

Organizational Impacts due to ISO 9001 Certified Implementation on Brazilians Cardboard Companies

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Abstract

This paper presents the evaluation internal and external organizational impacts of a company that has adopted a total quality management system: ISO 9001 certification. Based on a case study, supported in bibliographic references in a cardboard sector company, the survey aims to measure and evaluate the basic concepts of quality and the certification benefits. Upon this study completion it was found that actually getting a certified ISO 9001 brings many organizational impacts and leads to overall the company improvement, as the management capacity and overall relationships, increase the customers and suppliers numbers and improved company image. So, that seeks evidence is the total quality management system influence.

Keywords: ISO 9001, Total Quality Management, Organizational Impacts

Introduction

The market is showing a cardboard growth since 2010 and it is expected that the sales figures continue expanding. This expansion is in line with the projected market growth. According to data provided by the Brazilian Association of Corrugated (ABPO) , sales of corrugated cardboard in Brazil reached 218 943 tonnes in March 2013 resulting in 13.78 % more than February of the same year.

Associated with the increasing demand of the economy and consequently of industries , because along with the industries for various products grows cardboard packaging and thus a concern with the quality for the company's performance and success in the market is becoming more pronounced , since the competition is getting tougher .

Parallel to this, the evolution of the quality concept in enterprises has promoted the development of quality management systems due to be a factor that influences in obtaining the advantages and benefits. Specifically, the ISO systems implementation and certification ("International Organization for Standardization ") has become one of the most common practices.

The motivations for ISO 9001 can be classified according to two main categories: internal and external motivations. Internal motivations are related to the goal of achieving organizational improvement , while external motivations are primarily related to issues of promotion and marketing, customer pressures , improved market share (Buttle , 1997; Jones et al , 1997; MO & CHAN , 1997; Brown et al , 1998; BRYDE & Slocock , 1998; LEE & Palmer , 1999; LIPOVATZ et al , 1999; ESCANCIANO et al, 2001 ; GUSTAFSSON et al, 2001).

The importance of this study being looking at internal and external impacts that a company achieved after implementing a quality management system: ISO 9001 certification in an industry sector of cardboard. In addition, data collection, analysis and generation of information for the characterization of the dynamics of adoption of normative standard ISO 9001, are also studied.

Literature Review

It is right to say that ISO 9001 certification is a very valuable tool and the benefits it brings to businesses are diverse. According to Heck (2007) , the certification allows companies greater participation in national and international markets , as the technical specifications meet standards and international requirements , which make them widely accepted in many countries , adding more value to the business and contributing to competitiveness business. Through written procedures and instructions specific work activities are easier to run , which helps control the production process , reducing failures , waste and rework , and consequently reduce costs , and improve the relationship with the suppliers and increase customer satisfaction , since the certificate provides better service and better products .

Impacts of ISO 9001 implementation

The option for the ISO 9001 implementation, with the accreditation intention, cause numerous impacts on organizations like show some authors focused on the relationship between the application of the ISO certificate and firm performance. Agus & Hassan (2000) , for example , confirm the positive relationship between compliance of adopting a quality system and financial performance , while Hendricks & Singhal (2001) show the positive impact of the quality system implementation in the long-term performance . Karia & Asaari (2006) examined the impact of practices on work quality systems related to employee attitudes .

Researchers recognize that for a successful implementation requires focus on employee behavior, increased attention to the organizational management culture, and dedication to practices and organizational structures. According to Nadvi & Kazmi (2001), the adoption of quality management techniques as required by ISO 9001, produces external and internal impacts. Those are related to the improvement in terms of marketing and promotional aspects, while internal impacts are related to organizational improvements (Brown *et al* . , 1998) .

Internal impacts

Prates (2010) states that internal impacts are beneficial to an organization, as they provide an improvement in productivity through better organization's ability to plan projects, and reduce losses in production processes, by identifying production bottlenecks. And strengthening their concept, Sampaio et al. (2009) says that internal impacts reflected in improved productivity, reduces the defective products rate, improving the quality of processes, defining the staff responsibilities and obligations, improvements within the organization, improve communication, quality improvement product.

Brown et al. (1998) argued that firms run by internal reasons for seeking certification have a more positive perception of the improvements achieved. The manager who sees certification as an opportunity to improve internal processes and systems, rather than simply seeking a certificate on the wall, you will get positive results more widely. Confirms Poksinska et al. (2002) and Williams (2004) that companies seeking certification based on the quality improvement will benefit especially true in terms of improving internal operations. Llopis & Tari (2003) believe that companies more concerned with quality of internal reasons are those that:

- obtain greater profits arising from the quality systems implementation;
- Reach greater practical application of the quality management principles, and;
- They are more likely to progress to total quality management.

External impacts

In terms of external impacts, according Prates (2010), obtaining and maintaining an ISO 9001 certificate are aggregated with its implications for the value chains management. Opportunities for access to new markets are considered external impacts, as well as improving the corporate image of the organization, improve customer relationships, reduced delivery times, and consequently customer satisfaction, therefore decreasing complaints and increased competitive advantage (Sampaio et al., 2009).

ISO 9001 implementation direct impact on Human Resources performance

Empirical studies by Yang (2006) confirmed that the practices of human resource management have a positive impact and significant effect due to the quality system implementation, specifically the ISO 9001 certificate and thus add an improvement in employee performance and customer satisfaction.

To Aguiar (2000), the area of human resources is one that has increased participation in the implementation of the quality system process with extensive involvement, especially with regard to the training and development of people, since it is responsible for developing, implement and manage policies and procedures for training and development, to attract and maintain employee commitment to the company's Quality System for a long time.

In addition, professionals must understand that the description of skills, training plan and evaluation of training effectiveness are directly interrelated, and therefore the skills allocation and proper task distribution, facilitates to implement activities promoting for the production process, reducing failures, waste and rework, and consequently the costs reduction. Thus, it is critical for companies to invest in the manpower training, and even permanent recognition of the quality and productivity of these employees (CANFIELD & Godoy, 2004).

Therefore, we suggest:

H1 ISO 9001 implementation direct has a impact on Human Resources performance

ISO 9001 implementation direct impact on Production performance

As seen earlier, and bringing together the ideas of several authors , the acquisition of the certificate by the organization is fully linked to the quality and structural processes , confirm Sun , (1999) ; Yahya & Goh (2001) ; Koc (2007 , cited in Olalla & Marin , 2011) .

According to Rothery (1993) , the commitment of organizations to add quality practices to their production processes , in addition to providing customer satisfaction , allows for streamlining processes and increasing productivity directly reflected in competitiveness . The author also points out that the most striking feature of ISO 9001 in managing not only restricted to automatically provide controls to ensure quality of production and shipping , but also reduce waste , machine and inefficiency labor downtime , causing therefore increased production.

To Sousa & Voss (2002) , the qualification improvement of will also influence the marketing business performance resulting in an finished products improved financial performance .

Tzelepis, Tsekouras, Skuras & Dimara (2006) sets out to explore the effects of ISO 9001 on productive efficiency of firms. The study took a sample of 1,572 firms from three Greek manufacturing industries is used for empirical work. The firms are from the food and beverages industries, the machineries industries as well as from the electrical and electronics appliances manufacturing industries and include both adopters and non-adopters of ISO 9001. A stochastic frontier methodological approach is adopted and the effects of ISO 9001 can be modeled in four ways: as a managerial input alongside the conventional inputs of capital and labor, as a factor affecting technical inefficiency, as an input and a factor affecting technical inefficiency and as having no effect at all. As Findings they show the ISO 9001 operates as a factor affecting technical inefficiency with non-neutral effects on capital and labor. The combined effect of ISO 9001 with capital increases the level of technical inefficiency reflecting adjustment costs incurred when ISO 9001 is adopted. The combined effect of ISO 9001 with labor decreases the level of technical inefficiency reflecting the positive result of ISO 9001 on reducing x-inefficiency.

H2 : ISO 9001 implementation has a direct impact on production performance

ISO 9001 implementation direct impact on Marketing performance

According Desiderio (2010) , many companies seek certification just because of marketing results , however marketing causes in the case of ISO 9001, as a strategic tool should be used careful way , because it is not certifying products, technology or even brand , but ensuring the company management system . As Moura (2010) , when organizations begin to make the necessary changes , face a fantastic way to standardize processes , achieving a lower errors rate , waste and rework . The final product will also have improved their quality since the implementation is a continuous improvement process, reflecting sales and costumers guarantees.

According to Moura & Morri (2007) , customer focus is one of the principles fundamental of the standard series ISO 9001 . Organizations depend on their customers and therefore it is recommended that meet current and future customer needs , their requirements and strive

to exceed your expectations. According to Freitas (2011) , there are numerous tools and mechanisms for this monitoring . The most important is that at the end , can ensure that the customer's perception of whether the organization has met its requirements and is being properly monitored in a systemic way .

The same author mentions a few ways to accomplish this monitoring , among them are :

- periodic satisfaction survey;
- Suggestion box ,
- Index of complaints ;
- Warranty Index return ;
- Customer Loyalty ;
- business loss Analysis ;
- retailers Reports;
- Products Index exchange ;
- Forums Comments .

To Joos (2002) , the customer satisfaction measurement and monitoring with the process improvements implementation, products and services based on the data analysis obtained in these measurements is one of the highest strategic activities and company return. Companies should implement these ISO 9001 requirements, not only because the rules require , but also because they contribute significantly to improve its competitiveness and performance , since the satisfied customer will continue to purchase products and services and also recommend them to acquaintances .

Singh (2011) indicates after globalization of markets, product quality and satisfaction of customers have become essential for sustainable growth of small to medium-sized enterprises (SMEs). The purpose of this paper is to identify and develop the structural relationship among different factors for success of total quality management (TQM) in SMEs. In this research a total of 11 factors have been identified for successful implementation of TQM. Interpretive structural modelling (ISM) approach has been applied to develop a structural relationship among these factors. As findings they indicates Top management commitment, employees' training and empowerment, supplier development and coordination between departments are found to be the major driving factors for implementing TQM, whereas process management, product/service design, product quality and customer satisfaction are observed as dependent variables.

H3 : ISO 9001implementation has a direct impact on marketing performance

ISO 9001implementation has a direct impact on Purchasing performance

According Rigoni (2011) , ISO 9001 decrees that the obtained product organization certifying is in accordance with the conditions specified acquisition . Suppliers should be evaluated and selected by the organization , based on their ability to supply product in accordance with the organization requirements. After that , selection criteria , evaluation and re-evaluation shall be established , and then evaluations results records and any necessary actions arising from the review shall be maintained.

It is important that the organization establish and implant inspections in order to ensure and verify that the purchased product meets specified purchase requirements (RIGONI , 2011) . The author further states that the standard requires requirements obedience, and central

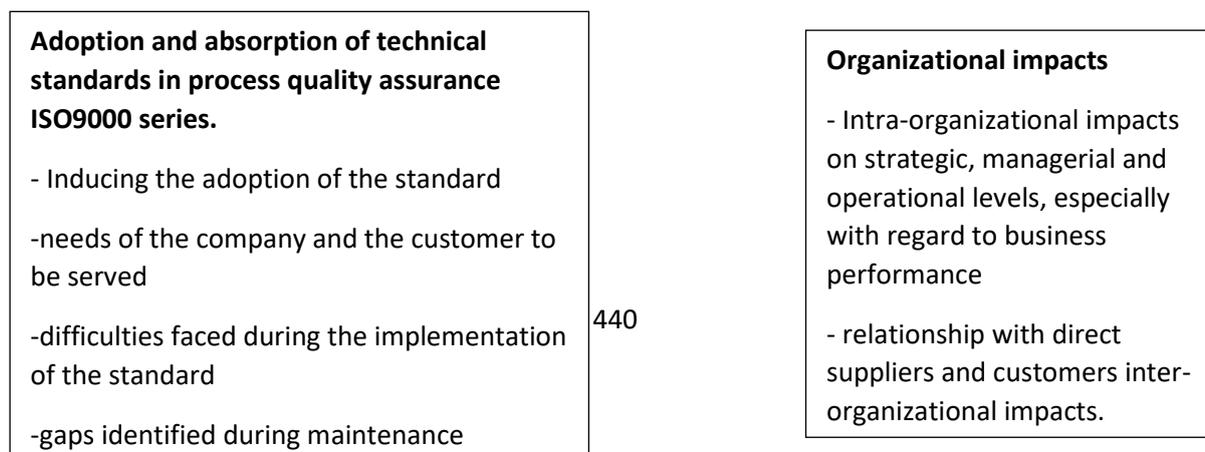
procurement must be aware of these compliments because acquisitions are an important part of the production process , due to the final product influence . Buy raw materials without any parameters , certainly the final product quality and standardization will be affected , so it is necessary that the organization has control over the purchasing process .

Until the late 1980s, literatures about QMPs' impacts on business performance are largely based on the personal prescription of researchers in quality management area and are mostly qualitative analysis. Rigorous attempts to investigate QMPs' effect on business performance began with Saraph et al. (1989). Powell (1995) first used statistic methods to verify the relationship between QMPs and business performance, and found that QMPs are statistically positively related to business performance, but the relation is very weak. Powell also suggested that not all quality management programs bring excellent business performance. Li, Zhang & Yuan-Yuan Liu (2008) showed on their study a exam of the way quality management practices (QMPs) impact quality outcome, R&D process, and business performance, using investigation data from Chinese firms, how is a possible moderating effects of industrial types and competition on the above influencing relationships were investigated as well. They run a A two-round questionnaire survey was conducted to 196 manufacturing and service firms in West China, and hypotheses were verified using a structural equation model with LISREL software. The results suggest that quality management practices do not have a positive impact on firms' business performance directly, but have an indirect impact on business performance mediated by quality performance and R&D performance. Furthermore, the authors find that industrial type can moderate the relationships between quality management practices and business performance, while competition does not.

H4 : ISO 9001implementation has a direct impact on purchasing performance

Conceptual model and hypotheses

Figure 1 is the theoretical model. This model indicates the influencing relationships among ISO 9001 certification implementation and sales, purchasing, human resources, production processes performance.





Results of the Study

This study adopted a five-point Likert scale to answer the items in the questionnaire, with 5 denoting “always” and 1 denoting “never.” Mean scores less than 2.89 were considered weak, mean scores between 2.75 and 4,18 were considered moderate, and mean scores of more than 4,00 were considered high. In a sample of 95 wood based industries in Brazil.

Table 1. The ISO 9001 implementation direct impact on variables of business performance separated by company area performance.

Ser.	Item	Mean	Standard deviation
	ISO 9001 implementation direct impact on Human Resources performance		
1	The ISO 9001 implantation aims the Human resources achieve adaptation with the changes in the internal and external environment	3,70	0,88
2	I have changed my work responsibility after ISO 9001 certificate	3,56	0,85
3	The ISO 9001 certification plans for the human resources to develop their vision and strategic objectives.	2,95	0,99
4	There is clarity in the objectives and plans of the human resources to accept the ISO9001 certification	3,32	0,85
5	I have a clear understanding of the human resources role on the ISO 9001 certificate	3,62	0,81
6	The company trains the human resources to develop their professional skills based on ISO 9001 principles	4,18	0,75
7	In the company , there is an environment stimulating workers to apply what they learned practically on ISO 9001 requirements	2,89	1,00
8	In the company , there is a technical training stimulating the workers to considers the costumers requirements	3,99	0,78
	ISO 9001 implementation direct impact on Production performance		
9	The ISO 9001 implantation aims the Production process achieve adaptation with the changes in the quality requirements	3,91	0,77
10	I have changed my quality ideal responsibility after ISO 9001 certificate	3,75	0,88
11	The refusal of itens producted are decreasing	4,25	0,69
12	The productivity are increasing	3,99	0,72

	ISO 9001 implementation direct impact on marketing performance		
13	The ISO 9001 implantation aims the Marketing process achieve a better sales amount considering the changes in the quality requirements	2,87	1,00
14	I have changed my quality costumer satisfaction responsibility after ISO 9001 certificate	3,89	0,95
15	The complaints of items sold are decreasing	3,75	0,88
16			
	ISO 9001 implementation direct impact on purchasing performance		
17	The standard required are obeyed because acquisitions are an important part of the production process , due to the final product influence	3,85	0,79
18	The organization establishes and implant inspections in order to ensure and verify that the purchased product meets specified purchase requirements	3,95	0,88
19	The suppliers are considering a better company relationship activities as important due to the ISO9001 certification performance	3,84	0,77
20	The company has been evaluating their suppliers due to the ISO9001 certification performance requirements	3,18	0,99

Item serial 6 obtained the highest mean 4,18 for the first variable, **ISO 9001 implementation direct impact on Human Resources performance** (see Table 1). This result suggested that the **ISO 9001 implementation direct impact on Human Resources performance is well planned** , and HR staff members are well versed in the rules and procedures, and have experience and competence in the employee ISO 9001 certification planning process. Item serial 11 obtained the highest mean score (4,25) for the second variable, **ISO 9001 implementation direct impact on Production performance** This result implied that the **ISO 9001 implementation direct impact on Production performance** is relevant and applicable to the day-to-day responsibilities of Production operations.

Hypotheses Testing

To test the hypotheses, a simple regression analysis was performed on the **ISO 9001 implementation direct impact** in general and the **business performance** in particular. Table 2 shows the correlation coefficient, *R2*, *F* value, significance level, and *H0*.

Table 2. Pearson Correlation of the Study Variables

Ser.	Variables	Correlation coefficient	R2 Value	F value	Significance level	H0
1	ISO 9001 implementation direct impact on Human Resources performance	0,75	46%	100,22	0,000	Refusal

2	ISO 9001 implementation direct impact on Production performance	0,78	69%	102,21	0,000	Refusal
3	ISO 9001 implementation direct impact on marketing performance	0,60	28%	105,13	0,000	Refusal
4	ISO 9001 implementation direct impact on purchasing performance	0,65	31%	100,32	0,000	Refusal

The highest total variance was observed in **Production performance** (69 percent), followed by Human resources performance (46 percent), whereas the lowest total variance was observed **marketing performance** (28 percent) (see Table 3). This result indicated that production performance plays an important role in determining the **ISO 9001 implementation practice in Brazilian cardboard companies**. Performance production is expected to increase the knowledge, skills, and performance on ISO 9001 certified companies.

Table 3. Results of company hypotheses performance

	Hypotheses	Correlation coefficient
H1	ISO 9001 implementation direct impact on Human Resources performance	0,75
H2	ISO 9001 implementation direct impact on Production performance	0,78
H3	ISO 9001 implementation direct impact on marketing performance	0,60
H4	ISO 9001 implementation direct impact on purchasing performance	0,65

The results of the hypotheses testing indicated that the independent variables significantly correlated with the dependent variable. The correlation results confirmed a significant association between independent variables and the dependent variable (see Table 3). The analysis suggested the lack of multicollinearity in this study because the correlation coefficient was less than 0.80.

Recommendations

Conclusions

The central finding of our study is that ISO 9000 certification has a positive and significant effect on production, purchasing, human resources and marketing performance. From this finding it is reasonable to conclude that ISO 9000 certification by itself does not lead to improvement in business performance. The analysis suggested the lack of multicollinearity in this study because the correlation coefficient was less than 0.80.

Despite the fact that our study is based on a large sample size, it does suffer from limitations, and these give rise to a number of suggestions for further research. The internal validity of our variables is acceptably strong, but far from perfect. Further, empirical research on refining the constructs and their elements is warranted.

The research reported here is purely of a cross-sectional snapshot. We were unable to test and account for the lags between the existence of practices and performance changes.

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