



The influence of motivations and other factors on the results of implementing ISO 9001 standards



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ABSTRACT

The objective of this paper is to analyze the influence that the internal and external motivations, as well as other factors can suppose for the appearance of the benefits derived from the adherence to the ISO 9001 Standards. For this, it has been made a research centered in The Spanish construction sector. This sector is of great importance at both the global and Spanish level, and ISO 9001 Standard is widespread in it. A questionnaire was sent to 302 companies that are part of this sector, obtaining 126 valid questionnaires, whose data have been treated using a multiple linear regression model. The results of this model indicate that the type of internal or external motivation to implement such a regulation, as well as the seniority in adhering to it, are significant variables for the achievement of the positive results that can be derived from ISO 9001. However, the size of the company is not significant for the appearance of such results.

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1. Introduction

The construction sector is one of the most important in the world, representing 12.2% of world GDP in 2012 and it can reach 13.5% of GDP in 2025, which would mean a turnover of 15 trillion dollars.¹ Similarly, in Spain, this sector is one of the most important sectors in the national economy. According to SEOPAN (National Association of Public Works Companies) (2013), this sector accounted for 8% of national GDP in 2011 and 7% of employment (1.1 million employees), taking into account that at the moment of the greatest expansion of the economic cycle (2006), it reached 12.6% of GDP and 13.9% of employment (2.7 million employees).

On the other hand, currently the high competition level of most markets in developed economies is forcing companies toward strong quality development, so that with time, quality management is confused with the very concept of management or business management (Casadesus & Heras, 2005). In this context, quality management systems allow companies to equip themselves with management tools to establish policies and responsibilities, allocate resources and identify key activities (Criado & Calvo, 2009).

In this environment, quality assurance standards arise, among which the ISO 9000 series of Standards, which appeared in 1987, are the most widespread, often constituting the first contact of companies with quality (Martínez, Rodríguez, & Vázquez, 2004). These standards have been widely accepted in companies from different countries, so that by the end of 2013 there were 1,129,446 companies certified worldwide, 485,554 at European level and 42,632 in Spain (ISO, 2014).

The construction sector is one of those affected by the situation of strong competition described above. In addition, this sector was hit particularly hard by the recessive situation of the economic cycle that was experienced in Spain until last year, so that its expansion outside national borders was constituted as a way of survival. In this internationalization environment, standardization appears as a key mechanism that favors exchange and international trade, by eliminating the obstacles derived from the practices of each country (Heras & Boiral, 2013), since the purpose of these standards is to standardize procedures, functions and roles (Braun, 2005; Guler, Guillen, & MacPherson, 2002). Due to all the above, the implementation of ISO 9001 is very widespread within the construction sector, so that in terms of the number of certified companies, the construction sector occupies the third place worldwide, while in Spain it ranks first with a total of 5061 certifications (ISO, 2014).

The implementation of these standards is associated with a number of both initial monetary and maintenance costs (Pires, Cociorva, Saraiva, Novas, & Rosa, 2013), with the expectation of achieving benefits that monetize the investment made, thus

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¹ See "Global Construction 2025": Global Construction Perspectives and Oxford Economics (www.globalconstruction2025.com).

compensating these initial costs (Alic, 2014; Heras, Arana, & San Miguel, 2010; Magd, 2008; Sampaio, Saraiva, & Guimaraes, 2010). However, these investments are not always compensated by the positive results achieved (Psomas, 2013). All this seems to indicate that adherence to these standards is not sufficient, but there are certain factors that can condition positive results (Boiral, 2011; Lee, To, & Yu, 2009; Psomas, Fotopoulos, & Kafetzopoulos, 2010).

The objective of this paper is to analyze the possible influence of the following factors on the positive effects of implementation of ISO 9001 in companies in the Spanish construction sector: (a) different types of motivation (internal and/or external) for adherence; (b) the size of the company; (c) the age of adherence to the mentioned Standard.

To do this, once this introduction is finished, the conceptual framework of this work will be developed in the next section of the article, and then the methodology used will be described, which consists of dealing with the data obtained from the questionnaires received, by using a multiple linear regression model. Subsequently, sections four and five will show the results obtained from the model mentioned, as well as the conclusions, limitations and future lines of research that are derived from them.

2. Conceptual framework

Given the objective of this research, a review of the main studies in the area of ISO 9001 has been carried out, both in relation to the positive effects generated by the adherence to this Standard and the influence that the size of the company, the length of time since implementation and the type of motivation (internal or external) for adherence could have on the appearance of such effects.

2.1. Positive effects derived from implementing the ISO 9001 Standard

In previous research, it is generally concluded that this Standard generates positive effects for the companies that implement it, although some studies do not reflect these benefits or at least not in all situations (Boiral & Amara, 2009; Heras, Dick, & Casadesus, 2002; Martínez-Costa & Martínez-Lorente, 2003, 2007; Martínez-Costa, Choi, Martínez, & Martínez-Lorente, 2009; Quazi, Hong, & Meng, 2002; Wilson, Walsh, & Needy, 2003).

With regard to the positive results achieved, several studies (Bernardo, Simón, Tarí, & Molina-Azorín, 2015; Casadesus, Karapetrovic, & Heras, 2004; Douglas, Coleman, & Oddy, 2003; Gotzamani & Tsiotras, 2002; Sampaio, Saraiva, & Rodrigues, 2009; Tari, Molina-Azorin, & Heras, 2012) classify them as positive effects related to “internal aspects” and “external aspects”. Based on these conclusions, these positive effects can be classified as shown in Table 1.

Analyzing the relative importance of the two types of positive effects associated with the adherence to ISO 9001, there is previous research that gives more importance to the “internal aspects” (Bayati & Taghavi, 2007; Bhuiyan & Alam, 2005; Calvo, Redondo, Mora, & Cristóbal, 2016; Lo, Yeung, & Cheng, 2009; Martínez-Costa, Martínez-Lorente, & Choi, 2008; Terziovski & Power, 2007; Wahid & Corner, 2009; Williams, 2004), while other studies emphasize the effects of the “external aspects” (Benner & Veloso, 2008; Corbett, Montes, & Kirsch, 2005; Dick, Heras, & Casadesús, 2008; Martínez-Costa & Martínez-Lorente, 2003; Martínez-Costa & Martínez-Lorente, 2007; Sharma, 2005; Terlaak & King, 2006; Wayhan, Kirche, & Khumawala, 2002). Despite the above, most previous research shows positive internal and external results (Calisir, 2007; Casadesus & Giménez, 2001; Casadesus et al., 2004; Castillo et al., 2014b; Feng, Terziovski, & Samson, 2008; Gotzamani & Tsiotras, 2002; Jang & Lin, 2008; Lo & Chang,

Table 1

Typology of positive effects deriving from adherence to ISO 9001.

Internal aspects	
Organizational aspects	Control of production management, establishment of responsibilities and rules, improvement of coordination with suppliers, increased innovation, improvement of the information system of process management, improvement of the internal control system to detect “non-conformities”, etc.
Implementation of activities	Better use of resources, reduction of inspection costs, improvement of overall efficiency, reduction of logistical and production costs, reduction of non-conformities, improvement in the fulfillment of implementation time, reduction of “non-quality” costs, etc.
Human resource management	Improvement of employee suggestion systems, participation in work teams, reduction of absenteeism, greater satisfaction and motivation at work, etc.
Internal aspects Commercial	Requirement to compete in the sector, as well as for access of new customers and markets.
Financial	Increase in turnover and market share, improvement in turnover per employee ratio, etc.
Customer management	Increase in recruitment with the same customers, decrease of non-conformities or claims, improvement of satisfaction, improvement of the image in the market, etc.

2007; Prado, Castillo, Mercado, & Soto, 2013; Rodríguez-Escobar, Gonzalez-Benito, & Martínez-Lorente, 2006; Zaramdini, 2007).

2.2. Influence of the type of motivation (internal/external) for the implementation of the ISO 9001 Standard on the positive effects derived from its adherence

As for the reasons for adherence to this standard, one way to classify previous studies would be to consider whether the decision to certify a company arises from its environment or itself, i.e. whether the decision is “reactive or proactive” (Rodríguez-Escobar et al., 2006). Reactive motives are related to the implementation of the standard in response to certain pressures or external stimuli, which may consist of government incentives (aid, subsidies, etc.) and regulations to access a market (Sun, 2000), as well as pressure from financial institutions to access credit lines and the market pressure itself generated by competition and the customers themselves (Buttle, 1997; Jones, Arndt, & Kustin, 1997). As for the proactive reasons, that is, when companies decide to implement these standards on their own initiative, on the basis that by having better quality systems, the benefits attributed to certification must be evident (Heras et al., 2010; Sampaio et al., 2010).

In any case, based on previous research, the motivations for adherence to this Standard may be related to “internal aspects” such as improvements in organizational processes, implementing operations, and human resource management, as well as related to “external aspects”, such as improving the image and market position of the company, and other aspects related to commercial pressures, financial improvements and customer relationships (Boiral & Amara, 2009; Corbett et al., 2005; Douglas et al., 2003; Gotzamani & Tsiotras, 2002; Llopis & Tari, 2003; Sampaio et al., 2009; Williams, 2004).

Moreover, it is evident that in the majority of studies, motivations related to external aspects predominate (Bhuiyan & Alam, 2005; Heras & Arana, 2006; Martínez-Costa et al., 2008; Rodríguez-Escobar et al., 2006; Terziovski, Power, & Sohal, 2003), in comparison with those which consider that the motivations related to both types of aspects (internal and external) are balanced

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