

ISO 9001 ECONOMIC IMPACT IN THE COMPANIES' PERFORMANCE

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Abstract: *Despite all the studies carried out in order to analyze the impact of quality management systems implementation and certification over companies' financial performance, conclusions reached so far have yet a contradictory nature. Some authors conclude that there is a positive relationship between ISO 9001 certification and companies' financial improvement, while others do not find evidence to support such a relationship. Overall, no consistent evidence could therefore be found in the literature concerning the real ISO 9001 impact over companies' business financial performance. Therefore, there seems to be room for conducting additional work in order to analyze: (1) what is the real ISO 9001 certification impact over business financial performance, if any; (2) if "quality organizations" are indeed more profitable and competitive than the others; (3) if companies that become certified base on internal motivations have different results, also from a financial perspective, as compared to the ones that become certified based mostly on external motivations. This paper describes the results obtained from studying the economic impact of quality management systems based on the case study methodology.*

Key Words: *ISO 9000, Economic-financial performance, Case study methodology.*

1. INTRODUCTION

A number of studies have been carried out that try to relate the impact of quality management practices over organizational performance. The majority of them conclude that there is a positive relationship between the implementation of quality management practices and organizational performance improvement

Results obtained by Gupta (2000) [1] show that ISO 9001 certified companies do differ positively from non-certified ones on "technological management", "quality management control", "causes of poor quality" and "quality control techniques used". Romano (2000) [2] reports statistically significant improvements after ISO 9001 certification, concerning "quality performance in production and on the reliability of the production system" and "external quality performances". He also observed that "non-quality costs" diminished significantly after ISO 9001 certification. Ozgur et al. (2002) [3] point out that the level of usage for the majority of quality tools is higher in ISO 9001 certified firms. Concerning the services sector, Dick et al. (2002) [4] concluded that ISO 9001 certification makes a strong difference in the ways quality is perceived and measured.

Although the majority of the studies carried out state that there is a positive relationship between ISO 9001 certification and performance, as was just mentioned, there is also a group of authors that did not find enough evidence to support such a relationship [5], [6], [7]. Results obtained by Terziowski et al. (1997) [5] showed that the presence or absence of ISO 9001 certification is a poor predictor of organizational performance and quality. Quazi et al. (2002) [6] concluded that there was no

statistically significant relationship between ISO 9001 certification status, quality management practices and quality results.

There seems to be however a strong relationship between the companies' certification motivations and the corresponding results obtained. When firms simply react to external pressures for getting certified, they may face ISO 9001 registration as a prime objective de per se, adopt a minimalist approach to achieve it, and thus achieve limited internal performance improvements.

2. METHODOLOGY

As it was already stated, this paper presents the results obtained from six case studies that we have conducted, in order to analyze the ISO 9001 impact over companies' financial performance. Our goal was to reconstruct the economic-financial companies' history with the aim of identifying the benefits and the costs directly related to the quality management system. The analyzed time period ranged from the year when the company decided to implement its quality management system up to the present.

Our case study methodology was split into three main phases. First, we have developed the framework that we would use in the interviews. Then, we have tested the framework in order to validate and improve it, by making a pilot case study in a textile company. Finally, with a revised framework, we have selected six companies for which we had previously identified which had been their most important ISO 9001 certification motivation, either internal or external. Thus, we selected three companies that became certified based mainly on external

motivations and other three companies that became certified based mostly on internal motivations. We have tried to choose companies that belonged to the same industrial sector, but with different ISO 9001 motivations. However that was not possible, since some of the selected companies refused to participate in the project. To have six companies willing to participate, we have contacted 11 companies overall. These companies were chosen from a sample of 48 companies for which we were pretty sure about what was their most important ISO 9001 certification motivation (Sampaio et al., 2010) [8].

The external motivations companies' are from the following industrial sectors:

- Company A: EAC 12 – Chemicals, chemical products and fibers.
- Company B: EAC 28 – Construction.
- Company C: EAC 18 – Machinery and equipment.

The internal motivations companies' are from the following industrial sectors:

- Company D: EAC 18 – Machinery and equipment.
- Company E: EAC 12 – Chemicals, chemical products and fibers.
- Company F: EAC 4 – Textiles and textile products.

The interviews were performed with the companies' quality managers and for each of the companies we have performed a qualitative and a quantitative analysis. The qualitative analysis was performed over information collected during the interviews with the companies' quality managers. In the quantitative analysis we have asked to the companies to characterize two different scenarios, the real one, with certification, and a hypothetical one without registration, concerning the following financial indicators:

- Sales.
- Average price.
- Average production cost.
- Quality management system implementation and maintenance costs.

Using the previous set of financial indicators, we have estimated the following financial indicators values:

Operational Results

$$\text{Sales} * (\text{Average price} - \text{Average production cost})$$

Operational Results Difference

$$\text{Estimated Operational Results with ISO 9001} - \text{Estimated Operational Results without ISO 9001}$$

In the paper are only presented the case studies where we were able to verify a positive or a negative impact of the quality management system implementation.

3. RESULTS

Company A

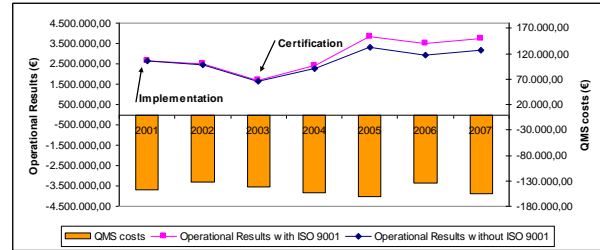


Figure 1. Company A: Operational Results.

As is illustrated in Figure 1, Company A Operational Results for the scenario with ISO 9001 certification are higher than in the scenario without it. Until 2003, Company A has considered similar Sales values for both scenarios. However, after 2003 the Sales volume had been considered higher for the scenario with certification than without it. Regarding the Average price and the Average production cost, the company had considered that both would be higher for the scenario without ISO 9001 registration.

According to Figure 1, we could verify that the costs related to the certification project seem to be, apparently, constant during the time period analyzed. However, it is important to point out that those costs are significantly higher, assuming, on average, a score of 146.000,00€ per year. For Company A, the certification project costs include maintenance and calibration costs also.

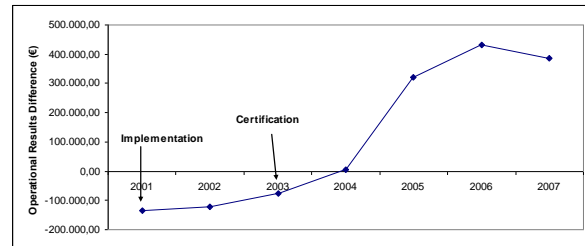


Figure 2. Company A: Operational Results Difference.

Based on Figure 2, one can conclude that the Operational Results Difference between both scenarios do present a positive evolution since the moment that the company has decided to become ISO 9001 certified until 2006. In 2004, the Company A did present a positive differential for the first time and in 2006 the Operational Results Difference had reached its highest score. From 2006 to 2007 it was verified a decreasing from 431.000,00€ to 386.000,00€, respectively.

According to the analysis carried out in Company A, we are able to conclude that the quality management

system implementation and certification project had a positive impact over the company economic-financial performance. This positive impact was mainly reflected over the company Sales turnover, which, according to the Company A quality manager, has increased mainly due to new clients that have appeared after the ISO 9001 registration.

Company D

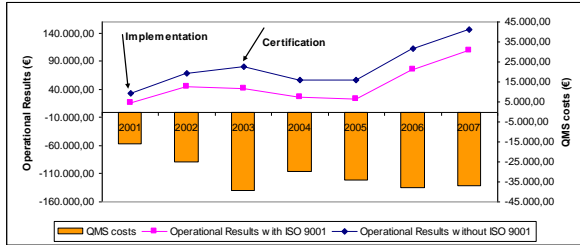


Figure 3. Company D: Operational Results.

As is illustrated in Figure 3, the quality manager had stated that Company D Operational Results would be better if the company was not ISO 9001 certified, because the following reasons: (1) the Sales turnover was considered the same for both scenarios; and (2) the Operational Results for the scenario without ISO 9001 certification would not be influenced by the costs related to the system implementation, certification and maintenance. This is a surprising result, because Company D had become certified base mainly on internal motivations and it was unanimous for all the employees that after the quality management system implementation there was an improvement in terms of internal organization. As we have already stated, this result is mainly due to the fact of the certified companies seem to have significant difficulties to identify and quantify the benefits derived from the system implementation.

Concerning the certification costs there is a decreasing trend between the quality management system implementation decision (2001) and its certification year (2003). The certification costs did present the highest value in 2003 (39.000,00 €), followed by a decreasing and stabilization near 35.000,00€ per year in the further years.

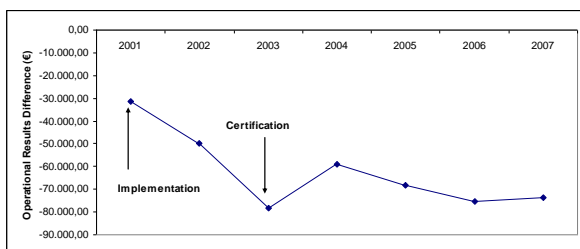


Figure 4. Company D: Operational Results Difference.

As reported in Figure 4, the Operational Results Difference between both scenarios does present negative

values during all the time period analyzed. Between the implementation decision (2001) and the quality management system certification (2003) there was a continuous decreasing toward -80.000,00 €. In the last two years analyzed there was stabilization of the Operational Results Difference scores in the -70.000,00 €.

Based upon Company D case study, one could conclude that the quality management system implementation and certification is being a project without any economic-financial advantages and impact to this company. The quality manager has the perception that the company internal organization has improved, but he was not able to quantify how those improvements translate into economic benefits. We would like also to point out that, regardless the improvements perceived by the quality manager, he has considered the same Sales turnover for both scenarios – with and without ISO 9001 certification.

Company F

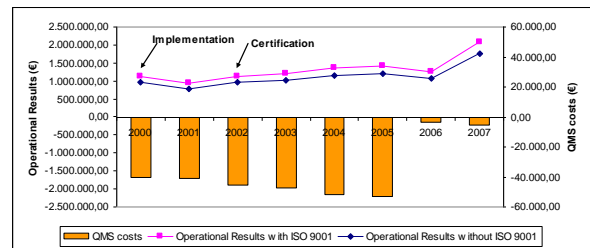


Figure 5. Company F: Operational Results.

As is illustrated in Figure 5, the quality management system implementation had a positive impact on company financial performance. For all the analyzed period the Operational Results scores for the scenario with certification are higher than the ones that have been computed for the scenario without ISO 9001 certification. However, according to the company quality manager this positive impact was caused by the increasing of the Average price and not by the increasing of the Sales turnover. Company F had considered that the Sales turnover (in terms of quantity) would not change if the company did not become ISO 9001 certified. Overall, for the real scenario – with ISO 9001 certification, the Operational Results evolution do present a positive trend.

According to Figure 5, the certification costs have considerably increased between 2000 and 2005, reaching in the last year a score of 45.000,00 €. In 2006 and 2007 it was verified a significant decrease, because the company had canceled the contract with the consultancy company. In 2006 and 2007 the certification costs have reached, on average, values of 4.300,00€ per year.

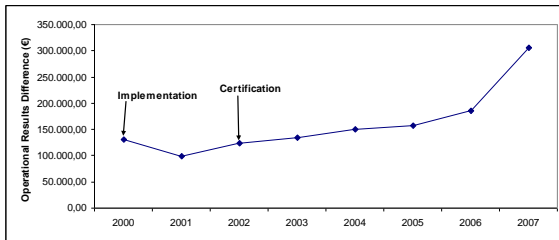


Figure 6. Company F: Operational Results Difference.

Based on the six case studies that have been performed, Company F was the only one that did present positive values concerning the Operational Results Difference for all the time period analyzed. Based upon Figure 6, one could verify that since 2001, one year before certification, the Operational Results Difference do present a growing trajectory, reaching in 2007 a score of 305.869,03 €.

The case study carried out in Company F allows one to find out a positive relationship between the quality management system implementation and the company Operational Results. This relationship was reflected in terms of a positive impact on the Average price. For the scenario with ISO 9001 certification, Company F did present higher Average price than for the scenario without registration.

Concerning the costs related to the quality management system implementation and maintenance, it is important to point out that the total amount is significantly higher for the period that Company F had consultants helping to implement and to maintain the system.

4. CONCLUSION

The research presented in this paper had the aim to analyze the economical impact of the quality management system implementation and certification over companies' performance. Thus we have presented six case studies that have been developed in ISO 9001 certified companies. Based on these case studies, we have reconstructed the economic-financial companies' history with the aim of identifying the benefits and costs directly related to their quality management systems.

Before evaluate the quality management system impact on companies' economic-financial performance it is important to analyze which was the company main ISO 9001 certification motivation. There is a consensual opinion that ISO 9001 benefits are related with the company certification motivations, i.e., when companies become certified based upon internal motivations the derived benefits are fulfilled on a more global dimension. On the other hand, when companies implement ISO 9001 based mostly on external motivations, improvements obtained are then mainly of an external nature. Based on the developed work we were able to find out that ISO 9001 certification motivations (internal or external ones) influence the derived benefits.

Regardless the internal motivations companies do present higher benefits perception (mainly in terms of internal organization), the companies that become certified based mainly on external motivations can more easily quantify the economic benefits that have resulted from the quality management system implementation.

It is important to point out that companies' quality managers had significant difficulties when they were asked to quantify the direct profits (or cost reductions) associated with the quality management systems. Quality managers have the perception that the company internal organization has improved, but they are not able to quantify how those improvements translate into economic benefits. Those companies that did present internal motivations have perceived higher benefits than the ones that became certified based on external motivations. However, on the external motivations companies it was easier to quantify increased profits and sales deriving from ISO 9001 certification. By the other hand, the ISO 9001 registered companies can easily identify and quantify the system implementation and maintenance costs. It is important to point out that the total amount is significantly higher for companies that had consultants helping to implement the systems.

We have also found out that companies' motivations can influence the organization involvement and commitment to the quality management system. In those companies that became certified base mainly on internal motivations, there is often the perception that all the organization is committed to the system. That is not the case when we talk about external motivations driven companies.

This research allows one to conclude that it is not unanimous that the certified companies would be less profitable if they haven't implemented the quality management system. For the majority of the case studies conducted we have concluded that the certified companies are not able to support the fact that quality management system implementation does have a positive impact over companies' economic-financial performance.

Given the economic and social relevance of the ISO 9000 phenomenon, as well as the increasing availability of data related to it, we feel that more and more fact-based and statistically oriented studies should be conducted in this area. Regardless the panoply of researches conducted so far in order to analyze the quality management systems impact over companies' economic-financial performance, the results reached are of a contradictory nature and, based on our findings, this issue is far way from be answered. Some important aspects have been addressed with this paper and based upon the results that have been presented, we have concluded that the majority of ISO 9001 certified companies are not able to support the fact that quality management system implementation does have a positive impact over companies' economic-financial performance.

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