Integrated Management Systems and Sustainability – A Review on their Relationships

Abstract

This study explores how integrated management systems (IMS) as business tools relate to organizations' capability of achieving sustainable development, and what knowledge gaps are still existing. Further, it discusses if IMS is only an antecedent of sustainability, or if there is a vice-versa relationship. Therefore, a systematic literature review (SLR) is performed to provide a summary of existing literature. In addition, an exploratory review adds to the discussion of a vice-versa relationship.

The work reveals that the research topic is characterized by multiple constraints, thus demanding more in-detail studies. The proposed research agenda entails eight future research questions directed at unfolding models in practice, producing large-scale and cross-regional studies, exploring more IMS components, and investigating how IMS helps organizations to incorporate sustainability concepts at the economic level. An overview on the connections between IMS and sustainability has been absent in literature in such detail.

The work implicates that in practice managers should consider implementing IMS for fostering corporate sustainability, and in academia future research should be directed at the identified knowledge gaps. Thereby, the justification of a vice-versa relationship adds a new viewpoint to academics' understanding of the topic and the formulated research agenda sets the path for future studies.

Keywords: Integration of management systems, management systems, research agenda, sustainability, systematic literature review

1. Introduction

Humanity has experienced an unprecedented increase in economic output and efficiency since the second half of the 20th century (Bolt et al., 2018), which went hand in hand with environmental damages like a heavy increase in global resource extraction (International Resource Panel, 2019) and a collapse in worldwide wildlife population (WWF, 2020). Further, not all countries and social classes benefitted the same from these economic advances and, consequently, the world faces tremendous social as well as economic inequalities (United Nations, 2020). In this zeitgeist, today's society does no longer perceive profit maximation as the exclusive objective of companies (Kleine & Hauff, 2009), but 'there is a growing debate about what and how business leaders, managers and decision makers can genuinely contribute to a transition to an ecologically sustainable society' (Milne & Gray, 2013, p. 13).

In management sciences, the term sustainability is not exclusively defined but rather contains a wide range of concepts (e.g., Asif et al., 2013; Salzmann et al., 2005). Nonetheless, academics typically define sustainability as being based on three pillars – namely the economic, environmental, and social dimension (Engert et al., 2016) –, an interpretation that is also known as the triple bottom line (TBL) (Elkington, 1998). Since 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs' (United Nations World Commission on Environment, 1987, p. 54) nowadays represents a normative concept (Hahn et al., 2015), one of the key drivers for corporations to adopt sustainable practices are their stakeholders (Farmaki, 2019; Høgevold et al., 2015; Schulz & Flanigan, 2016). However, translating general principles of sustainability into organizational action represents a challenge since it requires commitment, leadership, and a systems approach with appropriate management tools (Azapagic, 2003; Galuppo et al., 2019). Therefore, organizations often only focus on measuring corporate sustainability (CS) in terms of isolated indicators but lack a transparent, systematic, and reliable way of actually managing sustainability (Gianni et al., 2017; Nawaz & Koç, 2018; Silva et al., 2020).

When it comes to dealing with stakeholder needs in other corporate areas like quality aspects, customer satisfaction, or risk management, many companies rely on management systems (MSs) as they 'provide a systematic way to address the interests of stakeholders' (Poltronieri et al., 2018, p. 375). The main elements of these function-specific MSs are often – but not only – described in management system standards (MSSs) that are developed and published by national as well as international bodies, the most famous one being the International Organization for Standardization (ISO) (Karapetrovic & Jonker, 2003). Due to the proliferation of various different MSSs and MSs, the need to integrate them into an integrated management system (IMS) emerged in order to reduce redundancies and to use possible synergy effects (Karapetrovic, 2002). Further, such integration can lead to various economic, environmental, and social benefits (e.g., Bernardo et al., 2015). As a consequence, IMS initiatives are increasingly implemented from the 1990s onwards (Mohamad et al., 2014) and, by now, IMS implementation is considered to be the best management practice for organizations having multiple MSs in place (Bernardo, 2014). However, although an IMS enables the company to deal with stakeholders' needs in a systematic manner, it lacks consensus for measurement (Gianni et al., 2017; Gianni & Gotzamani, 2020) – despite some recent first attempts to develop performance indices and measuring instruments (e.g., Gianni & Gotzamani, 2020; Silvestri et al., 2021).

Thus, both concepts have their roots in the stakeholder theory (Asif et al., 2013) and whereas IMS is managed but not measured, CS is measured but not managed (Gianni et al., 2017). Despite this apparent relation between both concepts, there is a lack of research exploring the impact of MSs integration on the TBL perspective (de Nadae et al., 2021; Nunhes et al., 2016) and contributing to the discussion whether and how IMS drives CS (Nunhes et al., 2020; Silva et al., 2020). In view of this research problem, the objective of this study is to synthesize identified links between the integration of MSs and sustainability, to identify existing

knowledge gaps, and to eventually put the links between both concepts into a justified relationship context. Related to this aim, three research questions (RQs) are proposed:

RQ1: How far advanced is research that links the integration of MSs to the incorporation of the TBL approach in organizational management?

RQ2: Which knowledge gaps still exist that should be investigated in future research?

RQ3: Is IMS simply an antecedent of sustainability, or is there a vice-versa relationship between both concepts?

RQ3 takes into account TBL-related benefits of MSs implementation (e.g., Tarí et al., 2012), the prevailing view that IMS adoption positively impacts companies' ability to foster sustainability (e.g., Asif et al., 2013; Gianni et al., 2017; Nunhes et al., 2016; Poltronieri et al., 2018), as well as CS-associated benefits of IMS (e.g., Başaran, 2018; Bernardo et al., 2015).

A systematic literature review (SLR) about the relationship between IMS and sustainability is performed to answer RQ1 and RQ2. RQ3 is answered through a discussion that combines the results of the SLR with an additional explorative literature review. Such a detailed review on the current state of research about IMS and sustainability seems to be absent in literature. Thus, this work contributes to academia by synthesizing existing knowledge at hand, by providing proof for a vice-versa relationship between both concepts, and, in addition, by outlining existing knowledge gaps and formulating a corresponding research agenda.

The paper continues in six sections. Section 2 offers extended background on IMS and sustainability. Section 3 explains the methodology used, section 4 presents the findings (RQ1 and RQ2), and section 5 contains the discussion about a vice-versa relationships (RQ3). Eventually, section 6 delivers the conclusions.

2. Extended Background

2.1. Integrated Management Systems

In order to deal with stakeholder needs systematically in both internal and external organizational contexts, companies implement so-called management systems (Poltronieri et al., 2018; Rebelo, Santos, & Silva, 2016), which are a set of procedures to be followed in order to achieve stakeholder satisfaction for a specific demand. In other words, they represent a 'process of systemizing how things are done' (Mahesh & Kumar, 2016, p. 578). Since more and more companies operate multiple function-specific MSs (Salomone, 2008), integrating them into a single IMS represents an important issue of the 21st century (Kauppila et al., 2015) as it enables firms to reduce redundancies and to use possible synergy effects (Griffith & Bhutto, 2009; Karapetrovic, 2002).

An IMS can be defined as a ' single set of interconnected processes that share a unique pool of human, information, material, infrastructure and financial resources in order to achieve a composite of goals related to the satisfaction of a variety of stakeholders' (Karapetrovic, 2003, p. 9). However, organizations tend to define subjectively what integration means regarding their own business context (Wilkinson & Dale, 2000). Integrating MSs is based on the thought that many MSSs share certain similarities, such as the management policy, planning, implementation, operation, evaluation, improvement, and analysis (Klute-Wenig & Refflinghaus, 2015; Rebelo et al., 2014b). ISO for example implements a common structure – referred to as High Level Structure (HLS) – in its MSSs since 2015. The integration starts with a complete understanding of the MSSs and MSs (Samy et al., 2015), and then subsequently puts all management standards and practices into a single system (Nunhes et al., 2017). The integration process considers four main aspects, namely the integration strategy (sequence of MSs implementation), integration methodology (models and tools adopted to create the IMS), integration level (degree to which MSs are managed separately or jointly), and integration of

audits (internal as well as external) (Bernardo et al., 2012b; Domingues et al., 2015; Nunhes et al., 2017).

Integration represents an added value (Rebelo et al., 2015) since it leads to numerous tangible as well as intangible advantages that can be divided into external and internal benefits (Samy et al., 2015). External benefits of IMS implementation are, among others, enhanced customer satisfaction (Casadesús et al., 2011; Zutshi & Sohal, 2005), achievement of competitive advantages (Salomone, 2008), and improved company image (Douglas & Glen, 2000; Salomone, 2008). Internal benefits might be functional, organizational, or financial, such as simplified systems and procedures (Douglas & Glen, 2000; Simon et al., 2012), more efficient use of human resources (Salomone, 2008; Zeng et al., 2010), or cost savings by unified audits (Matias & Coelho, 2002; Winder, 2000). Consequently, IMS implementation has an impact on the business strategy as it changes a company's culture, procedures, and habits (Motta Barbosa et al., 2018).

Nonetheless, IMS implementation has also some difficulties. In fact, many organizations face struggles when integrating multiple MSs (Souza & Alves, 2018), such as lack of financial and human resources (Asif et al., 2009; Bernardo et al., 2012a; Simon et al., 2012), insufficient managerial and administrative support (Almeida et al., 2014; Khanna et al., 2010; Simon et al., 2012), as well as problems related to the corporate culture (Wilkinson & Dale, 1999; Zeng et al., 2010).

2.2. Sustainability

Sustainable development (SD) refers to meeting present needs without compromising future generations' abilities to meet their own needs (United Nations World Commission on Environment, 1987) and represents both an important paradigm of the 21st century (Silva et al., 2020; Souza & Alves, 2018) as well as a societal and industrial challenge (Bastas & Liyanage, 2019).

In management sciences, the term sustainability is not exclusively defined but rather contains a wide range of concepts at the corporate level, such as SD, CS, or corporate social responsibility (CSR) (e.g., Asif et al., 2013; Salzmann et al., 2005), as well as concepts at the economical level, such as the green, bio, collaborative, or circular economy (e.g., D'Amato et al., 2017; Ertz & Leblanc-Proulx, 2018; Geissdoerfer et al., 2017). Despite the multiplicity of concepts, academics and practitioners mainly agree on pursuing the TBL approach for fostering SD at the corporate level (Glac, 2015). The TBL concept was introduced by Elkington (1998) and demands organizations to explicitly taking into consideration environmental, economic, and social impacts – positive and negative – of their activities (Edgeman, 1998; Elkington, 1998; Hediger, 1999). In conformity, this paper defines sustainability in accordance with the TBL approach.

In order to assess the level of penetration of environmental, economic, and social factors into organizations' business activities, the corporate sustainability performance (CSP) of firms is assessed (Artiach et al., 2010; Gianni et al., 2017), which reflects how well the organization converts the managerial attitude of stakeholder orientation into actual stakeholder satisfaction (Luk et al., 2005). Although there is no common standard existing that determines how to measure the environmental and social dimensions of the TBL concept (Hubbard, 2009; Roca & Searcy, 2012), CSP is evaluated by developing and monitoring various indicators (Gianni et al., 2017). In this context, especially ESG ratings – which are company assessments based on the evaluation of environmental, social, and governance issues that result in an overall score (Clementino & Perkins, 2020) – 'appear to be a widely accepted measure' (Rajesh, 2020, p. 3). However, integrating sustainability issues into a management model represents a complex issue (Souza & Alves, 2018) because the TBL framework is an abstract concept whose practical implementation represents a difficult task (Lozano, 2012). Hence, CS is often only measured but rarely managed (Gianni et al., 2017). In other words, CS is undertaken mostly at the operational level (Fisher & Bonn, 2011) by relying on standardised guides and action schemes

(van der Heijden et al., 2010), but there is a lack regarding the integration of the sustainability concept into business processes at all organizational levels (Souza & Alves, 2018). Consequently, there is the need to create new CS management approaches (Schaltegger et al., 2013) and to enlarge the current portfolio of only few available tools for sustainability management (Burritt & Schaltegger, 2010; Garcia et al., 2016; Souza & Alves, 2018) in order to overcome the challenge of translating sustainability principles into organizational action (Ajmal et al., 2018; Azapagic, 2003).

In conclusion, knowledge must be enlarged to make sustainability management more systematic, efficient, and practical (Asif et al., 2013). Since CS requires to meet key stakeholder needs – with future generations as one of these stakeholders (Isaksson, 2006) – in a systematic manner (Asif et al., 2011), it seems reasonable to seek synergies for CS incorporation by looking at current management approaches that already enable organizations to meet stakeholder demands systematically, such as integrated management systems do (Nunhes et al., 2017; Siva et al., 2016).

3. Methodology

3.1 Research Strategy

Research strategies define how the research is approached and which plan of action is likely to offer the best success prospects (Denscombe, 2010). This work is based on the literature review (LR) as research strategy, because LRs allow to evaluate the current state of scientific research fields (Cowell, 2012) as well as to develop new concepts (Rodgers & Knafl, 2000). Further, they ultimately unravel still existing research gaps and allow to present respective future research opportunities in an organized way (Fischl et al., 2014). Hence, performing a LR appears to suit the study's research objective best.

LRs are thorough summaries and critical analyses of available literature relevant to the topic being studied (Hart, 2005). However, there are different types of LRs like the traditional (also

called narrative or explorative) LR, the systematic LR, meta-analysis or meta-synthesis (Cronin et al., 2008). Since RQ1 and RQ2 aim at evaluating the current state of science and identifying knowledge gaps therein, they are answered by performing a SLR on the relationship between IMS and sustainability as such systematic reviews result in a list of (almost) all studies related to the investigated subject (Cronin et al., 2008). The answers to RQ1 and RQ2 might become a starting point for researchers who seek to undertake new investigations in this particular research branch (Okoli, 2015) as the SLR is likely to produce a balanced and unbiased summary of existing literature (Nightingale, 2009). RQ3, which discusses a vice-versa relationship, is based upon the results from the SLR and, in addition, considers further contributions surrounding the concepts of sustainability and IMS by means of a traditional, exploratory LR.

3.2 SLR Application

In order to ensure the reliability and validity of a SLR, researchers must precisely state inclusion and exclusion criteria for literature (Cronin et al., 2008) and follow a specific, systematic approach (vom Brocke et al., 2009). The SLR in this study follows the guidelines proposed by Durach et al. (2017) with the slight adjustment that relevant references found in the baseline sample are added to the selection of pertinent literature. This so-called snowballing is a useful method for extending SLRs (Wohlin, 2014) in order to identify papers that are not included in the baseline sample but, nevertheless, answer the research question. The guidelines used are applicable regardless of the academic field (Durach et al., 2017) and suggest the performance of the six steps outlined in Table 1.

[Table 1 near here.]

As the research purpose (step 1) was established in section 1 and the literature synthesis (5) as well as the report of results (6) is presented in section 4, the following paragraphs only depict the SLR sub-steps (2) to (4), which are summarized in Table 2. As visible, the inclusion and exclusion criteria allow for all methodologies and time periods but make restrictions to articles

in English, German, and Spanish. Therefore, this SLR follows an 'exhaustive & selective' coverage degree (Cooper, 1988) as it aims to include the entirety of academic literature (or at least almost all of it) that connects the integration of MSs with sustainability, but thereby only considers journal articles in order to ensure a certain degree of quality and, in addition, takes into account the authors' language constraints. To retrieve a relevant literature sample, the bibliographic databases Web of Science, Scopus, and Emerald Insight are searched by combinations of keywords. Narrowing down potential expressions and search phrases to the most relevant keywords (vom Brocke et al., 2009) represents a complicated step, since too loose search phrases can lead to too many results – which makes it hard for reviewers to identify the relevant ones – and, in contrast, too narrow search phrases bear the risk of excluding important publications (Osterrieder et al., 2020). Thus, the selection of keywords has a strong impact on the review's completeness and quality (Baker, 2000). Suitable keywords around the concepts of IMS and sustainability are derived based upon the extended background in section 2. To the best of the authors' knowledge, the combined keywords in Table 2 and the following snowballing should be suitable to retrieve (almost) all academic work that covers the specific scope of this SLR.

Table 2 illustrates the SLR sub-steps (2) and (4) in a transparent way by dividing the literature search process into five phases. The initial baseline sample of 621 papers (phase i) was reduced to 414 papers by applying the inclusion/exclusion criteria (phase ii) and to 177 articles by removing duplicates (phase iii). Reading the title and abstract further narrowed it down to 85 papers (phase iv). This phase excluded many papers, as they did not consider IMS in the sense of this study – i.e., the integration of MSs – but rather concerned topics like 'integrated management system for decontamination and rehabilitation of buildings, structures and materials' (Sánchez & Lauritzen, 2006, p. 269), 'integration in sustainable agricultural systems' (Edwards, 1989, p. 25), or 'integrated water resource management' (Avellán et al., 2017, p. 1).

Reading the full paper reduced the sample to 39 papers. The snowballing added 5 further journal articles, thus leading to the final synthesis sample of 44 contributions.

[Table 2 near here.]

4. Findings

In order to answer RQ1 (‘what has been done’) and RQ2 (‘what still must be done’), the studies from the synthesis sample are presented briefly and, in addition, an overview of all studies (see Table 3) is depicted from which valuable insights are derived.

4.1 Thematic Results

Empirical studies started when Fresner and Engelhardt (2004) analysed two Austrian SMEs regarding the enhancement of environmental and economic performance through improved processes and procedures. The authors figured that CS could be achieved by implementing cleaner production (CP) methods, optimized supply chains, more sustainable products, as well as an IMS. In the following year, Oskarsson and Malmborg (2005) studied how three Swedish corporations handled environmental issues and argued that MSs themselves do not represent a sufficient management approach for establishing SD in organizations, but the integration of MSs might tie environmental issues tighter to companies´ core values. This statement is confirmed by Esquer-Peralta et al. (2008), who revealed through several interviews among researchers, experts, and government employees that although MSs are seen as helpful for fostering SD, taking real advantage of MSs requires their integration since sustainability is only possible when integrating all MSs into one system. In addition, also Jørgensen (2008) concludes that creating an IMS can pave the way towards SD after presenting experiences from a company in Denmark. Questionnaires performed in Latvian companies showed that even from the viewpoint of companies the concepts of IMS and sustainability are perceived to be related (Mežinska et al., 2015), and Holm et al. (2015) concluded that IMS suits as framework for

promoting education for SD in universities. More recent, Silva et al. (2020) performed case studies in four Portuguese companies and derived that on the one hand IMS acts as enabler – by promoting organizational structure and enabling the deployment of sustainability – and on the other hand it works as pathway – as IMS helps companies implementing sustainability step by step as a standardized system. Further, de Nadae et al. (2021) conducted four case studies across different sectors and concluded that albeit sustainability is not a motivation for IMS adoption, the integration of MSs is a driver of sustainability performance.

Rahman et al. (2021) employed ordinary least squares (OLS) and two-stage least squares (2SLS) to data from 23 companies to empirically prove a positive impact of integration on the social, environmental, economic, as well as workplace dimension. Further, Poltronieri et al. (2019) conducted a survey which revealed that the performance of all three TBL dimensions is highly impacted by the maturity of MSs integration. Focusing on SMEs, a study on 18 companies showed that SMEs barely use MSs for ensuring CS integration into business activities and, therefore, should better understand the use of integrated MS in order to successfully integrate CS (Witjes et al., 2017).

Through the analysis of 14 Brazilian companies regarding their most common integrated elements, Nunhes et al. (2017) revealed that IMS shares synergies with CP technologies. In addition, also Hernandez-Vivanco et al. (2018) evidenced a significant positive relationship between IMS and the adoption of CP technologies. Furthermore, Rebelo, Silva, et al. (2016) analysed a manufacturing site that suffered inefficiencies resulting from a low level of integration and showed how IMS implementation promotes sustained success. Regarding the level of integration, Jørgensen et al. (2006) considered ambitious integration to be connected to ‘creating a cluture of learning, stakeholder participation and continuous improvement’ (p. 2) that eventually leads to CS progress in regard to all three TBL pillars. Further, the internalization of IMS is considered to be an ‘imperative for their prosperity and contribution toward CSP’ (Gianni & Gotzamani, 2020, p. 1). Internal and external factors that might

condition IMS implementation in pursuing the enhancement of the organization's sustainability are enumerated by Bernardo et al. (2017), and Hassan et al. (2021) conducted a meta-analysis incorporating 38 articles that deal with internal and external factors of integrated internal audit effectivenes, concluding that one of the top outcomes is business sustainability.

Regarding the economic dimension of the TBL approach, de Nadae et al. (2019) evidenced a significant and positive impact of IMS on economic performance after performing a report analysis. Ionescu et al. (2018) confirmed the hypothesis that IMS implementation contributes to the increase of the turnover, respectively the market value, in the Romanian hospitality industry. Further, Martí-Ballester and Simon (2017) performed a partial least squares (PLS) analysis for 50 corporations and concluded that integrating MS procedures leads to scope economies, which enables companies with fully integrated MSs to financially outperform their counterparts with only partially integrated or separately managed MSs.

In literature reviews, IMS 'is viewed as a viable and rational approach for (…) sustainable development' (Samy et al., 2015, p. 997) that helps companies to achieve sustainability and provides a structure for CSR integration (Nunhes et al., 2016). On account of this, sustainability support through the integration of MSs is one of the most mentioned topics regarding quality management methods, tools, and practices for SD initiatives (Siva et al., 2016). Exemplary, Nunhes et al. (2020) systematized CS, thereby identify 60 elements grouped in six pillars and eventually declare MSs as well as IMS to be one out of these six fundamental CS management pillars. Further, Lozano (2020) analyses the use of tools, inititatives, and apporaches (TIAs) to promote sustainability in corporataions, thereby idendifying IMS as 1 out of 24 TIAs. And de Nadae and Carvalho (2019) performed a SLR on standard MSs and claim propostitions directed at a significant, positive relationship between IMS and performance in all three TBL-dimensions that is influenced by firm size and industry sector.

Furthermore, existing literature provides a multiplicity of frameworks that connect IMS and sustainability. Rocha et al. (2007) highlighted the need to make existing systems more reflective

of SD in order to face the challenge of implementing sustainability into an organization´s business processes and, therefore, present an IMS that provides guidance on the micro- and macro-level for integrating principles of SD within existing MSSs. By addressing the integration of sustainability through a meta-management approach, Asif et al. (2011) proposed a model in which the integration of MSs is seen as reference point that provides leverage for integrating sustainability into existing business processes. Due to the similarity of fundamental principles of CSR practices and MSs, Asif et al. (2013) developed a framework focusing on using possible synergies in order to establish business processes that foster CSR performance by addressing a maximum broad range of stakeholders. Within the framework, the role of an IMS as the 'backbone for CSR' (p. 16) is emphasized, since it provides the structures for dealing with stakeholders´ demands in a coherent, systematic, and synergistic manner. Rebelo et al. (2014b) proposed a generic model for an integrated management system of quality, environment, and safety and, furthermore, the same authors Rebelo et al. (2014a) also proposed a flexible integrator and lean model for IMS. Souza and Alves (2018) created a lean-integrated management system for sustainability improvement model that aims at supporting organizations in improving CS. In order to facilitate the IMS assessment, Klute-Wenig and Refflinghaus (2015) developed an enlarged Excel-based tool that allows SMEs for self-assessment of their current IMS in regard to sustainability-related aspects. Rebelo, Santos, and Silva (2016) suggested a model to support the development of IMS based around the PDCA-cycle, an action plan for (1) developing a global, environmental, quality, and occupational health and safety compliance culture, as well as for (2) developing and implementing a waste management and minimization plan, and general integration guidelines. For managing sustainability, Mustapha et al. (2017) formulated an integrated sustainable green management system based on the PDCA cycle that could incorporate ISO 9001 for QMS, ISO 14001 for EMS, and ISO 50001 for energy management systems. Fasoulis and Rafet (2019) proposed a conceptual CSR framework for a sustainable maritime industry with IMS in its centre. By

bridging literature on sustainability, value co-creation, TQM, EM, and IMS, Aquilani et al. (2016) were able to create a model of value co-creation processes – based on critical success factors (CSF), such as top management commitment and leadership, process management, HRM, etc. – that encompasses CSFs to support sustainability via quality processes. Gianni et al. (2017) developed a framework that relates IMS resources, IMS level, and CSP that considers IMS scope as a possible contingent factor on CS performance. Another model for measuring the integration of multiple MSs as well as the effect of integration on sustainable performance was proposed and tested by Poltronieri et al. (2018) and is based on a questionnaire. Samy et al. (2018) designed a holistic model for IMS implementation which is said to lead to organizational efficiency, business excellence, and sustainable development as derived output and outcomes.

However, despite these multiple frameworks, a study among 48 Brazilian companies revealed that organizations still struggle to ensure that there are no clashes of interest or redundancies in different stakeholders´ requirements and to evaluate the adequacy of the integration between CSR systems and MSs (Cazeri et al., 2018). Moreover, Griffith (2011) conceptually researched CSR applications in the construction business and commented that although IMS adoption can link key elements of CSR, 'IMS is not a panacea for CSR' (p. 45). This statement was supported by Nawaz and Koç (2018). After conducting an SLR on different sustainability management dimensions, these authors concluded that 'there will remain unaddressed sustainability issues even after full integration of MSSs' (Nawaz & Koç, 2018, p. 1257) and, in this context, the authors presented an own, multi-dimensional standalone sustainability management system framework (SMSF) based upon the concept of IMS.

[Table 3 near here.]

4.2 Observations, Knowledge Gaps, and Future Research Agenda

Based on the elaborations above and their synthesis in Table 3, RQ1 is answered by deriving the following observations and insights about how advanced research is regarding links between the integration of MSs and the incorporation of the TBL approach. Furthermore, RQ2 is answered by formulating future research questions (FRQs) for identified knowledge and literature gaps:

1. The topic only emerged in the 21st century and, therefore, represents a still young field of research. Furthermore, most of the research has been done within the past few years, and the number of academic journals dealing with the topic is increasing. This fundamentally underlines the growing academic interest in examining how IMS and sustainability are related.
2. Most research perceives IMS to be a driver of sustainability. In other words, integrating MSs is seen as an approach for achieving sustainability (e.g., Samy et al., 2015) as it provides a structure for incorporating sustainability-related concepts into business practices (e.g., Siva et al., 2016). In this context, section 5 entails a discussion with a counter perspective that claims for the existence of a vice-versa relationship between both concepts (RQ3).
3. The frameworks and models proposed in conceptual papers, such as Asif et al. (2013), Samy et al. (2018), or Gianni et al. (2017), lack empirical proof regarding their validity, feasibility, and applicability. Furthermore, many of the papers that are indicated as empirical in Table 3, such as Rebelo et al. (2014a) or Rebelo et al. (2014b), used case studies and questionnaires only for producing frameworks, models, and instruments, but these tools themselves have not been proved in further practice yet. In conclusion, future research should be directed at unfolding the proposed models in practice, thereby answering the question whether the existing/developed IMS frameworks for fostering SD are feasible,

flawless, and effective in practice (FRQ1). Naturally, this imposes the question of CSF for frameworks, while taking into account specific business contexts (FRQ2).

4. Research based on empirical data is often characterized by limited sample sizes and a focus on single countries and/or industries. Empirical research studies that conduct large-scale and cross-regional analyses proving the impact of MSs integration on TBL dimensions appear to be absent in current literature. Thus, academia faces knowledge gaps regarding the impact of MSs integration regarding firms' performance in the economic (FRQ3), environmental (FRQ4), and social (FRQ5) TBL-dimension depending on the company location, company size, and industry.
5. Most research studies consider IMS consisting of combinations of QMS, EMS, and/or organizational health and safety MSs (OHSMS). Thus, there is a lack of studies taking into account the integration of further sustainability-specialized and less widely spread MSSs and MSs, such as for example ISO 26000 (guidance on social responsibility), ISO 20400 (sustainable procurement), or ISO 50001 (energy management). Conclusively, future research should investigate how IMS consisting of MSs other than QMS, EMS, and/or OHSMS contribute to companies' ability of fostering SD (FRQ6). Moreover, knowledge is missing on what standards and systems an IMS should entail in order to enable organisations to overcome (upcoming) sustainability-challenges of the 21st century, such as issues connected to the ongoing globalization, increasing digitalization, overpopulation as well as demographic change, and climate-change induced threats (FRQ7).
6. No research was detected that investigates how IMS can contribute as business tool to support the adoption of economic-level sustainability concepts, such as the green, bio, collaborative, or circular economy. However, IMS that entail standards like BS 8001 (framework for implementing the principles of the circular economy), IWA 19 (guidance principles for the sustainable management of secondary metals), or ISO 14009 (guidelines

for incorporating material circulation in design and development) might bear potential in this regard. Proving so should be the task of future research (FRQ8).

The knowledge gaps and FRQs elaborated above are summarized and synthesized in the research agenda visualized in Table 4. Further, the table entails guidance that might be valuable for designing corresponding future research methodologies.

[Table 4 near here]

5. Discussion

RQ3 reviews the links between IMS and sustainability by discussing if IMS is only an antecedent of sustainability, or if there is also a vice-versa relationship. The question is answered by stating the prevailing relationship in academia identified in the framework of the SLR and, in addition, examining two further possible relationships – firstly sustainability as an antecedent of IMS, and secondly IMS as a sustainable tool itself – by performing an additional explorative LR.

5.1 IMS as Antecedent of Sustainability

As already highlighted in section 4, most research studies claim IMS to be a driver of sustainability. In summary, previous academics predominantly perceive IMS as an approach for achieving sustainability (e.g., Samy et al., 2015) since it provides a structure for integrating sustainability-related concepts into business practices (e.g., Asif et al., 2013; Siva et al., 2016) and, therefore, paves the way towards SD (e.g., Jørgensen, 2008). In conclusion, integrated management systems drive sustainability by providing a holistic structure for incorporating sustainability-related concepts into action at all organizational layers.

5.2 Sustainability as Antecedent of IMS

Organizational attempts to adopt sustainable practices are mainly driven by stakeholder demands (Farmaki, 2019; Høgevold et al., 2015; Schulz & Flanigan, 2016) and managers apply CSR practices at the operational level in order to actually achieve better sustainability (Asif et al., 2013; Kleine & Hauff, 2009). Although the term CSR is not defined exclusively, it is said to be based on five dimensions (Dahlsrud, 2008), namely: (1) voluntariness, (2) stakeholder, (3) environmental, (4) economic, and (5) social. When examining MSs under the viewpoint of these CSR dimensions, the operation of separate MSs appears to represent a sustainable practice since MSs are (1) implemented on a voluntary basis, i.e., MSs implementation is not compulsory or demanded by law (e.g., ISO states it in all its MSSs); (2) aim at dealing with stakeholder needs systematically (Poltronieri et al., 2018; Rebelo, Silva, et al., 2016), and they lead to (3) environmental, (4) economic, as well as (5) social improvements as highlighted in Table 5.

[Table 5 near here.]

To sum it up, MSs represent sustainable tools and companies that operate separately managed MSs are in fact companies with a certain drive towards sustainability. However, operating multiple separate MSs causes the urge to integrate them in order to facilitate their management, to use possibly synergy effects, and to reduce redundancies (Griffith & Bhutto, 2009; Karapetrovic, 2002). This line of argument leads to the conclusion that the initial implementation of multiple separately managed MSs represents a sustainable action, which eventually leads to the implementation of IMS as a merge of sustainable practices. In other words, the implementation of multiple separated MSs as sustainable practices drives IMS adoption.

5.3 IMS as a sustainable Tool

Since academics and specialists use the TBL approach to describe, comprehend, and measure sustainability (Glac, 2015), the definition of IMS as a sustainable tool requires to outline and emphasize the environmental, economic, and social impacts of IMS implementation. Therefore, Table 6 depicts the most highlighted IMS benefits in accordance with the TBL approach.

[Table 6 near here.]

As visible, integrating several MSs into a single IMS leads to environmental improvements, such as better resource allocation and facilitated adoption of cleaner production technologies (Hernandez-Vivanco et al., 2018; Nunhes et al., 2017). Furthermore, IMS implementation is positively connected to organization's economic performance (e.g., de Nadae et al., 2019) due to cost reductions (e.g., Douglas & Glen, 2000), cost savings (e.g., Simon et al., 2012), and increased productivity (e.g., Hamidi et al., 2012). Moreover, companies that integrate their MSs benefit from social performance improvements (e.g., Poltronieri et al., 2019), such as enhanced customer satisfaction (e.g., Casadesús et al., 2011), or increased employee motivation (e.g., Salomone, 2008). In conclusion, MS integration leads to improvements in regard to all three TBL dimensions, thus leading to the statement that IMS themselves represent sustainable business tools.

5.4 Relationship Context

Based on the elaborations above, the relationship between IMS and sustainability can be put in the following context:

- Companies implement various single MSs, which – according to literature revised above – represent sustainable tools aiming at satisfying stakeholder needs systematically. Operating multiple MSs leads to an integration urge to reduce redundancies, facilitate management, and drive towards business excellence. In conclusion, sustainability is a driver of IMS

adoption because companies firstly implement different function-specific MSs – which already are sustainable tools –, and secondly integrate them eventually.

- Integration does not only provide the structure for an easier translation of SD concepts into organizational actions but rather also the operation of an IMS leads to numerous additional sustainable benefits. This leads to the identification of the IMS as a sustainable tool, which therefore can also be entitled as "sustainable integrated management system (SIMS)".
- Since the integration of various MSs into a single system provides an organizational structure that allows to integrate sustainability-related concepts into business processes, integration acts as a driver of sustainability. In accordance, increasing the integration level as well as implementing new MSs and further sustainable tools into the IMS are likely to enhance firms´ CSP even more.

In conclusion, IMS and sustainability share a vice-versa relationship and represent closely connected concepts that impact each other. The relationship context formulated above is illustrated in Figure 1, which visualizes the identified relationships in a graphical way.

[Figure 1 near here.]

6. Conclusions

The objective of this study is to synthesize identified links between the integration of MSs and sustainability, to identify existing knowledge gaps, and to eventually put the links between both concepts into a justified relationship context. Therefore, a SLR was conducted to answer how far advanced research is (RQ1) and what knowledge gaps still exist (RQ2). The SLR resulted in a synthesis sample of 44 articles. Furthermore, an additional explorative LR was performed to discuss if IMS is only an antecedent of sustainability, or if there is a vice-versa relationship (RQ3). The following conclusions can be extracted:

Firstly, the topic represents a still young research branch and academics predominantly view IMS to be a driver of sustainability (RQ1). Multiple researchers have proposed IMS-centered

sustainability frameworks, however many of them lack empirical proof of feasibility and practicability. Empirical research data is often limited in terms of small sample sizes, single countries, and specific industries. Furthermore, IMS research merely considers components beyond QMS, EMS, and/or OHSMS. Current research does not depict links between IMS as business tool to contribute to companies' adoption of economical sustainability concepts, such as the circular economy.

Secondly, knowledge gaps particularly appear in four research directions. Hence, the elaborated research agenda (RQ2) formulates a total of eight research questions aimed at (1) unfolding conceptually derived models in practice, (2) producing large-scale and cross-regional studies that focus on the impact of IMS on each TBL pillar, (3) exploring IMS components beyond QMS, EMS, and OHSMS that contribute to CSP enhancements, and (4) investigating how IMS helps organizations to incorporate fundamentals of economic-level sustainability concepts.

Thirdly, the discussion section concludes that IMS and sustainability share a vice-versa relationship (RQ3). On the one hand MSs as sustainable business tools eventually drive integration, and on the other hand this integration then paves the way towards improved SD. Further, integrated MSs themselves represent sustainable tools, thus leading to the term sustainable integrated management systems (SIMS).

This research contributes to academia by providing a synthesis regarding the connections between IMS and sustainability, which in such detail has been absent in literature so far. A further main contribution is the identification and justification of a vice-versa relationship between both concepts. In addition, existing knowledge gaps are identified, and a corresponding research agenda is formulated that sets the path for future research studies.

6.1 Practical Implications

As sustainability represents an increasingly important issue for sustained success in the corporate world, knowledge on how to improve CSP will likely become a competitive advantage for firms. In this context, the study's findings depict the advantages of IMS

implementation highlight how corporate executives can foster aforementioned CSP and better manage CS through the usage of MSs and their integration as suitable business tools. Thereby, the work urges managers to be aware of the broader context of the relationship between IMSs and sustainability when driving towards leaner management and increased sustainability. Further practical implications relate to the actual application of the theoretically developed frameworks based around the concept of IMS in existing academic literature that are designed to achieve SD in the corporate context.

6.2 Academic Implications

Regarding academic implications, this work provides a comprehensive overview of current research as well as a future research agenda, thereby serving as both starting point for researchers newly entering this research branch and source of guidance for upcoming investigations of experienced researchers. Furthermore, the identification and justification of a vice-versa relationship intends to add a new viewpoint to academics' understanding of the topic, thus hopefully opening up the line of research for more diversified future works that help to close the depicted knowledge gaps. Further, this work argues that research directed on MSs beyond QMS, EMS, and OHSMS might be fruitful for further developing the topic of IMS and its relationship to sustainability.

6.3 Limitations and Future Research

The limitations of this study are predominantly related to the applied SLR process. In other words, the databases used, the inclusion/exclusion criteria drafted, as well as the developed search strings might have led to a synthesis example that does not include all papers that consider the topic at hand. Therefore, future work should try to overcome these limitations. In addition, further future research should be directed at the knowledge gaps identified and synthesized in this study and eventually answer the formulated future research questions.

References

Abad, J., Dalmau, I., & Vilajosana, J. (2014). Taxonomic proposal for integration levels of management systems based on empirical evidence and derived corporate benefits. *Journal of Cleaner Production*, *78*, 164–173. https://doi.org/10.1016/j.jclepro.2014.04.084

Ajmal, M. M., Khan, M., Hussain, M., & Helo, P. (2018). Conceptualizing and incorporating social sustainability in the business world. *International Journal of Sustainable Development & World Ecology*, *25*(4), 327–339. https://doi.org/10.1080/13504509.2017.1408714

Almeida, J., Domingues, P., & Sampaio, P. (2014). Different perspectives on management systems integration. *Total Quality Management & Business Excellence*, *25*(3-4), 338–351. https://doi.org/10.1080/14783363.2013.867098

Ann, G. E., Zailani, S., & Abd Wahid, N. (2006). A study on the impact of environmental management system (EMS) certification towards firms' performance in Malaysia. *Management of Environmental Quality: An International Journal*, *17*(1), 73–93. https://doi.org/10.1108/14777830610639459

Aquilani, B., Silvestri, C., & Ruggieri, A. (2016). Sustainability, TQM and Value Co-Creation Processes: The Role of Critical Success Factors. *Sustainability*, *8*(10), 995. https://doi.org/10.3390/su8100995

Arauz, R., & Suzuki, H. (2004). ISO 9000 Performance in Japanese Industries. *Total Quality Management & Business Excellence*, *15*(1), 3–33. https://doi.org/10.1080/1478336032000149072

Artiach, T., Lee, D., Nelson, D., & Walker, J. (2010). The determinants of corporate sustainability performance. *Accounting & Finance*, *50*(1), 31–51. https://doi.org/10.1111/j.1467-629X.2009.00315.x

Asif, M., Bruijn, E. J. de, Fisscher, O. A., Searcy, C., & Steenhuis, H.-J. (2009). Process embedded design of integrated management systems. *International Journal of Quality & Reliability Management*, *26*(3), 261–282. https://doi.org/10.1108/02656710910936735

Asif, M., Searcy, C., Zutshi, A., & Ahmad, N. (2011). An integrated management systems approach to corporate sustainability. *European Business Review*, *23*(4), 353–367. https://doi.org/10.1108/09555341111145744

Asif, M., Searcy, C., Zutshi, A., & Fisscher, O. A. (2013). An integrated management systems approach to corporate social responsibility. *Journal of Cleaner Production*, *56*, 7–17. https://doi.org/10.1016/j.jclepro.2011.10.034

Askey, J. M., & Malcolm, A. (1997). Quality management in the UK advertising industry. *International Journal of Quality & Reliability Management*, *14*(2), 186–196. https://doi.org/10.1108/02656719710165446

Avellán, T., Roidt, M., Emmer, A., Koerber, J. von, Schneider, P., & Raber, W. (2017). Making the Water–Soil–Waste Nexus Work: Framing the Boundaries of Resource Flows. *Sustainability*, *9*(10), 1881. https://doi.org/10.3390/su9101881

Azapagic, A. (2003). Systems Approach to Corporate Sustainability. *Process Safety and Environmental Protection*, *81*(5), 303–316. https://doi.org/10.1205/095758203770224342

Baker, M. J. (2000). Writing a Literature Review. *The Marketing Review*, *1*(2), 219–247. https://doi.org/10.1362/1469347002529189

Barla, P. (2007). ISO 14001 certification and environmental performance in Quebec's pulp and paper industry. *Journal of Environmental Economics and Management*, *53*(3), 291–306. https://doi.org/10.1016/j.jeem.2006.10.004

Başaran, B. (2018). Integrated Management Systems and Sustainable Development. In L. D. Kounis (Ed.), *Quality Management Systems - a Selective Presentation of Case-studies Showcasing Its Evolution.* InTech. https://doi.org/10.5772/intechopen.71468

Bastas, A., & Liyanage, K. (2019). Integrated quality and supply chain management business diagnostics for organizational sustainability improvement. *Sustainable Production and Consumption*, *17*, 11–30. https://doi.org/10.1016/j.spc.2018.09.001

Beckmerhagen, I. A., Berg, H. P., Karapetrovic, S. V., & Willborn, W. O. (2003). Integration of management systems: focus on safety in the nuclear industry. *International Journal of Quality & Reliability Management*, *20*(2), 210–228. https://doi.org/10.1108/02656710310456626

Benner, M. J., & Veloso, F. M. (2008). ISO 9000 practices and financial performance: A technology coherence perspective. *Journal of Operations Management*, *26*(5), 611–629. https://doi.org/10.1016/j.jom.2007.10.005

Bernardo, M. (2014). Integration of management systems as an innovation: a proposal for a new model. *Journal of Cleaner Production*, *82*, 132–142. https://doi.org/10.1016/j.jclepro.2014.06.089

Bernardo, M., Casadesus, M., Karapetrovic, S., & Heras, I. (2012a). Do integration difficulties influence management system integration levels? *Journal of Cleaner Production*, *21*(1), 23–33. https://doi.org/10.1016/j.jclepro.2011.09.008

Bernardo, M., Casadesus, M., Karapetrovic, S., & Heras, I. (2012b). Integration of standardized management systems: does the implementation order matter? *International Journal of Operations & Production Management*, *32*(3), 291–307. https://doi.org/10.1108/01443571211212583

Bernardo, M., Gianni, M., Gotzamani, K., & Simon, A. (2017). Is there a common pattern to integrate multiple management systems? A comparative analysis between

organizations in Greece and Spain. *Journal of Cleaner Production*, *151*, 121–133. https://doi.org/10.1016/j.jclepro.2017.03.036

Bernardo, M., Simon, A., Tarí, J. J., & Molina-Azorín, J. F. (2015). Benefits of management systems integration: a literature review. *Journal of Cleaner Production*, *94*, 260–267. https://doi.org/10.1016/j.jclepro.2015.01.075

Boiral, O., Guillaumie, L., Heras-Saizarbitoria, I., & Tayo Tene, C. V. (2018). Adoption and Outcomes of ISO 14001: A Systematic Review. *International Journal of Management Reviews*, *20*(2), 411–432. https://doi.org/10.1111/ijmr.12139

Bolt, J., Inklaar, R., de Jong, H., & van Zanden, J. L. (2018). *Rebasing 'Maddison': new income comparisons and the shape of long-run economic development*. https://www.rug.nl/ggdc/html_publications/memorandum/gd174.pdf

Bu, M., Qiao, Z., & Liu, B. (2020). Voluntary environmental regulation and firm innovation in China. *Economic Modelling*, *89*, 10–18. https://doi.org/10.1016/j.econmod.2019.12.020

Burritt, R. L., & Schaltegger, S. (2010). Sustainability accounting and reporting: fad or trend? *Accounting, Auditing & Accountability Journal*, *23*(7), 829–846. https://doi.org/10.1108/09513571011080144

Casadesús, M., & Karapetrovic, S. (2005). Has ISO 9000 lost some of its lustre? A longitudinal impact study. *International Journal of Operations & Production Management*, *25*(6), 580–596. https://doi.org/10.1108/01443570510599737

Casadesús, M., Karapetrovic, S., & Heras, I. (2011). Synergies in standardized management systems: some empirical evidence. *The TQM Journal*, *23*(1), 73–86. https://doi.org/10.1108/17542731111097506

Cazeri, G. T., Anholon, R., Da Silva, D., Cooper Ordoñez, R. E., Gonçalves Quelhas, O. L., Filho, W. L., & Santa-Eulalia, L. A. de (2018). An assessment of the integration between corporate social responsibility practices and management systems in Brazil

aiming at sustainability in enterprises. *Journal of Cleaner Production*, *182*, 746–754. https://doi.org/10.1016/j.jclepro.2018.02.023

Clementino, E., & Perkins, R. (2020). How Do Companies Respond to Environmental, Social and Governance (ESG) ratings? Evidence from Italy. *Journal of Business Ethics.* Advance online publication. https://doi.org/10.1007/s10551-020-04441-4

Cooper, H. M. (1988). Organizing knowledge syntheses: A taxonomy of literature reviews. *Knowledge in Society*, *1*(1), 104–126. https://doi.org/10.1007/BF03177550

Corbett, C. J., Montes-Sancho, M. J., & Kirsch, D. A. (2005). The Financial Impact of ISO 9000 Certification in the United States: An Empirical Analysis. *Management Science*, *51*(7), 1046–1059. https://doi.org/10.1287/mnsc.1040.0358

Cowell, J. M. (2012). Literature reviews as a research strategy. *The Journal of School Nursing : The Official Publication of the National Association of School Nurses*, *28*(5), 326–327. https://doi.org/10.1177/1059840512458666

Cronin, P., Ryan, F., & Coughlan, M. (2008). Undertaking a literature review: A step-by-step approach. *British Journal of Nursing (Mark Allen Publishing)*, *17*(1), 38–43. https://doi.org/10.12968/bjon.2008.17.1.28059

Crowder, M. (2013). Quality standards: integration within a bereavement environment. *The TQM Journal*, *25*(1), 18–28. https://doi.org/10.1108/17542731311286405

Curkovic, S., Sroufe, R., & Melnyk, S. (2005). Identifying the factors which affect the decision to attain ISO 14000. *Energy*, *30*(8), 1387–1407. https://doi.org/10.1016/j.energy.2004.02.016

Dahlsrud, A. (2008). How corporate social responsibility is defined: an analysis of 37 definitions. *Corporate Social Responsibility and Environmental Management*, *15*(1), 1–13. https://doi.org/10.1002/csr.132

D'Amato, D., Droste, N., Allen, B., Kettunen, M., Lähtinen, K., Korhonen, J., Leskinen, P., Matthies, B. D., & Toppinen, A. (2017). Green, circular, bio economy: A comparative

analysis of sustainability avenues. *Journal of Cleaner Production*, *168*, 716–734. https://doi.org/10.1016/j.jclepro.2017.09.053

de Nadae, J., & Carvalho, M. M. (2019). Integrated management systems as a driver for sustainability: the review and analysis of the literature and the proposition of the conceptual framework. *Production*, *29*, Article e20180048. https://doi.org/10.1590/0103-6513.20180048

de Nadae, J., Carvalho, M. M., & Vieira, D. R. (2019). Exploring the influence of environmental and social standards in integrated management systems on economic performance of firms. *Journal of Manufacturing Technology Management*, *30*(5), 840–861. https://doi.org/10.1108/JMTM-06-2018-0190

de Nadae, J., Carvalho, M. M., & Vieira, D. R. (2021). Integrated management systems as a driver of sustainability performance: exploring evidence from multiple-case studies. *International Journal of Quality & Reliability Management*, *38*(3), 800–821. https://doi.org/10.1108/IJQRM-12-2019-0386

Denscombe, M. (2010). *The good research guide: For small-scale social research projects* (4. ed.). *Open up study skills*. Open University Press.

Dick, G. P., Heras, I., & Casadesús, M. (2008). Shedding light on causation between ISO 9001 and improved business performance. *International Journal of Operations & Production Management*, *28*(7), 687–708. https://doi.org/10.1108/01443570810881811

Domingues, J., Sampaio, P., & Arezes, P. M. (2015). Analysis of integrated management systems from various perspectives. *Total Quality Management & Business Excellence*, *26*(11-12), 1311–1334. https://doi.org/10.1080/14783363.2014.931064

Douglas, A., & Glen, D. (2000). Integrated management systems in small and medium enterprises. *Total Quality Management*, *11*(4-6), 686–690. https://doi.org/10.1080/09544120050008075

Durach, C. F., Kembro, J., & Wieland, A. (2017). A New Paradigm for Systematic Literature Reviews in Supply Chain Management. *Journal of Supply Chain Management*, *53*(4), 67–85. https://doi.org/10.1111/jscm.12145

Edgeman, R. L. (1998). Principle-centered leadership and core value deployment. *The TQM Magazine*, *10*(3), 190–193. https://doi.org/10.1108/09544789810214783

Edwards, C. A. (1989). The importance of integration in sustainable agricultural systems. *Agriculture, Ecosystems & Environment*, *27*(1-4), 25–35. https://doi.org/10.1016/0167-8809(89)90069-8

Elkington, J. (1998). Partnerships fromcannibals with forks: The triple bottom line of 21st-century business. *Environmental Quality Management*, *8*(1), 37–51. https://doi.org/10.1002/tqem.3310080106

Engert, S., Rauter, R., & Baumgartner, R. J. (2016). Exploring the integration of corporate sustainability into strategic management: a literature review. *Journal of Cleaner Production*, *112*, 2833–2850. https://doi.org/10.1016/j.jclepro.2015.08.031

Erauskin-Tolosa, A., Zubeltzu-Jaka, E., Heras-Saizarbitoria, I., & Boiral, O. (2020). ISO 14001, EMAS and environmental performance: A meta-analysis. *Business Strategy and the Environment*, *29*(3), 1145–1159. https://doi.org/10.1002/bse.2422

Ertz, M., & Leblanc-Proulx, S. (2018). Sustainability in the collaborative economy: A bibliometric analysis reveals emerging interest. *Journal of Cleaner Production*, *196*, 1073–1085. https://doi.org/10.1016/j.jclepro.2018.06.095

Esquer-Peralta, J., Velazquez, L., & Munguia, N. (2008). Perceptions of core elements for sustainability management systems (SMS). *Management Decision*, *46*(7), 1027–1038. https://doi.org/10.1108/00251740810890195

Farmaki, A. (2019). Corporate social responsibility in hotels: a stakeholder approach. *International Journal of Contemporary Hospitality Management*, *31*(6), 2297–2320. https://doi.org/10.1108/IJCHM-03-2018-0199

Fasoulis, & Rafet (2019). Embracing Sustainability in Shipping: Assessing Industry's Adaptations Incited by the, Newly, Introduced 'triple bottom line' Approach to Sustainable Maritime Development. *Social Sciences*, *8*(7), 208. https://doi.org/10.3390/socsci8070208

Feng, M., Terziovski, M., & Samson, D. (2007). Relationship of ISO 9001:2000 quality system certification with operational and business performance. *Journal of Manufacturing Technology Management*, *19*(1), 22–37. https://doi.org/10.1108/17410380810843435

Fischl, M., Scherrer-Rathje, M., & Friedli, T. (2014). Digging deeper into supply risk: a systematic literature review on price risks. *Supply Chain Management: An International Journal*, *19*(5/6), 480–503. https://doi.org/10.1108/SCM-12-2013-0474

Fisher, J., & Bonn, I. (2011). Business sustainability and undergraduate management education: an Australian study. *Higher Education*, *62*(5), 563–571. https://doi.org/10.1007/s10734-010-9405-8

Fresner, J., & Engelhardt, G. (2004). Experiences with integrated management systems for two small companies in Austria. *Journal of Cleaner Production*, *12*(6), 623–631. https://doi.org/10.1016/j.jclepro.2003.09.013

Frishammar, J., & Parida, V. (2019). Circular Business Model Transformation: A Roadmap for Incumbent Firms. *California Management Review*, *61*(2), 5–29. https://doi.org/10.1177/0008125618811926

Galuppo, L., Kajamaa, A., Ivaldi, S., & Scaratti, G. (2019). Translating Sustainability into Action: A Management Challenge in FabLabs. *Sustainability*, *11*(6), 1676. https://doi.org/10.3390/su11061676

Garcia, S., Cintra, Y., Torres, R. d. C. S., & Lima, F. G. (2016). Corporate sustainability management: a proposed multi-criteria model to support balanced decision-making.

Journal of Cleaner Production, *136*, 181–196. https://doi.org/10.1016/j.jclepro.2016.01.110

Gavronski, I., Ferrer, G., & Paiva, E. L. (2008). ISO 14001 certification in Brazil: motivations and benefits. *Journal of Cleaner Production*, *16*(1), 87–94. https://doi.org/10.1016/j.jclepro.2006.11.002

Geissdoerfer, M., Savaget, P., Bocken, N. M., & Hultink, E. J. (2017). The Circular Economy – A new sustainability paradigm? *Journal of Cleaner Production*, *143*, 757–768. https://doi.org/10.1016/j.jclepro.2016.12.048

Gianni, M., & Gotzamani, K. (2020). Extrovert integrated management systems. *The TQM Journal*, *ahead-of-print*(ahead-of-print). https://doi.org/10.1108/TQM-12-2019-0294

Gianni, M., Gotzamani, K., & Tsiotras, G. (2017). Multiple perspectives on integrated management systems and corporate sustainability performance. *Journal of Cleaner Production*, *168*, 1297–1311. https://doi.org/10.1016/j.jclepro.2017.09.061

Glac, K. (2015). Triple Bottom Line. In C. L. Coper (Ed.), *Wiley Encyclopedia of Management* (pp. 1–2). John Wiley & Sons, Ltd. https://doi.org/10.1002/9781118785317.weom020216

Gotzamani, K. D., & Tsiotras, G. D. (2002). The true motives behind ISO 9000 certification. *International Journal of Quality & Reliability Management*, *19*(2), 151–169. https://doi.org/10.1108/02656710210413499

Griffith, A. (2000). Integrated management systems: a single management system solution for project control? *Engineering, Construction and Architectural Management*, *7*(3), 232–240. https://doi.org/10.1108/eb021148

Griffith, A. (2011). Fulfilling Contractors' Corporate Social Responsibilities using Standards-Based Management Systems. *International Journal of Construction Management*, *11*(2), 37–47. https://doi.org/10.1080/15623599.2011.10773167

Griffith, A., & Bhutto, K. (2009). Better environmental performance. *Management of Environmental Quality: An International Journal*, *20*(5), 566–580. https://doi.org/10.1108/14777830910981230

Hahn, T., Pinkse, J., Preuss, L., & Figge, F. (2015). Tensions in Corporate Sustainability: Towards an Integrative Framework. *Journal of Business Ethics*, *127*(2), 297–316. https://doi.org/10.1007/s10551-014-2047-5

Hamidi, N., Omidvari, M., & Meftahi, M. (2012). The effect of integrated management system on safety and productivity indices: Case study; Iranian cement industries. *Safety Science*, *50*(5), 1180–1189. https://doi.org/10.1016/j.ssci.2012.01.004

Hart, C. (2005). *Doing a literature review: Releasing the social science research imagination* (Reprinted.). Sage.

Hassan, N. A., Mohammad Zailani, S. H., & Abu Hasan, H. (2021). National Law in the Era of Industrial Revolution 4.0. *Pertanika Journal of Social Sciences and Humanities*, *29*(S2). https://doi.org/10.47836/pjssh.29.S2.16

Hediger, W. (1999). Reconciling “weak” and “strong” sustainability. *International Journal of Social Economics*, *26*(7/8/9), 1120–1144. https://doi.org/10.1108/03068299910245859

Heras-Saizarbitoria, I., & Boiral, O. (2013). ISO 9001 and ISO 14001: Towards a Research Agenda on Management System Standards *International Journal of Management Reviews*, *15*(1), 47–65. https://doi.org/10.1111/j.1468-2370.2012.00334.x

Hernandez-Vivanco, A., Bernardo, M., & Cruz-Cázares, C. (2018). Sustainable innovation through management systems integration. *Journal of Cleaner Production*, *196*, 1176–1187. https://doi.org/10.1016/j.jclepro.2018.06.052

Høgevold, N. M., Svensson, G., Klopper, H. B., Wagner, B., Valera, J. C. S., Padin, C., Ferro, C., & Petzer, D. (2015). A triple bottom line construct and reasons for implementing sustainable business practices in companies and their business

networks. *Corporate Governance*, *15*(4), 427–443. https://doi.org/10.1108/CG-11-2014-0134

Holm, T., Vuorisalo, T., & Sammalisto, K. (2015). Integrated management systems for enhancing education for sustainable development in universities: a memetic approach. *Journal of Cleaner Production*, *106*, 155–163. https://doi.org/10.1016/j.jclepro.2014.03.048

Hubbard, G. (2009). Measuring organizational performance: beyond the triple bottom line. *Business Strategy and the Environment*, *18*(3), 177–191. https://doi.org/10.1002/bse.564

International Resource Panel. (2019). *Global Resources Outlook 2019: Natural Resources for the Future We Want*. Nairobi, Kenya. A Report of the International Resource Panel. United Nations Environment Programme.

Ionescu, G., Firoiu, D., Pîrvu, R., Bădîrcea, R., & Drăgan, C. (2018). Implementation of Integrated Management Systems and Corporate Social Responsibility Initiatives—A Romanian Hospitality Industry Perspective. *Sustainability*, *10*(10), 3684. https://doi.org/10.3390/su10103684

Isaksson, R. (2006). Total quality management for sustainable development. *Business Process Management Journal*, *12*(5), 632–645. https://doi.org/10.1108/14637150610691046

ISO. (2020). *ISO Survey 2019 results - Number of certificates and sites per country and the number of sector overall.* International Organization for Standardization. https://isotc.iso.org/livelink/livelink?func=ll&objId=18808772&objAction=browse&viewType=1

Jang, W.-Y., & Lin, C.-I. (2008). An integrated framework for ISO 9000 motivation, depth of ISO implementation and firm performance. *Journal of Manufacturing Technology Management*, *19*(2), 194–216. https://doi.org/10.1108/17410380810847918

Jørgensen, T. H. (2008). Towards more sustainable management systems: through life cycle management and integration. *Journal of Cleaner Production*, *16*(10), 1071–1080. https://doi.org/10.1016/j.jclepro.2007.06.006

Jørgensen, T. H., Remmen, A., & Mellado, M. D. (2006). Integrated management systems – three different levels of integration. *Journal of Cleaner Production*, *14*(8), 713–722. https://doi.org/10.1016/j.jclepro.2005.04.005

Karapetrovic, S. (2002). Strategies for the integration of management systems and standards. *The TQM Magazine*, *14*(1), 61–67. https://doi.org/10.1108/09544780210414254

Karapetrovic, S. (2003). Musings on integrated management systems. *Measuring Business Excellence*, *7*(1), 4–13. https://doi.org/10.1108/13683040310466681

Karapetrovic, S., & Casadesús, M. (2009). Implementing environmental with other standardized management systems: Scope, sequence, time and integration. *Journal of Cleaner Production*, *17*(5), 533–540. https://doi.org/10.1016/j.jclepro.2008.09.006

Karapetrovic, S., & Jonker, J. (2003). Integration of standardized management systems: Searching for a recipe and ingredients. *Total Quality Management & Business Excellence*, *14*(4), 451–459. https://doi.org/10.1080/1478336032000047264

Kauppila, O., Härkönen, J., & Väyrynen, S. (2015). Integrated HSEQ Management Systems: Developments and Trends. *International Journal for Quality Research*, *9*(2), 231–242.

Khanna, H. K., Laroiya, S. C., & Sharma, D. D. (2010). Integrated management systems in Indian manufacturing organizations. *The TQM Journal*, *22*(6), 670–686. https://doi.org/10.1108/17542731011085339

Kleine, A., & Hauff, M. von (2009). Sustainability-Driven Implementation of Corporate Social Responsibility: Application of the Integrative Sustainability Triangle. *Journal of Business Ethics*, *85*(S3), 517–533. https://doi.org/10.1007/s10551-009-0212-z

Klute-Wenig, S., & Refflinghaus, R. (2015). Integrating sustainability aspects into an integrated management system. *The TQM Journal*, *27*(3), 303–315. https://doi.org/10.1108/TQM-12-2013-0128

Lewandowski, M. (2016). Designing the Business Models for Circular Economy—Towards the Conceptual Framework. *Sustainability*, *8*(1), 43. https://doi.org/10.3390/su8010043

Link, S., & Naveh, E. (2006). Standardization and Discretion: Does the Environmental Standard ISO 14001 Lead to Performance Benefits? *IEEE Transactions on Engineering Management*, *53*(4), 508–519. https://doi.org/10.1109/TEM.2006.883704

Llonch, M., Bernardo, M., & Presas, P. (2018). A case study of a simultaneous integration in an SME. *International Journal of Quality & Reliability Management*, *35*(2), 319–334. https://doi.org/10.1108/IJQRM-11-2016-0193

Lo, L. K., & Chang, D. S. (2007). The difference in the perceived benefits between firms that maintain ISO certification and those that do not. *International Journal of Production Research*, *45*(8), 1881–1897. https://doi.org/10.1080/00207540600733709

Lozano, R. (2012). Towards better embedding sustainability into companies' systems: an analysis of voluntary corporate initiatives. *Journal of Cleaner Production*, *25*, 14–26. https://doi.org/10.1016/j.jclepro.2011.11.060

Lozano, R. (2020). Analysing the use of tools, initiatives, and approaches to promote sustainability in corporations. *Corporate Social Responsibility and Environmental Management*, *27*(2), 982–998. https://doi.org/10.1002/csr.1860

Luk, C.-L., Yau, O. H., Tse, A. C., Sin, L. Y., & Chow, R. P. (2005). Stakeholder Orientation and Business Performance: The Case of Service Companies in China. *Journal of International Marketing*, *13*(1), 89–110. https://doi.org/10.1509/jimk.13.1.89.58536

Magd, H., & Curry, A. (2003). An empirical analysis of management attitudes towards ISO 9001:2000 in Egypt. *The TQM Magazine*, *15*(6), 381–390. https://doi.org/10.1108/09544780310502714

Magd, H. A. (2008). ISO 9001:2000 in the Egyptian manufacturing sector: perceptions and perspectives. *International Journal of Quality & Reliability Management*, *25*(2), 173–200. https://doi.org/10.1108/02656710810846934

Mahesh, B. P., & Kumar, U. N. (2016). Study and Development of Quality Management System for Educational Institutions. *International Journal of Engineering Research and Advanced Technology*, *2*(1), 577–585.

Manders, B., Vries, H. J. de, & Blind, K. (2016). ISO 9001 and product innovation: A literature review and research framework. *Technovation*, *48-49*, 41–55. https://doi.org/10.1016/j.technovation.2015.11.004

Martí-Ballester, C. P., & Simon, A. (2017). Union is strength. *Management Decision*, *55*(1), 81–102. https://doi.org/10.1108/MD-09-2015-0414

Martínez-Costa, M., Martínez-Lorente, A. R., & Choi, T. Y. (2008). Simultaneous consideration of TQM and ISO 9000 on performance and motivation: An empirical study of Spanish companies. *International Journal of Production Economics*, *113*(1), 23–39. https://doi.org/10.1016/j.ijpe.2007.02.046

Martínez-Costa, M., & Martínez-Lorente, Á. R. (2007). A triple analysis of ISO 9000 effects on company performance. *International Journal of Productivity and Performance Management*, *56*(5/6), 484–499. https://doi.org/10.1108/17410400710757150

Matias, J. C. d. O., & Coelho, D. A. (2002). The integration of the standards systems of quality management, environmental management and occupational health and safety management. *International Journal of Production Research*, *40*(15), 3857–3866. https://doi.org/10.1080/00207540210155828

Mcadam, R. (1999). Life after ISO 9000: An analysis of the impact of ISO 9000 and total quality management on small businesses in Northern Ireland. *Total Quality Management*, *10*(2), 229–241. https://doi.org/10.1080/0954412997974

McDonald, M., Mors, T. A., & Phillips, A. (2003). Management System Integration: Can It Be Done? *Quality Progress*, *36*, 67–74.

Mežinska, I., Lapiņa, I., & Mazais, J. (2015). Integrated management systems towards sustainable and socially responsible organisation. *Total Quality Management & Business Excellence*, *26*(5-6), 469–481. https://doi.org/10.1080/14783363.2013.835899

Milne, M. J., & Gray, R. (2013). W(h)ither Ecology? The Triple Bottom Line, the Global Reporting Initiative, and Corporate Sustainability Reporting. *Journal of Business Ethics*, *118*(1), 13–29. https://doi.org/10.1007/s10551-012-1543-8

Mohamad, F., Abdullah, N. H., Mohammad, M., & Kamaruddin, N. K. (2014). Management Systems Integration for Organizational Sustainability: Quality, Environmental, Occupational Health and Safety, and Energy. *Applied Mechanics and Materials*, *465-466*, 1155–1159. https://doi.org/10.4028/www.scientific.net/AMM.465-466.1155

Montobbio, F., & Solito, I. (2018). Does the Eco-Management and Audit Scheme Foster Innovation in European Firms? *Business Strategy and the Environment*, *27*(1), 82–99. https://doi.org/10.1002/bse.1986

Motta Barbosa, L. C. F., Oliveira, O. J. d., & Santos, G. (2018). Proposition FOR THE ALIGNMENT OF THE INTEGRATED MANAGEMENT SYSTEM (QUALITY, ENVIRONMENTAL AND SAFETY) WITH THE BUSINESS STRATEGY. Advance online publication. https://doi.org/10.18421/IJQR12.04-09 (International Journal for Quality Research; Vol 12, No 4, 2018. ISSN 1800-6450 / International Journal for Quality Research; Vol 12, No 4, 2018. ISSN 1800-6450).

Mustapha, M. A., Manan, Z. A., & Wan Alwi, S. R. (2017). Sustainable Green Management System (SGMS) – An integrated approach towards organisational sustainability. *Journal of Cleaner Production*, *146*, 158–172. https://doi.org/10.1016/j.jclepro.2016.06.033

Nawaz, W., & Koç, M. (2018). Development of a systematic framework for sustainability management of organizations. *Journal of Cleaner Production*, *171*, 1255–1274. https://doi.org/10.1016/j.jclepro.2017.10.011

Nightingale, A. (2009). A guide to systematic literature reviews. *Surgery (Oxford)*, *27*(9), 381–384. https://doi.org/10.1016/j.mpsur.2009.07.005

Nunhes, T. V., Bernardo, M., & Oliveira, O. J. d. (2020). Rethinking the Way of Doing Business: A Reframe of Management Structures for Developing Corporate Sustainability. *Sustainability*, *12*(3), 1177. https://doi.org/10.3390/su12031177

Nunhes, T. V., Motta Barbosa, L. C. F., & Oliveira, O. J. d. (2016). Evolution of integrated management systems research on the Journal of Cleaner Production: Identification of contributions and gaps in the literature. *Journal of Cleaner Production*, *139*, 1234–1244. https://doi.org/10.1016/j.jclepro.2016.08.159

Nunhes, T. V., Motta Barbosa, L. C. F., & Oliveira, O. J. de (2017). Identification and analysis of the elements and functions integrable in integrated management systems. *Journal of Cleaner Production*, *142*, 3225–3235. https://doi.org/10.1016/j.jclepro.2016.10.147

Okoli, C. (2015). A Guide to Conducting a Standalone Systematic Literature Review. *Communications of the Association for Information Systems*, *37*, 879–910. https://doi.org/10.17705/1CAIS.03743

Oskarsson, K., & Malmborg, F. von (2005). Integrated management systems as a corporate response to sustainable development. *Corporate Social Responsibility and Environmental Management*, *12*(3), 121–128. https://doi.org/10.1002/csr.78

Osterrieder, P., Budde, L., & Friedli, T. (2020). The smart factory as a key construct of industry 4.0: A systematic literature review. *International Journal of Production Economics*, *221*, 107476. https://doi.org/10.1016/j.ijpe.2019.08.011

Padma, P., Ganesh, L. S., & Rajendran, C. (2008). A study on the ISO 14000 certification and organizational performance of Indian manufacturing firms. *Benchmarking: An International Journal*, *15*(1), 73–100. https://doi.org/10.1108/14635770810854353

Pan, J.-N. (2003). A comparative study on motivation for and experience with ISO 9000 and ISO 14000 certification among Far Eastern countries. *Industrial Management & Data Systems*, *103*(8), 564–578. https://doi.org/10.1108/02635570310497611

Papagiannakis, G., Voudouris, I., Lioukas, S., & Kassinis, G. (2019). Environmental management systems and environmental product innovation: The role of stakeholder engagement. *Business Strategy and the Environment*, *28*(6), 939–950. https://doi.org/10.1002/bse.2293

Poltronieri, C. F., Ganga, G. M. D., & Gerolamo, M. C. (2019). Maturity in management system integration and its relationship with sustainable performance. *Journal of Cleaner Production*, *207*, 236–247. https://doi.org/10.1016/j.jclepro.2018.09.250

Poltronieri, C. F., Gerolamo, M. C., Dias, T. C. M., & Carpinetti, L. C. R. (2018). Instrument for evaluating IMS and sustainable performance. *International Journal of Quality & Reliability Management*, *35*(2), 373–386. https://doi.org/10.1108/IJQRM-11-2016-0194

Potoski, M., & Prakash, A. (2005). Covenants with weak swords: ISO 14001 and facilities' environmental performance. *Journal of Policy Analysis and Management*, *24*(4), 745–769. https://doi.org/10.1002/pam.20136

Rahman, H. U., Zahid, M., & Muhammad, A. (2021). Connecting integrated management system with corporate sustainability and firm performance: from the Malaysian real estate and construction industry perspective. *Environment, Development and*

Sustainability. Advance online publication. https://doi.org/10.1007/s10668-021-01538-2

Rajesh, R. (2020). Exploring the sustainability performances of firms using environmental, social, and governance scores. *Journal of Cleaner Production*, *247*, 119600. https://doi.org/10.1016/j.jclepro.2019.119600

Rebelo, M. F., Santos, G., & Silva, R. (2014a). Conception of a flexible integrator and lean model for integrated management systems. *Total Quality Management & Business Excellence*, *25*(5-6), 683–701. https://doi.org/10.1080/14783363.2013.835616

Rebelo, M. F., Santos, G., & Silva, R. (2014b). A generic model for integration of Quality, Environment and Safety Management Systems. *The TQM Journal*, *26*(2), 143–159. https://doi.org/10.1108/TQM-08-2012-0055

Rebelo, M. F., Santos, G., & Silva, R. (2015). Integration of Standardized Management Systems: A Dilemma? *Systems*, *3*(2), 45–59. https://doi.org/10.3390/systems3020045

Rebelo, M. F., Santos, G., & Silva, R. (2016). Integration of management systems: towards a sustained success and development of organizations. *Journal of Cleaner Production*, *127*, 96–111. https://doi.org/10.1016/j.jclepro.2016.04.011

Rebelo, M. F., Silva, R., Santos, G., & Mendes, P. (2016). Model based integration of management systems (MSs) – case study. *The TQM Journal*, *28*(6), 907–932. https://doi.org/10.1108/TQM-09-2014-0079

Renzi, M. F., & Cappelli, L. (2000). Integration between ISO 9000 and ISO 14000: Opportunities and limits. *Total Quality Management*, *11*(4-6), 849–856. https://doi.org/10.1080/09544120050008318

Roca, L. C., & Searcy, C. (2012). An analysis of indicators disclosed in corporate sustainability reports. *Journal of Cleaner Production*, *20*(1), 103–118. https://doi.org/10.1016/j.jclepro.2011.08.002

Rocha, M., Searcy, C., & Karapetrovic, S. (2007). Integrating Sustainable Development into Existing Management Systems. *Total Quality Management & Business Excellence*, *18*(1-2), 83–92. https://doi.org/10.1080/14783360601051594

Rodgers, B. L., & Knafl, K. A. (2000). *Concept Development in Nursing: Foundations, Techniques, and Applications* (2nd ed). Saunders.

Rodríguez-Escobar, J. A., Martínez-Lorente, R. A., & Gonzalez-Benito, J. (2006). An analysis of the degree of small companies' dissatisfaction with ISO 9000 certification. *Total Quality Management & Business Excellence*, *17*(4), 507–521. https://doi.org/10.1080/14783360500528304

Russo, M. V. (2009). Explaining the impact of ISO 14001 on emission performance: a dynamic capabilities perspective on process and learning. *Business Strategy and the Environment*, *18*(5), 307–319. https://doi.org/10.1002/bse.587

Salomone, R. (2008). Integrated management systems: experiences in Italian organizations. *Journal of Cleaner Production*, *16*(16), 1786–1806. https://doi.org/10.1016/j.jclepro.2007.12.003

Salzmann, O., Ionescu-somers, A., & Steger, U. (2005). The Business Case for Corporate Sustainability. *European Management Journal*, *23*(1), 27–36. https://doi.org/10.1016/j.emj.2004.12.007

Sampaio, P., Saraiva, P., & Domingues, P. (2012). Management systems: integration or addition? *International Journal of Quality & Reliability Management*, *29*(4), 402–424. https://doi.org/10.1108/02656711211224857

Sampaio, P., Saraiva, P., & Guimarães Rodrigues, A. (2009). ISO 9001 certification research: questions, answers and approaches. *International Journal of Quality & Reliability Management*, *26*(1), 38–58. https://doi.org/10.1108/02656710910924161

Samy, G. M., Samy, C. P., & Ammasaiappan, M. (2015). Integrated management systems for better environmental performance and sustainable development - A review. *Environmental Engineering and Management Journal*, *14*(5), 985–1000.

Samy, G. M., Samy, C. P., & Mohanraj, M. (2018). A Comprehensive Model and Holistic Approach for Implementing an Integrated Management Systems. *Journal of Computational and Theoretical Nanoscience*, *15*(1), 392–401. https://doi.org/10.1166/jctn.2018.7101

Sánchez, I. G., & Lauritzen, E. K. (2006). Irma: A European project for a sustainable City Concept. In Ü. Mander & C. A. Brebbia (Eds.), *WIT transactions on ecology and the environment: Vol. 93, The sustainable city IV: Urban regeneration and sustainability ; presented at the 4th International Conference on Urban Regeneration and Sustainability (The Sustainable City) which took place in Tallin, Estonia in 2006* (pp. 273–282). WIT Press. https://doi.org/10.2495/SC060261

Santos, G., Mendes, F., & Barbosa, J. (2011). Certification and integration of management systems: the experience of Portuguese small and medium enterprises. *Journal of Cleaner Production*, *19*(17-18), 1965–1974. https://doi.org/10.1016/j.jclepro.2011.06.017

Schaltegger, S., Beckmann, M., & Hansen, E. G. (2013). Corporate Sustainability Meets Transdisciplinarity. *Business Strategy and the Environment*, *22*(4), 217–218. https://doi.org/10.1002/bse.1770

Schulz, S. A., & Flanigan, R. L. (2016). Developing competitive advantage using the triple bottom line: a conceptual framework. *Journal of Business & Industrial Marketing*, *31*(4), 449–458. https://doi.org/10.1108/JBIM-08-2014-0150

Schylander, E., & Martinuzzi, A. (2007). ISO 14001 – experiences, effects and future challenges: a national study in Austria. *Business Strategy and the Environment*, *16*(2), 133–147. https://doi.org/10.1002/bse.473

Sharma, D. S. (2005). The association between ISO 9000 certification and financial performance. *The International Journal of Accounting*, *40*(2), 151–172. https://doi.org/10.1016/j.intacc.2005.01.011

Shillito, D. E. (1995). 'Grand Unification Theory' or should safety, health, environment and quality be managed together or separately? *Institution of Chemical Engineers*, *73*, 195–202.

Silva, C., Magano, J., Moskalenko, A., Nogueira, T., Dinis, M. A. P., & Pedrosa e Sousa, H. F. (2020). Sustainable Management Systems Standards (SMSS): Structures, Roles, and Practices in Corporate Sustainability. *Sustainability*, *12*(15), 5892. https://doi.org/10.3390/su12155892

Silvestri, A., Falcone, D., Di Bona, G., Forcina, A., & Gemmiti, M. (2021). Global Performance Index for Integrated Management System: Gpi-IMS. *International Journal of Environmental Research and Public Health*, *18*(13). https://doi.org/10.3390/ijerph18137156

Simon, A., Bernardo, M., Karapetrovic, S., & Casadesús, M. (2011). Integration of standardized environmental and quality management systems audits. *Journal of Cleaner Production*, *19*(17-18), 2057–2065. https://doi.org/10.1016/j.jclepro.2011.06.028

Simon, A., & Douglas, A. (2013). Integrating management systems: does the location matter? *International Journal of Quality & Reliability Management*, *30*(6), 675–689. https://doi.org/10.1108/02656711311325629

Simon, A., Karapetrovic, S., & Casadesús, M. (2012). Difficulties and benefits of integrated management systems. *Industrial Management & Data Systems*, *112*(5), 828–846. https://doi.org/10.1108/02635571211232406

Simon, A., Yaya, L. H. P., Karapetrovic, S., & Casadesús, M. (2014). An empirical analysis of the integration of internal and external management system audits. *Journal of Cleaner Production*, *66*, 499–506. https://doi.org/10.1016/j.jclepro.2013.11.020

Singels, J., Ruël, G., & van de Water, H. (2001). ISO 9000 series - Certification and performance. *International Journal of Quality & Reliability Management*, *18*(1), 62–75. https://doi.org/10.1108/02656710110364477

Singh, P. J. (2008). Empirical assessment of ISO 9000 related management practices and performance relationships. *International Journal of Production Economics*, *113*(1), 40–59. https://doi.org/10.1016/j.ijpe.2007.02.047

Singh, P. J., Feng, M., & Smith, A. (2006). ISO 9000 series of standards: comparison of manufacturing and service organisations. *International Journal of Quality & Reliability Management*, *23*(2), 122–142. https://doi.org/10.1108/02656710610640916

Siva, V., Gremyr, I., Bergquist, B., Garvare, R., Zobel, T., & Isaksson, R. (2016). The support of Quality Management to sustainable development: a literature review. *Journal of Cleaner Production*, *138*, 148–157. https://doi.org/10.1016/j.jclepro.2016.01.020

Souza, J. P. E., & Alves, J. M. (2018). Lean-integrated management system: A model for sustainability improvement. *Journal of Cleaner Production*, *172*, 2667–2682. https://doi.org/10.1016/j.jclepro.2017.11.144

Tan, L. P. (2005). Implementing ISO 14001: is it beneficial for firms in newly industrialized Malaysia? *Journal of Cleaner Production*, *13*(4), 397–404. https://doi.org/10.1016/j.jclepro.2003.12.002

Tarí, J. J., Molina-Azorín, J. F., & Heras, I. (2012). Benefits of the ISO 9001 and ISO 14001 standards: A literature review. *Journal of Industrial Engineering and Management*, *5*(2). https://doi.org/10.3926/jiem.488

Terziovski, M., Power, D., & Sohal, A. S. (2003). The longitudinal effects of the ISO 9000 certification process on business performance. *European Journal of Operational Research*, *146*(3), 580–595. https://doi.org/10.1016/S0377-2217(02)00252-7

United Nations. (2020). *Recover Better: Economic and Social Challenges and Opportunities.* United Nations Department of Economic and Social Affairs. https://www.un.org/development/desa/en/wp-content/uploads/2020/07/RECOVER_BETTER_0722-1.pdf

United Nations World Commission on Environment. (1987). *Report of the World Commission on Environment and Development: Our Common Future.* United Nations World Commission on Environment. https://digitallibrary.un.org/record/139811#record-files-collapse-header

van der Heijden, A., Driessen, P. P., & Cramer, J. M. (2010). Making sense of Corporate Social Responsibility: Exploring organizational processes and strategies. *Journal of Cleaner Production*, *18*(18), 1787–1796. https://doi.org/10.1016/j.jclepro.2010.07.024

vom Brocke, J., Simons, A., Niehaves, B., Reimer, K., Plattfaut, R., & Cleven, A. (2009). Reconstructing the Giant: On the Importance of Rigour in Documenting the Literature Search Process. *Paper Presented at the 17th European Conference on Information Systems (ECIS 2009), Verona, Italy*, 2206–2217. https://aisel.aisnet.org/ecis2009/161

Wahba, H. (2008). Does the market value corporate environmental responsibility? An empirical examination. *Corporate Social Responsibility and Environmental Management*, *15*(2), 89–99. https://doi.org/10.1002/csr.153

Wilkinson, G., & Dale, B. G. (1999). Integrated management systems: an examination of the concept and theory. *The TQM Magazine*, *11*(2), 95–104. https://doi.org/10.1108/09544789910257280

Wilkinson, G., & Dale, B. G. (2000). Management system standards: The key integration issues. *Proceedings of the Institution of Mechanical Engineers, Part B: Journal of*

Engineering Manufacture, *214*(9), 771–780. https://doi.org/10.1243/0954405001517838

Winder, C. (2000). Integrating OHS, environmental, and quality management standards. *Quality Assurance (San Diego, Calif.)*, *8*(2), 105–135. https://doi.org/10.1080/105294100317173880

Witjes, S., Vermeulen, W. J., & Cramer, J. M. (2017). Exploring corporate sustainability integration into business activities. Experiences from 18 small and medium sized enterprises in the Netherlands. *Journal of Cleaner Production*, *153*, 528–538. https://doi.org/10.1016/j.jclepro.2016.02.027

Wohlin, C. (2014). Guidelines for snowballing in systematic literature studies and a replication in software engineering. In M. Shepperd, T. Hall, & I. Myrtveit (Eds.), *Proceedings of the 18th International Conference on Evaluation and Assessment in Software Engineering - EASE '14* (pp. 1–10). ACM Press. https://doi.org/10.1145/2601248.2601268

Wright, T. (2000). IMS - three into one will go! The advantages of a single integrated quality, health and safety, and environmental management system. *The Quality Assurance Journal*, *4*(3), 137–142. https://doi.org/10.1002/1099-1786(200009)4:3%3C137::AID-QAJ110%3E3.0.CO;2-C

WWF. (2020). *Living Planet Report 2020: Bending the curve of biodiversity loss.* World Wide Fund For Nature (WWF). https://www.wwf.org.au/ArticleDocuments/390/doc_LPR20_Summary_pages_10Sept20.pdf.aspx

Yin, H., & Schmeidler, P. J. (2009). Why do standardized ISO 14001 environmental management systems lead to heterogeneous environmental outcomes? *Business Strategy and the Environment*, *18*(7), 469–486. https://doi.org/10.1002/bse.629

Zaramdini, W. (2007). An empirical study of the motives and benefits of ISO 9000 certification: the UAE experience. *International Journal of Quality & Reliability Management*, *24*(5), 472–491. https://doi.org/10.1108/02656710710748358

Zeng, S. X., Shi, J. J., & Lou, G. X. (2007). A synergetic model for implementing an integrated management system: an empirical study in China. *Journal of Cleaner Production*, *15*(18), 1760–1767. https://doi.org/10.1016/j.jclepro.2006.03.007

Zeng, S. X., Tam, V. W. Y., & Le, K. N. (2010). Towards Effectiveness of Integrated Management Systems for Enterprises. *Inzinerine Ekonomika-Engineering Economics*, *21*(2), 171–179.

Zeng, S. X., Tam, C. M., Tam, V. W., & Deng, Z. M. (2005). Towards implementation of ISO 14001 environmental management systems in selected industries in China. *Journal of Cleaner Production*, *13*(7), 645–656. https://doi.org/10.1016/j.jclepro.2003.12.009

Zeng, S. X., Xie, X. M., Tam, C. M., & Shen, L. Y. (2011). An empirical examination of benefits from implementing integrated management systems (IMS). *Total Quality Management & Business Excellence*, *22*(2), 173–186. https://doi.org/10.1080/14783363.2010.530797

Ziegler, A. (2015). Disentangling technological innovations: a micro-econometric analysis of their determinants. *Journal of Environmental Planning and Management*, *58*(2), 315–335. https://doi.org/10.1080/09640568.2013.855180

Zutshi, A., & Sohal, A. S. (2005). Integrated management system. *Journal of Manufacturing Technology Management*, *16*(2), 211–232. https://doi.org/10.1108/17410380510576840

TABLES

Table 1: Systematic Literature Review Procedure

Step	Procedure
1) Definition of the Research Question	The purpose and/or research question of the SLR are defined. This step was done in section 1.
2) Determination of Characteristics of Primary Studies	Inclusion and exclusion criteria are crafted. The criteria should focus on the quality and content of primary studies as well as reflect various aspects of the research purpose and questions.
3) Retrieve of a relevant Literature Sample	A baseline sample of potentially relevant literature is retrieved. Therefore, bibliographic databases are searched by introducing suitable combinations of keywords.
4) Selection of pertinent Literature	The inclusion and exclusion criteria are applied to the baseline sample, results are refined by new keywords, and duplicates are removed. By reading the title, abstract, and, subsequently, the full text of the remaining studies, the baseline sample is further reduced towards a synthesis sample. To include (almost) all relevant papers, the SLR guidelines proposed by Durach et al. (2017) are adjusted in the sense that relevant references found in the baseline sample are added to the selection of pertinent literature (snowballing).
5) Synthesis of Literature	The studies of the synthesis sample are analysed, summarized, and integrated. This step is presented in section 4.
6) Report of Results	The report of the results consists of a thematic analysis in the form of a table and written explanations. This step is presented in section 4.

Source: Adapted from Durach et al. (2017)

Table 2: Systematic Literature Review on the Relationship between Integrated Management Systems and Sustainability

Scope Definition							**Literature Search Process** (in July 2021)													
Inclusion: All publication years, all methdogologies							Date	Search performed in July 2021												
Exclusion: Document types restricted to articles, language restricted to English, Spanish, and German							Database	**Web of Science**					**Scopus**					**Emerald Insight**					
Topic Conceptualisation		**Integrated Management Systems**					Fields	topic					article title, abstract, keywords					abstract					
Sustainability		management system*	AND	integrat*	AND	("IMS" OR "integrated management system*")	Phases[1]	i	ii	iii	iv	v	i	ii	iii	iv	v	i	ii	iii	iv	v	**Total**
general keywords	sustainability							128	91	91	39	19	129	82	33	19	9	8	8	0	0	0	28
	triple bottom line							7	5	0	0	0	8	7	1	1	0	3	3	0	0	0	0
concepts at the corporate level	sustainable development							97	70	27	15	7	132	68	13	3	2	1	1	0	0	0	9
	corporate sustainab*							17	13	0	0	0	14	10	0	0	0	1	1	0	0	0	0
	corporate social responsibility		AND					41	30	7	5	2	27	19	5	3	0	2	2	0	0	0	2
concepts at the economic level	green economy							1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	bio economy							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	collaborative economy							0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	circular economy							3	2	0	0	0	2	1	0	0	0	0	0	0	0	0	0
																					sub-total		**39**
																					snowballing		5
																					final synthesis sample		**44**

[1] Phases: i) search result, ii) applying in-/exclusion criteria, iii) removing duplicates, iv) reading title & abstract, v) reading full paper

Source: Own elaboration

Table 3: Synthesis Sample Overview

Authors (Publication Year)	Journal	Research Characteristics				Main Findings	
		Type[1]	Sample	Method[2]	Country	Research Focus	Relationship[3]
Fresner and Engelhardt (2004)	Journal of Cleaner Production	E	n=2	CS	Austria	Medium	IMS → Sustain.
Oskarsson and Malmborg (2005)	Corporate Social Responsibility and Environmental Management	E	n=3	CS	Sweden	Strong	IMS → Sustain.
Jørgensen et al. (2006)	Journal of Cleaner Production	C	-	Traditional LR	-	Weak	IMS → Sustain.
Rocha et al. (2007)	Total Quality Management & Business Excellence	C	-	Traditional LR	-	Strong	IMS → Sustain.
Esquer-Peralta et al. (2008)[4]	Management Decision	E	n=14	Interviews	Mexico	Weak	IMS → Sustain.
Jørgensen (2008)[4]	Journal of Cleaner Production	E	n=1	CS	Denmark	Strong	IMS → Sustain.
Asif et al. (2011)	European Business Review	C	-	Traditional LR	-	Strong	IMS → Sustain.
Griffith (2011)	International Journal of Construction Management	C	-	Traditional LR	-	Medium	IMS → Sustain.
Asif et al. (2013)	Journal of Cleaner Production	C	-	Traditional LR	-	Medium	IMS → Sustain.
Rebelo et al. (2014a)	Total Quality Management & Business Excellence	E	n=1; n=42	CS based on Question.	Portugal	Medium	IMS → Sustain.
Rebelo et al. (2014b)	The TQM Journal	E	n=1; n=137	CS based on Question.	Portugal	Medium	IMS → Sustain.
Holm et al. (2015)	Journal of Cleaner Production	E	n=11	CS	-	Strong	IMS → Sustain.
Klute-Wenig and Refflinghaus (2015)	The TQM Journal	C	-	Traditional LR	-	Medium	*
Mežinska et al. (2015)	Total Quality Management & Business Excellence	E	n=26; n=10	Questionnaires (2x)	Latvia	Strong	IMS → Sustain.
Samy et al. (2015)	Environmental Engineering and Management Journal	C	-	Traditional LR	-	Weak	IMS → Sustain.
Aquilani et al. (2016)	Sustainability	C	n=22	Systematic LR	-	Weak	*
Nunhes et al. (2016)	Journal of Cleaner Production	C	n=30	Systematic LR	-	Medium	IMS → Sustain.
Rebelo, Santos, and Silva (2016)	Journal of Cleaner Production	E	n=1; n=42	CS based on Question.	Portugal	Strong	IMS → Sustain.
Rebelo, Silva, et al. (2016)	The TQM Journal	E	n=1	CS	Portugal	Medium	IMS → Sustain.
Siva et al. (2016)	Journal of Cleaner Production	C	n=69	Systematic LR	-	Weak	IMS → Sustain.
Bernardo et al. (2017)	Journal of Cleaner Production	E	n=6	CS	Spain & Greece	Weak	*
Gianni et al. (2017)	Journal of Cleaner Production	C	-	Traditional LR	-	Strong	IMS → Sustain.
Martí-Ballester and Simon (2017)	Management Decision	E	n=50	PLS Analysis	Spain	Medium	*
Mustapha et al. (2017)[4]	Journal of Cleaner Production	E	n=1	CS	Malaysia	Strong	*
Nunhes et al. (2017)[4]	Journal of Cleaner Production	E	n=14	CS	Brazil	Weak	*
Witjes et al. (2017)[4]	Journal of Cleaner Production	E	n=18	CS	Netherland	Weak	IMS → Sustain.

Cazeri et al. (2018)	Journal of Cleaner Production	E	n=48	Questionnaire	Brazil	Medium	IMS → Sustain.
Hernandez-Vivanco et al. (2018)	Journal of Cleaner Production	E	n=40	Questionnaire	Spain	Medium	*
Ionescu et al. (2018)	Sustainability	E	n=130	Questionnaire	Romania	Medium	*
Nawaz and Koç (2018)	Journal of Cleaner Production	C	n=44	Systematic LR	-	Strong	IMS → Sustain.
Poltronieri et al. (2018)	International Journal of Quality & Reliability Management	E	n=189	Questionnaire	Brazil	Strong	IMS → Sustain.
Samy et al. (2018)	Journal of Computational and Theoretical Nanoscience	C	-	Traditional LR	-	Weak	IMS → Sustain.
Souza and Alves (2018)	Journal of Cleaner Production	E	-	Action Research	Brazil	Strong	IMS → Sustain.
de Nadae and Carvalho (2019)	Production	C	n=1,010	Systematic LR	-	Medium	IMS → Sustain.
de Nadae et al. (2019)	Journal of Manufacturing Technology Management	E	n=253	Reports Analysis	Brazil	Medium	IMS → Sustain.
Fasoulis and Rafet (2019)	Social Sciences	E	n=50	Questionnaire	Global	Medium	IMS → Sustain.
Poltronieri et al. (2019)	Journal of Cleaner Production	E	n=96	Questionnaire	Brazil	Strong	IMS → Sustain.
Gianni and Gotzamani (2020)	The TQM Journal	E	n=280	Questionnaire	Greece	Medium	IMS → Sustain.
Lozano (2020)	Corporate Social Responsibility and Environmental Management	E	n=202	Questionnaire	Global	Medium	IMS → Sustain.
Nunhes et al. (2020)	Sustainability	C	n=30	Content Analysis	-	Medium	IMS → Sustain.
Silva et al. (2020)	Sustainability	E	n=4	CS	Portugal	Strong	IMS → Sustain.
de Nadae et al. (2021)	International Journal of Quality & Reliability Management	E	n=4	CS	Brazil	Strong	IMS → Sustain.
Hassan et al. (2021)	Social Sciences & Humanities	E	n=38	Meta-Analysis	-	Medium	IMS → Sustain.
Rahman et al. (2021)	Environment, Development and Sustainability	E	n=23	OLS / 2SLS	Malaysia	Strong	IMS → Sustain.

[1] E = Empirical, C = Conceptial; [2] CS = Case Study; [3] * = No Relationship stated; [4] Selected through Snowballing

Source: Own elaboration

Table 4: Synthesis of Future Research Questions

Knowledge Gap	Future Research Question	Guidance
Unfolding models in practice	1: Are recently developed IMS frameworks for fostering SD feasible, flawless, and effective in practice? 2: What are critically success factors for implementing IMS-centred sustainability models in practice?	Despite developing even more conceptually derived frameworks how IMS relates to CS, already existing models should be unfolded in practice. Case studies in multiple differing business environments might be a suitable research methodology. Further, such studies could deliver more insights on CSF (e.g. Aquilani et al., 2016), and internal/external factors conditioning IMS implementation and audit efficiency (e.g. Bernardo et al., 2017; Hassan et al., 2021).
Large-scale and cross-regional empirical analyses	How and to what extend does the integration of MSs impact firms' performance in the … 3: economic dimension 4: environmental dimension 5: social dimension … depending on the company location, size, and industry?	To verify current knowledge retrieved through studies with limited sample sizes, large-scale analyses are needed. To verify the impact of integration on the economic pillar, indicators like operating profits, ROA, and ROE are popular (e.g., de Nadae et al., 2019; Martí-Ballester & Simon, 2017). To evaluate CSP in the environmental and social pillar, ESG ratings represent accepted measurements (Rajesh, 2020). Biases related to country/region (e.g., Tan, 2005), company size (e.g., Poltronieri et al., 2019), and industry sector (e.g., de Nadae et al., 2019) must be explicitly taken into account.
IMS components and current/upcoming sustainability concerns	6: Which standards and systems should be incorporated into an IMS beyond QMS, EMS, and OHSMS in order to enhance its ability of fostering sustainability? 7: How must an IMS be designed in order to enable firms to overcome current/upcoming sustainability challenges of the 21st century?	Most IMS research considers QMS, EMS, and/or OHSMS. This seems reasonable considering the diffusion of MSSs (ISO, 2020). Nonetheless, also MSs surrounding topics like energy management, social responsibility, or sustainable procurement might be sustainability relevant IMS components. Especially in view of the 21st century's (upcoming) challenges.
IMS and sustainability-concepts at the economic level	8. How can IMS as business tool contribute to the adoption of economical sustainability approaches, such as the circular economy?	Concepts like the circular economy demand companies to rethink how they create, deliver and capture value (Frishammar & Parida, 2019; Lewandowski, 2016). In this context, IMS could be of great support when it comes to alignments with the business strategy (Motta Barbosa et al., 2018).

Source: Own elaboration

Table 5: Most highlighted MSs Benefits clustered by TBL Dimension

TBL Dimension	Benefits of MSs	References
Environmental	Environmental performance	Barla, 2007; Boiral et al., 2018; Gavronski et al., 2008; Potoski & Prakash, 2005; Russo, 2009; Tan, 2005; Yin & Schmeidler, 2009; Zeng et al., 2005
	Environmental innovation	Ann et al., 2006; Boiral et al., 2018; Bu et al., 2020; Erauskin-Tolosa et al., 2020; Manders et al., 2016; Montobbio & Solito, 2018; Papagiannakis et al., 2019; Ziegler, 2015
Economic	Profitability	Benner & Veloso, 2008; Corbett et al., 2005; Gavronski et al., 2008; Link & Naveh, 2006; Lo & Chang, 2007; Martínez-Costa et al., 2008; Sampaio et al., 2009; Wahba, 2008; Zaramdini, 2007; Zeng et al., 2005
	Market share	Askey & Malcolm, 1997; Casadesús & Karapetrovic, 2005; Jang & Lin, 2008; Lo & Chang, 2007; Pan, 2003; Rodríguez-Escobar et al., 2006; Sampaio et al., 2009; Singh, 2008; Zaramdini, 2007; Zeng et al., 2005
	Sales and sales growth	Arauz & Suzuki, 2004; Casadesús & Karapetrovic, 2005; Corbett et al., 2005; Dick et al., 2008; Link & Naveh, 2006; Martínez-Costa & Martínez-Lorente, 2007; Sharma, 2005; Singh et al., 2006; Terziovski et al., 2003
Social	Improved customer satisfaction (reduction in complaints, etc.)	Ann et al., 2006; Arauz & Suzuki, 2004; Casadesús & Karapetrovic, 2005; Gavronski et al., 2008; Gotzamani & Tsiotras, 2002; Lo & Chang, 2007; Martínez-Costa et al., 2008; Mcadam, 1999; Padma et al., 2008; Pan, 2003; Sampaio et al., 2009; Singels et al., 2001; Singh, 2008; Zaramdini, 2007
	Improvements in employee results (motivation, satisfaction, teams, communication, knowledge)	Arauz & Suzuki, 2004; Casadesús & Karapetrovic, 2005; Feng et al., 2007; Gavronski et al., 2008; Lo & Chang, 2007; H. A. Magd, 2008; H. Magd & Curry, 2003; Martínez-Costa et al., 2008; Padma et al., 2008; Pan, 2003; Rodríguez-Escobar et al., 2006; Tan, 2005; Zaramdini, 2007
	Improved relationships with suppliers	Arauz & Suzuki, 2004; Casadesús & Karapetrovic, 2005; Gavronski et al., 2008; Gotzamani & Tsiotras, 2002; Lo & Chang, 2007; Padma et al., 2008; Rodríguez-Escobar et al., 2006; Yin & Schmeidler, 2009; Zaramdini, 2007
	Improved relationships with authorities and other stakeholders	Ann et al., 2006; Bernardo et al., 2015; Boiral et al., 2018; Gavronski et al., 2008; Heras-Saizarbitoria & Boiral, 2013; H. Magd & Curry, 2003; Padma et al., 2008; Pan, 2003; Schylander & Martinuzzi, 2007; Tarí et al., 2012; Yin & Schmeidler, 2009; Zeng et al., 2005

Source: Own elaboration with adaptions from Bernardo et al. (2015) and Tarí et al. (2012)

Table 6: Most highlighted IMS Benefits clustered by TBL Dimension

TBL Dimension	IMS Benefits	References
Environmental	Increased environmental performance	Poltronieri et al., 2019
	Better allocation of resources	Salomone, 2008; Zeng et al., 2007; Zutshi & Sohal, 2005
	Better adoption of cleaner production technologies	Hernandez-Vivanco et al., 2018; Nunhes et al., 2017
Economic	Improved economic performance and increased profitability	de Nadae et al., 2019; Hamidi et al., 2012
	Reduced costs in management, insurance, and operations	Douglas & Glen, 2000; Jørgensen et al., 2006; Llonch et al., 2018; McDonald et al., 2003; Rebelo et al., 2014b; Santos et al., 2011; Simon et al., 2014; Wright, 2000; Zeng et al., 2007; Zutshi & Sohal, 2005
	Cost savings by unified audits, internal audits, and certification costs	Abad et al., 2014; Matias & Coelho, 2002; Renzi & Cappelli, 2000; Shillito, 1995; Simon et al., 2012; Winder, 2000; Zeng et al., 2010
	Documentation reduction, avoidance of duplication, and decreased paperwork	Beckmerhagen et al., 2003; Douglas & Glen, 2000; Griffith, 2000; Jørgensen et al., 2006; Karapetrovic & Casadesús, 2009; McDonald et al., 2003; Salomone, 2008; Sampaio et al., 2012; Santos et al., 2011; Simon et al., 2011; Simon et al., 2014; Simon & Douglas, 2013; Zeng et al., 2011; Zutshi & Sohal, 2005
Social	Increased social performance	Poltronieri et al., 2019
	Improvement of partnerships and satisfaction with the main stakeholders	Rebelo et al., 2014b; Simon et al., 2012
	Enhance customer satisfaction and feedback analysis	Casadesús et al., 2011; Crowder, 2013; Douglas & Glen, 2000; McDonald et al., 2003; Salomone, 2008; Zutshi & Sohal, 2005
	Better employee awareness of the importance of their work as a contributor to the whole organization	Abad et al., 2014; Karapetrovic & Casadesús, 2009; Rebelo et al., 2014b; Simon et al., 2012
	Increased employee motivation	Abad et al., 2014; Salomone, 2008; Zeng et al., 2011; Zutshi & Sohal, 2005
	Increased employee training	Holm et al., 2015; Santos et al., 2011
	Organizational culture improvements and enhanced teamwork	Curkovic et al., 2005; Hamidi et al., 2012; Holm et al., 2015; Rebelo et al., 2014b; Simon et al., 2012; Simon & Douglas, 2013; Wright, 2000; Zutshi & Sohal, 2005

Source: Own elaboration with adaptions from Bernardo et al. (2015) and Samy et al. (2015)

FIGURES

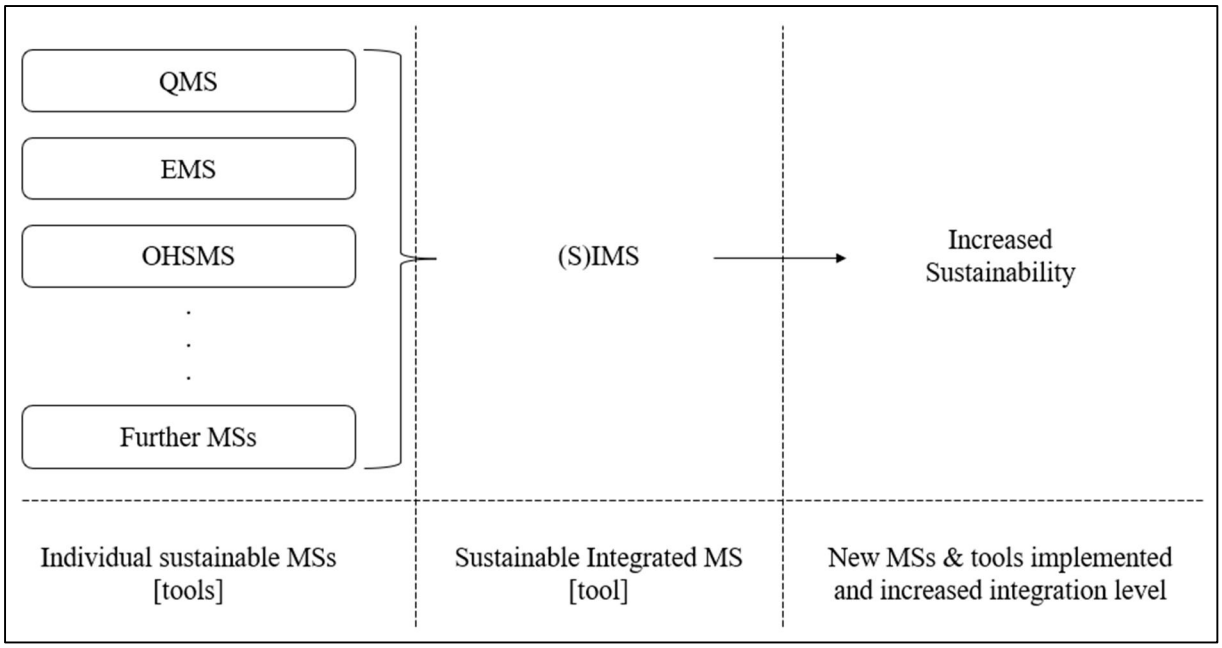

Figure 1: Identified Relationship Context between (Integrated) Management Systems and Sustainability

Source: Own elaboration