CERTIFICATION OF QUALITY MANAGEMENT SYSTEMS UNDER ISO9000 VERSUS BUSINESS BOTTOM LINE: EMPIRICAL EVIDENCE

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RESUMEN:

Esta investigación, tiene como objetivo principal la posible correlación entre la calidad y los beneficios que proporciona, tanto humanos, económicos y tecnológicos, materializados en un incremento de los resultados, lo que permitirá algunas empresas resolver los desafíos y oportunidades en el mundo de hoy, cada vez más interconectado. La aplicación de las herramientas de calidad puede resultar clave para el éxito de las organizaciones, proporcionando una ventaja competitiva en la actual economía mundial y una mayor satisfacción de sus clientes en términos del valor que perciben. De forma más explicita, esta investigación pretende demostrar la relación entre la certificación ISO 9001, la medición de los costes de la calidad y los resultados de la empresa, sobre la base de un estudio empírico.

Por lo tanto, este trabajo de investigación tiene como objetivo estudiar y entender la importancia de aplicar sistemas de gestión de calidad total y control de costes en la gestión de la calidad de la empresa. En particular, estamos especialmente interesados en si la aplicación de estas herramientas aumenta el resultado de la empresa.

Para lograr este objetivo, hemos desarrollado un estudio empírico de las empresas certificadas por el NP EN ISO 9001:2000, en Portugal, en la región de Ribatejo (Distrito de Santarém) y recopilar datos sobre si la empresa añade valor.

Palabras Clave: ISO 9000; TQM; TQC; Calidad

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ABSTRACT:

Quality is the main focus of the current paper, as well as the great importance of its benefits to businesses. These benefits, which shall consubstantiate increased earnings, are deemed as significant to companies from an economical, technological and human resources point of view, considering also that its development may facilitate the entrepreneurial capacity of firms to deal with the ever evolving challenges and opportunities of the current interconnected world. More specifically, the current investigation aims to demonstrate the existence of an objective relation between the standard ISO 9000 certification, quality costs measuring and earnings, based on our empirical study.

So, the current investigation was aimed to study and understand the importance of the implementation of total quality management systems as well as quality cost control in a firm's quality management system. In particular we would like to understand whether the implementation of quality tools has a positive influence in a firm's earnings.

In order to fulfil such objective within the Portuguese context, we have developed an empirical study which targeted companies accredited under NP EN ISO 9001:2000 on a particular sub-region of Portugal (Ribatejo, Santarém's district), and collected data in order to verify whether the implementation of such quality management systems adds value to those companies.

Key words: ISO 9000; TQM; TQC; Quality

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1. INTRODUCTION

Total Quality philosophy has been evolving since it appeared in the beginning of the XXth century, as companies have been feeling the need to increase their level of competitiveness within the market to secure their existence. All of this was propelled by more globalized markets, which had greater competences and customers searching for higher quality levels in products.

Nowadays, in a totally globalized market, where companies deal with international customers and suppliers, it is not enough to introduce products or services of high quality in the market. It must be ensured that these were made available according to rules and requirements that give clients assurance that what they are purchasing is reliable. This demand leads us to think of the importance of implementing a totally oriented quality management system, that is, total quality.

Customers are getting more and more informed and demanding. They try to verify that the product of a certain brand is certified, to ensure its quality. Over the last few years, the use of quality management systems by companies worldwide has increased surprisingly. That means an increase of competitiveness.

According to ISO Survey of 2007, the total number of certificates issued throughout the world, relative to the ISO 9001, was 951.486 concerning 175 countries, which represents an increase of 54.557 certifications, i.e. 6% more than the previous year. In Portugal, 5.283 certificates were issued, showing a decrease of 568, which corresponds to a decrease of 10%, as 5.851 certificates were issued in 2006. Portugal seems to be riding alongside with the international situation, because in 2006 there had been an increase of 16% against 6% in 2007. There was clearly a decrease of certifications worldwide, and yet the number of countries has increased from 170 to 175.

According to the International Organization for Standardization, that is due to the following:

- Certification activity has slowed down due to the coming new edition ISO 9001, with companies adopting a "wait and see" position, just like they had already done before the edition of the year 2000.
- Certification market is stabilizing in some countries, where this activity started early.
- The continuous growth of the sector or, specifically, of the activity of ISO 9001 editions makes the number of certifications concerning generic norms decrease.
- The tendency of companies to replace certificates for multiple situations by one that covers all situations remains, and although this dimension is hard to quantify, it also reduces the number of certificates.

China is the country that presents the larger number of certified companies. Curiously, American companies do not seem to be that interested in obtaining certification as are its European competitors, so the number of certifications in the U.S.A. is smaller than the ones in Italy, Spain and Germany and even Japan and India.

Having said that, it must be pointed out that the U.S.A. as well as Japan were pioneers in the application of Total Quality Management, and because of its history in terms of quality management, they focus more on this system than on the norm ISO created in Europe (Sun, 1999).

In that sense, "*the requirements of ISO 9001 quality system focus exactly on those issues; project and maintenance of the quality system, manager's responsibility to lead the process of quality management; human and material resources management, quality management in the product's accomplishment, measurement, analysis and improvement of products and procedures. When a company gets a ISO 9001 certificate, it means that it was assessed by a certification body, which verified that the company's practices of quality management comply with the requirements on quality management established by norm ISO 9001*" Carpinetti, Miguel and Gerolamo (2007:2).

The fast expansion of ISO 9001 certification consequently lead to a great repercussion on academic literature. Many surveys have been carried out concerning the advantages or disadvantages of its implementation and the impact on the entrepreneurial profitability, but most of these are surveys that can be considered narrative (Askey and Dale, 1994; Taylor, 1997; Sun, 2000; Gotzamani and Tsiotras, 2002). Other surveys also concern and include quality costs (Texeira, 1992; Youngdahl and Kellogg, 1996; Sansalvador et al, 2004; Sansalvador and Rubio, 2005). Yet other surveys only relate ISO 9001 to the entrepreneurial profitability (Casadesús and Giménez, 2000; Romano, 2000; Withers and Ebrahimpour, 2001; Casadeús et al., 2002; Texeira and Justino, 2008).

On the other hand, according to Martínez Costa, M. and Martínez Lorente, A. (2008:10), "*...certification has a positive effect on the entrepreneurial profitability. Nonetheless, there was the need to perform more surveys of this kind to empirically reinforce the attained profitability*".

We find it relevant to address the subject by pursuing, as a guideline, the answer to the following research question: "***Do companies that have a total quality management system and a quality costs system implemented improve their Result?***"

2. OBJECTIVE AND RESEARCH HYPOTHESES

The core objective of this research consists of understanding the importance of implementing total quality and quality costs management systems in the company's management. Does it increase its profitability?

In table n. º 1 we present our research hypotheses and its objectives:

Hypotheses	Objectives
Hypothesis I – By certifying, the company satisfies the customers' expectations, securing their loyalty.	• Verify if the companies that have implemented the management system of quality certification do understand it or use it. • Investigate if, by implementing a quality management system, companies can more easily get customers loyalty.
Hypothesis II – With the certification companies get a more productive Quality Management in the purchase and with actual emphasis in internationalization and outsourcing.	• Verify if the quality management becomes more productive through more careful supplying and buying, with an emphasis in internationalization. • Verify if there is the need to reduce the development period for new products or services.
	• Motivation from quality makes the existing

Hypothesis III – With the certification, employees got more motivated, received more training and quality, increasing their responsibility within the company.	human resources support those initiatives and recognize their importance. • Verify if the increase of individual training of the company's employees has significance in the products, in what concerns quality and cost.
Hypothesis IV – By certifying the company, quality costs started to be controlled, measured and analysed, helping the company to prevent errors.	• Show the advantages of adequately measuring, analysing and controlling quality costs, through the implementation of quality costs management systems. • Establish the need to measure quality costs for the promotion of companies as an instrument of execution, planning and control. • The costs of quality should measure the cost of the customer's dissatisfaction, as well as the cost of lost opportunities. In fact, how much is the company loosing because of its lack of quality.
Hypothesis V – The new character of strategic leadership, such as the leadership of management of quality itself, makes companies more competitive.	• Make quality one of the strategic goals of the company and learn how much the company invests on the different categories of quality costs. • Improve the performance assessment and make use of stronger strategic alliances, developing new business areas.

Source: Own elaboration

3. METHODOLOGY AND DESIGN OF THE RESEARCH

The methodology that will mark the execution of this research can be considered quantitative, "*we will use data collection to test the hypotheses, based on numerical measuring and statistical analysis, in order to establish behaviour patterns and prove theories.*" (Hernandez, Fernandez and Baptista, 2006:5). Given the characteristics of our research, we may say that our research design will be non-experimental, that is, "*in a non-experimental research, no situation is created, we only observe situations that already exist, which were not intentionally triggered in the research by whomever is performing it.*" (Hernandez, Fernandez and Baptista, 2006:205). In non-experimental research, variables occur and it is impossible to manipulate them, as we don't have direct control over them. We can't have any influence over them because they have already happened.

4. DEFINITION AND SELECTION OF THE SAMPLE

We find it relevant to define, according to Hernandez, Fernandez and Baptista (2006: 236): "*Sample, is a subgroup of the population from which data was collected and it should be representative of that population*". That is, what is important is that the sample is statistically representative of the population subject to the survey.

Therefore, the universe (unit of analysis), object of study of this paper, is the certified companies with Total Quality Management System, through NP EN ISO 9001:2000, in the Sub-region of Portugal (Santarém).

Once the unit of analysis is defined, we have to delimit the population to be studied and upon which the results are intended to be generalised. So, according to Selltiz, "*Population is the group of all the cases that agree with a series of specifications*" (1980). In this sense, the total universe comprises 166 companies [accordingly to the list supplied by IPAC- Instituto Português de Acreditação (Portuguese Institute of Certification), in 26/03/2008].

In respect to our sample, there was no strict dimensioning, due to the small size of the universe (166 companies) and we tried to get the maximum possible number of responses. As for data collection, we resorted to e-mail and sent the survey to all of the companies. Afterwards, we insisted via telephone. Data collection lasted from 2nd of April of 2008 to 25th of July of 2008 and in the end of that period, our total sample comprised 39 companies.

For a reference, we may say that this sample involves an absolute error of 14,0% for a proportion of 166 companies, and of 0,31% for an average (that is, the average varies up or down 0,31 in absolute value), assuming a level of reliability of 95,45%.

In terms of inference, that is, in order to generalise the attained results in the sample to the whole population from which they came, according to Pestana and Gageiro (2005), the test of normal adherence must precede, because variables are quantitative.

Therefore, we start by checking the normal distribution of the variables, through the Kolmogorov-Smirnov (KS) test. KS test is used to determine whether two distributions of underlying odds differ from one another or one of the distributions of underlying odds differ from the distribution in hypothesis, in any case, based on finite samples.

In that sense, the hypotheses to test are:

H_0: Variables have normal distribution

H_a: Variables do not have normal distribution

In the results of the KS normal test, all variables (all sig 0,000<0,001 except P7 which has a sig = 0,190), do not present an adherence to normal distribution, that is, all of them, except for P7, fail the KS normal test, which limits the direct use of calculated errors. That way, as we analyse the test applied to normality, we may reject the null hypothesis (H_0) which states that the distribution of the studied variables is normal.

5. QUANTITATIVE DATA COLLECTION

As a research can focus on a variety of phenomena, it also requires access to different methods of data collection. According to Polit and Hungler (1995), it is the nature of the problem in research that determines the kind of method of data collection to be used.

Therefore, choosing the method is done according to the variables and the way they may operate, and it depends on the considered strategy of statistical analysis (Fortin, 1999). The choice of the technique of data collection should depend on the goal and kind of research. So, we resort to the utilization of a structured questionnaire, in order to embrace the aspects of the study object, we made a first contact on the telephone, so we could explain the nature of the research and then, we sent an e-mail via Internet,

which contained the "Introductory letter" to officialise the request and the respective questionnaire. Questionnaires started being sent to companies in the 2nd of April of 2008, and there were insistences, e-mails were re-sent and new e-mails were sent in the 3 (three) months that followed. Field work was considered over at 25th of July of 2008.

The questionnaire was conceived so that it could allow the interpretation of the presented hypotheses. The questionnaire's elaboration took into consideration: the objectives of the research, the collection of data that could enable us to confirm whether the implementation of a total quality management system would increase the company's profitability; and the review of the literature and the relevance of the questions according to whether they are currently pertinent or not.

In order to measure the perception that companies of our survey had towards the questionnaire we presented them, we used Likert's scale. The outline we chose to use in our questionnaire can be summarized in an ordinal scale with five categories, according with the following scale: "1 – Strongly disagree"; "2 – Disagree"; "3 – Neither agree nor disagree"; "4 – Agree"; "5 – Strongly agree".

According to the literature's review, the questionnaire meets all the objectives of the research.

6. DATA ANALYSIS AND RESULT

As said by Hernandez, Fernandez and Baptista (2006: 419), "*the investigator firstly tries to describe his data and afterwards he performs statistical analysis to relate his variables. That is, he does his descriptive statistical analysis for every variable and then for every variable of the survey and, finally, he applies statistics to prove his hypotheses.*" And they carry on claiming that "*There are several kinds or methods of quantitative or statistical analysis, but it must be pointed out that each method has its reason to exist and also a specific purpose; therefore, only necessary analyses should be done and no more than those. Statistics is a tool to assess data.*"

Our research's design has determined the inclusion of twenty two variables in the questionnaire: four variables refer to the company's characteristics data and eighteen refer to the opinions of the inquired concerning the impacts of the implementation of quality certification in the different aspects of the company's activity and the economic environment.

In addition to the twenty two variables of the questionnaire, five more variables were created with the intent to verify, in a direct and simple way, the hypotheses defined. Those five variables, customer's satisfaction, human resources, quality, productivity and competitiveness, correspond to the hypotheses and they are calculated from variables of opinion resorting to the simple average method.

So, in that sense, for each hypothesis, some questions were considered (which we will see in the following table), and the created variable is the simple average of each variable. Then, the results were rounded up.

In this paper we used descriptive statistics (elaborated by SPSS program) and the first stage is to describe the obtained data, so that we can describe the distribution of scores or frequencies of each variable.

We used the frequencies' distribution, which can be defined as "*a group of ranked scores in their own respective categories*" Hernandez, Fernandez and Baptista (2006: 419).

But for a better analysis and understanding, we will present all the results in charts, made by us, based on the data we obtained from the SPSS program.
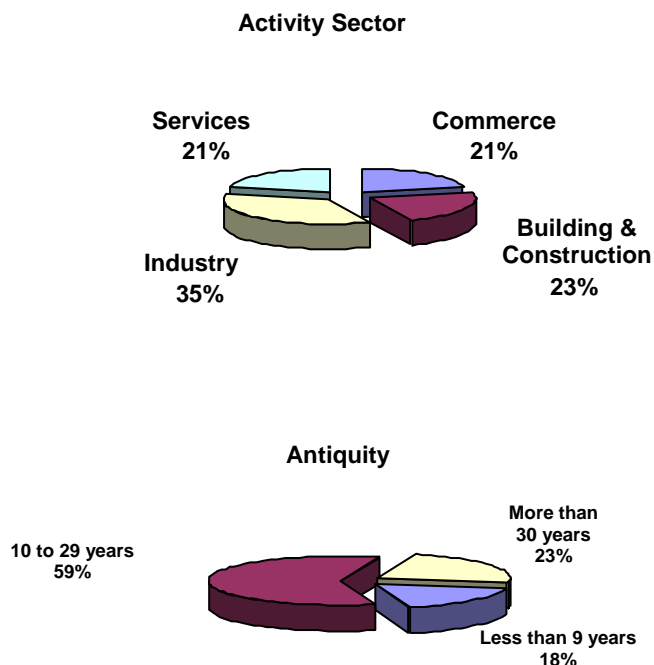
6.1. SAMPLE CHARACTERISATION

The first part of our questionnaire was composed of questions about the characterisation of the companies that were invited to respond to our questionnaire, so that we could have a perception of the kind of companies we were analysing. Thus, we will now characterise our sample using the results we obtained.
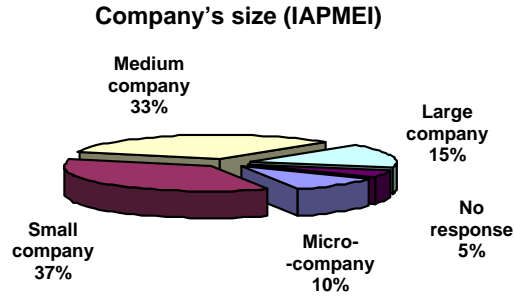
According to the list we obtained of the companies certified by NP EN ISO 9001:2000, in the Region of Ribatejo, District of Santarém, we considered four sectors of activity. And so, our sample characterisation is presented in the following charts (n.º 1).

Therefore, the activity sector that characterizes our sample is distributed in the following manner: 35% correspond to the industrial sector; 23% correspond to the building and construction sector and 21% correspond to services, as the same percentage applies to commerce.

In what concerns antiquity, we noticed that 59% of the companies that integrate our sample have 10 to 29 years of existence, 23% have more than 30 years and 18% correspond to companies with less than 9 years. We can also notice, by looking at the number of employees and the business volume, and using the companies' classification through the criteria established by IAPMEI – Instituto de Apoio às Pequenas e Médias Empresas e à Inovação, IP (Institute of Support to Small and Medium Sized Companies and to Innovation), that: 70% of our sample correspond to small and medium sized companies (37% are small and 33% are medium sized companies), 15% correspond to large companies and 10% are micro-companies.

Charts n.º 1: Characterization of the Sample

Activity Sector

Services 21%
Commerce 21%
Building & Construction 23%
Industry 35%

Antiquity

10 to 29 years 59%
More than 30 years 23%
Less than 9 years 18%

Company's size (IAPMEI)

Medium company 33%

Large company 15%

Small company 37%

Micro--company 10%

No response 5%

6.2. OPINIONS OF ORGANIZATIONAL NATURE

The following charts demonstrate the descriptive statistics (resulting from the responses to all the eighteen questions), which concern the frequencies of each variable and the respective study hypothesis, and were elaborated based on the frequencies tables.

Chart n. º 2 – H1: By certifying, the company satisfies the customers' expectations, securing their loyalty.

H1 : Relative frequencies
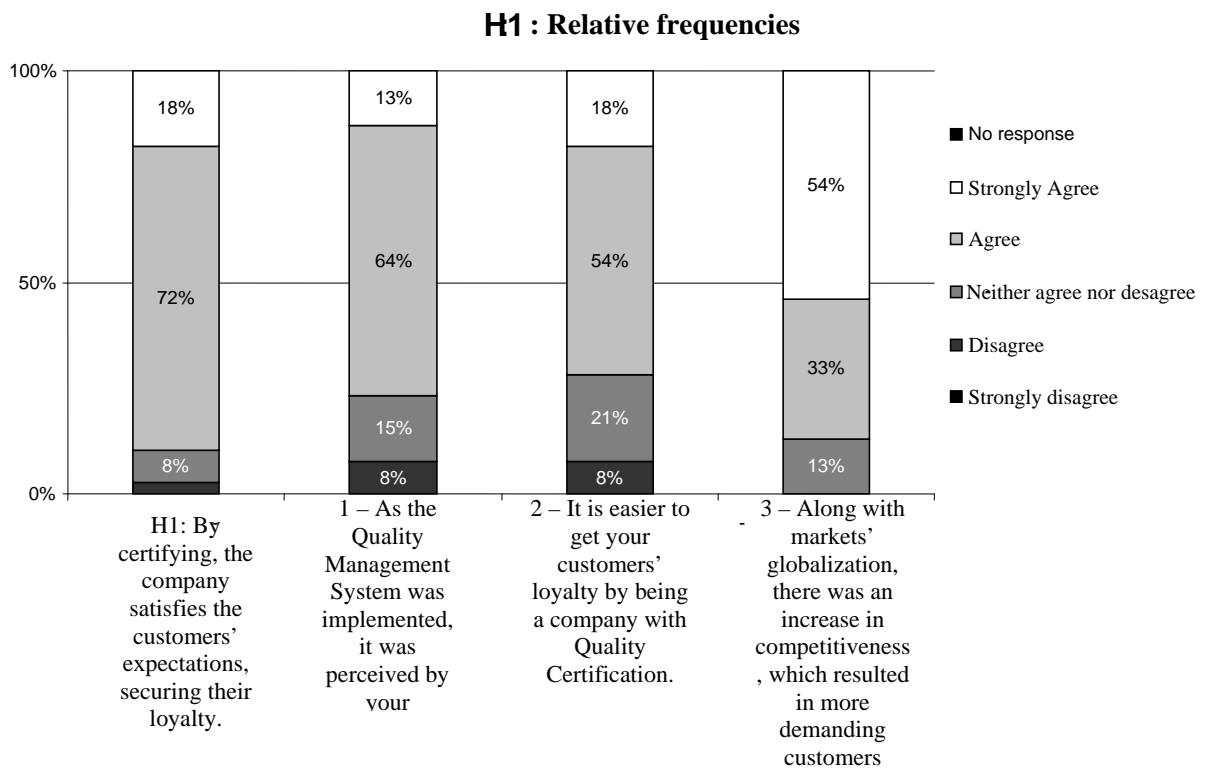
As we may observe in chart n. º 2, 72% of companies manifested their concordance towards the fact that by certifying their company, they meet their customers' expectations and secure their loyalty, against only 3% that disagrees. If we analyse the frequencies concerning the questions in study, in this case, questions number 1, 2 and 3, we notice that 64% of companies agrees with our opinion on question 1, 54% on question 2 and 54% strongly agrees with our opinion on question 3.

Chart n. º 3 – Averages: H1

9
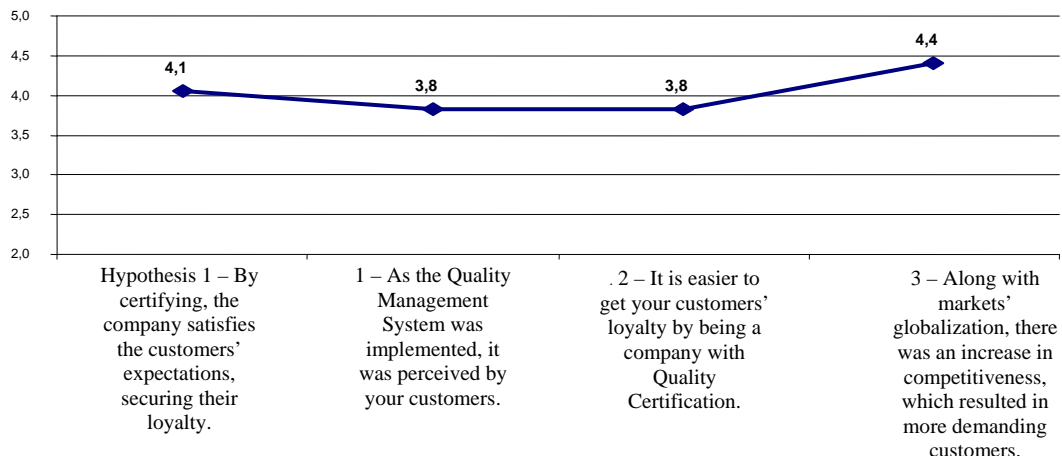
H1: Averages

As we have seen before, the scale used in our questionnaire ranged from 1 to 5. Therefore we can verify, in chart n. º 3, that the conclusions originated from the averages obtained with our study lead us to the same conclusions that we were driven to by the analysis in percentage. That is, the average to our Hypothesis 1 is 4, 1 on a scale of 1 to 5. It needs to be pointed out that the larger average goes to question 3, where there was a greater extent of agreement amongst our respondents.

Chart n. º 4 – H2: With the certification companies get a more productive Quality Management in the purchase and with actual emphasis in internationalization and outsourcing.

H 2: Relative frequencies
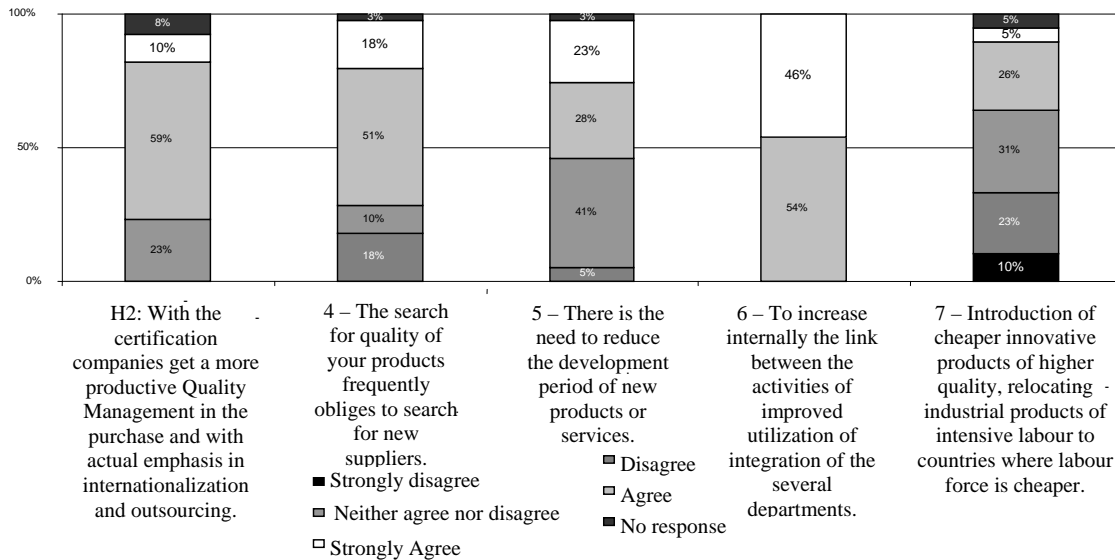
In relation to our Hypothesis 2 (while observing chart n.º 4), which intended to verify if, with the certification, companies would get a more productive Quality Management in the purchase with actual emphasis in internationalization and outsourcing, we are able to observe that 59% of the respondents agrees. However, it was Question 7 that brought us the largest disagreement, as 31% of the respondents do not have a valid opinion and 23% disagree with our statement.

Chart n. º 5 – Averages: H2

H2: Averages

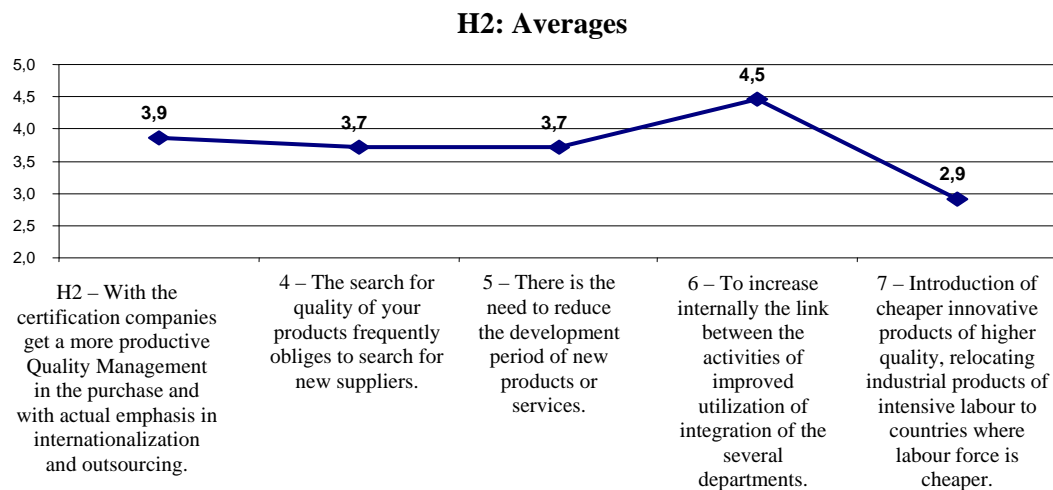|	H2 – With the certification companies get a more productive Quality Management in the purchase and with actual emphasis in internationalization and outsourcing.	4 – The search for quality of your products frequently obliges to search for new suppliers.	5 – There is the need to reduce the development period of new products or services.	6 – To increase internally the link between the activities of improved utilization of integration of the several departments.	7 – Introduction of cheaper innovative products of higher quality, relocating industrial products of intensive labour to countries where labour force is cheaper.
Average	3,9	3,7	3,7	4,5	2,9

We may conclude the same as we observe chart n. º 5. The averages we present demonstrate exactly what we have just analysed in relation to the percentages on the previous chart. The average of our hypothesis 2 is 3,9, on a scale of 1 to 5, and P7 only has a 2,9 average, which demonstrates exactly what we have just stated, i. e. our respondents do not agree with our statement "of the introduction of cheaper innovative products of higher quality, relocating industrial products of intensive labour to countries where labour force is cheaper (ex.: China, Southeast Asia, etc)". That could be associated with the fact that 35% of our respondents are part of the industrial sector, and if labour was to be transferred to other countries, they would loose work.

Chart n. º 6 – H3: With the certification, employees got more motivated, received more training and quality, increasing their responsibility within the company.

H3 Relative frequencies
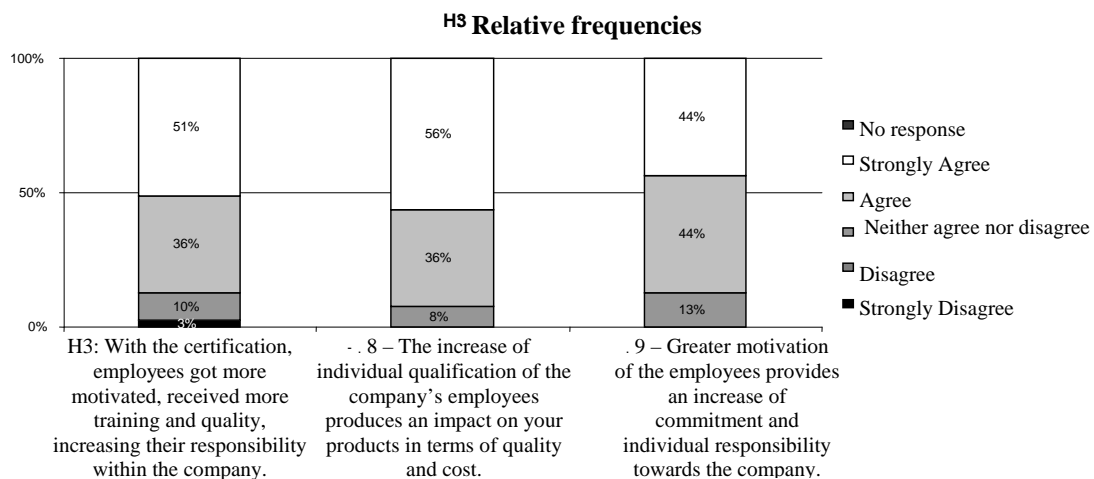
Analysing chart n.º 6, concerning our hypothesis 3, we may observe that 51% of the respondents strongly agrees and 36% agrees, which sums 87% of agreement that with the certification, employees do get more motivated, receive more training and quality, thus increasing their responsibility within the company. We observe that 92% (56% strongly agrees and 36% agrees) of the respondents concur with our statement,

that the increase of individual qualification of the company's employees produces an impact on the products in terms of quality and cost. Also, 88% (44% strongly agrees and the same percentage agrees) share the opinion that a greater motivation of the employees provides an increase of commitment and responsibility towards the company.

Chart n. º 7 – Averages: H3
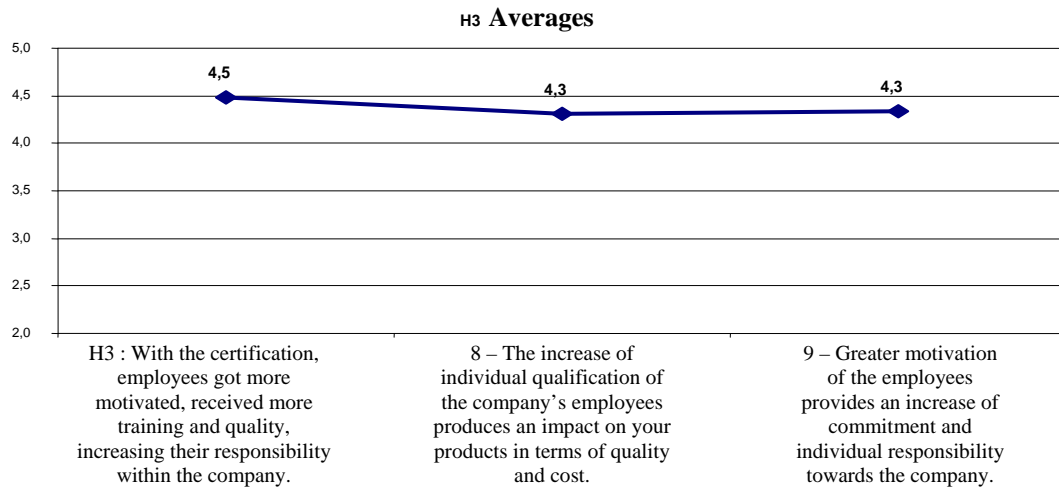
H3 **Averages**

Observing chart n. º 7, the average of the responses to questions related to the hypothesis 3 is 4,5, within the same scale of 1 to 5. It reflects exactly the same we have said about the percentages that correspond to relative frequencies. The same situation occurs for questions 8 and 9, whose average is 4, 3.

Chart n. º 8 – H4: By certifying the company, quality costs started to be controlled, measured and analysed, helping the company to prevent errors.

H 4 : **Relative frequencies**
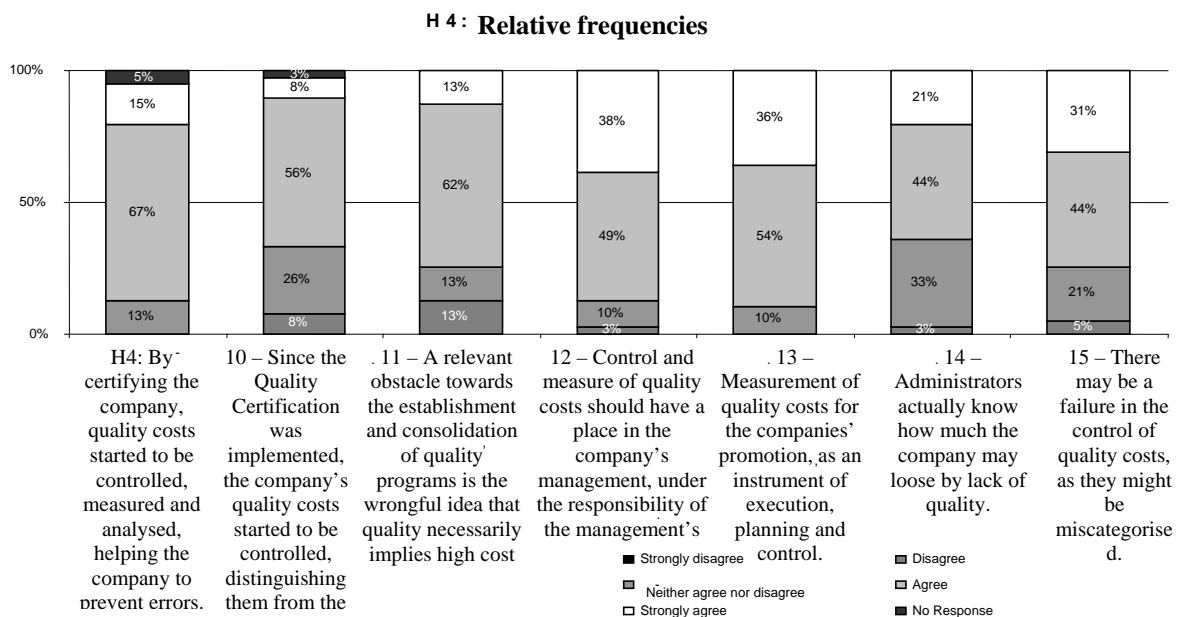
Analysing chart n.º 8, which corresponds to our study hypothesis number 4, where we intended to test the agreement of the respondents concerning "whether by certifying the company, quality costs started to be controlled, measured and analysed, helping the company to prevent errors", given the responses to our questionnaire, we observed that 70,3% agreed and 16,2% strongly agreed. However, we may point out that 26% of our sample doesn't have any opinion about the question "ever since certification was implemented, quality costs started to be controlled, distinguishing them from the other costs", however, 87% (49% agreed and 38% strongly agreed) think that these should be measured and have a place in the company's management, under the responsibility of the management's accounting. We can also point out that 90% (54% agrees and 36% strongly agrees) think that quality costs should be measured for the companies' promotion, as an instrument of execution, planning and control. And yet, 75% think that there may be a failure in the control of these costs, as they might be miscategorised.

Nonetheless, we must stress out that when we state that administrators actually know how much the company may loose by lack of quality, 33% has no opinion and only 44% agrees with it.

Chart n. º 9 – Averages: H4

H4: Averages

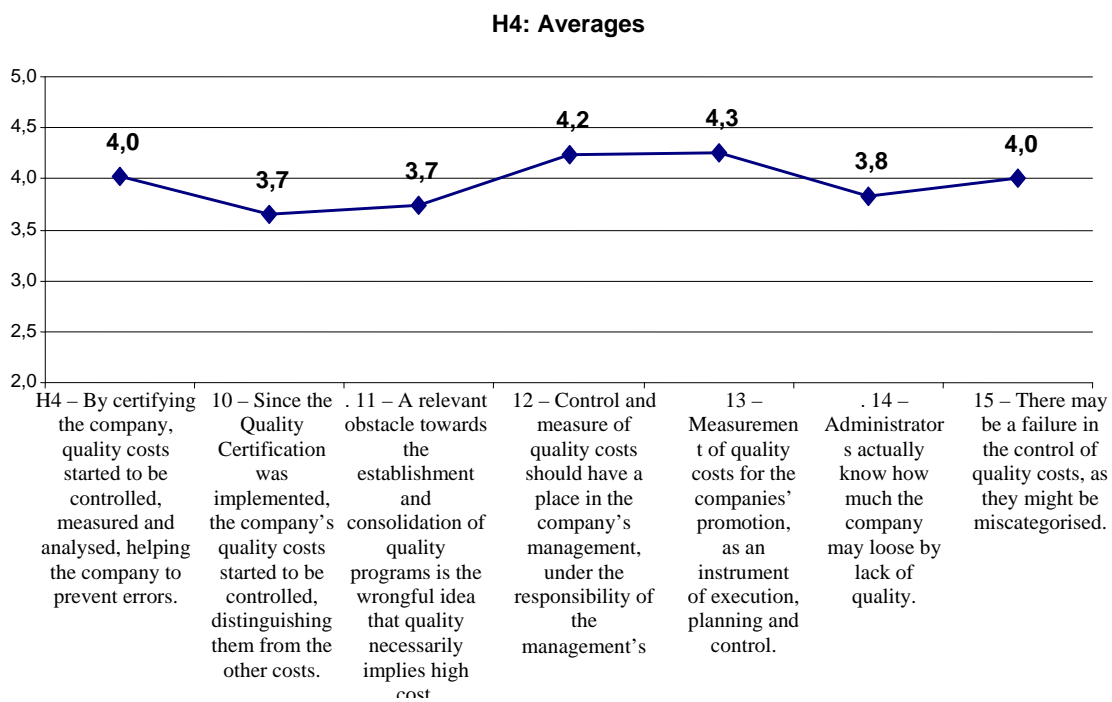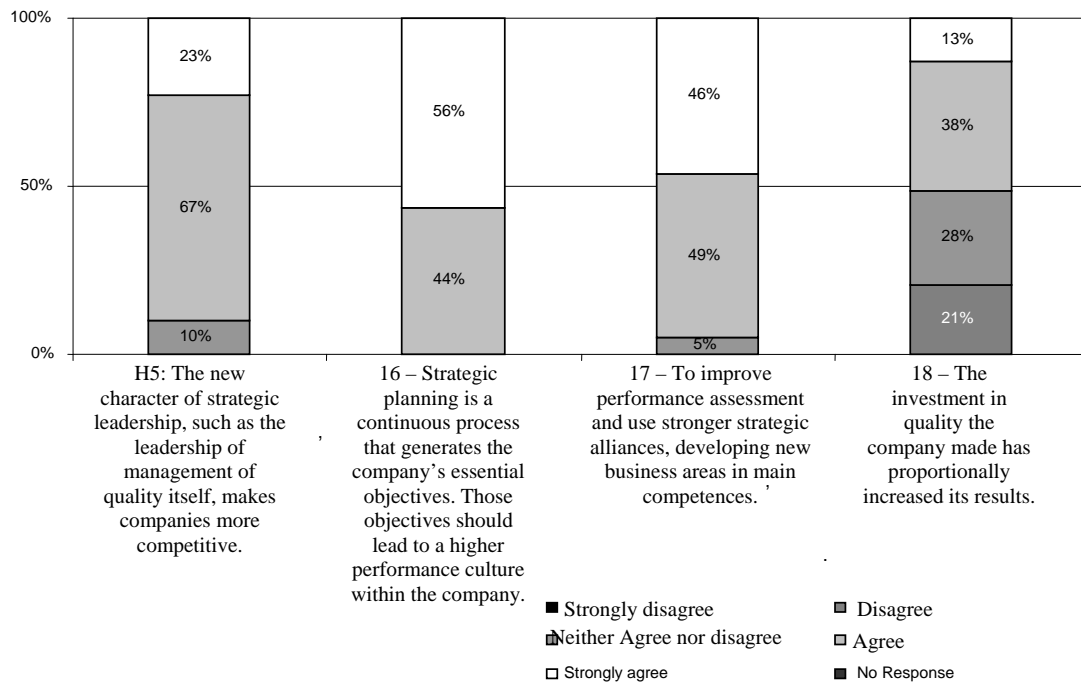Chart number 9 shows us exactly what we have just described. So, this study hypothesis of ours gets an average of 4, in the previously referred scale of 1 to 5. It must be pointed out that questions 12, 13 and 15 get higher averages and questions 10, 11 and 14 get lower averages.

Chart n. º 10 –H5: The new character of strategic leadership, such as the leadership of management of quality itself, makes companies more competitive

H5: Relative frequencies

| | H5: The new character of strategic leadership, such as the leadership of management of quality itself, makes companies more competitive. | 16 – Strategic planning is a continuous process that generates the company's essential objectives. Those objectives should lead to a higher performance culture within the company. | 17 – To improve performance assessment and use stronger strategic alliances, developing new business areas in main competences. | 18 – The investment in quality the company made has proportionally increased its results. |

Legend: ■ Strongly disagree ▨ Disagree ▨ Neither Agree nor disagree ▨ Agree □ Strongly agree ■ No Response

And finally we have the charts associated to our hypothesis number 5 and respective questions. Chart number 10 shows us that 90% of our sample agrees that the new character of strategic leadership, the leadership of management of quality itself, makes companies more competitive. As we analyse the underlying questions, we notice that all the respondents of our sample agree with question 16, in which we state that strategic planning is a continuous process that generates the company's essential objectives, which leads to a higher performance.

Nevertheless, when we state, straightforward, that the investment in quality the company made has proportionally increased its results, 21% disagrees, 28% does not agree nor disagree and only 38% agrees.

Chart n. º 11 – Averages: H5

H5: Averages

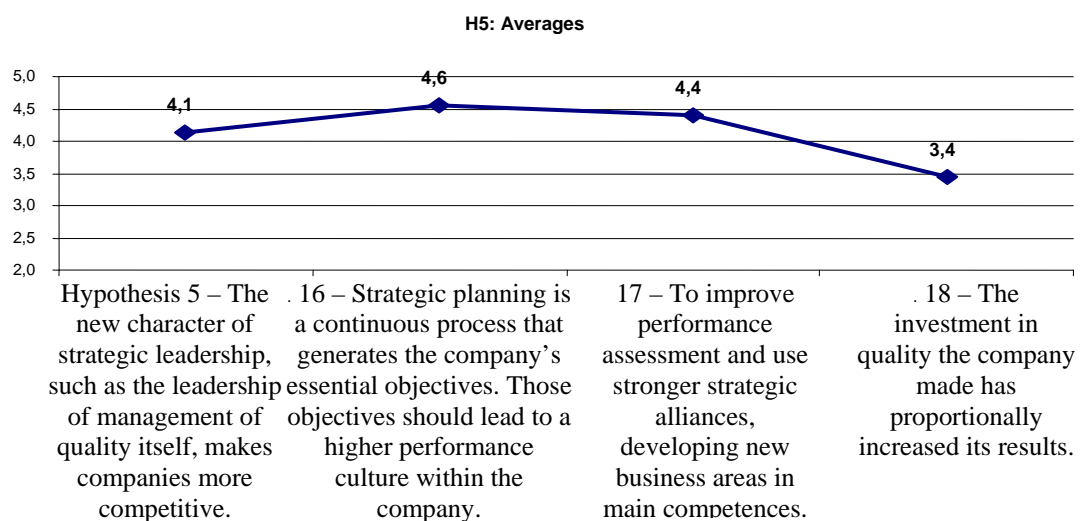| Hypothesis 5 – The new character of strategic leadership, such as the leadership of management of quality itself, makes companies more competitive. | 16 – Strategic planning is a continuous process that generates the company's essential objectives. Those objectives should lead to a higher performance culture within the company. | 17 – To improve performance assessment and use stronger strategic alliances, developing new business areas in main competences. | 18 – The investment in quality the company made has proportionally increased its results. |

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Chart number 11 reflects what we have just mentioned in the analysis of the previous chart, and it just has to be pointed out that the average of question 18 rested at 3, 4, in the mentioned scale of 1 to 5.

7. CONCLUSIONS OF THE RESEARCH

This research intended to convey an understanding of the importance of the implementation, in the company's administration, of total quality management and of quality costs management systems, i.e. whether it affects the company's results or not.

We wanted to know the opinion of the responsible people of the companies that were certified by NP EN ISO 9001:2000 norm, in the District of Santarém, which constituted our survey's target. So, we asked the responsible people of the companies to state their opinion (after the certification) concerning: customer's satisfaction, more productive quality management, the employees' own quality, the importance of measuring, controlling and analysing quality costs and, finally, the strategic leadership of the management of quality itself.

The evidences collected in the empirical survey we developed seem to suggest that the hypotheses we tried to test are confirmed. Let us see the conclusions our research lead us to:

First: "By certifying, the company meets the customers' expectations, securing their loyalty". The evidences collected by our questionnaire seem to strongly suggest (around 90% of agreement) that our hypothesis I is confirmed.

Nowadays, companies care about understanding the expectations of their target customers, so they plan the competitive value conveyed by the customer, keeping what was promised, with minimum defects for the customer and with maximum efficiency, which will lead to the customer's satisfaction and loyalty. And also, the survival of any organization is based on its customers. Without customers there are no good entrepreneurial projects or good businesses. In that sense, a good quality management system will have to find the best strategies to convey products that provide maximum satisfaction to customers.

Quality, in terms of the value perceived by the customer, has become a global acquisitive objective for the company as well as for the customer.

Second: "With the certification companies get a more productive Quality Management in the purchase and with actual emphasis in internationalization and outsourcing". The evidences collected by our questionnaire seem to suggest (around 69% of agreement) that our hypothesis II is confirmed.

On one hand, measurement of the value conveyed by the customer has become a guideline, demanding, when necessary, new design practices, i.e. product development to avoid negative impacts in customer satisfaction. The first conclusion leads to the second, that is, companies are starting to form a new competitive force, by means of a more effective quality management in their internationally oriented activities of supply contracts, purchase and outsourcing.

The company should guarantee a clear and precise integration, concerning quality systems engineering, of all the development processes, design, production, supply, delivery and maintenance, intelligence technology, distribution logistics, financial and administrative services, that is, everything the company buys is important to the quality and hence the increase of its result.

Third: "With the certification, employees got more motivated, received more training and quality, increasing their responsibility within the company". The evidences collected by our questionnaire seem to strongly suggest (around 92% of agreement) that our hypothesis III is confirmed.

The best and more consistent motivation of quality for the human resources (employees) represents the fundamental grounding for the leadership of global quality. The emphasis is based on the administration's support and the personal leadership of the practices that stimulate, develop and use knowledge, abilities and essential attitudes of quality to the employees by all the organizations, towards a constant quality improvement.

The new emphasis of quality leadership is in the creation of a trusting, open, honest communication environment, so that it becomes easier to stimulate the employees' development, making them more and more undertaking, and to improve quality at an individual level.

Fourth: "By certifying the company, quality costs started to be controlled, measured and analysed, helping the company to prevent errors". The evidences collected by our questionnaire seem to strongly suggest (around 86% of agreement) that our hypothesis IV is confirmed.

As the company implements a totally oriented quality management system, it affects all its employees from the beginning, that is, to produce at the minimum possible cost products or services that meet customers' needs and that motivate the company's employees. Calculating quality costs allows an assessment of the programs implemented in companies. Although quality cost management is vitally important, we believe that often the administration is not aware of its economical incidence. If these costs were systematically measured, they could be systematically administered and that measurement provides a significant leadership of the quality's value, as well as of the growth of its profitability.

Fifth: "The new character of strategic leadership, such as the leadership of management of quality itself, makes companies more competitive". The evidences collected by our questionnaire seem to strongly suggest (around 90% of agreement) that our hypothesis V is confirmed.

Strategic quality management recognizes the utmost importance of the efficiency of the management leadership for the commercial area, in what concerns the fastness of product development, the integration and quality of the supplier, the company's employees and the measurement of quality costs.

The results we achieved with the empirical survey we developed seem to corroborate the hypotheses we tried to test.

Therefore, we are able to answer the question posed in the beginning of this research. We can understand quality management as a competitive strategy to the company, whose goal will always be to increase the company's profitability. In this sense, we can speak of gaining market, where it is necessary to meet the customers' requirements. Satisfied customers represent an increase in sales, good reputation, new requests, new jobs and increases of salary and, consequently, the growth of the company's profitability. Besides, to improve the efficiency of the business itself will decrease waste and the costs of non-quality, i.e., reduced costs, more competitiveness, greater gain of market share and consequently an increase of the positive results for the company.

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