



Benefits of management systems integration: a literature review



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ABSTRACT

The purpose of this paper is to identify the benefits of integrated management systems by comparing them with the benefits obtained through the individual implementation of ISO 9001 and ISO 14001 standards.

The methodology used is a literature review based on an electronic search in the Web of Science, ScienceDirect, Scopus and Emerald databases.

Findings show that although some benefits are common regardless the system management type, the benefits obtained with integration are greater than considering management systems separately because of the wider scope considered in integration.

This is one of the first papers, to the best of our knowledge, to compare benefits from the two management systems standards when implemented separately and when integrated.

In addition, some ideas are proposed for consideration in future research on the internalization of management systems and selection effect.

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1. Introduction

Quality management (QM) and environmental management (EM) are business practices that may benefit companies. As several empirical studies have shown, implementing QM (Huang and Chen, 2002; Kaynak, 2003; Parast et al., 2011) and EM (King and Lenox, 2002; Al-Tuwaijri et al. 2004; Moneva and Ortas, 2010) may effectively have a positive influence on firm performance. This positive effect may result from their impact on firm costs and differentiation levels. Firms that implement QM focus on providing superior value to the customer and on improving the efficiency of the processes. Continuous improvement of processes and product quality lead to increased revenues (through product reliability) and reduced costs (through process efficiency). Similarly, regarding EM, for example, pollution prevention can allow savings in input and energy consumption, and increase demand among environmentally sensitive consumers (Miles and Covin, 2000).

In this context, management system standards (MSSs) have enjoyed enormous success in recent years, both in the sphere of QM (ISO 9001) and in that of EM (ISO 14001). According to the most

recent ISO data, the number of ISO 9001 certificates worldwide rose to 1,101,272 and ISO 14001 to 285,844 (see ISO, 2013). The implementation of this type of standards is voluntary, although in some sectors it has *de facto* become an obligatory measure, given the coercive influence of customers (Braun, 2005; Mendel, 2006). Also, research has been done on how far these type of standards have a significant impact on business performance, with some studies finding a positive link (Chow-Chua et al., 2003; Mokhtar and Muda, 2012), while other authors state that there is also evidence for the existence of a substantial mechanism whereby better performing firms self-select to adopt certification and therefore, this link cannot be proved (Dick et al., 2008; Lo et al., 2011). However, there is a consensus with a large number of studies which have analyzed the benefits that may be obtained from ISO 9001 and ISO 14001 implementation and certification (Link and Naveh, 2006; Zaramdini, 2007; Gavronski et al., 2008; Singh, 2008).

As various authors have pointed out, the two standards have many similarities in terms of their structure and dissemination processes (Corbett and Kirsch, 2001; Corbett, 2006; Marimón et al., 2010, 2011). These two standards also present similarities regarding the standard language used and the PDCA cycle of continual improvement. For example, both standards use a similar language using terms such as objectives, audits, procedures, records, etc. Both standards also focus on continuous improvement. In this regard, ISO

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14001 requirements are classified taking into account the PDCA cycle. This suggests that those ISO 9001 certified companies working with quality objectives, procedures and records can easily adopt new objectives, procedures and records related to environmental requirements. Moreover, those companies implementing both standards can use similar practices to meet quality and environmental requirements. This similar structure and language can facilitate integration processes. Thus, following the steps of the PDCA cycle, the organization can create an effective integration strategy.

In sum, these similarities may lead to the integration of the two standards thereby achieving synergies and then increasing benefits. In this context, when organizations have multiple management systems (MSs) implemented, the next step is to manage them as a single system in order to benefit from the related synergies (see e.g., Karapetrovic and Willborn, 1998a, 1998b; Rocha et al., 2007; Karapetrovic and Casadesús, 2009), i.e., implementing an Integrated Management System (IMS). According to Wilkinson and Dale (2000), all management systems can build an IMS, although the most analyzed are ISO 9001 and ISO 14001. In this vein, several studies have analyzed the different aspects of this process (e.g. Karapetrovic and Willborn, 1998a, 1998b; Karapetrovic et al., 2006; Zeng et al., 2007, 2011; Salomone, 2008; Bernardo et al., 2009, 2010, 2012a, 2012b; Tari et al., 2010; Simon et al., 2011, 2012a, 2012b). The main benefit of an IMS according to the existing literature, is to improve internal efficiency, viewed as a global concept consisting of integrated audits, optimization of resources, human resources motivation, etc. (see e.g., Karapetrovic and Willborn, 1998a; Douglas and Glen, 2000; Zeng et al., 2005; Salomone, 2008).

The implementation of both MSSs, either separately or in an integrated fashion, leads to the obtaining of benefits. Although some studies analyze the benefits from these standards separately by means of a literature review (e.g. Psomas and Fotopoulos, 2009; Sampaio et al., 2009; Tari et al., 2012), to the best of our knowledge there is no literature review of the empirical studies analyzing the benefits of IMSs. This issue can be interesting and relevant from an academic point of view and also for management practice. Consequently, the purpose of this paper is to identify the benefits of the IMSs through a literature review.

The contributions of this study can be summarized from two perspectives. First, from an academic position, this work supplements previous literature reviews about ISO 9001 and literature reviews about ISO 14001 and expands existing knowledge about the benefits of the IMSs by comparing them with the benefits obtained through ISO 9001 and ISO 14001 standards. In this regard, through the literature review, several groups of benefits are identified in order to summarize all benefits shown by previous studies, which can be used as a guide to identify impacts of IMSs in future empirical studies. Second, from a managerial perspective, this work may help practitioners to consider the benefits and advantages that can be achieved through an adequate integration of these management systems. This knowledge may help managers to make decisions about the level of integration in their companies.

The paper is structured as follows. First, a background on the benefits gained from ISO 9001 and ISO 14001 standards, managed separately or in an integrated fashion, is presented. Second, in the methodology section, the search strategy is described. The results show the benefits of integration and finally, in the conclusions section, the benefits are discussed and future research is proposed.

2. Literature review

2.1. Benefits of the ISO 9001 and ISO 14001 standards

Both ISO 9001 and ISO 14001 are the most widespread management system standards (MSSs) implemented and certified

worldwide (see ISO, 2013). As the literature shows, many scholars have analyzed the benefits derived from the ISO 9001 and ISO 14001 standards on several performance dimensions. Table 1 shows which of these benefits are addressed in some previous studies.

In order to analyze the benefits arising from the ISO 9001 standard, some authors have used lists of benefits to examine its effects, whereas others have used or even proposed classifications of benefits, such as (1) internal benefits and external benefits (Casadesús et al., 2001), (2) benefits related to operational performance and financial performance (Naveh and Marcus, 2004; Briscoe et al., 2005), (3) benefits related to operational, customer, people, and financial results (Casadesús and Giménez, 2000; Karapetrovic et al., 2010), (4) other classifications (e.g. Lee, 1998; Nield and Kozak, 1999). A similar classification has been also proposed for the ISO 14001 standard: (1) internal and external benefits (Hillary, 2004), (2) internal performance benefits, external marketing benefits, and relationship benefits (Poksinska et al., 2003); (3) environmental performance and business performance (Link and Naveh, 2006), (4) other classifications (e.g. Zeng et al., 2005; Gavranski et al., 2008).

In this context, several benefits have been detected for both MSSs. The literature show positive effect on operational performance and there is not a clear relationship between the standard and financial results (Cañón and Garcés, 2006; Link and Naveh, 2006; Sampaio et al., 2009).

2.2. Integration of management systems

Beyond ISO 9001 and ISO 14001, the proliferation of new MSSs of different nature and function, gives firms the option to integrate the corresponding MSs into a single and more efficient system in order to benefit from their existing synergies (Labodová, 2004; Zutshi and Sohal, 2005; Rocha et al., 2007; Karapetrovic and Casadesús, 2009). Karapetrovic and Willborn (1998b) propose that organizations integrate rather than separate their MSs and empirical studies regarding the scope of integration confirm this idea (Zeng et al. 2007; Salomone, 2008; Karapetrovic and Casadesús, 2009; Bernardo et al., 2009).

The integration of MSs can be defined as “putting together different function-specific management systems into a single and more effective IMS” (Beckmerhagen et al., 2003). Referring to the concept of synergy, Ansoff (1965) defined the term as “the effect of $2 + 2 = 5$ ”, i.e. the effect whereby the integration of various elements produces maximization of the qualities of each element with a score higher than that which is derived from the simple sum of the elements.

The integration process can be defined according to four main aspects: integration strategy, integration methodology, integration level and audit systems' integration. Table 2 summarizes them.

Benefits have been also analyzed in the literature. Several authors have found that firms perceive value from having an IMS, such as costs savings, operational benefits, better external image and improved customer satisfaction (Zeng et al., 2007; Salomone, 2008; Asif et al., 2009). However, a literature review on this issue has not been conducted. In the next section, this review is carried out indicating the search strategy and the results.

3. Methodology

The paper conducts a literature review in order to identify the benefits of the two standards managed as an IMS. A literature review is conducted to find information from various research articles which either justified or discouraged integration. In this literature review, empirical studies related to the integration of both standards and benefits are reviewed in order to show the impacts of these standards on performance.

Table 1
Benefits of the ISO 9001 and ISO 14001 standards.

Benefits	ISO 9001 studies	ISO 14001 studies
Efficiency (productivity, cost savings, reduction in mistakes and rework, shorter lead times, improved management control)	Singels et al. (2001), Gotzamani and Tsiotras (2002), Pan (2003), Arauz and Suzuki (2004), Lo and Chang (2007), Martínez-Costa et al. (2008), Singh (2008).	Yin and Schmeidler (2009), Gavronski et al. (2008), Padma et al. (2008), Zeng et al. (2005).
Improved customer satisfaction (reduction in complaints, etc.)	McAdam and McKeown (1999), Singels et al. (2001), Gotzamani and Tsiotras (2002), Pan (2003), Arauz and Suzuki (2004), Casadesús and Karapetrovic (2005), Lo and Chang (2007), Zaramdini (2007), Martínez-Costa et al. (2008), Singh (2008).	Gavronski et al. (2008), Padma et al. (2008), Ann et al. (2006).
Improvements in employee results (motivation, satisfaction, teams, communication, knowledge)	Arauz and Suzuki (2004), Casadesús and Karapetrovic (2005), Rodríguez-Escobar et al. (2006), Lo and Chang (2007), Zaramdini (2007), Martínez-Costa et al. (2008).	Gavronski et al. (2008), Tan (2005).
Profitability	Corbett et al. (2005), Lo and Chang (2007), Zaramdini (2007), Benner and Veloso (2008), Martínez-Costa et al. (2008).	Gavronski et al. (2008), Wahba (2008), Link and Naveh (2006), Zeng et al. (2005).
Improvement in systematization (improved documentation, work procedures, clarity of work, improvement in responsibilities)	Gotzamani and Tsiotras (2002), Rodríguez-Escobar et al. (2006), Lo and Chang (2007), Singh (2008).	Schlylander and Martinuzzi (2007).
Market share	Rodríguez-Escobar et al. (2006), Lo and Chang (2007), Zaramdini (2007), Singh (2008).	Zeng et al. (2005).
Sales and sales growth	Arauz and Suzuki (2004), Casadesús and Karapetrovic (2005), Corbett et al. (2005), Singh et al. (2006).	Link and Naveh (2006).
Improved image	Terziovski et al. (1997), Lee (1998), Magd and Curry (2003), Lo and Chang (2007), Zaramdini (2007).	Padma et al. (2008), Tan (2005).
Exports	Magd and Curry (2003), Arauz and Suzuki (2004), Singh et al. (2006).	Padma et al. (2008), Link and Naveh (2006).
Improvement in competitive position/competitive advantage	Abraham et al. (2000), Rodríguez-Escobar et al. (2006), Singh et al. (2006), Lo and Chang (2007), Zaramdini (2007).	Ann et al. (2006), Gavronski et al. (2008), Schlylander and Martinuzzi (2007).
Improved relationships with suppliers	Gotzamani and Tsiotras (2002), Casadesús and Karapetrovic (2005), Rodríguez-Escobar et al. (2006), Zaramdini (2007).	Gavronski et al. (2008), Padma et al. (2008).
Improved quality in product/service	Gotzamani and Tsiotras (2002), Magd and Curry (2003), Zaramdini (2007), Singh (2008).	Melnyk et al. (2003).
Improved relationships with authorities and other stakeholders	Pan (2003), Magd and Curry (2003).	Gavronski et al. (2008), Schlylander and Martinuzzi (2007), Zeng et al. (2005).
Environmental performance		Yin and Schmeidler (2009), Russo (2009), Gavronski et al. (2008), Barla (2007), Zeng et al. (2005), Tan (2005), Potoski and Prakash (2005).

3.1. Literature search strategy

Academic papers were identified through a computer search from four databases: Web of Science, ScienceDirect, Scopus and

Emerald. The list of references given in the papers found in the electronic search was reviewed, and theoretical papers and those based on anecdotal evidence or case studies were eliminated.

Table 2
Main aspects of integration of management systems.

Integration aspect	Definition	Main characteristics	Studies
Strategy	Number and implementation sequence of MSs that the organization decides to integrate	Establishing: (a) QMS first and then the EMS, (b) EMS first and the QMS second, (c) the two systems simultaneously	Karapetrovic and Willborn (1998b), Douglas and Glen (2000), Karapetrovic (2002), Karapetrovic et al. (2006), Bernardo et al. (2009, 2012a).
Methodology	Models or tools used in the process	National standards are available to support integration Academic authors	SAI Global (1999), Dansk Standard (2005), AENOR (2005), BSI (2012), ISO (2008). Karapetrovic and Willborn (1998a), Labodová (2004), Zeng et al. (2007), Asif et al. (2009), Tari and Molina-Azorín (2010).
Level	Degree achieved by the IMS	(1) no integration (MSs are managed separately), (2) partial integration (some components of the MSs are integrated), (3) full integration (all components of the MSs are integrated into a single system)	Wilkinson and Dale (1999), Karapetrovic (2003), Beckmerhagen et al. (2003), Karapetrovic et al. (2006), Bernardo et al. (2009).
Audits' systems	Integration level of internal and external audits	Higher level of integration in internal audits than in external audits	Karapetrovic and Willborn (1998c), Krauss and Grosskopf (2008), Bernardo et al. (2010, 2011a), Simon et al. (2011, 2014).

Table 3
Benefits from the integration of ISO 9001 and ISO 14001 standards.

Benefits		Studies			
Internal	Global organization	Increase of organizational efficiency	Wagner (2007), Karapetrovic and Casadesús (2009), Santos et al. (2011), Simon et al. (2011, 2012a, 2012b), de Oliveira (2013), Simon and Douglas (2013), Simon et al. (2012a), Simon and Douglas (2013), Salomone (2008), Santos et al. (2011), Abad et al. (2014).		
		Task simplification			
		Optimized resources (financial and human) to maintaining a single goal			
		Management cost reduction	Santos et al. (2011), Simon et al. (2011, 2014), Rebelo et al. (2014).		
		Improved organization	Karapetrovic and Casadesús (2009), Santos et al. (2011), Sampaio et al. (2012).		
		Time resources saved	Salomone (2008), Simon et al. (2011), Rebelo et al. (2014).		
		Department barriers elimination and higher collaboration	Simon et al. (2012a).		
		Continuous work	Karapetrovic and Casadesús (2009).		
		Greater ease of decision making	de Oliveira (2013).		
		Greater capacity to achieve objectives	Abad et al. (2014).		
		Organizational global strategy improvements	Simon et al. (2012a).		
		Rule out conflicts of different company strategies	Salomone (2008).		
		Common management policy, objectives, targets and Key Process Indicators related to performance	Rebelo et al. (2014).		
		Better and easier communication system	Karapetrovic and Casadesús (2009), Santos et al. (2011), Simon et al. (2012a, 2014), de Oliveira (2013), Abad et al. (2014).		
Human Resources	Human Resources	Organizational culture improvements	Simon et al. (2012a), Simon and Douglas (2013), Rebelo et al. (2014).		
		Improvements to risk management	Wagner (2007), Hamidi et al. (2012), Rebelo et al. (2014).		
		Competitive market advantage	Abad et al. (2014).		
		Easier compliance of legislation	Santos et al. (2011).		
		Increased employee training	Santos et al. (2011), Holm et al. (2014).		
		Optimization/unification of training activities	Salomone (2008).		
		Better employee awareness of the importance of their work as a contributor to the whole organization	Karapetrovic and Casadesús (2009), Simon et al. (2012a), Abad et al. (2014), Rebelo et al. (2014).		
		Team work	Curkovic et al. (2005), Hamidi et al. (2012), Holm et al. (2014).		
		More competent workers	Abad et al. (2014).		
		More motivated staff	Abad et al. (2014).		
		Performance	Performance	Increased performance	Wagner (2007), Tarí et al. (2010), Santos et al. (2011), Hamidi et al. (2012).
				Improved quality of products and/or services	de Oliveira (2013), Abad et al. (2014).
				Increased productivity	Hamidi et al. (2012).
				Increase in the reliability of products and processes	de Oliveira (2013).
MSs	MSs	Improvement of collection and analysis of customer feedback	Crowder (2013).		
		Reduction in duplication of policies, procedures and records	Simon and Douglas (2013), Simon et al. (2014).		
		More agile system with less redundancy	Karapetrovic and Casadesús (2009).		
		Simplified MSs resulting in less confusion, redundancy and conflicts in documentation	Salomone (2008), Karapetrovic and Casadesús (2009), Santos et al. (2011), Simon et al. (2011), Sampaio et al. (2012).		
		Reduction of bureaucracy	Salomone (2008), Santos et al. (2011), Hamidi et al. (2012), Abad et al. (2014), Rebelo et al. (2014).		
		Elimination of conflicts between individual systems	Rebelo et al. (2014).		
		Improvement of systems understanding and use	Simon et al. (2012a), Simon and Douglas (2013).		
		Easy to add a new standard	Karapetrovic and Casadesús (2009), Simon et al. (2011, 2012a).		
		Flexibility of the standards	Crowder (2013).		
		Better definition of management responsibilities and authority	Salomone (2008), Santos et al. (2011), Sampaio et al. (2012), Rebelo et al. (2014).		
Audits	Audits	Unification of internal audits	Salomone (2008), Santos et al. (2011), Rebelo et al. (2014).		
		Reduction of costs of internal audits	Abad et al. (2014).		
		Simplification of audits	Simon et al. (2011).		
		Better use of audit results	Simon et al. (2012a, 2012b), Simon and Douglas (2013).		
		Improved multiple audits	Simon and Douglas (2013).		
		Company image improvements	Wagner (2007), Karapetrovic and Casadesús (2009), Santos et al. (2011), Simon et al. (2012a, 2012b), Crowder (2013), Simon and Douglas (2013), Abad et al. (2014), Rebelo et al. (2014).		
External	Market	Sustainability components in a global market	Rebelo et al. (2014).		
		Improvement of partnerships and satisfaction with the main stakeholders	Simon et al. (2012a), Rebelo et al. (2014).		
		Audits	Salomone (2008), Karapetrovic and Casadesús (2009), Rebelo et al. (2014).		

The search strategy used was to identify papers with “ISO 9000” or “ISO 9001”, and “ISO 14000” or “ISO 14001”, and that contained “integration”, “performance”, “benefits” or “profitability” as main subject headings or text words in the title or the abstract of the paper.

3.2. Selection of articles for review

Our literature search identified 59 empirical academic papers. Their titles, abstracts and texts were reviewed in detail by two of the authors for relevance to the study. Therefore, a research literature review was carried out contrasting it with more subjective examinations of recorded information as suggested by Hart (1998) and Fink (2009). Papers were included if they contained reference to the benefits that having an IMS brings to business results and were excluded if the only contained benefits about managing MSs separately or they did not refer to firm performance. Only 18 empirical papers met the inclusion/exclusion criteria for review additionally to accessibility limitations. Thus, 18 papers were finally identified and reviewed regarding the benefits of an IMS.

4. Results

The integration benefits found in the literature review are summarized in Table 3. The 18 studies obtained in the search are classified regarding the nature of benefits of an IMS, i.e., if they are internal or external to the organization, based on the classification of the benefits from the standards suggested by previous scholarly (Casadesús et al., 2001; Hillary, 2004). It is easy to see that the internal benefits are greater than the external ones, due to the fact that the decision to implement the integration is more internal than external (see also BSI, 2012), unlike the decision to implement the standards themselves. In order to ease the understanding of these benefits, in addition to internal and external, a subclassification has also been done. This is proposed depending on the benefits grouped based on previous scholarly (see e.g., Simon et al., 2012a): global organization, human resources, performance, MSs and audits for internal benefits, and stakeholders, market and audits for external.

According to the empirical studies analyzed, the main benefits from integrating MSSs (based on the number of studies that have highlighted them, as more studies conclude the same benefit, more important has been considered this benefit to understand the impact of the integration process for an organization) are improved company image for external benefits (Wagner, 2007; Karapetrovic and Casadesús, 2009; Santos et al., 2011; Simon et al., 2012a, 2012b; Crowder, 2013; Simon and Douglas, 2013; Abad et al., 2014; Rebelo et al., 2014) and increased organizational efficiency for internal ones (Wagner, 2007; Karapetrovic and Casadesús, 2009; Santos et al., 2011; Simon et al., 2011, 2012a, 2012b; de Oliveira, 2013; Simon and Douglas, 2013). The former is an external benefit related to the market, obtained from an internal decision, as in the empirical research, studies show that the decision to integrate is internal in the great majority of cases (see e.g., Simon et al., 2011). The latter summarizes the ‘global organization’ dimension and is one of the main outputs of integrating MSs that is built up with optimization of resources (Salomone, 2008; Santos et al., 2011; Simon et al., 2011; Abad et al., 2014; Rebelo et al., 2014), better and easier communications system (Karapetrovic and Casadesús, 2009; Santos et al., 2011; Simon et al., 2012a, 2014; de Oliveira, 2013; Abad et al., 2014), and costs reduction (Santos et al., 2011; Simon et al., 2011, 2014; Rebelo et al., 2014), among others. If resources are shared and duplication of effort is avoided (Douglas and Glen,

2000; Zeng et al., 2005; Karapetrovic and Casadesús, 2009; Santos et al., 2011), it is easier to be more efficient managing the system. This is also in line with the use of synergy effects, as the common elements are implemented in a shared manner. Several authors, such as Karapetrovic and Willborn (1998a, 1998b), Douglas and Glen (2000), Rocha et al. (2007), and Karapetrovic and Casadesús (2009), have found that simultaneously managing systems benefit the related synergies.

Following the analysis by dimensions, the most highlighted benefits related to ‘human resources’ are training (Salomone, 2008; Santos et al., 2011; Holm et al., 2014), employees’ involvement (Karapetrovic and Casadesús, 2009; Simon et al., 2012a; Abad et al., 2014; Rebelo et al., 2014) and team work (Curkovic et al., 2005; Hamidi et al., 2012; Holm et al., 2014). This result was expected, according to the existing literature, due to the fact that employees are related to difficulties encountered during the integration process (see e.g., Zutshi and Sohal, 2005; Karapetrovic et al., 2006; Zeng et al., 2007, 2011; Asif et al., 2009; Bernardo et al., 2012b; Simon et al., 2012a).

Increasing performance (Wagner, 2007; Tari et al., 2010; Santos et al., 2011; Hamidi et al., 2012) is the most highlighted benefit in the ‘performance’ dimension, followed by the improved quality of products and/or services (de Oliveira, 2013; Abad et al., 2014).

The dimension labeled ‘MSs’ joints the benefits related to MSs implemented and integrated. The simplification achieved in the process lead to less confusion, redundancy, conflicts in documentation and bureaucracy (Salomone, 2008; Karapetrovic and Casadesús (2009); Santos et al., 2011; Simon et al., 2011; Hamidi et al., 2012; Sampaio et al., 2012; Abad et al., 2014; Rebelo et al., 2014). Better definition of management responsibilities and authority is also an important benefit (Salomone, 2008; Santos et al., 2011; Sampaio et al., 2012; Rebelo et al., 2014).

Regarding ‘audits’ dimension, it is both internal and external. Internally, the unification of audits (Salomone, 2008; Santos et al., 2011; Rebelo et al., 2014), as well as better use of their results (Simon et al., 2012a, 2012b; Simon and Douglas, 2013) are the most highlighted, while externally, it is to perform integrated external audits (Salomone, 2008; Karapetrovic and Casadesús, 2009; Rebelo et al., 2014). Joint audits means that the auditors are multifunctional and can audit the IMS as a single system (see Douglas and Glen, 2000; Krauss and Grosskopf, 2008; Bernardo et al., 2010; Simon et al., 2011). Other studies have shown the importance of integrated external audits, such as Wilkinson and Dale (1998), who analyzed five certification bodies and found none publishing the benefits of an IMS, or Wright (2000), who mentioned that the English certification body was performing integrated external audits and found costs reduced by a third. In Karapetrovic and Willborn (1998b), the authors claimed that external audits should be integrated at a higher level than the internal ones, although the empirical studies show that the contrary is the case. According to some studies such as Bernardo et al. (2011b) and Simon and Douglas (2013), audit systems’ integration is the aspect least integrated. Future research on this dimension is needed to analyze the evolution and improvement of this aspect.

Externally, benefits are related to the market, as the improvement of image and sustainability components that according to Rebelo et al. (2014), means that quality is no longer a source of competitive advantage and is the starting point for a business. Benefits are also related to stakeholders both relationships and satisfaction improvements (Simon et al., 2012a; Rebelo et al., 2014).

Thus, when organizations decide to integrate their MSs they achieve a better internal efficiency related to a more efficient management of multiple MSs as well as improving the external image and relationship with stakeholders.

4.1. Comparison between MSs benefits regarding their management

Comparing the benefits reported in the existing literature, when companies managed separately MS standards (see Table 1) and as a unique system (see Table 3), those companies that integrate their MSs get more benefits than if they keep them separated (in line with Ansoff's rule, 1965). Inevitably there are common benefits as the function-specific MSs are the same. These benefits are:

- Efficiency, measured by cost savings, shorter lead times, optimization of resources, improved management control and better communication (Gotzamani and Tsiotras, 2002; Casadesús and Karapetrovic, 2005; Simon et al., 2011; de Oliveira, 2013)
- Improved customer satisfaction (Gotzamani and Tsiotras, 2002; Casadesús and Karapetrovic, 2005; Martínez-Costa et al., 2008), and improvement of data collection and feedback (Crowder, 2013)
- Improvements in employee results measured by motivation, satisfaction, teams, communication and knowledge, among others (Gotzamani and Tsiotras, 2002; Pan, 2003; Casadesús and Karapetrovic, 2005; Karapetrovic and Casadesús, 2009; Abad et al., 2014; Rebelo et al., 2014)
- Improvement in systematization by improved documentation, work procedures, clarity of work and improvement in responsibilities (Gotzamani and Tsiotras, 2002; Schylander and Martinuzzi, 2007), more agile system with less redundancy (Karapetrovic and Casadesús, 2009), simplified MSs resulting in less confusion, redundancy and conflicts in documentation (Salomone, 2008; Karapetrovic and Casadesús, 2009; Santos et al., 2011; Sampaio et al., 2012), and reduction of bureaucracy (Salomone, 2008; Hamidi et al., 2012; Rebelo et al., 2014)
- Market share (Casadesús and Karapetrovic, 2005; Rebelo et al., 2014)
- Improved image (Karapetrovic and Casadesús, 2009; Santos et al., 2011; Simon and Douglas, 2013; Abad et al., 2014; Rebelo et al., 2014)
- Improvement in competitive position/competitive advantage (Gavronski et al., 2008; Abad et al., 2014)
- Improved relationships with suppliers, authorities and other stakeholders (Gotzamani and Tsiotras, 2002; Casadesús and Karapetrovic, 2005; Gavronski et al., 2008; Rebelo et al., 2014)
- Improved quality in product/service (Gotzamani and Tsiotras, 2002; de Oliveira, 2013; Abad et al., 2014)
- Increased performance (Gavronski et al., 2008; Wagner, 2007; Tarí et al., 2010; Hamidi et al., 2012)

The main difference is the scope of the benefits impact, i.e., analyzing Tables 1 and 3 the benefits when these standards are managed separately are more focused on specific functions than in the case of integration, when the scope is the entire organization and synergies among the different MSs are applied (see e.g., Rocha et al., 2007). In order to evidence the extent of the impact, empirical research is needed analyzing both types of management.

5. Discussion and conclusions

The purpose of this paper was to determine the benefits of integration by comparing them with the benefits obtained through ISO 9001 and ISO 14001 standards. First, the benefits most analyzed by researchers concerning ISO 9001 and ISO 14001 are improved efficiency profitability, customer satisfaction, relationship with staff, and image. Nevertheless, only some certified firms do better than non-certified firms regarding financial performance. As

pointed out in the previous section, both for ISO 9001 and for ISO 14001, studies can be found that show no impact on financial performance. Therefore, although the standards do create internal and external benefits and many of them have a positive effect on people, operational issues, and stakeholders, the relationship between these standards and financial performance is not as clear (see e.g., Sampaio et al., 2009).

Second, organizations that integrate their MSs benefit from the improvement in efficiency arising from costs savings, better internal organization, etc., and improvement of image. The MSs management is also more efficient and integrated audits both internal and external are found significant.

Third, comparing the MSs benefits regarding the way they are managed, the integration of MSs allow achieving more benefits than if they are managed separately based on the scope of the integration impact, wider than managed separately. This result is in line with the importance of implementing right the multiple management systems as this could lead to achieve better integration benefits.

Similarly, some differences can be suggested regarding the financial benefits. While studies examining the two standards separately do analyze the effects of the standards on financial performance (e.g. market share, sales), very few studies on the effects of IMSs do so.

Several scholars show that more internally motivated firms have seen better performance outcomes, for both internal and external performance, both for ISO 9001 (Jones et al., 1997; Lee, 1998; Singels et al., 2001; Boiral and Roy, 2007; Martínez-Costa et al., 2008) and for ISO 14001 (Boiral and Sala, 1998; Kitazawa and Sarkis, 2000; Rondinelli and Vastag, 2000). This indicates that certification in and of itself can lead to some benefits. However, when a firm really applies the quality system underlying the standard, and there is a real commitment to quality and to the environment, that is, when the standards are internalized, there is an increased likelihood of attaining the benefits listed, including the financial ones. In this context some studies are needed to expand and clarify the few previous studies on internalization.

In addition, some studies of the ISO 9001 or ISO 14001 standard examine the selection effect. In the case of financial benefits, this involves determining whether implementation of the standards leads to an improvement in financial benefits (treatment effect) or whether, on the contrary, it is precisely those firms with relative financial benefits above the sector average that are most likely to obtain certification (selection effect). In this respect, there is a number of studies in the field of the ISO 9001 standard (Heras et al., 2002; Dick et al., 2008) which show the existence of both effects.

Nevertheless, these issues (the role of reasons for certification, internalization, and the selection effect), which have been analyzed in some studies on ISO 9001 or ISO 14001, have not been investigated in the case of IMSs.

5.1. Agenda for future research

Based on these ideas, several proposals for future research on IMSs can be suggested:

- To consider other performance variables such as financial measures (e.g. market share and sales) to better explain the benefits of IMSs and to supplement previous studies on IMSs. It will give the chance to confirm if there are financial performance benefits, a variable showing different results in studies analyzing the standards separately.
- To analyze the motives for IMSs and/or the level of internalization of both standards jointly. According to the results obtained, several organizations report improvement of

organization's image. This could lead organizations to decide to implement an IMS for external reasons and the existent dichotomy of internal/external reasons for separate standards could also be applied for IMS. The relationship between these motivations and (1) the internalization level and (2) the performance could be also analyzed.

- To examine the selection effect, ¿do companies with better performance levels find easier implementing an IMS?
- To analyze the IMS implementation and benefits not only considering the top management or responsible manager, but other stakeholders such as the employees. Other conditionings of the integration process that could be analyzed are the sector and size of the organization and the integration strategy and methodology.
- To compare the performance of those organizations integrating and those not integrating to measure the competitive disadvantage of the latter.

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