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REVIEW

Integrated sustainable management system: Drivers, strategy, structure, and evaluation

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Abstract. An integrated sustainable management system is the harmonization of multiple management systems into one system for addressing economic, social, and environmental challenges in a systematic and comprehensive manner, resulting in a more sustainable future for both the organization and interested parties. This system is driven by meeting the needs and expectations of interested parties based on the availability of resources by considering the sector and size of the business. System implementation can be carried out gradually, with full integration targets beginning at the organizational strategic level. Quality, environmental, and occupational health and safety are the three management systems harmonized by this system, and their control needs to be institutionalized in the hierarchical structure of the organization. The maturity level must be used to monitor and evaluate system performance regularly. Increasing the level of system maturity will have an impact on improving the achievement of organizational sustainability goals.

Keywords: Sustainability; integrated management system; drivers; strategy; structure; evaluation

1. Introduction

Global concern for the issue of sustainability has become more important today ([F. Carvalho et al., 2020](#)). The global economy is also highly influenced by business organizations promoting sustainability ([Rahman et al., 2021](#)). The objective of sustainability is to satisfy present needs without sacrificing the future's needs ([Asri & Yusgiantoro, 2021](#)). Sustainability is seen as the business paradigm of this century, the concept of which is translated into the business context through the triple bottom line ([Souza & Alves, 2018](#)). The triple bottom line, as the three pillars of sustainable development, is composed of three main elements: economic growth, social inclusion, and environmental protection ([Asri & Yusgiantoro, 2021](#); [Rahman et al., 2021](#)).

The way for organizations to develop sustainably is through the implementation of management systems published by the International Organization for Standardization (ISO), and thus the three pillars of sustainable development can be achieved ([Nunhes et al., 2022](#)). Sustainable development is the goal of the United Nations 2030 Agenda to transform the world and its corresponding 17 Sustainable Development Goals (SDGs). The SDGs are an ambitious plan

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of action to increase peace and prosperity, eradicate poverty, and protect the planet. They are recognized globally as essential to the future sustainability of the world. In response to this, ISO has identified management systems that contribute directly to the SDGs ([ISO, 2018](#)). However, due to the many types of management systems, it is necessary to have an integrated management system that can harmonize multiple management systems to increase its ability to support sustainable development ([Mežinska et al., 2013](#); [Mustapha et al., 2016](#); [Nadae et al., 2019](#); [Pascu, 2015](#); [Souza & Alves, 2018](#)).

Management systems and integrated management systems can provide a framework for the promotion of sustainable development ([Holm et al., 2014](#)). Integrated management systems also have a significant positive relationship with sustainable business development and all its dimensions ([Rahman et al., 2021](#)). The implementation of this integrated management system can serve as the primary function of sustainable management, aimed at fostering the achievement of SDGs, alongside communication and reporting on economic, social, and environmental performance outcomes ([Nunhes et al., 2022](#)). Relevant savings and other gains in organizational effectiveness and efficiency can be attributed to the implementation of this integrated management system, thereby contributing to organizational success and sustainable development ([Muthusamy et al., 2015](#)).

An integrated management system and its implementation are not an end in themselves but rather an important step towards sustainable development and business excellence ([Muthusamy et al., 2017](#)). Due to the clear emphasis on integrated management systems as a path to sustainability ([Nadae et al., 2019](#)), integrated management systems and sustainability have been seen as one system, hereafter referred to as integrated sustainable management systems. On one hand, an integrated sustainable management system can provide the holistic framework necessary to manage organizational sustainability. Meanwhile, on the other hand, sustainability accounting and reporting can provide measures of the effectiveness of an integrated sustainable management system ([Gianni, Gotzamani, & Tsiotras, 2017](#)). As a result, an integrated sustainable management system provides a holistic approach to harmonizing various sustainability management practices and managing organizational sustainability.

One of the challenges in implementing an integrated sustainable management system is the growing number of performance measurements across all functions ([Ikram et al., 2020](#)). There is still a lack of consensus regarding its impact on organizational performance ([Nadae et al., 2019](#)). Furthermore, one of the obstacles to implementing an integrated sustainable management system is the misunderstanding of the concept of integration ([Pascu, 2015](#)) and the lack of guidelines for its implementation ([Ikram et al., 2020](#)). This may be due to the absence benchmarks or global standards for the integration process of the management systems needed to implement an integrated sustainable management system.

In consideration of the aforementioned, this research attempts to thoroughly assess the state of integrated sustainable management system research, which is still very diverse and complex. This research aims to understand the latest trends in the development of integrated sustainable management systems. The organization of this research is as follows: it describes the materials and methods used in the research in the next section. The subsequent section presents the results and discussion. The final section offers the conclusion.

2. Materials and method

A systematic approach was adopted to review the literature on integrated sustainable management systems, in order to address the research questions and accomplish the research objectives. The review process encompassed four distinct stages: design, execution, analysis, and structuring and writing. These stages align with the recommendations made by [Snyder \(2019\)](#) and are commonly employed by numerous researchers. The digital databases Scopus, Emerald Insight, Science Direct, Taylor & Francis, and Google Scholar were utilized for assessment and analysis literature published between 2012 to 2022. The analysis was divided into three primary

stages: initial literature selection, the screening based on titles and abstracts, and in-depth evaluation of full texts articles. Figure 1 depicts the thorough search procedure and the quantity of literature identified at each stage.

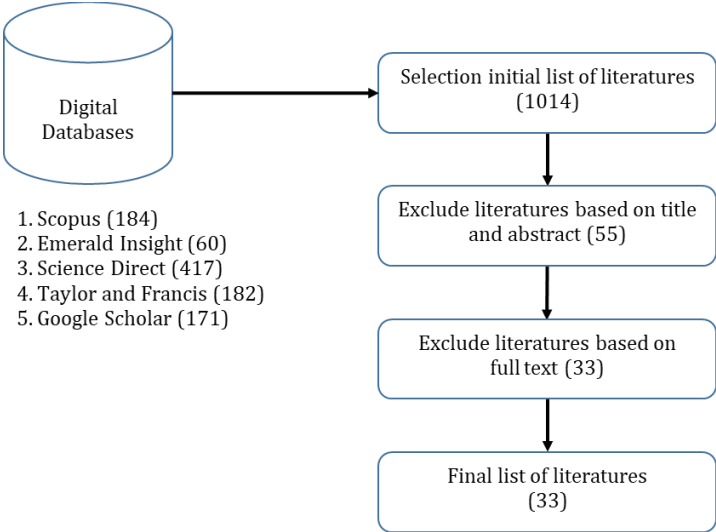


Figure 1. Search and Selections of Literatures

The initial literature selection was based on a descriptive analysis in the first stage, using the following terms: "integrated management system", "integrating management system", "management system integration", "sustainable", and "sustainability". The next step involves the evaluation and analysis of particular works, where literature was excluded based on their titles and abstracts as retrieved from the research database. The final stage involved selecting literature through a thorough analysis of the full texts, which form the foundation of the research. Literature that did not align with the research objectives was eliminated after the examination. In total, 33 works of literature met the criteria and were excluded in the final selection, after evaluation based on their titles, abstracts, and full texts.

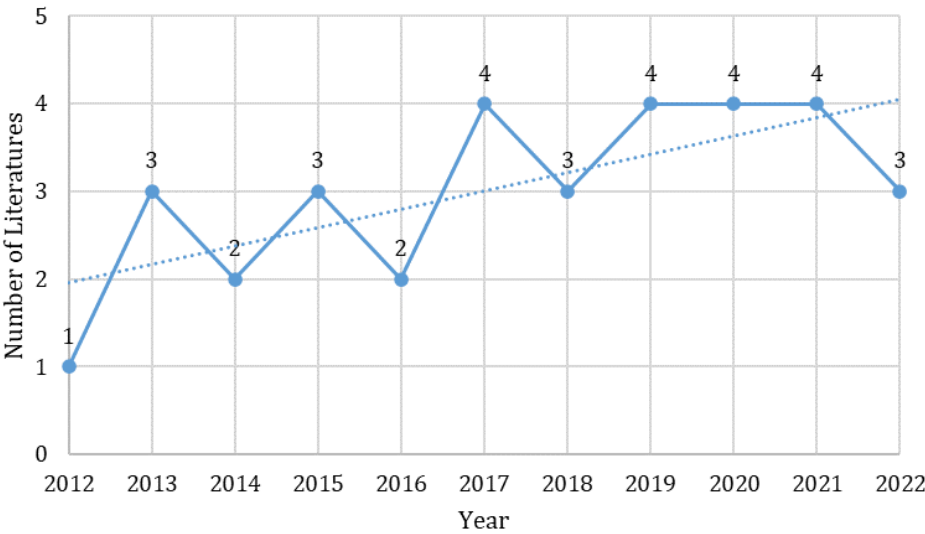


Figure 2. The spread of research over the years

3. Results and discussion

3.1. Literature's characteristics

The characteristics of this literature reveal a substantial representation of the most prominent and active journal publications and researchers in the field of integrated sustainable management system. In this research, we analyzed 33 pieces of literature to examine integrated sustainable management systems. To demonstrate the evolution of interest in integrated sustainable management system research over time, we present a year-to-year distribution, as shown in Figure 2.

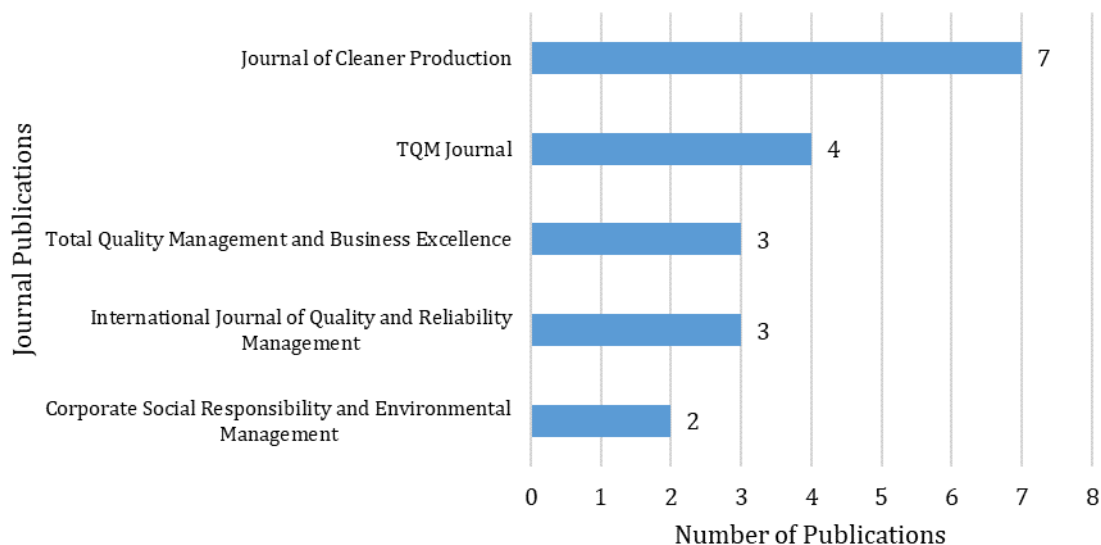


Figure 3. Journal publications and distribution of research

The most significant journals for integrated sustainable management systems are shown in Figure 3 and listed in the Table 1 based on their Scimago Journal & Country Rank (SJR) and Q Category (Q1-Q4) values. The order of journal publications is determined by the SJR value.

Table 1. Scimago journal & country rank (SJR) of journals

No	Journal Publication	SJR	Q Category
1	Corporate Social Responsibility and Environmental Management	1.92	Q1
2	Total Quality Management and Business Excellence	0.77	Q1
3	TQM Journal	0.77	Q1
4	Journal of Cleaner Production	0.65	Q2
5	International Journal of Quality and Reliability Management	0.23	Q3

Researchers who made significant contributions and were very highly active in the field of integrated sustainable management systems were identified from the selected literature. Figure 4, based on their research output, highlights the most prolific and influential researchers in the field.

Based on the characteristics of the literature, it is evident that research on integrated sustainable management systems remains an active and relevant research theme today. This is substantiated by the numerous recent studies conducted by researchers and the extensive body

of literature published in prestigious journals worldwide. It further underscores the fact that the issues of integration and sustainability have evolved into global concerns.

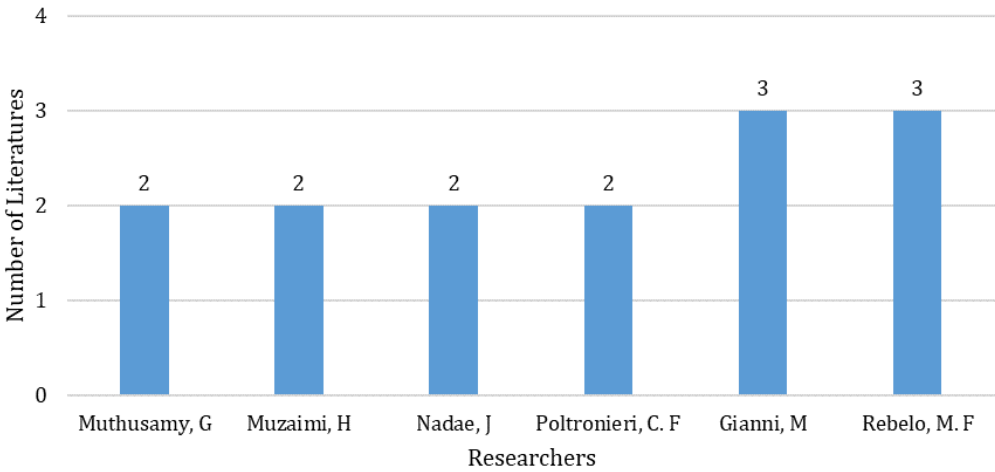


Figure 4. Journal publications and distribution of research

3.2. Literature’s content summary

The research on integrated sustainable management systems encompasses four main themes. The first theme is ‘drivers’, followed by ‘strategy’ and ‘structure’. The fourth theme is ‘evaluation’. Each of these themes contains of various sub-themes, as illustrated in Figure 5.

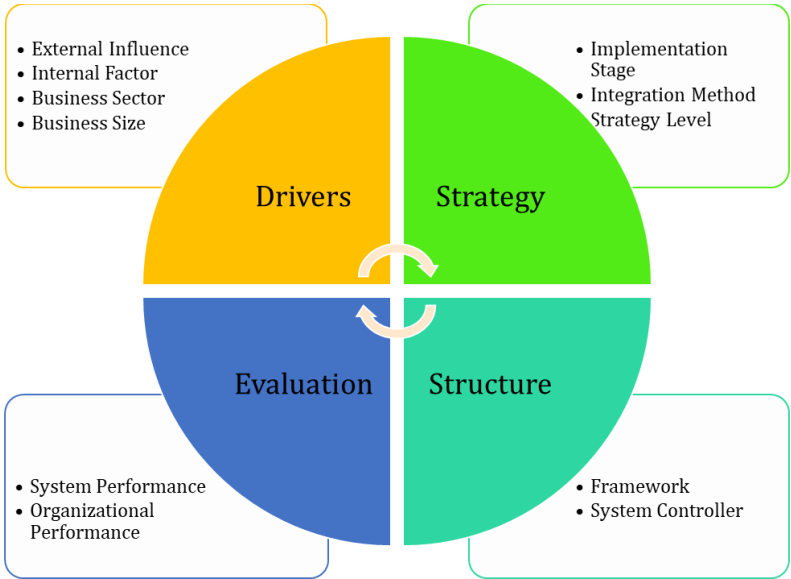


Figure 5. Integrated sustainable management system

3.2.1. Drivers

Understanding the drivers is a technique to identifying the elements that impact an organization’s ability to implement a system for long-term success. According to the results of the literature review, four system drivers were identified: external influences, internal factors, business sectors, and business size. A more thorough explanation of each of these system drivers can be found below.

External Influence

In essence, change is a constant feature throughout an organization's lifespan. Every organization operates within a dynamic environment that changes constantly. The external environment of an organization often serves as a significant driver of change, notably when implementing systems within the organization. External influences refer to events or circumstances occurring outside the organization that can affect the organization's decision regarding the system it will use to attain long-term success.

Several literature states that external influences play a pivotal role in the implementation of a system ([Muthusamy et al., 2017](#); [Nadae et al., 2021](#); [Poltronieri et al., 2017](#); [Silvestri et al., 2021](#)). These external influences encompass the needs and expectations of interested parties ([Gianni, Gotzamani, & Vouzas, 2017](#); [Gianni & Gotzamani, 2020](#); [Klute-Wenig & Refflinghaus, 2015](#); [Muthusamy et al., 2017](#); [Nadae et al., 2021](#); [Pascu, 2015](#); [Pauliková et al., 2021](#); [Poltronieri et al., 2017](#); [Satolo et al., 2013](#)), competition, globalization ([F. Carvalho et al., 2020](#); [Holm et al., 2014](#); [Rebelo et al., 2013, 2014, 2016](#)), as well as social, economic, political, and cultural aspects ([Ikram et al., 2020](#); [Silvestri et al., 2021](#)), all falling within the purview of these external influences.

The majority of researchers have discovered that the most important external elements influencing system implementation are the needs and expectations of interested parties. These interested parties include customers, competitors, government regulators, interest groups, and society as a whole. This profoundly affects how company's behavior is accepted and its ability to achieve and sustain profitability. Consequently, the needs and expectations of interested parties should be the primary consideration when selecting a system. This is because interested parties have a vested interest in the company's development and success. Every successful business is founded on meeting the needs and expectations of its consumers and other interested parties.

Internal Factor

Every organization operates within a dynamic and ever-changing environment. The internal factors within organizational are often crucial drivers of change, including the implementation of system. Some literature mentions that internal factors are among the determinants in the systems implementation ([Muthusamy et al., 2017](#); [Nadae et al., 2021](#); [Silvestri et al., 2021](#)). These internal factors that influence system implementation encompass resources ([Ikram et al., 2020](#); [Muthusamy et al., 2015, 2017](#); [Rahman et al., 2021](#); [Rebelo et al., 2013, 2014](#)), activities and related processes ([F. Carvalho et al., 2020](#); [Mustapha et al., 2016](#); [Nadae et al., 2019](#); [Pauliková et al., 2021](#)), strategy ([Nunhes et al., 2022](#)), and performance ([Silvestri et al., 2021](#)).

Most researchers find that resources are the primary internal factor determining the implementation of a system. These resources consist of natural resources, human resources, and financial resources. Given that these resources are utilized to produce goods and services, they are sometimes referred to as factors of production. Consequently, an organization must consider the availability of these resources as the key internal factor in the system implementation. These three resources, considered factors of production, wield significant influence over the production of goods and services and play an important role in shaping businesses operation. Ensuring resource availability is also very important for the company's sustainability and the development of a competitive advantage in the business world.

Business sector

The business sector, categorized by industry, includes agriculture, construction, industry including construction, manufacturing, and services, these figures are seasonally adjusted and measured in thousands of people ([OECD, 2022](#)). The business sector's alignment with the system implementation is crucial, as it must be compatible with industrial activities and the chosen system. This is because every activity within the business processes must be carefully planned and evaluated for its impact ([Ahidar et al., 2019](#)).

Most researchers have discovered that the business sector is a crucial consideration in system implementation ([Botta et al., 2012](#); [Gianni, Gotzamani, & Tsiotras, 2017](#); [Gianni, Gotzamani, & Vouzas, 2017](#); [Holm et al., 2014](#); [Ikram et al., 2020](#); [Klute-Wenig & Refflinghaus, 2015](#); [Satolo et al., 2013](#)). On the other hand, some researchers mention that system implementation can be applied more broadly ([Ahidar et al., 2019](#); [M. Carvalho et al., 2022](#); [Khair et al., 2018](#); [Mustapha et al., 2016](#); [Muzaimi et al., 2018](#); [Pauliková et al., 2021](#); [Silvestri et al., 2021](#); [Souza & Alves, 2018](#)).

Based on the aforementioned points, the business sector is considered a critical factor in system implementation. It is closely linked to the business's core objective of generating profits by providing products that satisfy the needs of interested parties. The organization's ability to identify and develop its business sector compared to competitors will ultimately determine its success.

Business size

The most common criterion for measuring the size of a business is the number of employees ([OECD, 2022](#)). Small and medium-sized enterprises typically employ fewer than 250 people, further subdivided into micro enterprises (less than 10 employees), small enterprises (10 to 49 employees), and medium enterprises (50 to 249 employees). Large enterprises, on the other hand, employ 250 or more individuals. The complexity and diversity of system implementation needs tend to increase with the size of the business ([Botta et al., 2012](#)).

Most researchers find that the size of the business is one of the factors to consider when implementing a system ([Botta et al., 2012](#); [F. Carvalho et al., 2020](#); [Gianni, Gotzamani, & Tsiotras, 2017](#); [Gianni & Gotzamani, 2020](#); [Ikram et al., 2020](#); [Klute-Wenig & Refflinghaus, 2015](#); [Muthusamy et al., 2015](#); [Nadae et al., 2019, 2021](#); [Nunhes et al., 2022](#); [Poltronieri et al., 2019](#); [Rahman et al., 2021](#); [Rebelo et al., 2013, 2016](#); [Ronalter et al., 2022](#)). However, some researchers suggest that system implementation can be pursued irrespective of business size ([Ahidar et al., 2019](#); [M. Carvalho et al., 2022](#); [Khair et al., 2018](#); [Mežinska et al., 2013](#); [Mustapha et al., 2016](#); [Pauliková et al., 2021](#); [Souza & Alves, 2018](#)).

According to the foregoing, it is crucial for system implementation must consider the business size. Business size is closely related to the development and growth of an organization. As a business expands, it necessitates the attainment of goals in an efficient and effective manner. Furthermore, the size of company is one of distinctive attributes that must be considered to understand its position in the industry competition.

3.2.2. Strategy

An integrated sustainable management system, as a tool for business decision-making, holds significant power ([Pauliková et al., 2021](#)). This system combines different but interrelated business components into a unified framework for streamlined management ([M. Carvalho et al., 2022](#)). To successfully attain the goals and objectives of such a system, a comprehensive strategy is essential. This strategy consists of an implementation stage, an integration approach, and a strategic level. A further elaboration on the system is provided below.

Implementation stage

The implementation stage is a crucial phase in the process of integrating an idea, program, or solution into the organization. Every stage of implementation is important and requires meticulous planning and management to ensure the successfully realization of the plan or solution and achievement of desired goals. In system implementation, there are two strategy stages: gradual implementation and simultaneous implementation.

Most researchers assert that gradual implementation is the most widely applied stage in system implementation ([Ahidar et al., 2019](#); [Botta et al., 2012](#); [F. Carvalho et al., 2020](#); [M. Carvalho et al., 2022](#); [Gianni, Gotzamani, & Vouzas, 2017](#); [Gianni & Gotzamani, 2020](#); [Holm et al., 2014](#); [Ikram et al., 2020](#); [Khair et al., 2018](#); [Klute-Wenig & Refflinghaus, 2015](#); [Mustapha et al., 2016](#);

[Muthusamy et al., 2015, 2017](#); [Muzaimi et al., 2018, 2019](#); [Nunhes et al., 2022](#); [Pascu, 2015](#); [Pauliková et al., 2021](#); [Poltronieri et al., 2017](#); [Rahman et al., 2021](#); [Rebelo et al., 2013](#); [Ronalter et al., 2022](#); [Satolo et al., 2013](#); [Silvestri et al., 2021](#)). However, some researchers also propose the existence of simultaneous implementation stages in system implementation ([Gavareshki et al., 2020](#); [Nadae et al., 2019](#); [Souza & Alves, 2018](#)).

Based on the above, the technique that is most frequently used to deploy this system is gradual implementation. Gradually implementing a system is to ensure a smooth and successful transition, minimize disruption to operations, and reduce the risk of failure. By applying the gradual implementation strategy, it is expected that it will not require massive changes. In this way, the strategy can be carried out gradually and consistently.

Integration method

The concept of integration is understood as the harmonization of several common or interrelated elements of management systems aimed at achieving greater effectiveness in overall management ([Satolo et al., 2013](#)). One of the most effective solutions for overcoming challenges in system implementation is to increase the level of integration ([Ikram et al., 2020](#)). Partial integration and full integration are two methods used in system implementation.

Some researchers found the partial integration method useful in implementing the system ([Gianni, Gotzamani, & Vouzas, 2017](#); [Gianni & Gotzamani, 2020](#); [Ronalter et al., 2022](#)). However, the predominant consensus among researchers is that that full integration is the most widely used method in implementing the system ([Ahidar et al., 2019](#); [Botta et al., 2012](#); [F. Carvalho et al., 2020](#); [M. Carvalho et al., 2022](#); [Gavareshki et al., 2020](#); [Holm et al., 2014](#); [Ikram et al., 2020](#); [Khair et al., 2018](#); [Klute-Wenig & Refflinghaus, 2015](#); [Muthusamy et al., 2017, 2015](#); [Muzaimi et al., 2018, 2019](#); [Nadae et al., 2019, 2021](#); [Nunhes et al., 2022](#); [Pascu, 2015](#); [Pauliková et al., 2021](#); [Poltronieri et al., 2017](#); [Rahman et al., 2021](#); [Rebelo et al., 2013, 2016](#); [Satolo et al., 2013](#); [Silvestri et al., 2021](#); [Souza & Alves, 2018](#)).

According to the preceding information, full integration is the most commonly used integration strategy. The optimal objective for integrating the current management systems is full integration. Through full system integration, organizations can more easily identify priority interventions that yield maximum results in achieving sustainability targets. This approach will enable the organization's planned system implementation strategy to be fully realized and become a tangible strategy.

Strategy level

The level of strategy for integrating the system depends on the needs and suitability of each management and industry ([Muzaimi et al., 2019](#)). The system integration approach is based on integration across the three levels of the organization, namely the strategic, tactical, and operational levels ([Ahidar et al., 2019](#)).

According to the findings of the researchers, the application of the strategy level can vary in each organization. It occurs at the strategic level ([Gianni, Gotzamani, & Tsiotras, 2017](#); [Gianni, Gotzamani, & Vouzas, 2017](#); [Holm et al., 2014](#); [Mežinska et al., 2013](#); [Rebelo et al., 2013](#); [Ronalter et al., 2022](#)), at both the strategic and tactical levels ([Muzaimi et al., 2018](#)), at the strategic and operational levels ([Botta et al., 2012](#); [Klute-Wenig & Refflinghaus, 2015](#); [Pascu, 2015](#); [Silvestri et al., 2021](#)), or encompass all three levels-strategic, tactical and operational level ([Ahidar et al., 2019](#); [Ikram et al., 2020](#); [Khair et al., 2018](#); [Muthusamy et al., 2015, 2017](#); [Rebelo et al., 2014, 2016](#); [Souza & Alves, 2018](#)). However, there are also instances of system implementations that are solely at the operational level ([Gavareshki et al., 2020](#); [Pauliková et al., 2021](#)).

As per the above research results, most researchers suggest that system implementation begins at the strategic level. This is to ensure that system implementation activities are organized and integrated throughout the organization, resulting in higher-level strategy implementation and becoming a core part of the organization's culture and identity. Strategic system implementation

will determine the policies, strategies, and long-term goals that organization will be used to fulfill its mission. However, organization-level strategy is tailored to the specific functions of the organization, particularly in small businesses.

3.2.3. Structure

To execute the system strategy, a system structure is required. The system structure implementation must be flexible and adaptable, allowing integration with existing processes and systems, while also providing a framework and a system controller for continuous improvement. The following provides an explanation of the system structure.

Framework

A framework refers to the way in which system components are organized. A framework can have a significant impact on system performance and effectiveness because it determines how system components interact and work together to achieve system goals and objectives. The entire framework consists of at least two management systems, with one of them always incorporating quality into other management systems. In most literature, a framework consists of quality, environmental, and occupational health and safety management systems ([F. Carvalho et al., 2020](#); [Gavareshki et al., 2020](#); [Holm et al., 2014](#); [Mežinska et al., 2013](#); [Muzaimi et al., 2018, 2019](#); [Nadae et al., 2019](#); [Rebelo et al., 2013, 2014](#)), which is the most dominant one implemented. In addition, the most widely applied frameworks are quality, environmental, occupational health and safety, and social responsibility ([Ahidar et al., 2019](#); [Muthusamy et al., 2015](#); [Rahman et al., 2021](#); [Souza & Alves, 2018](#)).

The third most implemented framework in the literature includes quality and environmental ([Gianni, Gotzamani, & Tsiotras, 2017](#); [Satolo et al., 2013](#)), quality, environmental, occupational health and safety, and energy ([Nadae et al., 2021](#); [Poltronieri et al., 2019](#)), and quality, environmental, occupational health and safety, and social accountability ([Botta et al., 2012](#); [M. Carvalho et al., 2022](#)). Finally, the fourth framework that has received significant attention in the literature includes food quality and safety ([Gianni, Gotzamani, & Vouzas, 2017](#)), quality, environmental, and energy ([Mustapha et al., 2016](#)), quality, environmental, occupational health and safety, and research, development & innovation ([Rebelo et al., 2016](#)), quality, environmental, occupational health and safety, and responsible care ([Khair et al., 2018](#)), quality, environmental, occupational health and safety, and social events ([Pauliková et al., 2021](#)), quality, environmental, occupational health and safety, energy, ethics, and social responsibility ([Klute-Wenig & Refflinghaus, 2015](#)), and quality, environmental, occupational health and safety, ethics, and social responsibility ([Silvestri et al., 2021](#)).

Based on the foregoing, the quality, environmental, and occupational health and safety frameworks are the ones that are most frequently utilized. A framework must always include a quality management system. This is due to the fact that quality is a reflection of how well products and services meet the needs and expectations of consumers as well as other interested parties. Since quality depends on how well interested parties perceive that the product meets or exceeds their expectations, determining quality can be challenging.

System controller

The system implementation strategy should also be accompanied by adjustments in the organizational structure, aiming to make the organization more environmentally friendly, equitable, and prosperous, which in turn can contribute to the achievement of the global SDGs outlined in the 2030 Agenda ([Nunhes et al., 2022](#)). This adjustment can serve as a guiding framework for completing the system implementation ([Ronalter et al., 2022](#)).

A system controller is distinguished by researchers as non-institutionalized ([Botta et al., 2012](#); [Klute-Wenig & Refflinghaus, 2015](#); [Poltronieri et al., 2017](#)) and institutionalized ([Ahidar et al., 2019](#); [M. Carvalho et al., 2022](#); [Gavareshki et al., 2020](#); [Gianni, Gotzamani, & Vouzas, 2017](#);

[Gianni & Gotzamani, 2020](#); [Satolo et al., 2013](#); [Ikram et al., 2020](#); [Mežinska et al., 2013](#); [Mustapha et al., 2016](#); [Muthusamy et al., 2017](#); [Muzaimi et al., 2018, 2019](#); [Nadae et al., 2019, 2021](#); [Nunhes et al., 2022](#); [Pascu, 2015](#); [Pauliková et al., 2021](#); [Rebelo et al., 2013, 2014, 2016](#); [Silvestri et al., 2021](#); [Souza & Alves, 2018](#)).

Based on the aforementioned, an institutionalized system controller is necessary for the implementation of a system. A system controller is a responsible person in the organization who makes decisions about the allocation of resources and is involved in planning, organizing, staffing, directing, and controlling organizational activities to achieve objectives. With this control system, it is believed that the system would be able to utilize resources effectively and efficiently in a changing environment to fulfill the system's implementation objectives.

3.2.4. Evaluation

System evaluation is the process of examining a system to determine its performance, effectiveness, and efficiency. An overall performance evaluation is recommended, including a system performance evaluation in the assessment of the company's sustainability performance ([Nunhes et al., 2022](#)). However, it is essential to note that a sustainability system is distinct from a rating system. While the sustainability system serves as a guide for how an organization should operate, then the rating system functions as an indicator of organizational performance ([Mustapha et al., 2016](#)).

Reporting on the implementation and operational performance of the system should also be conducted periodically ([Botta et al., 2012](#)). This performance is also expressed through the achievement of key performance indicators resulting from all activities carried out by all employees in the context of continuous improvement with the aim of sustainability ([Rebelo et al., 2013](#)). A more detailed description of the system evaluation, consists of system performance and organizational performance, is explained as follows.

System performance

System performance can be assessed by its attributes or features, such as its evolution and maturity ([Gianni, Gotzamani, & Vouzas, 2017](#)). The maturity of the system is strongly associated with better sustainable performance ([Poltronieri et al., 2019](#)). Therefore, it's crucial to use that maturity level as a baseline for improvement. The level of integration of management systems ([Poltronieri et al., 2017, 2019](#)), the current management system certification, and ongoing top management commitment ([Gianni, Gotzamani, & Vouzas, 2017](#)), monitoring and measurement of outputs produced ([Muthusamy et al., 2017](#)), the innovation management process ([Nunhes et al., 2022](#)), and implementation of best practices and behaviors from an operational excellence perspective ([M. Carvalho et al., 2022](#)) can all be used to measure system performance.

Based on the literature, statements by researchers vary regarding the measurement of the maturity level of system performance. The level of system maturity that measures system performance may vary depending on the specific goals and priorities of the organization and the resources available to implement and maintain the system. Due to its significant impact on the long-term performance of the organization, maturity level techniques are required to assess system performance.

Organizational performance

Organizational performance refers to the effectiveness and efficiency of system implementation to achieve organizational goals and objectives. The implementation of the system is expected to improve sustainable organizational performance, making the company more sustainable and competitive ([Souza & Alves, 2018](#)). Organizations can achieve better sustainability performance by investing more in these systems ([Poltronieri et al., 2019](#)).

Organizational performance, when measured using sustainability goals, can encompass sustainable performance ([Gianni & Gotzamani, 2020](#); [Nadae et al., 2019](#); [Poltronieri et al., 2019](#);

[Souza & Alves, 2018](#)), key process indicators ([Rebello et al., 2013, 2014](#)), social and environmental performance ([Botta et al., 2012](#)), system resources, system level, and corporate sustainability performance ([Gianni, Gotzamani, & Tsiotras, 2017](#)), green indicator ([Mustapha et al., 2016](#)), the global reporting initiative ([Poltronieri et al., 2017](#)), EFQM model indicator ([Ahidar et al., 2019](#)), and global performance index ([Silvestri et al., 2021](#)).

Based on the literature, researchers assert that several models can be used to assess sustainability goals against organizational performance. These models typically employ a set of criteria to evaluate various aspects of an organization's activities, including economic, social, and environmental considerations, with the aim of achieving sustainability goals. System implementation serves as a driver of sustainable organizational performance. Practices towards sustainable development are viewed as a process of organizational change that supports paradigm shifts and the realized benefits, one of which is improved organizational performance.

4. Conclusion and summary

Based on the results of this literature review, the prevailing trend among organizations in the worldwide is the implementation of integrated sustainable management systems. This trend is evident in the increasing adoption commonly recognized management systems, such as those for quality, environmental, and occupational health and safety. This proves the necessity for organizations to implement integrated sustainable management system in to contribute to sustainable development.

Certain conclusions were thoroughly investigated to support the implementation and development of an integrated sustainable management system. First, based on the analysis of the research literature, it become evident that the primary factors influencing the implementation of an integrated sustainable management system are strongly shaped by the needs and expectations of interested parties as external influences and resources from internal factors. In addition, the business sector and the size of business should also be considered in the implementation of the integrated sustainable management system.

Second, during the design phase of implementing an integrated sustainable management system, gradual implementation is the preferred approach, with the ultimate goal of achieving full integration, beginning at the strategic level. The adopted framework must include, at a minimum, three management systems: quality, environmental, and occupational health and safety, and should be supported by system controllers who are integrated into the hierarchical structure of the organization.

Finally, to optimize the implementation of an integrated sustainable management system, system performance must be periodically monitored and evaluated. This ensures that the effectiveness and efficiency of its implementation can be continuously assessed and improved. Monitoring and evaluating the integrated sustainable management system can be achieved using the maturity level of the system's performance. Increasing the maturity level of system performance will have a positive impact on improving organizational performance sustainably through achieving sustainability goals. Sustainability goals, encompassing economic, social, and environmental performance, can be utilized to measure organizational performance. This approach also contributes to advancing the achievement of the global SDGs.

This research is expected to make contributions to both practical implementation and further research. The practical implication of this research for practitioners is to encourage the implementation and development of integrated sustainable management systems and the adoption of best management practices. For academic researchers, this research offers valuable insights and new perspectives into recent developments in the field. It is important to note that this research was constrained by the choice of database and the search strategy, which affected the amount of literature for analysis. However, the main limitation of this research is that the majority of the previous research was conducted in developed countries.

Therefore, future research should aim to analyze the implementation and development of an integrated sustainable management system within organizations developing countries, such as Indonesia, and comprehend its impact on sustainable organizational across economic, social, and environmental dimensions. This forthcoming research will promote knowledge sharing and the exchange of best practices, allowing for comparison of results to facilitate continuous improvement, ultimately contributing to the achievement of global SDGs.

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References

- Ahidar, I., Sarsri, D., & Sefiani, N. (2019). Approach to integrating management systems: Path to excellence application for the automotive sector using SYSML language. *TQM Journal*, 31(2), 183–204. <https://doi.org/10.1108/TQM-02-2018-0025>
- Asri, N. D., & Yusgiantoro, P. (2021). Is sustainability challenging in Indonesia's energy provision? Fuel type vs. externalities in electricity cost analysis. *Sustinere: Journal of Environment and Sustainability*, 5(2), 103–132. <https://doi.org/10.22515/sustinere.jes.v5i2.154>
- Botta, S., Comoglio, C., & Petrosillo, I. (2012). Implementing the environmental and social policies of a municipality through an integrated management system: theoretical framework and case study. *Journal of Environmental Planning and Management*, 56(7), 1073–1095. <https://doi.org/10.1080/09640568.2012.743881>
- Carvalho, F., Santos, G., & Gonçalves, J. (2020). Critical analysis of information about integrated management systems and environmental policy on the Portuguese firms' website, towards sustainable development. *Corporate Social Responsibility and Environmental Management*, 27(2), 1069–1088. <https://doi.org/10.1002/csr.1866>
- Carvalho, M., Sá, J. C., Marques, P. A., Santos, G., & Pereira, A. M. (2022). Development of a conceptual model integrating management systems and the Shingo Model towards operational excellence. *Total Quality Management and Business Excellence*, 1–24. <https://doi.org/10.1080/14783363.2022.2060810>
- Gavareshki, M. H. K., Abbasi, M., Karbasian, M., Rostamkhani, R., Karimi, M., Abbasi, M., & Rostamkhani, R. (2020). Presenting a Productive and Sustainable Model of Integrated Management System for Achieving an Added Value in Organizational Processes. *International Journal of Productivity and Quality Management*, 30(4), 429–461. <https://doi.org/10.1504/IJPQM.2019.10023794>
- Gianni, M., & Gotzamani, K. (2020). Extrovert integrated management systems. *TQM Journal*. <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>
- Gianni, M., Gotzamani, K., & Vouzas, F. (2017). Food integrated management systems: dairy industry insights. *International Journal of Quality and Reliability Management*, 34(2), 194–215. <https://doi.org/10.1108/IJQRM-05-2015-0076>
- Holm, T., Vuorisalo, T., & Sammalisto, K. (2014). 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>
- Ikram, M., Sroufe, R., & Zhang, Q. (2020). Prioritizing and overcoming barriers to integrated management system (IMS) implementation using AHP and G-TOPSIS. *Journal of Cleaner Production*. <https://doi.org/10.1016/j.jclepro.2020.120121>
- ISO. (2018). *Contributing to the UN Sustainable Development Goals with ISO standards* (p. 23). ISO.
- Khair, N. K. M., Lee, K. E., Mokhtar, M., & Goh, C. T. (2018). Integrating responsible care into quality, environmental, health and safety management system: A strategy for Malaysian chemical industries. *Journal of Chemical Health and Safety*, 25(5), 10–18. <https://doi.org/10.1016/j.jchas.2018.02.003>
- Klute-Wenig, S., & Refflinghaus, R. (2015). Integrating sustainability aspects into an integrated management system. *TQM Journal*, 27(3), 303–315. <https://doi.org/10.1108/TQM-12-2013-0128>
- Mežinska, I., Lapiņa, I., & Mazais, J. (2013). Integrated management systems towards sustainable and socially responsible organisation. *Total Quality Management and Business Excellence*, 26(5–6), 469–481.

- <https://doi.org/10.1080/14783363.2013.835899>
- Mustapha, M. A., Manan, Z. A., & Wan Alwi, S. R. (2016). 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>
- Muthusamy, G., Palanisamy, C., & Ammasaiappan, M. (2015). Integrated management systems for better environmental performance and sustainable development – a review. *Environmental Engineering and Management Journal*, 14(5), 985–1000. <https://doi.org/10.30638/eemj.2015.109>
- Muthusamy, G., Palanisamy, C., & Mohanraj, M. (2017). 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>
- Muzaimi, H., Hamid, S. R., & Chew, B. C. (2018). Integrated Management System for quality management system accreditation. *Journal of Advanced Manufacturing Technology*, 12(Specialissue1), 87–100. Retrieved from <https://jamt.utem.edu.my/jamt/article/view/3927>
- Muzaimi, H., Hamid, S. R., Isa, S., & Chew, B. C. (2019). Integrated Management System: The Converging of Key Quality Standards into Single Standard. *International Journal of Human and Technology Interaction*, 3, 75–82. Retrieved from <https://journal.utem.edu.my/index.php/ijhati/article/view/5119>
- Nadae, J. de, 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>
- Nadae, J. de, 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 and Reliability Management*, 38(3), 800–821. <https://doi.org/10.1108/IJQRM-12-2019-0386>
- Nunhes, T. V., Espuny, M., Lauá Reis Campos, T., Santos, G., Bernardo, M., & Oliveira, O. J. (2022). Guidelines to build the bridge between sustainability and integrated management systems: A way to increase stakeholder engagement toward sustainable development. *Corporate Social Responsibility and Environmental Management*, 29(5), 1617–1635. <https://doi.org/https://doi.org/10.1002/csr.2308>
- OECD. (2022). *Enterprises by business size*. Oecd. <https://doi.org/10.1787/31d5eeaf-en>
- Pascu, R. V. (2015). Modelling a sustainable integrated management system for universities. In *Academic Journal of Manufacturing Engineering* (Vol. 13, Issue 2, pp. 118–123). researchgate.net.
- Pauliková, A., Škürková, K. L., Kopilčáková, L., Zhelyazkova-Stoyanova, A., & Kirechev, D. (2021). Innovative approaches to model visualization for integrated management systems. *Sustainability (Switzerland)*, 13(16). <https://doi.org/10.3390/su13168812>
- 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. (2017). 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>
- 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*, 24(2), 2387–2411. <https://doi.org/10.1007/s10668-021-01538-2>
- Rebelo, M. F., Santos, G., & Silva, R. (2013). Conception of a flexible integrator and lean model for integrated management systems. *Total Quality Management and Business Excellence*, 25(5–6), 683–701. <https://doi.org/10.1080/14783363.2013.835616>
- Rebelo, M. F., Santos, G., & Silva, R. (2014). A generic model for integration of quality, environment and safety management systems. *TQM Journal*, 26(2), 143–159. <https://doi.org/10.1108/TQM-08-2012-0055>
- 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>
- Ronalter, L. M., Poltronieri, C. F., Gerolamo, M. C., & Bernardo, M. (2022). A Conceptual Research on the Contribution of Integrated Management Systems to the Circular Economy. *Challenges in Sustainability*, 10(2), 1–18. <https://doi.org/10.12924/cis2022.10020001>
- Satolo, E. G., Calarge, F. A., & Augusto Cauchick Miguel, P. (2013). Experience with an integrated management

- system in a sugar and ethanol manufacturing unit: Possibilities and Limitations. *Management of Environmental Quality: An International Journal*, 24(6), 710–725. <https://doi.org/10.1108/MEQ-10-2012-0068>
- 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>
- Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, 104(March), 333–339. <https://doi.org/10.1016/j.jbusres.2019.07.039>
- 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>