Integrated management systems as a driver of sustainability performance: exploring evidence from multiple-case studies

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Abstract

Purpose – The purpose of this paper is to analyze the impact of integrated management systems (IMSs) on sustainability (based on the triple bottom line (TBL) concept). To accomplish this objective, this paper seeks to answer the following research questions: How can IMS impact organizational sustainability performance? And, how the key challenges of IMS can influence companies in practice?

Design/methodology/approach – A case-based approach is used based on the following four cases from different sectors: an electric power distributor; an environmental consulting firm; a public transport firm; and a firm with a broad portfolio of equipment, products and provisions for industrial services in different markets.

Findings – The results show that the integration of management systems was driven by the companies' strategies toward sustainability. The stakeholders' perception is that a firm's image as a sustainable company also enhances environmental and social performance. The economic performance was not emphasized. Companies noted that the main challenge was motivating and engaging human resources.

Originality/value – This paper shows that sustainability was not a motivation for implementing an IMS. But, implementing an IMS was a driver of sustainability performance. Also, the relationship between IMS and organizational performance can be presented based on TBL perspectives, and implementing an IMS can be challenging in practice.

Keywords Integrated management systems, Management systems standards, Triple bottom line, Sustainability, ISO 9001, ISO 14001, OHSAS 18001, Case studies

Paper type Case study

1. Introduction

Integrating sustainability into the corporate strategy is an important driver in the corporate world (Kumar and Prakash, 2018) that has been considered a key issue and gained growing interest among universities and governments as a strategic advantage for the business environment (Chen, 2014; Savino and Batbaatar, 2014; Verbong and Geels, 2010). Sustainable development and environmental modernization of the economy demand implementation of

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strategies, policies, processes and techniques to improve organizationally (Abdul-Rashid *et al.*, 2017; Roxas and Chadee, 2012; Zijp *et al.*, 2015).

Companies have faced the challenge of developing sustainable strategies and analyzing their performance based on the triple bottom line (TBL) perspective, i.e. economic, environmental and social performance (Streimikiene and Siksnelyte, 2016). Moreover, the sustainability concept has been discussed within the national and international scope, increasing pressure on industries because of international regulations and certifications (Jørgensen, 2008).

In response to this pressure, companies have increasingly implemented management systems (MSs) with an emphasis on quality management systems (QMS), environmental management systems (EMS) and occupational health and safety management systems (OHSMS) (Nunhes *et al.*, 2019).

An organization may implement multiple MSs and has the option to manage these MSs separately or in an integrated manner (Bernardo *et al.*, 2018). The integrated MS (IMS) can serve as a path to induce sustainability (Merlin *et al.*, 2012). And, IMSs can be defined as two or more MSs integrated into one system, and different MSs can be implemented to achieve various goals (Tsai and Chou, 2009).

Rebelo *et al.* (2016) identified 24 MS standards that "have common and/or similar requirements that, supported on the PDCA-Plan, Do, Check and Act-cycle, should be made compatible to potentiate the integration" with a relationship to sustainable development pillars. To achieve the TBL of sustainability, many companies have implemented standards, such as quality (ISO 9001), environmental (ISO 14001) and occupational health and safety (OHSAS 18001) standards (Zeng *et al.*, 2008), that may be integrated.

The ISO also suggests that MSs can help organizations to improve their overall performance and provide a sound basis for sustainable development initiatives (International Organization for Standardization, 2015).

The literature suggests that "most scholars seem to agree that the best way for business to contribute to sustainable development is to integrate their different MSs" (Siva *et al.*, 2016). Thus, such integration can be an opportunity to enhance the "competitiveness, development, and sustainable success of organizations" (Rebelo *et al.*, 2016); achieve "better quality, higher productivity, greater customer satisfaction, and greater profit" (Tsai and Chou, 2009); increase competitive advantages; and contribute to organizations' sustainability (Jørgensen *et al.*, 2006; Zeng *et al.*, 2010). Abad *et al.* (2014) noted that additional studies are needed to determine whether the integration of MSs contributes to the adoption of environmentally sustainable strategies.

Further studies are needed to obtain an in-depth understanding the relationship between IMS and performance (Bernardo *et al.*, 2015; Savino and Batbaatar, 2015; Siva *et al.*, 2016), how to integrate sustainability into daily operations using mainstream business management systems (Asif *et al.*, 2010a), which is still a challenge faced by most companies in practice, motivating this study.

There is a significant gap in the literature, such as studies investigating relationship MSs have focused on the social dimensions of TBL and organizational performance (Nadae *et al.*, 2019). Gianni *et al.* (2017) highlighted the importance of empirical studies evaluating the relationship between the IMS level and sustainable performance to determine whether the integration of MSs contributes to sustainability by analyzing the relationship between integration and performance related to social-environmental-economic issues (Poltronieri *et al.*, 2018).

The limitation of studies between IMS and sustainability in the literature is addressed in the present study. Motivated by the research gaps and opportunities presented in the literature, the aim of this paper is analyzing the impact of IMS on sustainability (based on the TBL concept), using multiple case studies in different sectors, i.e. an electric power

distributor; an environmental consultant; a public transport supplier; and a firm with a broad portfolio of equipment, products and provision of industrial services in different markets.

2. Literature review

2.1 Management systems (MSs) and sustainability organizational performance in the triple bottom line perspective

The United Nations' Report of the Brundtland Commission, which was released in 1987, defines sustainable development as "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (WCED, 1987). Besides, the need to assess the activities of an organization from the economic, social and environmental perspective emerged with this publication (Cazeri *et al.*, 2018).

By applying this definition to the corporate context, certain aspects can elucidate sustainable development. First, development is related to the creation and products and processes improvement. Second, the TBL concept, which identifies impacts on the environment, society and economy and their tradeoffs, is a challenge for firms and academia. Third, decisions have an impact on subsequent generations, emphasizing the importance of considering long-term aspects in immediate decisions (Elkington, 1994).

The TBL approach interprets the ability of firms to develop sustainably by focusing not only on the economic (profitability) perspective but also on the environmental and social impacts of their activities (Gianni *et al.*, 2017).

Also, the TBL provides support for current decisions by considering not only the usual economic factors but also the social and environmental factors to ensure the success of the enterprise. This characteristic justifies the relationship between TBL and sustainability concepts (Nadae *et al.*, 2019).

The dynamic concept of sustainability requires organizations to develop the capacity to continuously address emerging issues (Asif *et al.*, 2011) and provide new approaches to competition (Golini *et al.*, 2014). Given this need, many different standards are used to measure and evaluate the social and environmental dimensions of the TBL, but no consensus regarding a common standard has been reached (Helleno *et al.*, 2017; Hubbard, 2009; Roca and Searcy, 2012). MSs involve principles and management techniques that are similar and can be implemented jointly, to obtain quality production processes, produce without harming the environment, promote sustainable development and foster the quality of life of the employees (Asif *et al.*, 2013; Windolph and Schaltegger, 2014).

Several MSs exist, but the best know MSs include QMS (ISO 9001), EMS (ISO 14001) and OHSMS (OHSAS 18001) (Poltronieri *et al.*, 2019). Also, these MSs are the most recognized sustainability related to MSs worldwide (Poltronieri *et al.*, 2018).

These MSs can provide a foundation for integration (Asif *et al.*, 2010) toward sustainability, become "influence on how businesses approach sustainable development" (Siva *et al.*, 2016b) and can be insightful when addressing the challenge of achieving sustainability (Poltronieri *et al.*, 2018). Moreover, MSs provide interesting leverage points for integrating sustainability issues into mainstream business processes (Asif *et al.*, 2010b).

Companies that are simultaneously certified in ISO 9001, ISO 14001 and OHSAS 18001 exhibit better health, safety and environmental performances than those that do not have multiple certifications (Wiengarten *et al.*, 2017).

ISO 9001 is a critical underpinning for a firm's sustainable economic success (Qi *et al.*, 2013), in addition to contributing to "better quality, higher productivity, greater customer satisfaction, and greater profit" (Tsai and Chou, 2009).

EM systems are positively related to financial performance (Feng *et al.*, 2016). ISO 14001 can help firms to manage their environmental footprints (Qi *et al.*, 2013) and contributes "to better environmental performance, greater eco-efficiency, greener products, and more

transparency for and acceptance by external environmentally concerned stakeholders" (Tsai and Chou, 2009).

OHSAS 18001creates and maintains a safe working environment and the health of workers, targets the social dimension of sustainability (Qi *et al.*, 2013), contributes to more efficient work processes, improved employee perceptions of the working environment and results in greater recruitment attractiveness (Tsai and Chou, 2009).

ISO 9001 and ISO 14001 integrated, improve sales, customer satisfaction, corporate image and market share and have a positive impact on environmental performance (Manders, 2015; de Vries *et al.*, 2012).

An EM has a positive impact on financial and environmental performance (TBL perspectives) such that implementing EM reduces waste, promotes reuse and has other benefits that can improve financial returns and promote sustainable development (Wagner and Blom, 2011; Yang *et al.*, 2011; Lioui and Sharma, 2012; Gotschol *et al.*, 2014; Wu *et al.*, 2015). Sustainability focuses less on financial results and emphasizes the environmental and social performance of organizations (Rebelo *et al.*, 2014).

The environmental, social and economic pillars of sustainability presented by the TBL encompass distinctive angles of performance evaluation and can present tradeoffs among TBL perspectives (Morioka and Carvalho, 2016), creating a sustainability culture in organizations is necessary. Van Beurden and Gössling (2008) argue that corporate social and financial performance are related; however, in contrast to expectations, empirical evidence demonstrates the significant negative effect on corporate social performance and corporate financial performance, depending on the industry sector (Baird *et al.*, 2012).

Additionally, Oshika and Saka (2017) state that financial performance and sustainability have been subjects of research for over three decades; many studies have analyzed the relationship between firms' social performance and financial performance.

As shown, although some studies try to explore the impact of IMS in organizational performance, there is a lack of studies exploring this impact on the TBL perspective. In this context, the following research question (*RQ1*) is proposed: How can IMS impact organizational sustainability performance?

2.2 Challenges for integrated management systems in practice

The growing number of MSs represents a critical research issue because integration is particularly relevant for the "competitiveness, development, and sustainable success of organizations" (Rebelo *et al.*, 2016).

Companies are faced with a "puzzle" of MSs that should be integrated into a unique and more efficient integrated MS (Rebelo *et al.*, 2016). Two or more MSs integrated into one system can be defined as an IMS that can be implemented to achieve various goals (Tsai and Chou, 2009). The internal and external benefits of the integration of MSs are greater than managing MSs separately (Bernardo *et al.*, 2015).

Siva *et al.* (2016b) found 31 articles concerning IMS and sustainability that highlights that IMSs are a means of reducing redundancies and managing resources efficiently. An IMS approach is particularly important because sustainability focuses on the design of business processes to yield value along the social, ecological and economic dimensions.

An IMS approach to sustainability can provide a basis for organizations to develop the needed governance mechanisms and organizational structures, continuously improve corporate sustainability initiatives through integrated management reviews and create routines to integrate corporate sustainability into business processes (Asif *et al.*, 2010a, 2011). A literature review identified studies addressing performance and its relationship to specific standards (Poltronieri *et al.*, 2018). IMS and the integration of sustainability into business processes can be facilitated through an IMS approach. Such an approach provides the

flexibility and clarity needed to address many issues associated with the management, measurement and assessment of corporate sustainability (Asif *et al.*, 2010a, 2011).

IMS and corporate sustainability are essential for the design of business processes that yield value for stakeholders, which is aligned with the organizational vision, goals, strategies and resources. However, the motivation to act sustainably can also arise from the company's culture, market pressure, competitors and customer orders (Refflinghaus and Klute-Wenig, 2015). According to Morioka and Carvalho (2016), the following three levels should be considered: principles of corporate sustainability to guide decision-making, core sustainable businesses (processes, practices and capabilities) and factors representing the internal and external aspects that affect the previous levels. Consequently, IMSs represent a significant challenge for most companies in practice.

IMSs have many advantages, such as avoiding the duplication of effort (ISO 2015, (Bernardo *et al.*, 2012a; Zeng *et al.*, 2011); reducing the amount of documentation and costs (Bernardo *et al.*, 2012a, 2015; De Oliveira *et al.*, 2013; Zeng *et al.*, 2011); integrating audits and rendering auditors multi-functional (ISO, 2015; Bernardo *et al.*, 2012); optimizing resources (Bernardo *et al.*, 2012b; Souza and Alves, 2018a); providing greater opportunities to include other systems (Bernardo *et al.*, 2012); making greater use of synergies among standards (Bernardo *et al.*, 2012); improving organization performance, e.g. financial performance (Chatzoglou *et al.*, 2015); eliminating conflicts among individual MSs (Souza and Alves, 2018a); fewer internal and external audits and more added value creation for the business through the elimination of organizational waste (Rebelo *et al.*, 2016); improving the internal organization and exploitation of the synergies among IMSs (Bernardo, 2015; de Oliveira, 2013); increasing customer satisfaction, service quality and stability (Mesquida and Mas, 2015); reducing failures and facilitating growth certification (Mesquida and Mas, 2015); and better aligning of people and information, which are the business aspects mostly affected (Mesquida and Mas, 2015).

Most companies experience strong difficulties in using IMSs, such as fear and resistance to change, communication problems and the loss of "ownership" of the systems (Asif *et al.*, 2010; Bernardo *et al.*, 2012); differing perceptions regarding who constitutes the main stakeholders (Asif *et al.*, 2010; Bernardo *et al.*, 2012); people's attitude and behavior affecting the successful implementation of the system (Asif *et al.*, 2010; Bernardo *et al.*, 2012); lack of knowledge regarding the process, resulting in integration delays (Bernardo *et al.*, 2012); differences in the general elements of the standards and their specific requirements (Bernardo *et al.*, 2012); loss of power by some roles in the hierarchy and fear of job loss (Bernardo *et al.*, 2012); lack of support from certification bodies (Bernardo *et al.*, 2012); risk of creating a ranking of systems by different areas of responsibility (Bernardo *et al.*, 2012); problems related to the organizational culture (Bernardo *et al.*, 2012); increased bureaucracy in IMS as a result of the interconnectedness of the systems (Bernardo *et al.*, 2012); lack of experience and difficulty finding qualified consultants (Bernardo *et al.*, 2012); lack of resources, such as funds and knowledge (Asif *et al.*, 2010; Bernardo *et al.*, 2012); high costs of multiple audits even when the systems are integrated (Bernardo *et al.*, 2012); difficulties preparing reports of the results of integration, which are necessary to improve the system (Bernardo *et al.*, 2012); inter-functional conflicts due to differing interests and motivations (Bernardo *et al.*, 2012); and difficulties after IMS implementation caused by an ineffective design, affecting the flexibility of the organization (Asif *et al.*, 2010; Bernardo *et al.*, 2012).

Several authors (Asif *et al.*, 2010; Chaudhuri and Jayaram, 2018; Holm *et al.*, 2014; Kassem *et al.*, 2011; Katniak, 2012; Ionascu 2017; Rocha *et al.*, 2007; Ryszko, 2017; Samy *et al.*, 2015; Santos *et al.*, 2012; Savino and Batbaatar, 2014, 2015; Siva *et al.*, 2016; Souza and Alves, 2018b) have studied IMS implementation in different companies and countries and identified the following challenges: increased initial costs associated with an increase in non-conformities; continuous updating of all documentation, incompatible concepts among systems and

certainly, a problem in a single system affecting the overall management system; insufficient integrability of standards; higher difficulty and cost in implementing all systems simultaneously compared with individual implementation; and deep changes in the management system due to operational changes, leading to great difficulty in training and changes in the organization methods and company culture (Santos *et al.*, 2011; Bernardo *et al.*, 2012b).

IMS implementation requires managing internal challenges to achieve cultural change and training and educating employees at all hierarchical levels to improve the understanding of the process and, thus, motivate collaboration (Bernardo *et al.*, 2012c). An adequate culture willing to embrace change and ensure communication and training across the organization is also corroborated by Lopez-Fresno (2010).

The performance assessment of an IMS requires an analytic process to encompass its multiple dimensions possibly in the form of an embedded "integrated performance management system," and only a few empirical researches attempted have been reported (Nunhes *et al.*, 2016). IMS performance and benefits are contingent on certain factors, such as the industry sector or activity (Lopez-Fresno, 2010; Manzanera *et al.*, 2014), the company size (Abad *et al.*, 2013; Iatridis *et al.*, 2016) and the years of IMS implementation (Gianni *et al.*, 2017; Zeng *et al.*, 2011).

In this context, companies face a set of challenges for implementing an IMS in a synergic and effective way, which suggests the relevance of the following research question (RQ2): How the key challenges of IMS can influence companies in practice?

3. Methodology

Given the lack of research exploring the relationship between IMS and performance based on the TBL perspective, as previously discussed, to explore the challenges faced by companies in-depth, a multiple-case study approach is applied to provide better, more grounded empirical evidence that is "more accurate and more generalizable" (Eisenhardt and Graebner, 2007). "The study of a single case commonly yields more variables than data points" (Lee *et al.*, 1996). The case study uses a comparison of a pattern of observed outcomes (on several variables) and some patterns of expected values derived from a given theory. This technique allows the outcomes to be evaluated based on multiple dimensions, while as few as one actual observation could be in each dimension. This pattern matching only requires "a theoretical pattern of expected outcomes, an observed pattern of effects, and an attempt to match the two" (Campbell, 1975; Lee *et al.*, 1996; Trochim, 1989).

The evidence collected in case studies may be qualitative, quantitative or both. Qualitative data are useful for understanding theory and relating quantitative data, while quantitative data may indicate relationships that cannot be emphasized in qualitative research (Eisenhardt, 1989; Yin, 2010).

Moreover, according to Yin (2010), multiple-case studies allow us to obtain analytical conclusions, promote comparative analysis of the companies studied and consequently contribute to the objective of this article. Besides, to increase external validity, it helps to protect the research from an observer's bias (Voss *et al.*, 2002).

3.1 Cases selection

Theoretical sampling was applied to select the cases because this approach is "particularly suitable for illuminating and extending relationships and logic among constructs" (Eisenhardt and Graebner, 2007).

As some studies note the significant role of the industry-specific context in the relationship between some IMSs and performance (Baird *et al.*, 2012; Feng *et al.*, 2016), the selected cases must operate in different sectors to allow a comparative analysis of different business contexts.

Based on *RQ1* and *RQ2*, the cases were selected following three criteria: the existence of IMS; a compelling strategy favoring sustainability issues and, explicit organization documents and reports; and access to internal organizational documents and internal stakeholders for in-depth interviews explicitly manifested in organization documents and reports.

We aimed to achieve a sample of 4–10 cases, as recommended in the literature (Eisenhardt, 1989). The companies were previously selected because they fit the established criteria to try to answer the research questions and research objective. We obtained a list of companies from different sectors finding companies from the Inmetro [1] website (publish a list of ISO 9001-certified companies). So, then we searched on each companies' websites and called to them, to identify if they would meet our three research criteria. Another requirement was to accept to participate in this research and receive the researchers. Out of a total of 82 companies, only ten qualified, and of these, only the four selected companies agreed to receive the researchers and participate in the research.

The study involved companies located in Brazil, which is an emerging economy, a member of the Brazil, Russia, India and China (BRIC) countries and the nation responsible for nearly 30% of the wealth generated in Latin America (Jabbour and Jabbour, 2014). Discussing green operations management in Brazil is relevant because Brazil is likely to maintain its position as one of the top ten economies by 2050 (Jabbour *et al.*, 2016). Additionally, in Brazil, the number of companies that have adopted an environmental management approach increases each year. This ecological conscience is opening paths for the development of new business opportunities and facilitating the inclusion of Brazilian companies in the international market (da Silva and de Medeiros, 2006).

The selected cases include four Brazilian companies from different economic sectors, allowing us to compare sectors and understand their differences. These companies have a solid reputation for sustainability, and some companies have been awarded for developing sustainability actions. To preserve the anonymity of the companies, the firms were numbered 1 to 4, followed by the standard acronym "Q" for a QMS (ISO 9001), "E" for an EMS (ISO 14001), and "OH" for a health and safety system (OHSAS 18001).

All selected organizations integrated at least two MS standards and performed sustainable actions identified based on the documents available (Table 1).

3.2 Data collection and research instrument

According to Eisenhardt (1989), the case study method, which typically combines data collection, several data collection tools (or sources of evidence), such as interviews, questionnaires and onsite observations, allows for an understanding of the dynamics present within the unique configuration investigated. According to Yin (2015), the case study constitutes experience-based research, allowing for a better understanding of a current event, especially when the context and fact are mixed and difficult to delimit. Following these

Table 1. Case study sample

Companies	1 – (*E* + OHS)	2 (*Q* + *E* + OHS)	3 (*Q* + *E* + OHS)	4 (*Q* + *E* + OHS)
Capital composition	Public and private	Private	Public and private	Private
Products–services portfolio	Electric power distributor	Environmental consulting firm	Supplier of public transport	Portfolio of equipment, products and industrial services, in different markets
Integrated certifications	—	ISO 9001	ISO 9001	ISO 9001
	ISO 14001	ISO 14001	ISO 14001	ISO 14001
	OHSAS 18001	OHSAS 18001	OHSAS 18001	OHSAS 18001

recommendations, the research protocol was designed to include interviews, gathering of internal documents and archives and onsite observation (Table 2).

All sustainability performance assessment was obtained from sustainability reports and discussed during the interviews.

The interviews were carried out with individuals monitoring the MSs, sustainability managers or managers appointed by the company at the company site (Table 3).

After the interviews, the information was transcribed and presented to the interviewees' validation. As discussed in the literature, the research questions were deployed in the research instrument for the semi-structured interviews, and most questions were open-ended. A pre-test was performed, resulting in the merging of several questions and the exclusion of five questions.

The final interview protocol (composed of 38 questions) was divided into three sections. The first section collected general company information, including the organizational structure, number and time to obtain certifications. The second section sought to understand the IMS process (techniques, people involved, duration, difficulties), the organizational performance impact and organizational culture influences. The third section concerned sustainability issues (the relationship between IMS and sustainability, difficulties and benefits) and impact on sustainable performance related to the TBL.

The questions script consists of Asif *et al.* (2010) and Pinto and Figueiredo (2010) researches and were selected based on the alignment of the research theme. The purpose of

Table 2.
Sources of evidence

Sources of evidence	Explanation	Purpose
Interviews	Two in each case	Primary source of data: to obtain detailed information about the process of IMS implementation
Internal documents and archives	IMS manuals, sustainability reports, websites, magazines and internal circulars	For triangulation purposes: files and internal documents provide strong evidence of management actions and current issues in the processes of IMS implementation
Onsite observation	Observation of operational activities	To determine the operational processes of the company and the employees involved

Table 3.
Data collection

	Company 1 (E + OHS)	Company 2 (Q + E + OHS)	Company 3 (Q + E + OHS)	Company 4 (Q + E + OHS)
Interview date	October 2014	December 2014	November 2014	June 2015
Interviewee	Human resource manager (Interview 1A)	Environmental engineer – environmental department (Interview 2A)	MSs and environmental studies coordinator (Interview 3A)	Planning and operations processes manager (Interview 4A)
	MSs coordinator (Interview 1B)	Environmental engineer – IMS department (Interview 2B)	MSs and sustainability manager (Interview 3B)	Security system and environmental manager (Interview 4B)
Duration of interview (recorded)	1 h 15 min	3 h 45 min (interview and company tour)	1 h 33 min	1 h 48 min

their researches was to understand the dynamics of the integration of certifications as a first step for the effective management of integration and also seeks to analyze the social, technical and behavioral changes that accompany integration and lead to improved operational performance and strategic flexibility.

3.3 Data analysis

A content analysis was applied to all evidence, interviews and documents. A coding tree was created based on the literature and interview protocol, reflecting extant studies to facilitate theory-building (Miles and Huberman, 1994). The rich datasets were summarized and written as individual case reports, the qualitative data were processed and descriptive statements and quotations were used to create a bridge from the qualitative evidence to theory (Eisenhardt and Graebner, 2007; Miles and Huberman, 1994). Finally, a cross-case analysis was conducted to answer the key research questions by particularly exploring the advantages, difficulties and effects on performance in the TBL perspective across the cases.

4. Results

4.1 Case presentations

Company 1 (E + OHS) has a department focusing on IMS implementation titled SESMT-Environment and Safety and Occupational Medicine, which is responsible for environmental MSs and the safety and health of the employees. The MS coordinator commented that "These actions are managed by the Board of SESMT, which influences the entire organization; therefore, the entire corporate and regional leadership is involved, but SESMT professionals coordinate and report the results" – Interview 1B.

Company 2 (Q + E + OHS) has an ISO 17025 (applicable to calibration and testing laboratories) and SASSMAQ (Safety Evaluation System, Health, Environment and Quality), which focus on continuously and progressively reducing the risk of accidents in the transport and distribution of chemical products (Company's Sustainability Report, 2014). Also, this company has a department focusing on IMS implementation titled QSMA-Quality, Safety and Environment, which disseminates the culture of these systems, develops projects and strives for excellence in quality, sustainability, health and safety at work. The department responsible for sustainability is called Management Excellence and Sustainability and is directly subordinate to the Board Administrative/Financial, which in turn reports directly to the president of the company.

Company 3 (Q + E + OHS) 3 has a department of systems and sustainability also entitled IMS-Integrated Management System, which focuses on IMS implementation, and manages the quality of the services provided, the environmental impacts of the network operation and the risks to the health and safety of the employees. "The department was originated by a group of people who realized the need for sustainability actions and 'forced' the company to adopt this approach. It was a small area that appeared more to spread 'sustainability'; now, this department has become part of the management" – Interview 3A

Company 4 (Q + E + OHS) has a department responsible for the actions of these integrated systems, i.e. the Health Safety and Environmental Protection (HSE) Department. Regarding sustainability, the company defines the following six fields of activity through which sustainability management is integrated into group: sustainable and profitable growth, sustainable corporate management, product liability, responsibility for employees, social responsibility and responsibility for the environment (Company Sustainability Report 4, 2014). Also, the HSE department set the goals to be achieved and the projects to be developed to minimize the environmental impact of its activities. The HSE Department is directly subordinated to the chief financial officer of the organization, who is causally linked to the group's president.

4.2 Integrated management systems: motivations, advantages and challenges in implementation

The studied companies have a set of motivations for integrating IMS, as summarized in Table 4.

Company 1 has ISO 14001 and OHSAS 18001 integrated, and its objective was to improve quality (processes and products in general) because even without a QMS, the company believes that the EMS and OHSAS promote the improvement of their processes.

Companies 1 and 4 agree that one of their motives is to reduce rework because certifications ensure the standardization of processes.

For companies 1, 2 and 3, the motivation to integrate the MSs is to promote continuous process improvement. Company 4 mentioned the integration of its group of companies (subsidiaries), all subsidiary companies working in a standardized way. Company 2 mission

Table 4.
Motives, advantages and challenges in IMS implementation

Company	Advantages	Challenges	
Company 1 (E + OHS)	(1) Improve the quality and control of the process as a whole (2) Reduce rework with activity standardization (3) Increase productivity (as a result) (4) Improve work processes	(1) Development of the workforce (2) Standardization of processes by integrating the main management indicators (3) Improvement of the overall process	(1) Complexity of relations and processes (2) Initial increase in deployment costs (3) Involvement of employees
Company 2 (Q + E + OHS)	(1) Continuous improvement of processes (2) Engage employees in an improvement organizational culture (3) Integrated environmental regulatory systems	(1) Standardization of processes (2) Efficiency guarantees in activities	-
Company 3 (Q + E + OHS)	(1) Qualify suppliers (2) Improve and integrate processes (3) Integrate employees and to create an organizational culture (4) Good organizational climate	(1) Optimization of processes	(1) Convincing people to abandon the old solution (before integration)
Company 4 (Q + E + OHS)	(1) Reduce duplication of tasks (2) Continually improving processes (3) Change management effectiveness (4) Integrate the group companies to systems (enterprises + systems)	(1) Optimization of the audit process (2) Resource optimization	(1) Bureaucratization (2) Lack of commitment and flexibility of some employees (3) Organizational culture (German culture of the company)

is to provide environmental solutions to their customers, so its motive for implementing MSs emerged from this.

As stated by company 3, for MSs to be integrated, it is important to involve managers, integrate employees and create an organizational culture that promotes and disseminates the objectives and principles of integration as follows: what are the processes, steps and schedules of activities. By companies 1 and 4, companies must be willing to effectively and permanently break the integration of people into small groups, where these small groups are led by an employee informally. So, these companies (1 and 4) suggest that these small groups need to be broken down, and everyone needs to work together, deeply and permanently and integrated on the processes involved and related.

By contrast, company 2 motives emerged from its origin; the organizational culture had no effect and was not affected by the organization because the employees already knew what would occur and the real goals of this company.

Notably, these companies stated that both the organizational culture and the human factor were considered when integrating MSs, and that companies should provide a good organizational climate for the implementation process because good change management contributes to the effectiveness of the IMS.

None of the participating companies stated that the motivation for integrating the IMSs was to achieve better sustainability performance.

The role of systems integration is to generate benefits for companies. Companies 3 and 4 indicated "process optimization" as a benefit, and companies 1 and 2 noted the "standardization of processes" as advantages.

Company 4 confirms that the integration advantages are "resource optimization" and "optimization of the audit process"; the IMS helps integrating audits and making auditors multi-functional, minimizing reworks and organizational resources. Also, during the interviews, the companies reported that with the optimization of processes, the development efficiency of tasks improves the company's image and profitability as a result of IMS.

Regarding integration challenges, companies 1, 3 and 4 highlighted the "resources," specifically human resources, are an obstacle to integration. This factor includes people's attitudes because the behavior and employees' attitudes can affect system implementation success.

Besides, there are difficulties related to financial resources and the initial increase in implementation costs, as reported by company 1. Company 1 noted the challenge related to the "lack of knowledge of the process"; employees involved in the process were unaware of all the steps they should take to integrate the standards. It resulted in integration delays and differences in the general elements of the standards and their specific requirements; there is insufficient harmonization of ISO 9000 and ISO 14000. These standards are based on two different models, i.e. the process-based approach of ISO 9001 and the plan, do, check, Act (PDCA) cycle of ISO 14001 and OHSAS 18001.

Company 4 cited bureaucratization as difficult. Bureaucratization can be considered excessive documentation to fill and document and it can be more complex with the integration of certifiable MSs. And also, the same company noted that the organizational culture is an integration challenge. Company 4 belongs to a German group of companies, and according to the interviewees, the culture slightly differs from the culture that the Brazilian organization is accustomed to experiencing. While, internally, the company's organizational culture did not present an obstacle to the IMS, it has been considered a key issue for the success of this process.

In the opinion of Interviewee 4B, company 4 belongs to a German group "the German culture is very different from the Brazilian one; Germans are much more bureaucratic and difficult to change. We were there during the integration process, and we seek to involve most employees, train them, and listen to them to create a supportive organizational culture."

Regarding culture, Interviewee 4B mentioned that in the German culture, there is an excessive formality, the hierarchy is very rigid and behaviors are different when carrying out a task. And, this affects organizational culture. Culture is considered an important tool and an enabler to improve organizational performance; however, the standards and MSs do not address issues such as the motives of and cooperation of those involved in the implementation process. Accordingly, Bernardo *et al.* (2012d) and Willar *et al.* (2016) highlighted that organizational culture as a key issue in the integration of MSs.

Each company has a different organizational culture with the support of senior management; each leader can determine the best way to drive this implementation processes such that all employees actively participate in the activities and send suggestions and opinions at the end of each stage, as occurred in company 3.

Organizational culture has been identified as a factor that can influence IMS implementation. The manager's leadership, meetings, debates and discussions with teams to engage and align the goals should be considered during the process of systems integration.

4.3 Integrated management system as a driver of sustainability based on the triple bottom line

Table 5 shows the effects of IMSs on companies' operating and financial performance. In general, the companies did not indicate the financial results from the integration, except for company 2. However, companies claimed that each quality, environmental or health and safety action positively affected their financial results, such as by reducing the number of accidents, reusing waste, reducing water and creating new ways of working. So, integration improved their financial returns and positively affected their relationship with stakeholders as reported by the companies.

The operational and financial companies' actions have also been identifying, affirming improvement in financial and environmental performance, maintaining a safe working environment and the health of workers, targeting the social dimension of sustainability, reducing waste.

Some sustainable actions are related to environmental and social factors (Table 5). When asked about the relationship between standards implementation of and the increase in sustainable actions, all companies stated that there were positive effects and developed actions targeting sustainability as a result of the IMS (Table 6).

Table 5. IMSs' effects on operational and financial results

Companies	Operational and financial results
1 (E + OHS)	Significant reduction in incident reports, increase in perception of quality actions by some employees
	Reduction of negative indicators involving the environment
	Reduction of occupational accidents
2 (Q + E + OHS)	Implementation of tools aimed at continuous improvement, focusing on waste (in 2013, cost savings of R$770,000)
	Eco-efficiency programs, biodiversity, biogas, among others
	Reduction of occupational accidents: in 2013, more than 1,000 days without accidents
3 (Q + E + OHS)	Reduction of use of resources and save resources
	Assisted in the development of environmental initiatives and occupational, health and safety actions
4 (Q + E + OHS)	Water reuse
	Waste commercialization
	Improved the environmental outcome
	Reduction of occupational accidents and diseases

Companies	Social actions	Environmental actions
1 (E + OHS)	Incentive for cultural and citizenship programs	Urban afforestation Materials and waste management Recycling program
	Schools in the community	Reduction of atmospheric emissions Urban orchards
2 ($Q + E$ + OHS)	IT programs (training on how to use software, computers)	Internal waste recycling
	Investments in social institutions and hospitals	Re-use of materials, energy and water Company buildings constructed with the concept of green building
3 ($Q + E$ + OHS)	Incentive for cultural and citizenship programs Corporate university For employees: play areas as incentives for sports programs for weight reduction	Architectural designs that minimize the impact on site construction activities of the company Architectural designs that preserve local nature, using natural light and avoiding deforestation
4 ($Q + E$ + OHS)	Incentive for cultural and citizenship programs	Internal waste recycling
	Sports programs for community	Re-use of materials and water Outsourcing the recycling of waste

Table 6.
IMS effects on social and environmental actions

Some companies engaged in social and environmental activities aimed to show to population the portfolio and activities developed by company, improve the quality of life of the employees and reduce company actions impact on the environment. Because of these actions, as stated by company 1 and Company 4 (Interviews 1A and 4A, respectively), they"obtained positive economic or financial results". "The realization of social actions improves the company's image and makes the community aware of its activities; it generates profitability for the long-term business" (Interview 2A– Company 2). And "the environmental actions promote waste reduction and resource reuse, which generates financial returns for the company" (Interview 4B – Company 4).

We were able to identify the environmental and social actions of analyzed companies through the interviews, and we also checked the sustainability reports available on the websites of the companies. Notably, the emphasis initially is on the development of environmental actions. However, when asked about social actions (Table 6), the interviewees noted that the social actions exceed environmental goals. Yet, when asked about economic actions, the companies mentioned that social and environmental actions are undertaken only for the economic improvement of the company, as stated in Interview 2B as follows: "Currently, it is better to develop social and environmental actions than to focus only on the profit and profitability of the company because we believe in customer loyalty (new generations); this is the new trend of the market."

ISO 14001 and OHSAS 18001 help in the development of environmental and social programs, but ISO 9001 was considered the basis for standardization, increasing product quality, continuous process improvement and the sustainable development of actions. All these improvements allow a company to have greater prominence in the market in which it operates and thus obtain greater financial returns.

These case studies suggest that the analyzed companies realize IMSs positively affect the economic, environmental and social performance of organizations in developing actions targeting sustainability. Moreover, only economic actions are not emphasized, according to

the analyzed companies, and the environmental and social actions performed ultimately create financial value for the company.

5. Discussion

We compared empirical data gathered in four cases with the challenges noted in the literature and summarize the core challenges observed. First, the "training, involving employers and communications among employees is necessary for engaging them in the implementation of IMS processes," corroborating studies concerning cultural change, training and educating employees and motiving collaboration as a challenge (Bernardo *et al.*, 2012b) and emphasizing a culture willing to embrace change and ensure communication and training across the organization (Asif *et al.*, 2010; Bernardo *et al.*, 2012).

Second, the "complexity of relations and processes," requires educating and training employees at all hierarchical levels to improve the understanding of the process and thus motivate collaboration (Bernardo *et al.*, 2012b). Third, the"initial increase in deployment costs"was also stressed by companies as one of the challenges of IMS implementation, as suggested in the literature (Santos *et al.*, 2011; Bernardo *et al.*, 2012b). Forth, the studied companies frequently mentioned "bureaucratization," corroborating previous studies noting increased bureaucracy because of the interconnectedness of the systems (Matias and Coelho, 2011; Bernardo *et al.*, 2012b). Finally, organizational culture was shown to be a difficulty, as suggested by Bernardo *et al.* (2012b) and Santos *et al.* (2011). Given that efforts to motivate and convince people of the importance of the systems are unique, an IMS can facilitate and minimize the impact on organizational culture, which is a key issue in IMS implementation, as noted in the literature (Willar *et al.*, 2016).

Considering the core motivations for implementing an IMS, it was surprising that the studied companies did not consider sustainability aspects a motivation, which contrasts with Rebelo *et al.* (2016), who argue that firms become more sustainable are implementing IMSs satisfying internal and external stakeholders. One of the noted motives for IMS implementation was reduced rework and tasks duplication, which is also suggested in the literature by ISO (2015), Zeng *et al.* (2010), Bernardo *et al.* (2012b) and Siva *et al.* (2016) that IMSs can reduce redundancies and manage resources efficiently.

The main challenges of integration were the"resources" factor studied by Bernardo *et al.* (2012b), specifically human resources are an obstacle to integration. According to Bernardo *et al.* (2012), this factor includes people's attitudes, employees' behavior and attitudes that can affect the success of system implementation (Asif *et al.*, 2010; Bernardo *et al.*, 2012). Also, according to the "resources" factor presented by Asif *et al.* (2010) and Bernardo *et al.* (2012), there are some difficulties related to financial resources and the initial increase in implementation costs.

Regarding the IMS impact on organizational performance based on the TBL, leading companies to become more sustainable, companies agree that having an IMS and some performance – economic, environment and social – indicators may be related, as noted by ISO (2015), suggesting that ISO 14001 "provides a competitive and financial advantage through improved efficiencies and reduced costs" (Feng *et al.*, 2016); it has a positive relationship with financial performance.

Table 5 shows some financial and operational indicators. Regarding some indicators, the companies noted that the relationship between EM and financial and environmental performance (TBL perspectives) had a positive impact by reducing waste and promoting reuse, as suggested in the literature (Gotschol *et al.*, 2014; Lioui and Sharma, 2012; Wagner and Blom, 2011; Wu *et al.*, 2015; Yang *et al.*, 2011). The OHS benefits corroborate the insights of Qi *et al.* (2013) that reduce occupational accidents and focus on the health and safety of employees.

As observed, the companies emphasized the environmental and social results (Table 6), corroborating that currently, sustainability focuses less on financial results and more on the environmental and social performance of organizations. Also, all companies focus on improving environmental performance, as suggested by some authors (Nunhes *et al.*, 2016; Gomez and Rodriguez, 2011; Merli *et al.*, 2016; Tsai and Chou, 2009).

Table 6 shows that all companies promote community social development (for company neighborhood). Only company 3 shares employees' actions and social actions in the community. These findings highlight a company's different perspectives, not focusing only on employee improvements, as suggested by Chen *et al.* (2009), Ejdys and Matuszak-Flejszman (2010) and Qi *et al.* (2013), but also on people community development.

6. Conclusions

We presented in-depth evidence from four Brazilian case studies with different industrial sectors, related to the important role of the IMS in TBL performance and the main challenges faced by companies implementing an IMS. Two main contributions are following described. The first is related to the following *RQ1*: How can an IMS impact organizational sustainability performance? According to this study, the IMS can help the companies' performance improvement reducing occupational accidents and resources and promoting of cultural and citizenship programs, related to social actions; improving environmental outcomes and mitigating the use of resources and materials in the developed products, linked to environmental and economic of TBL actions.

The second is about how the key challenges of IMS can influence companies in practice (*RQ2*), the key challenges of IMSs are the employees (lack of commitment and involvement) and the organizational culture, so because of this, companies can create actions to mitigate these difficulties.

According to this study, it seems necessary to know its organizational culture, the particularities of each company, its difficulties and its available resources. The role of employees in the stages, to create an environment that involves them in the processes and to reduce the organizational noises to later start the implementation process of the IMS, it is necessary to customize the IMS implementation, promote benchmarking between companies. Note that even from different sectors, companies reported similar challenges.

This paper contributes to the IMS literature in different ways. The companies studied offer evidence suggesting that IMSs represent a driver of sustainability performance by TBL dimensions effects (Tables 5 and 6). However, this was not the motivation for IMS implementation, which was related more to continuous improvement in different perspectives (Table 4). Companies integrate their MSs aiming to improve the quality and integrate the processes, promote a better organizational culture, increase productivity, reduce rework and duplication of tasks and obtain qualified suppliers and integrated environmental regulatory systems.

In this study, different Brazilian sectors were analyzed, and we found that in some sectors, such as energy, the requirements tend to put pressure on companies to satisfy certain standards, ultimately improving their performance in general and the TBL. However, the company sector, the strategic objectives, environmental awareness of the company and employees influence the relation between IMS implementation and performance based on the TBL.

The presented research offers managerial implications. This study has implications for executives and managers; the results suggest that the amount invested in an IMS increases the TBL performance of companies, resulting in improvement in social, environmental and economic performance.

Economic actions were not emphasized because, according to the analyzed companies, the environmental and social actions created financial/economic value. For the analyzed companies, the organizational culture is a challenge that affects the IMS implementation process. If the culture is not considered a leading factor in the planning of this process, the organization cannot expect to ensure the involvement of employees. This study can help managers to analyze the importance of team involvement, organizational culture and manager leadership as key parts of a system deployment process and the importance of focusing on environmental and social actions in seeking to promote a company's image and consequently obtaining economic returns. Nevertheless, the involvement of everyone aids the integration process and helps improve organizational performance, as the employees feel that they are a part of the team and are engaged in a single goal.

Regarding this study, the challenges in analyzing the implementation steps can be solved by training and involving employers and improving communications with employees to engage them during the IMS implementation processes. IMS implementation involves the human factor, and this factor is important during all this process. For IMS and sustainability, the companies' challenge is analyzing the impact of an IMS and sustainability using indicators to prove these relationships and quantify how an IMS impacts each TBL sustainable action.

Additionally, there are some implications for government and global policies directed toward corporate social responsibility (CSR); an IMS can benefit government organizations in many ways, from accelerating their processes to assisting in building alternative approaches to regulations.

An IMS can reduce industry bureaucracy, supplement regulations, incorporate the knowledge and needs of all stakeholders, eliminate waste and make the best use of financial resources during procurement processes. This research has shown that an IMS has environmental, social and economic benefits and can thus be the basis for CSR in organizations.

This study was limited to analyzing companies that had only ISO 9001, ISO 14001 and OHSAS 18001; other standards could be analyzed in future research.

Thus, future studies might analyze of other standards' (such as ISO 26000 and SA 8000) implementation and analyze the relationship between these standards and sustainability. Also, quantitative research on the topics can be developed, such as a survey. These standards help improve the sustainable performance of organizations because each standard can contribute to the actions of sustainable enterprises. The limited number of cases, only medium and large companies were studied, is a limitation of this study; it happens because we had difficulties finding small companies with more than two certifications; a large sample, including small companies, could be considered in future studies.

Note

1. Inmetro is short for Instituto Nacional de Metrologia, Normalização e Qualidade Industrial, which is the National Institute of Metrology, Standardization and Industrial Quality. This institute is accredited by the Brazilian Ministry of Development, Industry and Trade and cooperates with the Executive Secretariat of the National Council of Metrology, Standardization and Industrial Quality.

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