costumers’ satisfaction;

improvements in the definition and standardization of working procedures; increase in workers’ moral; improvement of company image.

Table 9. Varimax Rotation of the benefits

Rotated Component Matrix(a)			
	Component		
	1	2	3
Reduction of production costs	0,759		
Increase of productivity	0,704		
Increase of confidence on the quality of the company		0,687	
Better working environment?			0,537
Increase of “on-time” delivery	0,636		
Increase customer satisfaction	0,521	0,631	
Improved market share	0,682		
Maintenace/increase of profit margin	0,742		
Improvement on the definition and standardization of working procedures		0,713	
Improvement of worker’s morale		0,640	
Improvement of relations with the authorities			0,849
Improvement of relations with the comunity			0,842
Improvement of the Organization’s image in the market		0,679	
Extraction Method: Principal Component Analysis.			
Rotation Method: Varimax with Kaiser Normalization.			
A Rotation converged in 6 iterations.			

4. Discussion

There are many studies on why companies choose certify their quality systems according to the ISO 9001, such as: (Anderson e Johnson, 1999; Buttle, 1997; Casadesus e Gimenez, 2000; Carlson e Carlson, 1996; Escanciano *et al.*, 2001; Yahya e Goh, 2001; Jones *et al.*, 1997; Llopis e Tari, 2003; Meegan e Taylor, 1997; Tsiotras e Gotzamani, 1996; Vloeberghs, 1999; e Wenmoth, 1996), many of them with equivalent obtained results. The motivations for certification according to the ISO 9001 vary slightly from country to country. The main motivations of firms in Portugal to be certified according to the ISO 9001 are in a descending order “quality improvement”,

“corporate image” and “marketing advantage”, as found in Japan, Canada, Korea, Australia, New Zealand, Indonesia, Malaysia, Philippines, Singapore and Thailand. This finding is in line with work done by Corbett *et al.* (2003). This is also considered the results when the set of the 15 economies studied by Corbett *et al.* (2003). The first three motives are in accordance with our study, while the fourth motivation that appears in our study is different from the one found by Corbett *et al.* (2003). In our study we found that the fourth motivation was mobilizing workers’knowledge, as found in Japan. In Corbett *et al.* (2003) study, the motivation ranked in fourth place was “customer pressure”, as found in Sweden, Canada, United States, Korea,

Hong Kong, Indonesia, Malaysia, Philippines, Singapore and Thailand. Also according to Buttle (1997), there are marketing reasons, namely those related to external customers, which provide evidence that companies expect the ISO 9001 to become a requirement to gain customers. In comparison with other studies, the reasons and factors that lead companies to certify themselves can be grouped into internal and external reasons (Escanciano *et al.*, 2001). The external pressure, the certification needs of competitors and advertising are factors behind certifications (Gotzamani e Tsiotras, 2002; Lipovatz *et al.*, 1999; Jones, 1997), while others consider certification as part of a larger program in order to improve quality, productivity and internal efficiency (Llopis e Tari, 2003). Overall, we can say that Portuguese companies certify by internal factors (efficiency) and external factors (reaction, marketing and political reasons). Identical findings get Casadesús e Heras (2001) that concluded that companies ensure: efficiency (improving the overall quality and operational), market (improving the company's position in the market), anticipation (ability to perceive opportunities) and reaction (demand/pressure from customers, competitors certificated). And according Tsiotras e Gotzamani (1996), companies make sure to: improve internal productivity, organization and updating the quality management system, improve the image and reputation, facilitate and simplify procedures and contacts with customers and satisfy the external demands and market pressures. Companies are generally satisfied with certification. But while some studies indicate that the benefits obtained are mainly organizational, others highlight exclusively business advantages in the participation of personal (Heras *et al.*, 2000; Casadesús e Heras, 2001).

The benefits obtained with the certification of the quality system according to the ISO 9001, despite the difficulties, considering the quantification and measurement of benefits

of certification, these can be divided into internal and external benefits to the company (Tsiotras e Gotzamani, 1996, Vloegeberhgs e Bellen, 1999). Concerning external benefits, the implementation and certification of a quality system allows the company to be recognized for its quality by an independent entity (Martinez *et al.*, 2000). The three main benefits for Portuguese companies obtained with certification of quality systems are, in descending order: "procedures", that means improvement of definition and standardization of working procedures; and "image" based on improvement of corporate image as result of certification; "Quality" based on the guarantee in the company quality system, more or less, as the economies studied by Corbett *et al.* (2003), except Hong Kong and Taiwan that put in the first place "improvement of company image". One of the most important internal benefits, according to Corbett *et al.* (2003), is the improvement of procedures. This benefit was not initially explicitly, but it is unquestionably, very enjoyable (Casadesús e Heras, 2001; Heras *et al.* 2000; Carlsson e Carlsson, 1996) and it is in line with our study. This is also the most appreciated benefit reported in the United States, followed by companies from Australia, Canada and France (Corbett *et al.*, 2003). The referred benefit, "improvement of procedures" appeared in fifth place in a study carried out by Zaramdini (2007) in 209 companies from the United Arab Emirates, where in first place they found "Increase productivity and/or efficiency". Companies are generally satisfied with the certification, even when their expectations are not completely satisfied. According to Corbett *et al.* (2003) the main advantages of certification, even when considered as a starting point for quality assurance, are "quality improvement", "improved procedures" and "corporate image", which is fairly consistent from country to country. Thus, the main advantages and benefits of certification according to the ISO 9001, even

when considered as a starting point for quality assurance, are fairly consistent from country to country and from sector to sector of activity (Corbett *et al.*, 2003; Anderson *et al.*, 1999; Buttle e Jayne, 1999; Sun, 1999; Vloeberghs e Bellens, 1999; Brown e Van der Wielle, 1998; Marrom e Van der Wiele, 1995; Krasachol *et al.*, 1998; Lee e Chan, 1999).

5. Conclusions

The certification process according to the ISO 9001 assumes there is an evolutionary process in how a firm is managed.

Although the volunteer character of the standard ISO 9001 having a quality system according to this standard and certification is a “must” for firms that want to be recognised for their quality and to survive in an increasingly competitive market.

The objectives of this research were to identify the main motivations for the certification of the Portuguese companies and the main benefits obtained.

The main motivations for the ISO 9001 certification for Portuguese companies are the “improvement of quality”, “corporate image”, “commercial advantages”; globally,

we can say that the certification of Portuguese companies is due to internal factors (efficiency) and external factors (reaction, political reasons and marketing).

The main benefits of certification are: “improvement in the definition and standardization of working procedures”, “improvement in company’s image”, “improvement in the confidence in the quality of the company” and “improvement in customer satisfaction” and globally we can say that the factors that benefit Portuguese companies after certifications are global profitability; political benefits and improvement of commercial image and internal confidence.

Certification may not increase a firm’s market share or profits, but it definitely does not decrease market share or profitability. Secondly, perhaps the most important benefit of the ISO 9001 is the improvement of procedures.

Our study did not explicitly ask about the improvement of procedures as a motivation for certification, but the evidence based on the questionnaire administered to the certified companies suggests that in many cases this advantage was not expected but was nonetheless very useful.

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