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## UNDERSTANDING THE INFLUENCE OF ISO 9001 CERTIFICATION ON SMES PERFORMANCE: TWO PORTUGUESE CASE STUDIES

## COMPREENDER A INFLUÊNCIA DA CERTIFICAÇÃO PELA ISO 9001 NO DESEMPENHO DAS PME: DOIS ESTUDOS DE CASO PORTUGUESES

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***Abstract:** Considering the importance of small and medium-sized businesses in the economy and that the majority of quality management systems (QMS) implemented in SMEs are based on the requirements of the ISO 9001 standard, with this work our focus is on studying the influence of ISO 9001 standard certification on performance in SMEs. The data was collected through interviews in two SMEs. The study showed that the implementation of an ISO 9001-based QMS has distinct effects on the performance of the SMEs studied. While the implementation of such QMS had significantly improved the performance in one of the companies, in the other, the few changes brought by certification were in terms of external image and organization of documentation and may not be deemed to affect performance significantly.*

**Keywords:** Performance, Quality Management Systems, ISO 9001, SME

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**Resumo:** *Considerando a importância das pequenas e médias empresas na economia e que a maioria dos sistemas de gestão da qualidade (SGQ) implantados nas PME se baseiam nos requisitos da norma ISO 9001, com este trabalho pretende-se estudar a influência da ISO 9001 no desempenho das PME. Os dados foram recolhidos através de entrevistas realizadas em duas PME. O estudo mostrou que a implementação de um SGQ baseado na ISO 9001 tem efeitos distintos no desempenho das PME estudadas. Enquanto a implementação desse SGQ melhorou significativamente o desempenho em uma das empresas, na outra, as poucas mudanças trazidas pela certificação foram em termos de imagem externa e organização da documentação e não podem ser consideradas como tendo influenciado significativamente o desempenho.*

**Palavras-chave:** Desempenho, Sistemas de gestão da qualidade, ISO 9001, PME

## INTRODUCTION

According to Ilkay and Aslan (2011), guaranteeing quality does not only mean producing a standardized product but also responding constantly to customers' expectations. Therefore, organizations should not only concern themselves with the quality of the product but also with the quality of all activities carried out in the organization. Implementation of a quality system aims for continuous improvement of all organizational processes (Arya, 2020).

The most commonly used method for implementing a system of this type is based on the ISO 9001 standard, and proposes practices for companies to respond systematically to customers' expectations, so as to continuously improve all their processes (Lizardo, & Ribeiro, 2020). ISO 9001 can be implemented in any type of organization, irrespective of its size, product or sector (Sfreddo, Vieira, & Vidor, 2021).

Researchers studying the effects of ISO 9001 in companies mention the lack of studies focused on SMEs and suggest that more should be done regarding this type of firm, considering their importance in the economy (Briscoe, Fawcett, & Todd, 2005). One of the reasons for

carrying out our study is precisely the lack of research on these issues in SMEs, strongly highlighted in literature.

In the past decade, the number of SMEs certified by ISO 9001 has grown significantly (Kutnjak, Miljenovic, & Mirkovic, 2019). This has motivated some researchers (Bayati & Taghavi, 2007; Koc, 2007; Martinez-Costa & Martinez-Lorente, 2003; Naveh & Marcus, 2005) to study the influence of that certification on SME performance. However, there is no consensus among the various studies made on the topic. While some state that certification brings benefits and a significant improvement in performance (Koc, 2007), others conclude that certification has no benefit or effect on performance (Lima, Resende, & Hasenclever, 2000). Others find that certification has a very limited effect on performance (Naveh & Marcus, 2005). This lack of consensus in the literature concerning the effect of ISO 9001 certification on SME performance is another reason for this study, which intends to contribute to lessening to some extent that lack of consensus.

In accordance, the main aim of this research is to analyse if ISO 9001-based quality management systems (QMS) really improve performance in SMEs. For such purpose, a double case study approach was followed. The paper starts with a brief overview of the literature focused on issues regarding ISO 9001-based QMS. We then describe the methodological procedures followed in the present study. Results are then presented and discussed.

## **1. LITERATURE REVIEW**

SMEs have a great importance in Western economies, employing most of the workforce in those countries and representing a significant weight in their Gross National Product (GNP) and export volume (Kipley & Lewis, 2009).

Critical changes in SMEs' competitive environment have put great pressure on the continuous improvement of all activities carried out in these organizations. Bearing in mind that SMEs can have fewer resources and competences than large companies, they have to concentrate on strong quality management strategies to reach high levels of competitiveness (Briscoe et al., 2005).

Comparing to large firms, SMEs are generally characterized in literature by their lack of resources (Kipley & Lewis, 2009; Pett & Wolff, 2007). This limitation of resources, whether human, financial, knowledge or time, among others, can cause in these firms disadvantages regarding quality improvement issues (Kumar & Antony, 2008; Aldowaisan & Youssef, 2006).

As a result, aiming to overcome their lack of resources and to be able to compete equally, SMEs need to develop higher skills and qualities to counterbalance differences in scale (Kipley & Lewis, 2009). In such context, the implementation of QMS can be a useful instrument for increased quality and continuous improvement in SMEs, and consequently stimulate their competitiveness. According to Koc (2007), another advantage in implementing QMS has to do with reducing the costs of non-quality, namely a reduction in defective products and elimination of mistakes in service providing (Martins, & Frutuoso, 2017).

According to Bayati and Taghavi (2007), financial resources are the greatest obstacle to implementing QMS in SMEs. Frequently, this limitation might compromise the implementation of QMS (Kipley & Lewis, 2009). Therefore, SMEs need to make a cost-benefit analysis before following such strategic option.

The most commonly approach for implementing a QMS is through the application of the ISO 9001 standards (Ilkay & Aslan, 2011; Seunghee & Jungsuk, 2020). This approach involves a set of several requirements directed at continuously improving all the different processes, and to respond systematically to customers' expectations.

The ISO 9001 standard contextualizes QMS used by many organizations worldwide, whether industrial or service firms, in the public or private sector. According to Ilkay and Aslan (2011), such QMS is implemented by organizations intending to improve their activities continuously, in order to meet customers' needs and expectations. The goal of implementing such QMS is to ensure the quality of all activities and processes so that the products or services satisfy customers' needs and expectations effectively (Singels, Ruel, & Water, 2001).

However, these QMS don't guarantee products/services' quality, and only mean that a company has implemented a minimum set of quality

management procedures (Wayhan, Kirche, & Khumawala, 2002; Terziovski, Samson, & Dow, 1997). An ISO 9001- based certification only indicates that an independent auditor has confirmed the implementation of the QMS according to a set of general standards (Martinez-Costa & Martinez-Lorente, 2003).

Although there are some studies about the benefits of ISO 9001 certification for SMEs and its effects on performance, there is a clear lack of consensus in what results reached concerns (Sfreddo, Vieira, & Vidor, 2021).. Whereas some studies show that certification brings clear benefits and increases performance, others conclude that certification has no benefit or effect on performance. Yet others find that certification has a very limited effect on performance.

Several studies tried to establish a cause-effect relationship between certification and improved performance (e.g. Glogovac & Filipovic, 2018; Ilkay & Aslan, 2011; Koc, 2007), comparing companies' performance before and after certification. These causal studies can be grouped in three categories according to their results:

- (1) certification has a clearly positive effect on performance
- (2) certification has a limited effect on performance
- (3) certification has no effect on performance

Some studies showed that ISO 9001 certification has several positive influences on companies' performance (e.g. Rao, Ragu-Nathan, & Solis, 1997). For example, in a study conducted in 106 SMEs, Koc (2007) showed that certified companies present better performance, production and competitiveness parameters than non-certified firms. Bayati and Taghavi (2007) concluded in their study that ISO 9001 certification brought firms practices that improved their performance. Gotzamani, Tsiotras, Nicolaou, Nicolaidis, and Hadjiadamou (2007) demonstrated that the implementation of ISO 9001-based QMS allows clear improvements in firms' performance. In a study carried out in 146 companies, Chow-Chua, Goh, and Wan (2003) found that certified companies have higher performance levels than non-certified ones. In the study conducted by Sun (2000) results show that, although limited effects were found on market position and competitiveness, and no

effect on employees satisfaction and environmental protection, better performance levels were found in terms of defective products, customer complaints, profitability and productivity.

Other studies showed that ISO 9001 certification had a very limited effect on companies' performance. For example, Naveh and Marcus (2005) showed that certified companies had better operational performance than non-certified ones, but in terms of overall performance no significant differences were found between them. Wayhan et al. (2002) concluded that implementing ISO 9001 had no effect on sales, net assets and gross margin, with only a very limited effect on return on assets. Another study carried out by Terziovski et al. (1997) on certified and non-certified firms only found a significant difference in cash flow among the 13 performance criteria studied.

Some studies also showed that certification has no effects on performance (e.g. Martinez-Costa & Martinez-Lorente, 2003; Quazi, Hong, & Meng, 2002; Singels et al., 2001). According to Aarts and Vos (2001), stock markets do not value the result of certification, but value the certification process. In another study, comparing the financial performance of certified and non-certified firms, Lima, Resende et al. (2000) failed to find different performance levels between the two groups.

Moreover, few investigations also found negative effects of ISO 9001 certification. For example, comparing performance between the three years before certification and the three years after, Martinez-Costa and Martinez-Lorente (2007) found in their long-term study that companies performance levels reduced after certification.

## **2. RESEARCH DESIGN METHODOLOGY**

### **2.1. About the study**

The main aim of this research was to study the influence of ISO 9001 certification on SMEs' performance. For such purpose, we decided to follow a case-study approach, since according to Yin (2003), this type of approach allows in-depth analyses, and provides more detailed information than other methods, quantitative nature.

## **2.2. Case selection**

Although SMEs have been a major focus of the literature and research, there is no single definition of what these firms really are. Indeed, companies' size can be measured in terms of the total workforce, turnover, investment or the number of business units. In this study we considered the number of employees as the main criterion for defining the companies studied as SMEs.

To develop our analysis, we decided to follow a double case study approach to allow a more robust study. The companies chosen to carry out this research were "Enforce" and "Jaime Alberto", two Portuguese SMEs with an ISO 9001-based QMS, belonging to very different sectors of activity (energy sector and food sector), and allowing us to check to some extent how sector of activity may influence the effect of ISO 9001 certification on SMEs performance.

## **2.3. Data collection**

Firstly we developed a formal case study protocol capturing the all set of procedures involved in data collection, including issues such as *i*) procedures for contacting key informants, *ii*) rules for protecting human subjects, *iii*) relevant sources of data, and *iv*) a detailed set of questions, among others. Briefly, data collection was performed with two key issues in mind: *i*) triangulation of data based on multiple sources, and *ii*) triangulation of perspectives based on multiple participants.

Nevertheless, obviously, the key informants in both companies were the managers responsible for implementing and monitoring the QMS. Moreover, the main data collection instrument used was a semi-structured interview (recorded with the interviewees' permission). According to Bryman and Bell (2003), this specific method generally allows free interviewees' points of view, stories and perceptions; the flexible characteristic of this method allows pertinent issues to be studied in greater depth.

## **3. RESULTS**

### **3.1. Companies profile**

Enforce is located in Covilhã, in the central region of Portugal.

Currently employing 15 collaborators, the company started up in 2001. This firm carries out its activity in the whole country and also internationally, in Spain, Romania and Angola. Its various types of activity include: projects of electrical infrastructure, telecommunications and air-conditioning in buildings; electrical installations; energy audits; energy surveys in buildings; Research & Development and Innovation in energy technologies, particularly solar.

Jaime Alberto has its headquarters in Covilhã, but also has premises in Viseu, in the central region of Portugal. Currently with 30 employees, the company began operations in 1989. This firm carries out its activity in the whole country in wholesale distribution and in retail sales, and operates in the districts of Castelo Branco, Guarda, Viseu and Aveiro. Its main activity is wholesale food distribution, but also has a presence in retail sales.

### **3.2. About “Enforce”**

Apart from ISO 9001 certification, the company has never implemented any other QMS. Nevertheless, besides the QMS’s certification, the firm has also a certified RDI management system [Research, Development and Innovation]. The formal implementation of the QMS took place normally, according to the usual procedures, as since its creation the company has always been greatly concerned about quality, considering the costs of non-quality to be very high.

*“Before implementing the quality system according to the requirements of the ISO 9001 standard, the firm was already very concerned about quality matters, as it always considered the costs of non-quality to be very high; for example, when we install a solar panel on the roof of a building without due care and attention, we run the risk of leaving a tile badly placed, which with rain can lead to a leak into the building, and we have to answer to the owners for the damage caused, damage which can easily reach many thousand euros”.*

*“It wasn’t at all complicated to implement the QMS according to the requirements of the ISO 9001 standard, because almost all these requirements were already considered in the*

*organization; the standards were important for us, not so much in terms of quality practices, but mostly in terms of orienting and systemizing the process. Basically, it helped us to organize better what we were already doing.”*

Collaborators have an essential role in the process, as they are the ones who carry out the activities and are constantly liable to make mistakes that can have important consequences for the firm, both financially and for the firm’s image externally. Aiming to reduce the costs of non-quality, the firm created lists of procedures for all the activities performed in the organization, describing the correct way to carry them out. The QMS implemented had a relevant role in drawing up those lists.

*“All collaborators should participate actively in the process, as only in this way can each one avoid mistakes and consequently the costs of non-quality; a simple tile badly placed can cost the company thousands of euros”.*

*“Besides the direct financial costs of these mistakes for the company, obviously mistakes of this kind call into question the company’s image among existing and potential customers”.*

*“The correct procedures are defined for every activity in the organization and to establish these procedures, implementation of the quality system according to the ISO 9001 standard was essential.”*

The main motivation leading the firm to implement a QMS according to the ISO 9001 standard was the continuous improvement of all its activities, aiming to give its customers even greater satisfaction.

*“What motivated us to implement an ISO 9001-based QMS was the desire to continuously improve all our activities in order to guarantee our customers ever-increasing satisfaction. The final objective is always to sell a good product or provide a quality service to our customer, but we are aware that it is only possible if we improve all the organization’s activities. In this context, all the company’s collaborators (financial manager, production director, human resources manager, quality manager, marketing manager, and*

*general director) are responsible for the final product and not just whoever directly produces it.”*

The company considers certification important for SMEs, as by allowing continuous improvement of all activities, it helps attenuating the lack of resources sometimes felt by SMEs when compared to larger firms.

*“SMEs are companies that sometimes have to compete with much larger firms, therefore with more resources; the implementation of such a system improves the quality of all the different activities, and can be a way of achieving sustainable competitive advantages”.*

The company considers ISO 9001 certification important in the renewable energy sector, since it allows a reduction of the costs of non-quality, which in this sector are usually very high.

*“In our sector the costs of non-quality are extremely high (in the order of thousands of euros); considering that the implementation of the quality system reduces these costs substantially, it’s a good reason for certifying in this sector”.*

Regarding benefits, the implementation of the QMS brought the firm many advantages. ISO 9001 certification allowed a significant reduction in the costs of non-quality and consequently a reduction in the final price of goods and services provided. Certification also allowed continuous improvement of all organizational activities, allowing customers’ increasing levels of satisfaction. In addition, certification allowed improvements in the firm’s overall performance, as it improved operational, financial and internal organizational performance. Briefly, for this company, there are no disadvantages in certification.

*“The QMS allowed a reduction in the costs of non-quality through continuous improvement of all our activities, raising levels of satisfaction in our customers, both regarding the quality and the price of what we supply. The great advantage of implementing the quality system was the possibility of lowering the prices of our products and services, as the system reduces substantially the costs of non-quality (obviously paid by customers). The implementation of our QMS significantly improved the quality of all the activities carried out in*

*the organization and consequently improved performance. It improved financial performance, as it allowed a reduction of the costs of non-quality; the QMS has already let us save thousands of euros. We also noticed a better operational performance, as it has allowed continuous improvement in all activities; the system improved internal organization, as it allowed systematization of all activities and a better organization of documentation. We would say that building our QMS doesn't brought any disadvantages."*

Finally, although satisfied with the implementation of the QMS according to the requirements of the ISO 9001 standard, the company is not currently thinking about further developments and other kinds of certification, at least for the moment.

### **3.3. About "Jaime Alberto"**

Besides ISO 9001 certification, the company is also certified by HACCP (Hazard Analysis and Critical Control Points), a management system in which food safety is addressed, through the identification, evaluation and control of safety hazards, throughout the whole supply chain (e.g. raw material production, handling, manufacturing, distribution).

*"We obtained ISO 9001 certification in 2008. Before that, we were only certified by HACCP, a certification that guarantees independently and impartially that the products are produced, handled, packed, distributed and supplied safely and according to the requirements defined by this norm."*

The implementation of the ISO 9001-based QMS was not considered as difficult, since many of the requirements are similar to those inherent in a HACCP-based Food Safety System, with which the firm had been working for some time.

*"The implementation of the process according to the ISO 9001 standard was not difficult, as many of the standard's requirements were already in practice in the company; the food sector*

*is already highly regulated and we have to adhere strictly to all the HACCP requirements. It's normal, because when you're dealing with food you can't be too careful; bad conservation can put people's health at risk.*

Regarding the implementation of the ISO 9001-based QMS, collaborators participated in the process, although sometimes they show some reluctance, considering ISO 9001 certification of little relevance for the company and seeing only residual value-added comparing to HACCP.

*“What's complicated in this process is that it's too bureaucratic, making both top management and the different collaborators wasting a lot of time. Most of the employees see no significant advantage in implementing the ISO 9001-based QMS, as they already had to carry out identical procedures expected in the HACCP system”.*

*“The employees can't bear hearing about the ISO 9001 standard, as they are fed up wasting time with so much paperwork and so much bureaucracy, without seeing any benefit.”*

Moreover the implementation of the ISO 9001-based QMS did not seem to arise really from internal motivations, but rather from an obligation, since ISO 9001 certification has now become almost essential for firms in the food distribution sector, as many of customers (especially public organizations) insist on their suppliers being certified according to this standards, particularly some of the best ones (schools, hospitals, senior homes, etc.).

*“What motivated us towards certification was the fact that some of our clients, particularly schools, hospitals, senior homes and other public bodies insist on the companies supplying products being certified. Certification is important in the food distribution sector as some clients only buy from certified companies, especially schools and health care institutions”.*

Regarding benefits, although ISO 9001 certification is seen in “Jaime Alberto” as rather useless in what internal processes improvement concerns (due to its similarities with HACCP), top management believes that certification is important for SMEs, raising their visibility and credibility in the market (often a negative issue due to their size).

*“ISO 9001 certification turns SMEs more credible in the market, so increasing their business opportunities.”*

In fact, at “Jaime Alberto” the perceived advantages of ISO 9001 certification are essentially related to the company’s external image, comparing to the internal functioning, where improvements in the documentation system is the only issue mentioned as an advantage, which seems clearly very minor as far as the influence of certification on improved performance in this firm is concerned. In addition, employees’ lack of motivation towards the norm may also prevent the firm from taking greater advantage of it. The main disadvantages highlighted was the slowness of the process and its high inherent costs.

*“ISO 9001 certification brought the advantage of reaching good clients, but we can’t say that certification has improved the firm’s internal performance; at the most it has improved the firm’s external image. Obviously, the firm’s financial performance is improved, because if we weren’t certified, we couldn’t reach certain clients, and so we would have a lower turnover. Regarding internal operational performance, we definitively can’t attest that the ISO 9001-based QMS allowed significant improvements, except for our documentation organization. On the contrary, a lot of time is wasted with the process, representing significant high costs. We have to turn quite frequently to outside consultants to help us to monitor the process and it isn’t always easy to find people with such competences; as a result, we have to contract the services of consultants who come from Braga (outside the region), with all the inherent costs.”*

### **3.4. Comparison of results**

Besides ISO 9001, both companies had already certified systems.

“Enforce” had a RDI [research, development and innovation] management system, and “Jaime Alberto” had a HACCP-based food safety management system.

Regarding the implementation process, compliance with ISO 9001 requirements ran without problems, as both companies were already very concerned about quality before implementing their QMS.

While “Enforce” considers collaborators’ role in the whole process as essential, in “Jaime Alberto”, collaborators seem somewhat reluctant to participate in the process, mainly due to the time the process requires.

Regarding the motivations for certification, “Enforce” highlighted essentially internal motives, namely the continuous improvement of all their activities, whereas the motivations for “Jaime Alberto” are especially external in nature, particularly the fact that some clients only purchase from certified companies.

“Enforce” considers ISO 9001 certification important for SMEs, as this type of firm has sometimes scarce resources, thus significant improvements in quality (the result of certification) may attenuate such reality, allowing firms to achieve sustainable competitive advantages. “Jaime Alberto” considers that certification helps SMEs’ credibility in the market and consequently stimulates business opportunities. Moreover, both companies consider ISO 9001 certification as important for their sector of activity.

“Enforce” highlights that the renewable energy sector has very high non-quality costs, and certification helps in reducing a significant part. For “Jaime Alberto” certification is important for the food distribution sector, as some clients, particularly public bodies, only purchase from certified companies.

Regarding benefits, various advantages arising from certification are pointed out at “Enforce”, namely non-quality costs reduction, continuous improvement of all its activities, lower prices in products and services. On the contrary, at “Jaime Alberto” the only advantages brought by certification seems to be a better external image, and improvements in the documentation system, with certification having no obvious influences on its general performance. Moreover, at “Jaime Alberto” the

high costs of the process and the time it takes are clearly highlighted as a great difficulty in implementing the ISO 9001-based QMS in SME.

The table 1 summarizes and compares the main results obtained in both companies.

Table 1  
*Results Comparison - Summary*

	<b>“Enforce”</b>	<b>“Jaime Alberto”</b>
Sector of activity	Renewable Energy	Food distribution
Year of beginning operations	2001	1989
Number of employees	15	30
Location	Covilhã	Covilhã
Quality management systems existing before ISO 9001 certification	None	HACCP
Other certifications	Certification in IDI	HACCP
How the whole process ran up to certification	Ran normally, as a great many quality practices were already part of the firm’s daily life	Ran normally, as the firm was already obliged to have quality practices, due to the food sector being tightly controlled
Importance of collaborators in the process	All collaborators should participate actively in the process, as only in this way will they manage to avoid mistakes and the costs of non-quality.	Collaborators participate in the process, but complain about the time they waste on the process
Motivations for certification	Continuous improvement so as to satisfy customers and avoid the costs of non-quality	Some clients insist on it
Importance of certification for SMEs	Given the shortage of resources sometimes felt by SMEs, quality improvement can be one way for SMEs to achieve sustainable competitive advantages	Makes SMEs credible in the market, increasing their business possibilities
Importance of certification for the sector of activity	The renewable energy sector has extremely high costs of non-quality, so	Some clients in this sector only purchase from certified companies,

	<b>“Enforce”</b>	<b>“Jaime Alberto”</b>
Advantages of certification	certification is important because it reduces these costs - Avoiding the costs of non-quality - Lowering the price of products and services - Continuous improvement of all activities - Improved performance	particularly schools, hospitals and other public bodies - Improved external image - Better organization of documentation
Disadvantages of certification	None	- A lot of time wasted on the process - High costs

#### **4. DISCUSSION AND CONCLUSIONS**

First of all, it is important to highlight that in the firms under study, the implementation of both ISO 9001-based QMS were relatively easy, as many of the requirements were already satisfied through previous certifications (RDI and HACCP). Moreover, both firms considered certification important for SME in general and for their sector of activity in particular.

The growing interest from SME in ISO 9001-based QMS is generally associated to several different motivations. Many SME decided to invest in such QMS due to external pressures, because their customers expect their suppliers to pay more and more attention to quality issues, and feel ISO 9001 standards may ensure such willing. Other SME pursue ISO 9001 certification because of market-related factors, wishing to gain new contracts. Quality improvement directed at efficiency, and processes' consistency are also frequent driving forces for undergoing in such journey.

Our research analyses two SME, with different approaches in what initial motivation leading to certification concerns. While “Enforce” decided to develop an ISO 9001-based QMS in order to continuously improve its internal operational activities, especially focused on reducing the costs of non-quality, at “Jaime Alberto” these motivations

were above all external in nature, particularly because some of the important clients only purchased from certified companies.

Several studies highlight the significance of motivations in developing QMS under ISO 9001 standards, stressing that companies pursuing ISO 9001 certification for external purposes, like promotional reasons or forced by customer pressure, obtain fewer advantages than those that are really convinced of ISO 9001's virtues to foster effective management practices (e.g. Nair & Prajogo, 2009; Martínez-Costa, Martínez-Lorente, & Choi, 2008; Lo & Chang, 2007; Terziovski & Power, 2007), concluding that organizations showing a proactive behaviour and driven by a continuous improvement strategy are more likely to gain higher benefits from ISO 9001 certification. Our research, conducted in two SME, support the results of these researchers, suggesting close relationships between reasons behind the decision to develop QMS based on ISO 9001 requirements, and the nature/extension of improvements reached.

Regarding the case study conducted at "Jaime Alberto", results corroborated the conclusions raised by Bayati and Taghavi (2007), highlighting that financial costs are the main obstacle to implementation of QMS. Moreover, improvements in the firm's external image and organization of documentation appear to be the few perceived improvements in its performance, in line with the results of studies by Naveh and Marcus (2005), Terziovski (1997), Wayhan et al. (2002), Aarts and Vos (2001), Lima et al. (2000) and Martínez-Costa and Martínez-Lorente (2003), concluding that implementing ISO 9001-based quality systems has no influence, or very limited, on organizational performance.

The results obtained in "Enforce" sustain the thinking of Ilkay and Aslan (2011), who consider that implementing an ISO 9001-based QMS aims for continuous improvement of all the organization's activities, with a clear focus on customer satisfaction. According to the person in charge of implementing the QMS in "Enforce", these systems help to compensate for the lack of resources SMEs sometimes suffer from. This opinion reflects the thinking of Kiple and Lewis (2009), who consider that implementation of QMS can help to make up for the shortage of resources sometimes felt by SMEs when compared to large firms. Koc

(2007) considers that implementing QMS allows a reduction in the costs of non-quality, and the results obtained in “Enforce” also underline the importance of these systems in reducing the high costs of non-quality in the renewable energy sector in particular. Indeed, data collected at “Enforce” corroborates the results of other studies such as Bayati and Taghavi (2007), Chow-chua et al. (2003), Gotzamani et al. (2007), Ismail, Baradie, and Hashmi (1998), and Sun (2000), concluding that ISO 9001-based certification allows significant improvements in organizations’ performance.

Finally, it is important to remember that our research focused on two specific organizations, meaning that all the conclusions that can be drawn from the study only concern these organizations; this is certainly a limitation of the study. However, we believe that the results may interest many other SMEs that are thinking about moving towards the implementation of an ISO 9001-based QMS. This study is important for literature and for companies, as it provides a general view regarding the effects of ISO 9001-based QMS in SMEs performance, in different sectors of activity, highlighting two different behaviours matching two different patterns in terms of improvements achieved. We think that more case studies focused on studying the relationships between motivations behind the decision to pursue ISO 9001, and depth/breadth of QMS’s implementation, may bring new insights and explain disappointments manifested by many organizations, regarding benefits reached from ISO 9001-based QMS.

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