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ALIGNMENT OF INTEGRATED MANAGEMENT SYSTEMS WITH MODERN MANAGEMENT TRENDS: A FACT-BASED REVIEW

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Abstract

In today's dynamic business environment, organizations are increasingly adopting Integrated Management Systems to streamline their operations and enhance performance across various domains. However, implementing Integrated Management Systems is challenging due to the complexity of integrating various management systems and overcoming cultural resistance within organizations. Additionally, limited understanding of how Integrated Management Systems align with emerging trends such as lean management, sustainability and agile management, hindering organizations' ability to leverage integrated systems to effectively navigate complexities and capitalize on opportunities in the rapidly evolving business landscape. This study synthesizes existing research to examine how Integrated Management Systems can be improved with alignment of the modern management trends by analysing the literature. In this review, the relationship between IMS and sustainability, the impact and contribution of agile and lean management on the environmental, social and economic dimensions of sustainability were determined. The findings underscore that while Integrated Management Systems implementation enhances efficiency, its success hinges on overcoming integration complexities and cultural resistance. This review reveals that aligning it with contemporary management trends not only supports continuous improvement but also strengthens environmental, social, and economic sustainability. Key insights emphasize the importance of agility and risk anticipation, as well as the critical role of human and cultural factors in every process. These findings offer valuable implications for both theory and practice, providing a foundation for future research to foster resilience and adaptability in today's dynamic business environment.

Key words: environmental management systems, integrated management system, lean management, strategic management, sustainability

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1. Introduction

In today's business world, companies have to develop a set of strategies to manage the challenges and opportunities they face according to the expectations and needs of society, employees, customers, suppliers and all other stakeholders. Therefore, in order to achieve their objectives and to organise, monitor and improve their management processes, they need to integrate management systems (MSs), which are defined as a standardised set of procedures and methods (Gök, 2000).

In this direction, "Integrated Management System (IMS)" is needed to ensure environment, human health and safety, improve overall quality, gain more market share, reduce costs, improve performance, and ensure the trust and satisfaction of all stakeholders in all activities (Simon et al., 2012; Simon et al., 2017).

An IMS is an approach that aims to unify all activities, processes and management systems of an organisation under a single umbrella and has been found to be effective in many industries such as food and beverage, automotive, healthcare, pharmaceutical

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industry, information technology and airlines (Ahidar et al., 2019; López-Fresno, 2010; Pop and Ţîţu, 2018; Purcidonio et al., 2020; Simon et al., 2013; Vladimirovna, 2015). The importance of an IMS lies in its ability to harmonise and streamline various aspects of corporate operations, improving efficiency, effectiveness and overall performance. IMS promotes a culture of sustainability and corporate responsibility by integrating environmental, social and ethical considerations into organisational practices. However, sustainability and continuous improvement of IMS is still a critical issue for organisations (Gianni et al., 2017; Nunhes et al., 2017). For this reason, organisations seek to combine all relevant components and processes of quality, environmental, occupational safety and information security management systems into a single corporate system for easier management, especially in line with sustainable management system objectives (Behrends, 2010; Klute-Wenig and Refflinghaus, 2015; Simon et al., 2012).

IMS and sustainability have an important role for the success of organisations, but the problem that IMS is manageable but measurable weakness and sustainability is measurable but not fully manageable makes the integration process of the systems difficult and complex (Gianni et al., 2017). Therefore, it is aimed to show that the adoption and integration of agile and lean management, which can bring a new perspective to organisations, create synergies between all components, where the importance of human factor, communication and cooperation is more prominent and has been a trend in recent years, can help to identify potential problems and opportunities in environmental, social and economic dimensions and to be sustainable. In this way, integrated management processes can be made more effective and it can be easier to achieve sustainability goals.

In addition, global trends such as changing business needs of organisations, regulatory legal requirements, societal expectations, sustainability and environmental responsibility, the rise of digital technologies, focus on customer and quality, emphasis on employee health and safety, supply chain complexity, integration of standards, rapid adaptation and agility to market changes, and the transition to remote or hybrid model work are increasingly enabling and driving the adoption of IMS. Because these trends reflect a shift towards integrated and sustainably focused business practices for organisations and increase the need and importance of IMS in a rapidly changing competitive environment (Domingues et al., 2015; Kasauli et al., 2021; Martínez-Jurado and Moyano-Fuentes, 2014).

The aim of this study is to provide a new perspective on the potential synergies and relationships between the principles of agile management, such as rapid adaptation to change, team collaboration, stakeholder and risk management, and lean management principles based on the inclusion and respect of human roles and suggestions in the integration of management systems in order to manage and improve the performance of the social, environmental and economic dimensions on which sustainability is based and which have three shares in the IMS structuring (Kasauli et al., 2021; Martínez-Jurado and Moyano-Fuentes, 2014). This is because this integrated approach can extend the benefits of each management system, rationally promote human involvement, help to utilise all resources and time more efficiently, and ensure sustainability.

Because agile management is focused on speed, customer and flexibility, it attaches importance to employee participation and co-operation. Thus, it can contribute to increasing performance in the social dimension of sustainability. Short tasks, small teams, daily meetings and iterative processes can increase employees' creativity and quick decision-making capacity. It can also ensure the sustainability of the social dimension by using principles such as employee motivation, support for self-organisation capacity, working in teams and an environment of trust, dividing work into small parts and tasks, and reducing employee workload (Gomes Silva et al., 2022).

Likewise, since lean management is based on focusing on value creation and minimising waste, fast product delivery, low cost and good class quality, the human factor plays an important role in achieving these successes. Because for cultural change and awareness, people need to understand and adopt lean management principles. The training, involvement and motivation of employees and the implementation of the lean philosophy throughout the organisation are important to encourage interdepartmental cooperation and teamwork, the ability to identify and solve problems together, to improve processes together and to increase productivity (Souza and Alves, 2018).

Agile and lean management approach in the IMS structure also contributes to the economic and environmental dimension of sustainability. Since stakeholders want to see the results of their investments in shorter periods of time, increased mutual communication, transparency, improved company-customer relations, continued stakeholder satisfaction, innovation and creativity, increased productivity and more products, services and quality can increase economic performance. In the environmental dimension of sustainability; in case of changing environmental standards and practices, agile teams can quickly develop strategies, develop environmentally friendly products and services with the ability to change quickly according to customer needs and environmental expectations, reduce waste in material and energy consumption, improve the performance of environmental goals by enabling the combination of knowledge and skills from different disciplines with communication and cooperation with stakeholders at every step (Galeazzo et al., 2014; Gomes Silva et al., 2022; Souza and Alves, 2018).

Within the framework of this research, the relationship between IMS and corporate sustainability (CS), which is defined as the company's ability to meet the needs of its direct or indirect and future stakeholders, has been examined within the scope of the literature and it is aimed to show that there is a

mutual development and complementary elements between them (Dyllick and Hockerts, 2002).

Organisations face challenges such as the complexity of the integration process, managing a large number of people, managing financial resources and time, analysing and managing potential risks in situations of uncertainty, legal penalties, adapting to changing market conditions, interdepartmental coordination, understanding and meeting customer needs (Nunhes et al., 2017). Therefore, stakeholder theory, which is at the core of CS and emphasises the identification and consideration of stakeholders, makes it possible to achieve corporate sustainability, especially with the importance, comprehensive involvement and cooperation of stakeholders (Valentinov, 2023). This is because companies may not sufficiently recognise their risks in the field of sustainability or may not provide realistic and practical solutions. However, stakeholder theory argues that effective communication with stakeholders can help managers identify sustainability problems and solutions.

In the IMS process, a company's strong relationship with its stakeholders, in trust and co-operation, helps the company to achieve its corporate purpose. Even if the priorities, goals and expectations of stakeholders change in the process, ensuring economic stability, environmental protection awareness, monitoring and ensuring social justice are common goals for all stakeholders and all parties benefit. At the same time, according to stakeholder theory, the full identification and formalisation of stakeholders and the establishment and participation of stakeholder relationships play an important role in maximising sustainability performance (Valentinov, 2023).

In addition, in the IMS implementation process, resource theory is important for sustainable competitive advantage in terms of all resources such as organisational structure, talent, knowledge, equipment, techniques and processes, culture and policy, and the ability to manage these resources, which increase the effectiveness and efficiency of companies and enable them to formulate and implement their strategies. Because resources allocated for management system integration are related to sustainability performance. Resource theory provides a framework for process improvements and standardisation, for more efficient working and for sustainability of human, financial and environmental resources, and for what resources can be valuable and how. Resource theory in IMS helps organisations to tackle internal and external challenges. Human resources such as awareness raising, top management commitment, culture formation, collaboration, employee motivation and communication have the most driving force in IMS (Gianni et al., 2017).

From a general perspective, an IMS with an agile and lean management approach provides a single system that aims to combine all aspects of the organisation's principles, systems, processes and standards into one intelligent system, designed to manage its activities in accordance with multiple standards such as quality, environmental and health and safety management. This intelligent unification treats all elements of an enterprise's management system as a whole and allows it to streamline its management, save time and increase efficiency (Bernardo et al., 2015; Masuin et al., 2018; Samy et al., 2015). In addition, elements such as efficiency and cost control, quality management, customer satisfaction orientation, faster decision-making, improved risk management, continuous improvement and employee engagement provide competitive advantage by strengthening both profitability and market position (Jørgensen et al., 2006).

In addition, integrated systems can provide cost reduction advantages such as reducing wastes and costs through more efficient use of resources such as people, time and materials, reducing repetitive work and processes, automation and digitalisation of processes, reducing inventory costs through better inventory management in supply chain processes, avoiding penalties by complying with legal requirements. In terms of increasing efficiency; it can provide many advantages such as acceleration of projects with fast information sharing between departments, coordination and better communication between teams, the opportunity to review and improve processes continuously and regularly, fast processing of customer feedback and improving service quality, flexibility and rapid adaptation (Domingues et al. 2015; Nunhes et al., 2017).

Especially in dynamic market conditions, with agile and lean management approaches, organizations can make decisions by evaluating customer feedback quickly and in short cycles, be customer-oriented, be in constant communication with collaborative agile teams and adapt quickly to needs, be open to change, and plan with long-term and more flexible strategies. In addition, agile methods, which can help to improve processes and identify opportunities, adopt a culture of learning through mistakes and successes, manage risks using continuous feedback loops, value employee participation and ensure the development of creativity as a result of motivation, and quickly evaluate market opportunities, both improve the ability to respond to market fluctuations and contribute to sustainable success (Kasauli et al., 2021; Martínez-Jurado and Moyano-Fuentes, 2014).

For this reason, the basis of the IMS should be the lean thinking system, which aims to improve social, economic and environmental relations including respect for people and human development, to eliminate non-value added activities and waste, and the agile thinking system, which aims to improve the ability to respond quickly to innovations by adapting to changing new conditions. In the context of IMS, lean and agile management are necessary not only to achieve sustainable operations and the ability to adjust strategies, processes and resources to rapidly improve in response to opportunities or threats, but also to emphasise the ongoing search for better ways of working through continuous improvement. Because

continuous improvement aims to evaluate and improve processes, products and services at regular intervals; IMS has a very important role in this process (Gomes Silva et al., 2022; Souza and Alves, 2018; Zakrzewska et al., 2022).

In continuous improvement, IMS brings a holistic perspective to all aspects of the organisation, better identifies opportunities for improvement in an integrated structure, systematically collects and analyses process data and enables which areas need to be improved. It ensures standardisation in processes and helps them to be more easily monitored and improved. It also provides motivation through employee participation and feedback, helps to monitor the effectiveness of processes and systematically manage legal compliance with methods, tools and performance indicators to improve processes. By motivating a culture of innovation and learning, continuous improvement enables organisations to adapt quickly to changing conditions (Galeazzo et al. 2014; Souza and Alves, 2018).

A successful IMS therefore eliminates the unnecessary complexity, waste of time and duplication of effort caused by multiple management systems. Instead of conducting separate audits for each standard (e.g. quality, environment, health and safety), an IMS provides a unified audit approach. This not only reduces the burden on internal audit resources, but also provides a holistic view of the organisation's compliance with multiple standards. In addition, an IMS ensures that processes are designed and implemented to meet the requirements of all relevant standards simultaneously. This integrated approach facilitates compliance with various regulatory and industry-specific requirements without the need for redundant or conflicting procedures (Bernardo et al., 2015).

In this direction, the main purpose of this study is to determine the management systems that are planned to be integrated in order for the IMS to be sustainable-oriented and to show that the basic rules and principles of lean and agile management in order to integrate them successfully; a synergy that can respond positively to the dimensions of sustainability emerges in these important steps that save time and cost, increase communication with all stakeholders at every step, increase organisational agility and flexibility, and aim to be in continuous development. It is aimed to show that sustainability can be achieved and to be a guide in determining the processes, practices and interactions needed for IMS, to contribute to sustainability by implementing the necessary activities for continuous improvement of processes, to show again that identifying risks and opportunities in advance is actually an important part of the agile management approach, to re-emphasise the social dimension of sustainability and the importance of the human factor.

It is believed that this study will help companies to navigate the complexities of the modern business landscape, achieve strategic objectives, and sustain competitive advantage in terms of IMS implementation. The main contributions are listed below:

- According to the evaluations made in the literature, the method development methods and analyses recommended for the integrated management system are examined.
- Despite the widespread adoption of IMS, there is a gap in the understanding of the long-term sustainability and improvement potential of IMS within organizations, as the literature review reveals that it is still not entirely clear whether IMS can be managed in a sustainable, risk free manner and continue in a state of continuous improvement (Gianni et al., 2017). In this study, sustainability in IMS is examined in a separate section to emphasize its importance and role.
- Companies often have diverse strategies, policies, goals, and procedures, which can pose challenges when integrating management systems. Bringing together multiple management systems of organizations is essential for achieving coherence and alignment within the IMS framework. In this sense, the latest studies are examined to navigate companies and managers about the new trends and concepts in terms of IMS.
- The literature review revealed the impact of lean management and agile management, which are among the top 25 modern trends in the management of businesses in the light of globalization and are one of the popular and preferred management perspectives in the world in recent years. Although lean management and agile management are recognized as effective approaches in modern business management, their impact on the sustainability and continuous improvement of IMS has not been fully investigated (Cambalikova, 2021). The contributions of these management perspectives to increase IMS effectiveness and resilience are examined.
- To provide information about the structures and revisions of the standards, management system requirements, principles and benefits, evaluation of the advantages of IMS, examining the impact of the human factor in the social dimension in order to understand more clearly the relationship and gaps between sustainability and IMS, revealing the impact and importance of agile management in the human factor, it will be a guide for the points to focus on to create a sustainable.
- For organizations to know their risks in advance will help them remain agile and create opportunities for continuous improvement. At this point, organizations should first adopt understandings such as agile and lean management that can affect their own culture, integrate their systems with this goal and measure the benefits of sustainability to environmental, social and economic dimensions. This study focuses on the aspects of an agile and lean integrated management system that can be related to sustainability, such as continuous improvement, continuous and increased communication between parties at every stage, time savings, and rapid adaptation to changing systems. For a successful IMS,

it identifies and presents the impact of lean and agile approaches through existing literature research on the steps that need to be focused on: Determining the context of the organizations, setting clear expectations of the parties, process, planning and continuous improvement.

The conducted literature review showed that while IMS offers significant benefits, there are still gaps in understanding its long-term sustainability, risk management, and continuous improvement potential. Integrating diverse management perspectives such as Lean and Agile management could be a promising avenue for addressing these gaps and enhancing the effectiveness of IMS in today's dynamic business environment. Further research is needed to investigate the relationship between Lean, Agile, and IMS sustainability in more depth. For this reason, in this study, the differences and benefits between the latest publications and revisions of "ISO 9001", "ISO 14001", "ISO 45001" and "ISO 27001" standards that constitute the management system are investigated in Section 2. In Section 3, why these standards should be integrated, how they can be integrated, what the criteria are, and what the benefits are after integration are presented. In the section examining the integration of modern management trends into IMS, the relationship of IMS with sustainability, lean management and agile management is analysed in the light of literature research. How lean and agile approaches can provide IMS and sustainability, their principles and values that can contribute are emphasized. The gaps identified, their relationship with each other and the steps to be taken for a successful IMS are practiced in the discussion and recommendations in Section 4 are presented. Finally, how sustainability-oriented lean and agile management will affect IMS will be guided in the light of literature research in Section 5 and research recommendations are presented to guide future studies.

Incorporating modern management trends such as agile and lean management and a continuous improvement approach into the foundation of an IMS is essential to ensure its sustainability and relevance in today's complex and dynamic business environment. These principles not only ensure operational excellence, but also enable organisations to create value, innovate and succeed in an increasingly competitive and uncertain world. A lean and agile IMS with a sustainable focus benefits organisations in many ways by addressing and solving problems arising from systems holistically within this structure, rather than separately. By optimising resource use, minimising environmental impacts and waste, promoting customer focus and sustainable practices, it can contribute to social responsibility, environmental management and long-term economic efficiency.

2. Literature review

In this study, a systematic literature review is conducted using leading academic databases such as Scopus, Web of Science, and Science Direct. In Fig. 1, the review process is presented. After, review parameters are determined, an initial search of articles published between 2014 and 2024 was conducted using the keywords "sustainability" and "integrated management system," yielding 167 relevant studies. For a detailed examination, a review database was created, recording information on each study's year, topic, keywords, methods, models, and etc. To enhance the study's originality, lean and agile management perspectives were incorporated by adding the terms "lean" and "agile" in a secondary search, which identified an additional 28 articles. However, further analysis was needed to clarify IMS's benefits and to pinpoint connections and gaps between IMS and sustainability. Using the created review database, studies focusing specifically on these aspects were selected, resulting in the inclusion of 39 additional articles.

In total, 67 articles that met the established criteria formed the foundation of the study. These articles were categorized into four main groups: "IMS," "Sustainability and IMS relationship," "Agile and IMS relationship," and "Lean Management and IMS relationship." Additionally, revisions of relevant standards were systematically re-examined.

Thus, the main goal is to examine in detail the processes that will respond to the three dimensions of sustainability economic, environmental and social components in order to establish a successful IMS, to determine the stages that can provide synergy and continuous improvement by examining the impact and contribution of agile and lean management in these process steps, and to be a practical guide to the goals and expectations of organizations.

2.1. Management systems

ISO standards are recognized globally and are used by organizations of all sizes, from multinational corporations to small businesses, as well as by governments and regulatory bodies. Compliance with ISO standards can enhance organizations' credibility, competitiveness, and market access, as they demonstrate adherence to internationally recognized practices and requirements. In the following parts, "ISO 9001", "ISO 14001", "ISO 45001" and "ISO 27001" standards which are essentials for an IMS are examined separately.

2.1.1. ISO 9001 Quality management systems

"TS EN ISO 9001" Quality Management System (QMS) Standards have become the International Standards that have created the most interest and application area since their publication. Early versions of ISO 9001 primarily focused on establishing quality management principles and practices. However, the 2015 revision marked a significant mile stone by formalizing the core principles of ISO 9001. This new version of the standard provides several advantages. Some of these are (Medić et al., 2016):

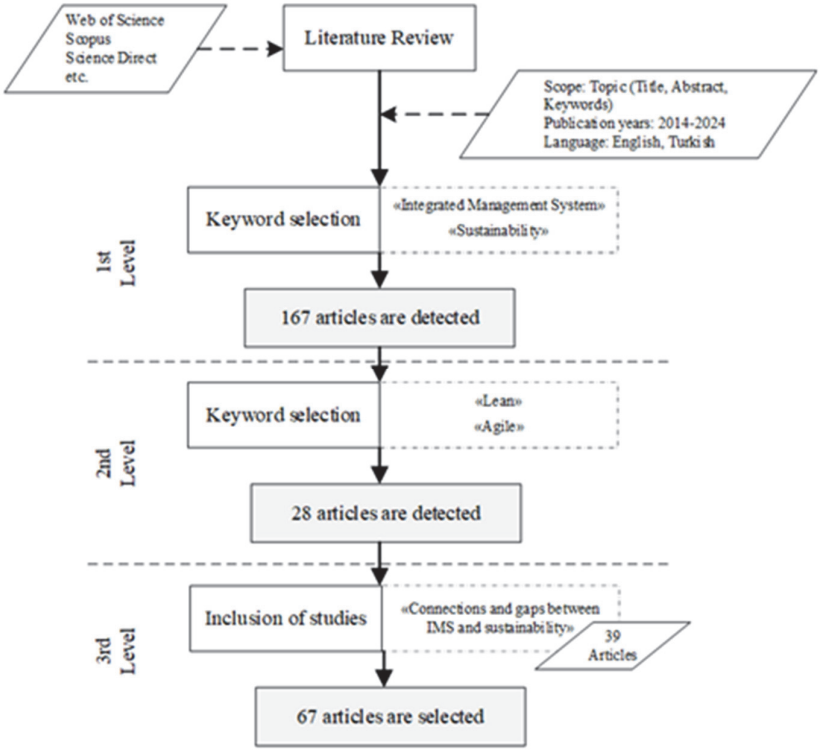

Fig. 1. Steps of the systematic literature review, including article selection from databases, application of keywords ("sustainability," "integrated management system," "lean," and "agile"), screening, and categorization into IMS-related themes

- Increased emphasis on top management leadership and commitment.
- Including a clear requirement for a risk-based approach and embedding a preventive approach throughout the standard.
- Emphasizing an institutional structure and ensuring an integrated approach.
- Fewer rules, less emphasis on documents, the organization determining according to its own needs and limits instead of mandatory procedures.
- Focus on achieving the capabilities and outputs required to increase customer satisfaction.
- Addressing the principles of mutual benefit in supply chain management more effectively through relationship management, including all relevant stakeholders.
- Emphasis on the concept of defining the boundaries of the quality management system and the concept of applicability in order to determine the scope.
- Use of simpler language and common terms for organizations that want to integrate various management frameworks such as environment, health, safety or business continuity.

In the ISO 9001:2015 standard, the "Planning" (P), "Do" (D), "Check" (C) and "Act" (A) sections represent the stages of the PDCA cycle.

- "Planning (P)": Quality policy, targets and processes are determined. A risk-based thinking approach is adopted.
- **"**Do (D)": Implementing planned activities, performing transactions and processes.
- **"**Check (C)": Performed operations and results are checked and performance is evaluated.
- "Act (A)": Necessary corrective and preventive actions are determined and implemented.

The structural elements of ISO 9001:2015, which provides a framework for under-standing the customer needs of the organization, ensuring continuous improvement and increasing customer satisfaction, are shown in Table 1.

Table 1. ISO 9001:2015 Structure

"ISO 9001:2015" Standard Clauses	
1. Scope 2. Binding references 3. Terms and definitions 4. The context of the organization 5. Leadership	6. Planning 7. Support 8. Operation 9. Performance evaluation 10. Improvement

These structural elements of ISO 9001:2015 provide an opportunity for an organization to establish, implement, maintain and continuously improve its quality management system (Geronimo et al., 2020; Wolniak, 2018).

2.1.2. ISO 14001 Environmental management system (EMS)

The current version of ISO 14001 Environmental Management System (EMS), ISO

14001:2015, the most widely accepted international EMS standard, was published in September 2015. The revision was released with the primary aim of standardizing all ISO standards and to facilitate the integration of management systems.

ISO 14001 contributes to strategic planning, improvement of environmental impacts that may occur during and after the design, production, distribution, use, and use of products and services, finding and researching of risks and opportunities, control of disposal methods using a life cycle approach and a systematic approach to sustainable development. ISO 14001 covers raw material and energy consumption, waste management, legal and industrial regulatory requirements and compliance, supply chain demands, and resource planning, along with waste quantity, and helps organizations to put systems and processes in place to improve their environmental performance (ISO 14001:2015).

ISO 14001, the internationally recognized environmental management standard, is built on the principle of all ISO management systems; the "Plan-Do-Check-Act (PDCA)" approach.

- "P": An environmental assessment is made, what will affect the organization, and goals, objectives, and action plans are defined in line with company policy to improve environmental performance.
- "D": Environmental management activity plans are implemented.
- "C": Processes are observed and results are reported in line with company objectives.
- "A": Action is taken to improve environmental performance.

In Table 2 below, the basic differences in the structure of the ISO 14001:2004 and ISO 14001:2015 standards can be seen more clearly. The major areas of ISO 14001:2015 revision seen in Table 2 can be listed as; expansion of the scope and field of activity in the environmental management system, necessary and needed interactions with external parties, new and essential requirements for leadership engagement, extended legal compliance clauses, the necessary for risk-based planning and control, items required for new documentation, relevant clauses to extend operational control requirements, changes needed for competence and awareness requirements, impacts that may be relevant to internal audit, costs that will be needed to increase certification (Sartor et al., 2019).

2.1.3. ISO 27001 Information security management system

"ISO/IEC 27001" ISMS is an international information security management standard prepared to provide the relevant requirements for a strong management system, detailing the requirements and needs, establishing and implementing policies, maintaining, monitoring and continuous improvement.

On 25 October 2022, the ISO/IEC (2022) standardization organization published ISO/IEC 27002:2022, the third publication of the ISO/IEC 27001 standard (Malatji, 2023). The main changes realized in the updated ISO 27001:2022 Standard are; that the main clauses of ISO 27001, i.e. clauses 4 to 10, remain unchanged. With the addition of exactly 11 new controls shown in Table 3 to ISO 27001, no control has been deactivated and almost all of them have been combined under the same title. The ISMS applies the PDCA approach for continuous improvement and creates a system that continuously follows each other with these steps. As shown in Fig. 2, these 4 main dimensions form the basis of the management system.

Table 2. Amendments to "ISO 14001:2004" and "ISO 14001:2015" structures

"ISO 14001: 2004"	*"ISO 14001: 2015"*
• General • Politics • Planning • Implementation and Operation • Control • Management review	• Scope of the organization • Leadership • Planning • Support • Operation • Performance evaluation • Development

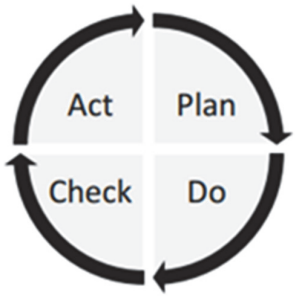

Fig. 2. PDCA cycle for Information Security Management System (ISMS) processes, illustrating the four stages: Plan, Do, Check, and Act (Sonnemann et al., 2015)

PDCA model stages for ISMS processes are listed below:

- "P": Establishment of ISMS policies, objectives, targets, processes and procedures.
- "D": Realization and operation of ISMS policies, controls, processes and procedures.
- "C": Evaluating ISMS policy, objective and process performance and measuring them in necessary steps and reporting the results to senior management by reviewing them.
- "A": Refers to the review by senior management and the fulfilment of corrective and preventive actions for the continuity and improvement of ISMS.

The ISO/IEC 27001:2022 standard is critical for organizations that want to establish an information security management system and start the certification process (Sonnemann et al., 2015).

ISO 27001:2022 includes some updates from previous versions and therefore enables it to address security risks more effectively and adapt to changing technological and business environments. In addition

to eliminating the control objectives of the new ISO 27001:2022, the information security controls in Annex A have been revised, brought up to date and reorganized.

Table 3. ISO 27001:2022 version Annex A new 11 controls

"ISO 27001:2022" Annex A new 11 controls	
A.5.7 Threat intelligence	A.8.10 Deleting information
A.5.23 Information security for the use of cloud services	A.8.11 Data masking
A.5.30 ICT preparation for business continuity	A.8.12 Preventing data leakage
A.7.4 Physical security monitoring	A.8.16 Activity monitoring
A.8.9 Configuration management	A.8.23 Web filtering
	A.8.28 Secure coding

Benefits for organizations; it ensures that awareness of information assets and information security awareness is created in organizations and measures are taken against threats to asset value. The ISMS has a large number of advantages and the tendency of many organizations around the world to ISO/IEC 27001 certification is continuously increasing significantly year by year (Accerboni and Sartor, 2019).

2.1.4. ISO 45001 Occupational health and safety management system

"ISO 45001" Occupational Health and Safety Management System standard was prepared in a high-level structure in order to contribute to the formation of safe and healthy working environments for organizations to prevent occupational accidents and occupational diseases, and to increase compliance with legal and regulatory requirements. To strengthen the organizational structure, to guarantee the continual enhancement of the established system, and to replace OHSAS 18001, was published by the ISO in March 2018 and by TSE as "TS ISO 45001:2018" as Turkish Standard in April 2018. "ISO 45001:2018" also follows the structure of "ISO 14001:2015" and "ISO 9001:2015" (Darabont et al., 2018).

The establishment and continuity of a successful OHS management system, the effectiveness of the system and the achievement of the objectives depend on a number of basic elements:

- Top management should develop and manage the OHS culture, which is the most important element for the OHS management system to achieve its objectives, and raise awareness among employees.
- Ensure effective communication in OHS activities.
- Ensuring the participation of employees and employee representatives, who must be elected in accordance with the relevant legislation, and receiving their opinions and suggestions.
- Establish OHS policies that align with the general strategic goals of organizations.
- Efficient and impactful processes, defining and controlling hazards and risks and capitalizing on OHS opportunities.
- Periodic assessment and monitoring of OHS management system performance to continuously improve OHS performance.
- Integrating the requirements of the OHS management system into the business processes of organizations.

ISO 45001:2018 OHS Systems are based on the PDCA model. Fig. 3 illustrates the integration of the PDCA cycle into the new framework of the ISO 45001:2018 standard. The approach is a living concept used to ensure continuous progress in the organization process. OHS Systems integrate the PDCA approach into a new framework as shown in Fig. 3 and this process can be applied considering each of its elements as follows:

- "P": Identify the risks or OHS opportunities identified as a result of OHS studies in workplaces, identify OHS objectives and necessary processes to achieve results in accordance with the organization's OHS policy.
- "D": Implement the relevant planned processes.
- "C": Supervise and assess pertinent activities and processes in alignment with the OHS policy and objectives, and report any findings.
- "A": Take necessary measures to achieve targeted and desired results and to continuously improve OHS performance.

The OHS management system applies to any organization that wants to establish, implement and maintain an OHS management system to increase OHS in workplaces, eliminate or minimize hazards and risks, take advantage of OHS opportunities and evaluate OHS management system incompatibilities according to their activities (International Standard ISO 45001, 2018; Šolc et al., 2022). The ISO 45001:2018 standard is divided into 10 sections and their titles are as follows. Table 4 shows the structure of ISO 45001:2018 Structure.

2.2. Integrated management system

A successful IMS has strategy and method components. The strategic component refers to defining integration and procedures, setting legal obligations and objectives, and deciding on the strategy for management system integration. The method component refers to plan formulation, measurement of management system integration, decision-making on specific control points, and reporting at the strategic level (Malatji, 2023).

In order to identify and evaluate the advantages of IMS at a measurable level, Santos and Carvalho (2019) conducted a broad literature review and analysed 323 academic studies conducted between 2008 and 2018, and according to the performance

analysis, 57 articles were finally evaluated and the following advantages were identified.

- Enhancing the organization's reputation in terms of stakeholders.
- Contributing to an integrated approach for more effective risk management in organizations.
- Increasing organizational capacity to achieve goals.
- Ensuring that strategy, methodology, and operational policies and objectives are aligned.
- Improvement of decision-making ability.
- Guarantee optimal utilization of various resources.
- Competitive advantage with different management policy synergies.
- Improving regulatory compliance.
- Improving cooperation in internal and external organizations.
- Development of reciprocal relationships between stakeholders.
- Simplify documentation and recording processes.
- Profit growth.
- Increasing harmonization between governance standards.
- Reduction of related costs.
- Contributing to sustainability in business.
- Improve process performances and simplify tasks.
- Improvement in organizational culture.
- Ensuring the optimization of relevant training activities.
- Increasing teamwork and employee motivation.
- Ensuring an adequate number of competent work force.
- Improving production and organizational efficiency.
- Providing the ability to add a new management standard.
- In the formation of the new management system, authorities and responsibilities are clearer.
- Better use of audit results in control procedures.
- Consolidation of external audit.
- Providing greater robustness and agility.
- Better use of creativity and innovation productivity.
- Improving the image of the organization.
- Simplifying certification processes.
- Facilitating continuous improvement.
- Encouraging sustainability development.

Bernardo et al. (2015) discussed the integration process in detail in their study analysing the benefits of IMS. Integration of management systems can be defined as "bringing together different functions" for a single, more effective management system (Beckmerhagen et al., 2003). Referring to the concept of synergy the effect produced by the integration of various elements (we can say management systems) is a simple sum of the maximization of the attributes that each element (management systems) possesses (Ansoff, 1988; Bernardo et al., 2015). The integration process is defined in four main parts such as integration strategy, integration methodology, integration level, and integration of audit systems as in Table 5.

Following the integration phases, an IMS offers a range of benefits across internal factors such as Global organization, human resources, performance, and management systems alongside external factors such as Market, Stakeholders, and Audits (Bernardo et al., 2015).

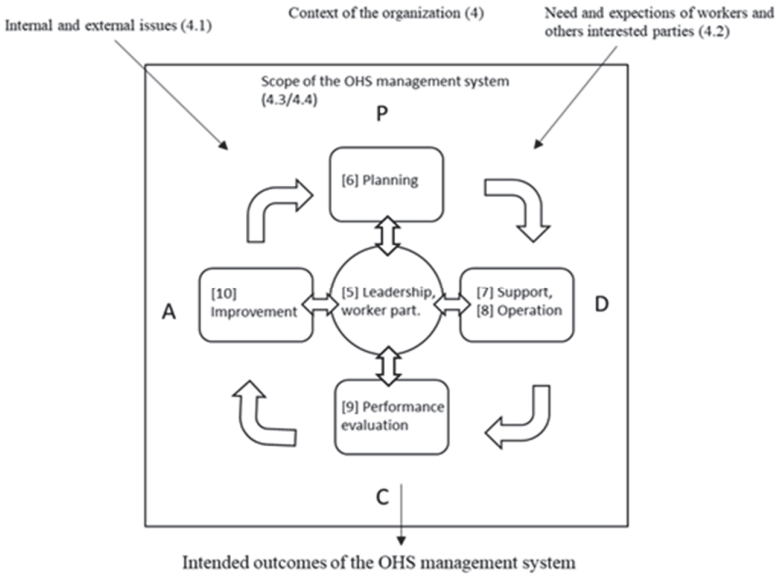

Fig. 3. "Integration of the PDCA cycle into the ISO 45001:2018 Occupational Health and Safety Management System framework (ISO 45001:2018)

Table 4. ISO 45001:2018 structure

"ISO 45001:2018" Standard Clauses	
1. Scope	6. Planning
2. Binding references	7. Support
3. Terms and definitions	8. Operation
4. The context of the organization	9. Performance evaluation
5. Leadership and employee engagement	10. Improvement

Table 5. Key stages of management systems integration

Integration phase	*Definition*
Strategy	Number and implementation sequence of MSs that the organization decides to integrate
Methodology	Models and tools used in the process
Level	The degree achieved by the integrated management system
Audit system	Degree of integration between internal and external audits

De Oliveira (2013) showed in his work as a guide to IMS, explains the integration process. In the study, it is stated that first, all actions and related resources should be carried out in a common direction, based on the structural factors that are deemed necessary to be integrated. These structural components are scope, policy, intents, and responsibilities (De Oliveira, 2013). Nunhes et al. (2016) also analysed and identified the functions and elements that can be integrated into an IMS and identified the structural elements such as: objectives and goals, guidelines, policies, obligations and responsibilities, senior management representative, instructions on work, documentation and record controls, formation, internal contact, contingency plans, performance indicators, procurement, non-compliance remediation, test control of work equipment, preventive and corrective activities, internal and external audits, analysis meetings attended by representatives. The process, analysis, benefits and challenges of integrating quality, environmental and OHS management systems in different sectors were discussed. A comparison is then made between the companies studied in Brazil (Nunhes et al., 2016).

Kuru and Akin (2012) aimed to create a decision support model for the selection of the standard with the highest contribution value among the management system standards. They identified quality, environment, OHS, food safety, information security, customer satisfaction, and energy management systems as the alternatives to be decided. In order to determine the criteria; ten elements that constitute the contribution value in management systems were determined and a hierarchical model was created. In the model main parts are determined as (i), Employees, (ii), Customers, (iii), Suppliers and Other Stakeholders, (iv), Product/Service, (v), Processes and/or System, (vi), Resources (vii), Society, (viii), Financial Structure of the Organization, (ix), National Economy (x), Competition. These criteria were asked to 20 Chief Inspection Officers (CIOs) of the Turkish Standards Institute (TSE), who are experts in management systems, and criteria weights were calculated by applying multicriteria decision-making methods. Also, a survey was applied to companies with at least two management systems certified by TSE.

As a result of the study, the weighted contribution value generated by the management systems in the companies that have selected and implemented the management system is at a high level and the system with the highest return is evaluated. It is understandable that in order for companies to determine and create the most appropriate management system for themselves according to their structure and culture; they should focus on and analyse the interaction of all process functions and activities with each other in the model they will decide. Since the culture and management approach adopted by each company may be different, identifying the elements with the highest contribution value can be beneficial in the formation of the management system. In particular, analysing the contribution to employees, customers and all other stakeholders can support the social dimension of sustainability.

The conducted literature review proved that the creation of a management system by targeting the IMS contributes significantly to organizations with its effectiveness, continuous development, and holistic perspective. Moreover, the execution of all organizations, processes, and activities in an interactive and systematic structure provides convenience to decision-makers and a model has been created that can decide on the most appropriate system by calculating the importance and contribution value at the management system selection stage of companies (Kuru and Akin, 2012). By adopting an integrated approach, organizations can streamline their operations, improve settle on procedures, and eventually achieve more significant success in the competitive business world.

3. Examining the integration of modern management trends to integrated management system

3.1. Lean management and sustainability

Lean management system is a system that is better, faster, and cheaper; it is a system that requires less space, fewer meetings, and fewer working hours and eliminates wasteful practices. From a general

perspective, lean management is the management of a lean production system (Barnas, 2014; Cilhoroz and Arslan, 2018). There are 5 key concepts of the lean management system such as value, value stream, continuous flow, pull and excellence (Cilhoroz and Arslan, 2018). The Lean Management System has 14 basic principles:

1. Adopt a long-term approach to management decisions.
2. Create a smooth process step to uncover issues.
3. Be careful to get rid of excessive production.
4. Lighten the workforce burden.
5. It is necessary to ensure quality in the first place and so develop a culture of stopping to evaluate critical issues that arise.
6. Standardizing responsibilities are the basis for continuous improvement and employee empowerment.
7. Use visual inspection effectively and ensure problems are not hidden.
8. Use carefully tested technology that both employees and contributes to the process.
9. Raise leaders who are experts in their work, who embrace this philosophy and aim to teach.
10. Train teams that embrace and value your company's culture.
11. Care about the communication network of your team and other stakeholders and their recovery.
12. Evaluate the situation especially closely.
13. Make your decisions with the cooperation of everyone, evaluate each step, and con-tribute to its rapid implementation.
14. To be an organization that aims for continuous improvement and considers every step.

On the other hand, while the lean management approach provides sustainability with its basic principles, despite the increasing popularity of sustainability, the achievement of sustainability continues to be a questionable situation due to reasons such as “the possibility of achieving environmental sustainability, environmental degradation, climate change, overconsumption, population growth and focus on economic growth plans” (Lorek and Fuchs, 2011). Therefore, it is necessary to fully understand and implement the increasingly popular themes of sustainability, sustainable development, and corporate sustainability. The emergence and conceptualization of the ideas of sustainability and sustainable development, which translates to singular terminology "sustainability" in common, is actually based on long-term studies (Kropp, 2013). The sustainability approach emerged as a result of extensive studies carried out by many international institutions and organizations, and its foundation was formed. The milestone studies can be listed as follows;

- Club of Rome’s report “Limits to Growth” (1972),
- “United Nations (UN) Environment Program” and “World Conservation Strategy” (1980),
- Brundtland Report "Our Common Future" (1987),
- “UN Conference on Environment and Development” (Rio de Janeiro, 1992),
- European Union 5th Programme of Action (1992),
- “UN Conference on Population and Development” (Cairo, 1995),
- “UN Conference on Human Settlements-Habitat II” (Istanbul, 1996),
- “Rio+5 Forum” (New York, 1997),
- “Conference on Sustainable Development” (Johannesburg, 2002) (Sen et al., 2018).

The important development for the themes of sustainability and sustainable development was the “UN Conference on Man and the Environment” held in Stockholm in 1972 (Turhan et al., 2018), where industrialization and growth were considered as environmental awareness, industrialization and growth were possible without harming the environment and developing countries were encouraged to seek different ways of growth (Adams, 2006). “The UN Conference on Environment and Development” held in Rio de Janeiro between June 3-14, 1992 was a significant step in terms of adopting certain principles for nations to adopt environmentally sensitive management styles.

In addition to the action plan Agenda 21, which is the highest level expression of global agreements and political conventions aiming to create a relationship and balance created by development and the environment to transform the theme of sustainable development into principles at the international level and put it into practice, the Rio Declaration and the Forest Principles were also adopted. Agenda 21 affirmed that sustainable development is “the most important policy of the 21st century” and that sustainable development, economic growth and environmental conservation should be integrated (Basiago, 1995).

Another significant stride towards achieving sustainable development was the adoption of the EU's 5th Environmental Action Program “Towards Sustainability” in 1992. In the program, agriculture, energy, industry, transport and tourism sectors were also addressed in the formulation and implementation of environmentally compatible policies and decisions. The Fifth Program focuses on air pollution, protection of water resources and natural resources, biodiversity, and climate change (Kor, 2017). After “The UN World Summit on Sustainable Development” in 2002, many sustainability conferences and events were held around the world. Listed below and notable, these conferences serve as platforms for collaboration and action on a variety of sustainability issues:

- “Rio+20 - United Nations Conference on Sustainable Development” (2012),
- “UN Climate Change Conferences (COP)” (2015),
- “Global Parliament Mayors” (2019),
- “The International Conference on Sustainability, Environment, and Social Transition in Economics and Finance (SESTEF)” (2023).

Schaltegger and Burritt (2005) define CS management as a "business approach designed to shape a company's environmental, social, and economic impacts in a way that, first, results in the sustainable development of the company and, second, makes a significant contribution to the sustainable development of the economy and society" (Joshi and Li, 2016; Schaltegger and Burritt, 2005).

With this approach, to increase CS, it would be useful to analyse the relationship between modern management approaches such as lean management and the environmental, social and economic dimensions of sustainability. Because corporate sustainability has an important place in these management frameworks. With management approaches based on value creation and continuous improvement; optimising processes, reducing waste, efficient use of resources, focusing on customer value, complying with legal requirements, involving employees in decision-making processes, making performance measurable and in a continuous feedback loop, integrates sustainability goals into these processes and facilitates being manageable and measurable (Valentinov, 2023).

Souza and Alves (2018) proposed an innovative model to enhance CS. They focused on the relationship between the Lean Management system and the social, economic and environmental dimensions that form the basis of sustainability for sustainable development. In their literature review, they first addressed the initial structure of the proposed model. Action research was conducted to identify potential problems, to verify the feasibility and to evaluate the model simply. This impact research was conducted in three cycles such as 1) A preliminary stage to understand the context and purpose, 2) Six main steps to collect, develop, analyse, plan, implement and track actions, and finally, 3) A meta-step for evaluation based on data from academic research.

The proposed model is formulated to incorporate the Lean Management System (LMS) with the QMS, EMS, OHSMS and Social Responsibility Management System (SRMS) which is a technically and methodologically broad-based guide for the assessment of social requirements for companies and organizations and which serves the user as an orientation for sustainable development. The integration aims to amplify the advantages of each management system, foster synergies, and optimize resource and time utilization for system operations. This rational use also reduces costs and reduces task overlaps. In addition, it strives to render the organization economically viable, ecologically sound, operationally secure, socially equitable, and culturally embraced. Souza and Alves (2018) merged lean principles with sustainability to achieve favourable outcomes across economic, environmental, and social domains. The proposed model as presented in Fig. 4 promotes the creation of synergies in carrying out activities and programs and for this purpose, it considers waste reduction, process-oriented activities and people's involvement levels. Therefore, the lean thinking approach was used to improve operational and environmental performance by minimizing pollution and remediation, and efficient use of energy and resources. At the same time, motivation, communication, problem-solving and collaboration have a significant value for the success of the proposed model. Because they have a positive impact on employees. The proposed model comprises the perspective of the lean management principle regarding the importance of the human factor to create synergies with the social dimension (inclusion of employee suggestions, respect and recognition) (Souza and Alves, 2018).

As shown in Fig. 5, the IMS includes the QMS, EMS, SRMS and OHSMS and this section describes the requirements, i.e. "What needs to happen". Global Reporting Initiative (GRI) guidelines provide a basis for illustrating the measurement of sustainability performance and covering economic, environmental and social dimensions and explain "Why the model should be applied." The LMS integrates the lean thinking model and identifies "How it can be done". Thus, lean management acts as a means of communication between requirements (What) and guidelines (Why), as well as a reinforcer of synergies. In short, the synergy created by Lean Management requirements, management systems requirements, and guidelines will enable and strengthen sustainability development and ensure continuous improvement.

It then described 14 steps for the implementation of the lean IMS work, which constitutes a continuous improvement path for sustainability performance, and the critical analysis of the proposed model demonstrated the applicability of the lean integrated management system for sustainable development. These steps are Stakeholder Identification, Critical Analysis of Legal Compliance, Policy Identification, Team Support and Involvement, Awareness, Responsibility Assignment, Product Family Selection, Value Stream Map - Current State, Defining Goals and Objectives, Defining Performance Indicators, Contextualization of Organization Sustainability Performance, Future State (identification of improvement opportunities), Integration between Management Systems and Synergy Opportunities, and Search for Excellence.

It can be emphasized that the importance of continuous improvement is one of the most important steps in supporting sustainability. To identify stakeholders and fully understand the organizational context, to meet the needs of the relevant parties and to ensure their satisfaction continuously and at every step; it will be necessary to plan and follow up the improvement activities, to initiate activities to correct nonconformities when nonconformities related to the processes are detected, to keep records for nonconformities, to ensure that the procedures are up to date and that the processes are managed appropriately according to the procedures.

The organization needs to decide how to address the relevance, adequacy, and effectiveness of

the IMS and the need for continuous improvement. In the same way, management should evaluate whether the outputs of the review provide resources for continuous improvement, the realization of improvement activities should be monitored and the effectiveness of the results should be evaluated. Lessons learned and problem solutions will create opportunities for continuous improvement, and these opportunities can be one of the biggest contributors to sustainability. In other words, analysing the foreseen risks before the processes and knowing the measures to be taken in advance or considering them as opportunities will show that the principles of adapting to rapid changes, controlling the steps, and increasing development, which represent the agile management approach, are applied. It can be also understood that IMS is agile because working in collaboration with a strong team can give a positive response to the dimensions of sustainability.

In the same way, Nadae and Carvalho (2019) conducted a literature review on sustainability and the standards that constitute an IMS (regarding "ISO 14001", "OHSAS 18001", "SA 8000", and "ISO 26000") and assessed how the literature addresses sustainability and IMS based on social, economic and environmental dimensions to provide a conceptual framework. It presented a conceptual model linking its main structures, key variables and relationships to better analyse the driving role of IMS for sustainability (Nadae and Carvalho, 2019).

The concept of latent variables was used to explain the model. Latent variables are conceptual terms that cannot be measured directly (Howell et al., 2007). Sustainability performance encompasses social, economic, and environmental dimensions and can be conceptualized as a primary latent variable and is considered as a latent dependent variable in the proposed model (Howell et al., 2007; Nadae and Carvalho, 2019).

Sustainability performance can be formulated with the assumption that it is elucidated from three perspectives such as social, economic and environmental (Hřebíček et al., 2012), or it can be designed by analysing each perspective separately. For example, the economic perspective has been investigated by Melnyk et al. (2003) and the environmental perspective has been investigated by Chiang et al. (2011). The latent independent variable is the LMS, which is a second-order latent variable encompassing the first-order latent variables.

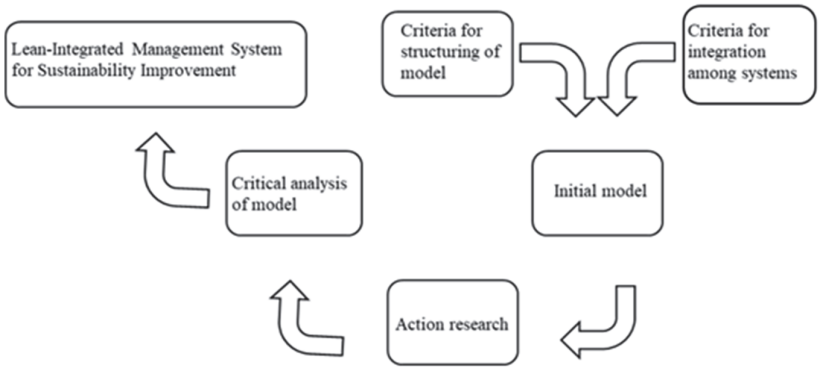

Fig. 4. Initial structure of the Lean Integrated Management System (IMS) Model, highlighting waste reduction, process-oriented activities, and human involvement (Souza and Alves, 2018)

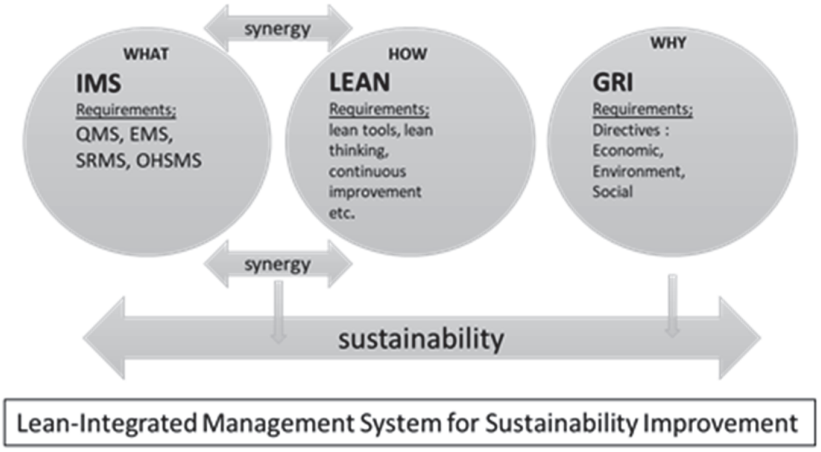

Fig. 5. Lean IMS model structure for sustainability development, linking requirements, guidelines, and lean thinking principles to economic, environmental, and social performance (Souza and Alves, 2018)

The first-order latent variables include ISO 9001, ISO 14001, OHSAS 18001, ISO 26000, and SA 8000, as outlined in the literature review conducted by British Standards Limited, in 2012, supporting this interpretation of the IMS structure (Beckmerhagen et al., 2003; Bernardo et al., 2009; Karapetrovic, 2002; Mackau, 2003; McDonald et al., 2002; Seghezzi, 1997; Wilkinson and Dale, 1999; Zeng et al., 2007).

In the relationship between IMS and sustainability; after determining the hidden variables, Nadae and Carvalho (2019) made 4 propositions. In the first proposition, sustainability performance can be addressed from each perspective as environmental, social and economic as mentioned before or it can be included in a common framework. The research has demonstrated a notable positive correlation between IMS and environmental performance. This proposition is also emphasized by many researchers (Chiang et al., 2011; Comoglio and Botta, 2012; González-García et al., 2009; Paulraj and De Jong, 2011).

A positive relationship between IMS and social performance can be established (Helms et al., 2012; Mueckenberger and Jastram, 2010; Nadae and Carvalho, 2019; Reynolds and Yuthas, 2007), but further empirical research is needed. Additionally, there is substantial evidence supporting a positive relationship between IMS and economic performance, as indicated by studies conducted by Maiga and Jacobs (2008) and Melnyk et al. (2003).

A similar rationale was employed in conceptualizing the organizational culture con-struct. It is formulated as a quadratic latent variable, encapsulating the conduct of the organization's stakeholders, the organization's regulations and norms, and staff engagement, as proposed by the examined literature, notably (Watson and D'Annunzio-Green, 1996; Wilkinson and Dale, 1999). Drawing from the reviewed literature, the model posits the following proposition; corporate culture affects the implementation of IMS. From the literature review, the following two plausible variables were identified, namely industry type and firm size, which could affect both IMS and sustainability performance as proposed by Karapetrovic and Casadesús (2009).

The third proposition posited that the type of industry (sector) influences the relationship, while the fourth proposition suggested that firm size impacts the relationship between IMS and sustainability performance across environmental, social, and economic dimensions. The proposed conceptual framework offers insight into the relationship between IMS and sustainability by considering all variables identified in the literature. This study made a significant contribution to the literature by conducting a comprehensive analysis of a sample comprising 1,010 articles on IMS (including ISO 14001, OHSAS 18001, ISO 26000, and SA 8000) and sustainability performance across three dimensions.

Managers can benefit from this study by gaining insights into identifying the most vulnerable aspect of sustainability, which is often the social pillar. By examining the social dimension of companies through the lens of these standards, managers can evaluate the organizational culture's influence on the three pillars of sustainability. Moreover, an examination of how these standards affect organizational culture can encourage managers to adopt a holistic perspective regarding the impact of their practices within organizations.

In another study, the importance of corporate culture for continuous development and sustainability and how it can be encouraged was evaluated by Chen (2004). The study examined the role of actively promoting organizational safety culture in the development and sustainability of an OHSMS. For the continuous improvement of the management system, they emphasized the need to first identify the requirements, objectives for the continuity of the process and ways to improve. The current situation should be analysed to determine and implement an appropriate policy by identifying ways of improvement through audit, information analysis, management assessment, corrective and preventive measures. The process of continuous improvement should take place in all aspects and should be done in only one step for gradual improvement: This step is the working principle of the PDCA cycle which is a dynamic and ever changing spiral process as shown in Fig. 6.

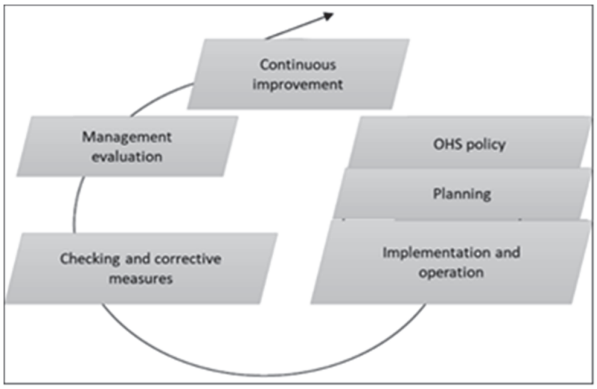

Fig. 6. Working principle of the Occupational Health and Safety Management System (OHSMS), showing the continuous improvement cycle (Watson and D'Annunzio-Green, 1996)

It has shown that for the continuity of the process; planning, analysing the current situation, identifying areas of development, and finding the appropriate method to achieve the goals are necessary. The selected method is then implemented. It is checked to verify, analyse and assess whether the results have achieved the target. Measures are taken to identify areas for improvement through audit and management evaluation. For the Development of OHSMS; Chen (2004) addressed the ways of improvement at three levels and emphasized that there should be a strong strategy, continuous development and improvement. In addition, he emphasized that the key items for process improvement are monitoring and measurement, improving document management control and contingency planning.

For monitoring and measurement; it has been shown again that there should be an internal audit and management evaluation. It showed that management should assess whether the current situation meets policy requirements, assess the determinants of goal achievement, and evaluate the impact and relevance of internal audit findings.

For the emergency plan; they emphasized that in establishing a management system and processes, the creation of an emergency plan is a key element that should not be neglected. Determination of emergencies situations according to potential risks and hazards, the creation and implementation of emergency teams are necessary to ensure continuous improvement. As a result, we can say that the continuous development of OHSMS with these steps contributes to the formation and development of corporate safety culture and offers businesses the opportunity to expand and improve themselves with a modern management approach. Because there is a strong cycle between the development of corporate safety culture and the continuous improvement of OHSMS.

In parallel with the development of the corporate safety culture, problems that may be encountered in the process of continuous improvement efforts were also evaluated. Low dependency between the management system and the organization negatively affects the awareness and implementation of the management system by employees. The system design and working principles will not be well integrated with the existing administrative management due to the lack of consideration of human factors, complex documentation, the use of unknown words and not using existing documents. Therefore, in order for employees to take an active role in the management system, the structure of the documentation levels needs to be understandable, usable and accessible in a common source (Chen, 2004).

The relationship with the IMS for the development of CS is also examined in detail by Gianni et al, (2017). The study addressed the two major gaps identified simultaneously on the IMS system and sustainability such as (i) IMS is manageable but not measurable and (ii) Sustainability is measurable but not manageable. They argued that CS and IMS share commonalities in terms of stakeholder orientation, innovation and complexity. Considering commonalities and shortcomings, potential synergies are explored to mutually enhance management systems integration and CS. IMSs provide the framework that encompasses the whole the management of CS while accounting for and measuring sustainability on the triple bottom line, which assesses the organization's performance on financial, social and environmental dimensions can also provide metrics for the effectiveness of the IMS. Therefore, a content analysis was conducted utilizing the three management theories. Resource, stakeholder and institutional theories were used to examine the concepts of IMS and CS and the relationship between them. Specific research propositions and a framework were developed. Three pivotal constructs IMS resources, IMS level, and CS performance were conceptualized (Gianni et al., 2017).

According to the literature, several theories are defined for the scope of sustainability such as “institutional theory”, “resource-based view”, “natural resource-based view”, “contract/agent theory”, “evolutionary theory”, “transaction cost”, “resource dependence theory”, “stakeholder theory”, “strategic choice theory” and “social network theory” (Lozano, 2015; Starik and Kanashiro, 2013). Operations managers often focus on resource, stakeholder and institutional theory for the framework of "firms' response to stakeholders' demands" (Wagner, 2015). Institutional theory enables companies to elucidate the process of “institutionalization” of sustainability across their operations (Maletič et al., 2016). Both institutional theory and stakeholder theory have been linked to the analysis of factors impeding firms’ integration within their respective domains (Martínez et al., 2016; Wagner, 2011).

Resource and stakeholder theories have been combined to conceptualize corporate social responsibility within operational frameworks (Sodhi, 2015). Within the IMS literature, resource theory has already been employed to explore the influence of IMS resources on firms’ operational performance (Savino and Batbaatar, 2015). However, the impact of IMS on sustainability and its performance has not been fully explored (Nunhes et al., 2016; Siva et al., 2016). Therefore, to address this gap, the following questions were used to jointly conceptualize IMS and CS performance:

- How can theories of the organization be used to describe the relationship between IMS and CS?
- How can the organization's theories be used to link IMS and CS performance?

For the analysis of these questions and evaluations; firstly, they investigated the relationship between CS and IMS. Then, CS performance is analysed using the stakeholder perspective and the triple bottom line approach. The literature on IMS is then reviewed from resource and organizational

perspectives. They made some suggestions according to these perspectives.

The first proposition from the perspective of Stakeholder Theory and CS are; they stated that CS performance is directly related to fulfilling the wishes and needs of all stakeholders. For this reason; the relationship between stakeholder demands and CS performance has been tested empirically and based on these data, the following questions were created (Maletič et al., 2016; Wagner, 2011; Wagner, 2015):

- How to manage stakeholder demands in the literature?
- How do stakeholders relate to IMS in the IMS and multi/management system literature?
- Which stakeholders are determined?
- What signs are used to describe and assess the impact and effectiveness of the IMS on stakeholders?
- How are performance and multi/management systems linked in the literature?

The correlation between stakeholders and corporate sustainability performance is shown according to the IMS literature research. The correlation includes stakeholders/performance dimensions, measured outcomes and researcher information. Stakeholders/CS performance dimensions: employees, customers, regulators, suppliers, community/environment, economic performance, environmental performance, value chain, information about customers, business function analysis, sustainability performance, social performance. Examples of metrics used to assess CS performance include internal and external audit results, quality of life, community investment, public safety, economic vitality, health, land use, infrastructure and natural environment, on-time delivery to customers, satisfaction with the environmental attributes of products, community/environmental resource consumption as well as metrics that support the social dimension of sustainability such as employee morale, quality and environmental training results (Gianni et al., 2017; Székely and Knirsch, 2005).

Afterwards, the proposition based on the relationship between the IMS and Resource Theory; is that CS performance is directly related to the resources allocated for IMSs. When viewed from the resource perspective in IMS, the following questions were focused on in literature research:

- What the linkage between resources and the IMS is as portrayed in the literature?
- Which specific resources are recognized or mentioned?
- Which criteria or metrics are utilized for the identification and evaluation of these re-sources?

After evaluating the source theories, as explained above; it is the IMS level, which is the second of the three basic structures. IMS level describes the degree of integration of a firm's initial independent management system. The extent of integration can be characterized along three dimensions; strategic, tactical, and operational, or alternatively, along three dimensions; temporal, substantial, and organizational (Asif et al., 2010; Von Ahsen, 2014). Additionally, the degree of integration can be assessed based on the integration of objectives, integration processes, and resources (Karapetrovic and Willborn, 1998; Sampaio et al., 2012).

Furthermore, the integration process is delineated into four primary components; integration strategy, integration methodology, integration level, and integration of audit systems (Bernardo et al., 2015). IMS level components are explained as follows: Management systems policies, objectives, human resources, design and documentation, strategic processes (policy setting, establishing and planning long-term objectives, management review, performance evaluation), tactical (system support) processes (preventive and corrective actions, nonconformity control, document and data control), operational processes (production operations, waste management, health and safety practices), internal and external audits. The following propositions have been posited for the effectiveness of a firm's IMS on CS, i.e. the economic, environmental and social interactions of the IMS with the firm: i) The level of multi-management system integration depends on firm performance, ii) The level of multi-management system integration depends on CS performance.

However, organisations may face challenges in integrating integrated management systems and corporate sustainability, such as a culture of resistance to change, inadequate human and financial resources, insufficient employee knowledge and interest in training programmes, complexity of data collection and analysis, ever-changing regulations, managing stakeholder relationships, selection and costs of technology and software (Bernardo and Simon, 2014; Savino and Batbaatar, 2015). On the other hand, in the development of CS with IMS; it has been evaluated and shown in sectors such as energy and mobility, food and beverage, automotive and industrial supplier and chemical that steps such as the establishment and follow-up of audit processes, process and document management, performance evaluation and follow-up, continuous improvement etc. fully support and assist the entire process of IMS (Vieira Nunhes et al., 2022).

According to the synergies defined in the literature and that can be created; in Fig. 7., the theoretical framework between IMS and CS focuses on determining the scope and resources, determining the needs and expectations, identifying stakeholders within the CS scope and determining strategies for interaction, determining the requirements, the adequacy of the organizational structure, integrating records and procedures to achieve goals and shows that it affects CS performance. In addition, showing an integrated approach for risk analysis, including CS in the purpose, mission and vision of the organization and using IMS as a tool, developing solution strategies and increasing leaders and employees' CS awareness contribute to the whole process (Vieira Nunhes et al., 2022).

When all the above literature studies are evaluated; to analyse in detail the relationship between the integrated management system and sustainability; it is necessary to focus on the integration purpose, integration strategy, integration method, integration level, integration process, integration resources and integration components. Each of them contains a theory within itself. Modern management approaches are essential for the development of each theory and are directly related to corporate sustainability.

This is because an IMS that has adopted modern management approaches can enable organisations to manage more effectively and be more aware of their responsibilities by maintaining compliance with global business sustainability goals. It can help organisations to develop strategies that also overlap with environmental, social and economic sustainability goals, determine performance indicators for targets, take necessary corrective steps quickly, proactively manage challenges in risk management, develop transparent communication and cooperation with all stakeholders and continuous performance improvement.

3.2. Agile management

The Agile approach first came to the fore in 1990 and was about software development. Then, in 2001, the Agile Manifesto was published by Beck et al. (2011) and became more popular. Primarily influenced by waste reduction efforts and the maximum performance that emerges as the primary goal in lean production, agile methods stand in direct opposition to traditional software engineering methods that aim to be bureaucratic. This is because it adopts the principles of strong collaboration, strong team, repetition and increased development efforts, increased customer communication and adaptation to change that the agile approach brings (Beck et al., 2001).

In recent years, Agile has gained strength in the field of software development, and interest in this approach continues to grow every year. VersionOne's "13th Annual State of Agile Report" on the implementation of agile in companies around the world states that; 97% of evaluators reported that their organizations implemented agile development methods. In 2011, this number was stated as 80%. This growth and proven positive results; other companies in various sectors such as consumer needs, education and healthcare have also given importance.

The Agile management guide states that agile approach techniques and practices can enable companies to respond to demanding technologies and increasing customer that adds value quickly demand in a prioritized manner. The agile approach along with its speed, control loops and close and continuous customer communication, offered a way to coordinate and adapt to the competitive environment. The agile mind helps companies to create and sustain a competitive advantage (De Borba et al., 2019).

The agile stance includes agile elements and principles. There are different agile stance methods such as the Scrum method, Kanban method, and Extreme programming. All of these methods adopt agile elements, but each method has a separate life cycle, shares, advantages and disadvantages (Ozkan et al., 2020). The most important values of the agile approach, working together, strong team, continuous improvement by checking the control steps, increase and contribution to customer communication, and adaptation to changes are shown in Fig. 8.

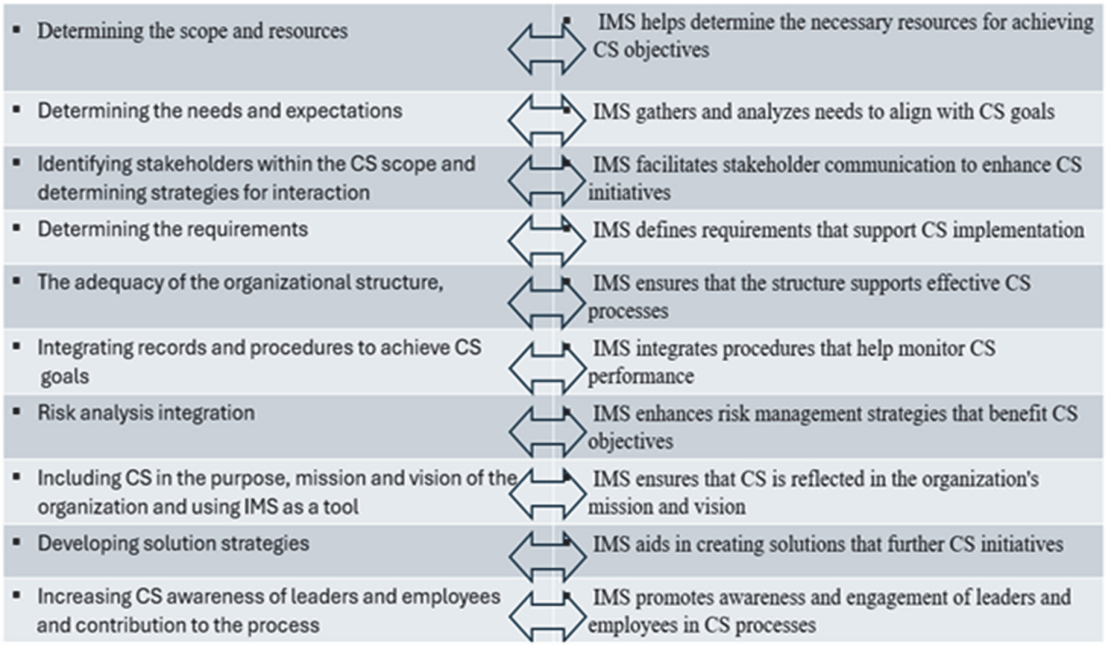

Fig. 7. Theoretical framework illustrating the interaction between Integrated Management Systems (IMS) and Corporate Sustainability (CS), including scope, resources, stakeholders, and strategies (Vieira Nunhes et al., 2022)

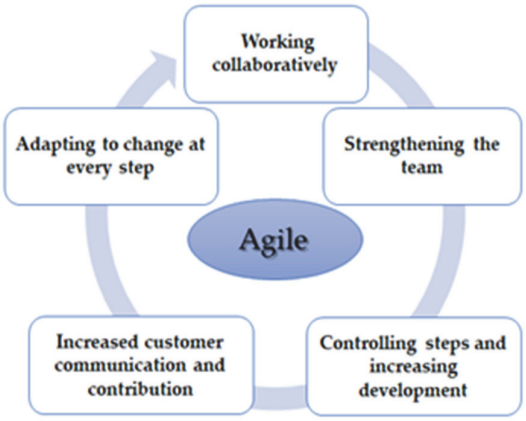

Fig. 8. Core values of the Agile management approach, emphasizing teamwork, collaboration, flexibility, customer orientation, and continuous improvement

If the four agile practices criteria are generalized; each project should be broken down into smaller, easier to manage and understand pieces to increase communication and in-formation sharing. In this way, the team can easily access comments and information from customers through different meetings held during the development phase. Self-organization should be ensured and everyone should share responsibilities. Self-retrospective study should be done. After each iteration, there should be a self-evaluation of the goals achieved and the required goals (Asprion et al., 2023). The requirements of the 12 agility principles can be explained as follows (Beck et al., 2001):

- The most important step is to satisfy the customer through short delivery times.
- Fulfilling needs that may change during the development phase.
- Always welcoming changing needs during development steps.
- In shorter periods, the number of deliveries is frequent.
- Choosing face-to-face meetings to convey information is more effective and efficient.
- To make collaboration work, managers, stakeholders and business developers must work together at every step of the project.
- To create environments that provide motivation, to create and support projects with motivated individuals.
- Agile approach steps contribute to sustainability.
- Attaching importance to technical excellence and well-designed projects increases agility.
- Trying to be simple is essential.
- Self-managed and organized teams create the best architectures and designs.
- The team always thinks at regular intervals to be more effective and takes steps accordingly.

Agile project management methodologies have proven to be much more sustainability-oriented, especially in the research and development, education and consulting, media and telecommunications, investor, administration and industry sectors, demonstrating that managers can create value for stakeholders. Both the theoretical framework and the empirical research results presented prove that organizational sustainability can be achieved through agile management. In particular, the research results show that on-time delivery, increased productivity and improved work atmosphere are also very important for sustainability.

Within the scope of the literature, when the relationship between the traditional principles and principles of agile management and corporate sustainability is examined; short-term and long-term trends have been analysed in terms of better understanding and meeting customer needs, a better working environment and employee engagement, adoption of collaborative working models, increasing innovation potential, improving quality, being more creative and saving time, valuing and taking into account the interests of all relevant stakeholders, value and speed orientation, and positive results of the practices supporting sustainability have been obtained (Gomes Silva et al., 2022; Kasauli et al., 2021; Zakrzewska et al., 2022). In this way, organisations can successfully manage current challenges, can be focused on value creation and analyse future opportunities.

4. Discussion and findings

A literature review conducted in this study showed that it is still a critical issue that the IMS in organizations is manageable but not fully measurable and sustainable. Because the most important points that can always be an obstacle in the integrated management system are; insufficient human resources or lack of knowledge and training, lack of support from senior management, lack of IMS strategy, insufficient people to audit, lack of audit method, lack of IMS awareness and lack of motivation of employees, lack of instructions for IMS

implementation, lack of common procedures for IMS, different personalities and different cultures make integration difficult. In addition, the most critical points are that employees do not accept a new system, are not aware of new changes, do not work together, and are not ready for change (Ispas and Mironeasa, 2022). Therefore, managing the IMS with an agile and lean management system approach will ensure sustainability (Silva et al., 2020) and at this point, the performance of the IMS can be measured at every step.

It seems necessary to first conduct an impact study on the social, economic and environmental dimensions that form the basis of sustainability.

Therefore, the institutional context and the needs and expectations of interested parties need to be well analysed. With the work-together approach of agile management, Fig. 9(a, b) show an example analysis of the needs and expectations of the relevant parties by determining the internal and external corporate context, internal and external interested parties and the subject of the context. By controlling the steps at every stage and adapting to change at every step with the understanding of work together; many expectations such as providing timely and accurate supply, meeting variable demands quickly, making products, services and payments in accordance with specifications, reliability, innovation, survival, easy communication with the company for questions and complaints, emission reduction studies on climate change and sustainability, cooperation in audits and studies, being transparent, being open to information and document sharing and support in managing the operation can be given as examples.

Determine the subject of the context according to needs and expectations; identification of risks and opportunity analysis by relevant parties will also support agile management. Because the relevant parties know their risks in advance and will be prepared and flexible for all changes. Many risks such as decreased sense of customer-oriented work and decreased service efficiency, inability of the personnel to respond to the customer, inadequacy in the subject they serve, insufficient perception of customer conditions, insufficient studies on employee awareness, failure to regularly review strategies and targets according to changing factors, insufficient knowledge of the personnel, lack of training, failure to complete the project as a result of not following the projects correctly can be given as examples. The fact that the actions for these risks have already been determined will enable companies to remain agile against risks. In other words, conducting risk and opportunity analyses, monitoring and predetermining the actions to be taken show that modern management trends are applied and thus sustainability will be ensured. It is necessary to ensure that the context of the organization is fully understood and how organizations should determine their internal and external considerations. Then, as shown in Fig. 10. respectively; identify interested parties, define their requirements and expectations, define the scope of the IMS and the processes and procedures needed for the IMS, have top management leadership and commitment to the IMS and a policy with IMS objectives that is aligned with the strategic direction, identify risks and opportunities that need to be addressed through planning. Agile and lean management will be adopted and environmental, social and economic sustainability will be ensured at every step by planning the roadmap to be followed to achieve the objectives, determining the resources required for the establishment, implementation, maintenance and continuous development of the IMS, and correctly implementing the support, operation, performance evaluation and improvement steps.

In the impact assessment; to achieve sustainability in economic, environmental and social dimensions and to achieve goals; it is clearly seen that there is a need for the synergy brought by modern management approaches such as lean and agile management. Because, with these modern management approaches, in the social dimension of sustainability; it is understood how important employees are to be motivated, to have comfortable communication, to solve problems together and to work as a team, in other words, the human factor.

Collaboration and team empowerment are also the most important elements that create agile values in agile management. Because the human factor, the attitudes of the organization's stakeholders, the organization's rules and employee participation create and affect the corporate culture. The corporate culture affects the IMS; this is clearly seen in the models proposed in the literature. This is because cultural differences also influence the integration process and this influence is important for the involvement of employees and the viability of the system. Different communication styles, direct transparent communication or inadequate communication can affect the co-operation of the parties. In addition, some cultures may be cost and result orientated, while other cultures may be quality service and process orientated. These differences may cause difficulties or opportunities in the aims and objectives of the system. In addition, differences in organisational culture, such as the decision-making structure in the organisation, employee resistance to change or openness to innovation, also affect the IMS. Therefore, managers can contribute to determining the social dimension, which is the most sensitive point of sustainability. While companies evaluate the social dimension; it is important to note to social actions to maintain the three dimensions of sustainability (Nadae and Carvalho, 2019; Silva et al., 2021; Simon, 2023).

For example; as IMS resources and within the scope of the social dimension of sustainability; in the study of Maletič et al. (2016), which focuses on Stakeholder Theory and Resource theory; in terms of corporate sustainability perspective, has been analysed that identifying resources and stakeholders, establishing the relationship of resources and stakeholders with IMS, meeting all stakeholder demands and how to manage the demands increases corporate sustainability performance.

Related Parties	Impact of Related Party	Needs & Expectations of Related Parties
Customer **Company Owner** **Shareholder** **Governance** **Employees** **Suppliers** **Certification Bodies**	**Work together** **Strong team** **Controlling steps** **Increased communication** **Adapting to change**	• Timely and accurate supply, fast response to changing demands, products/services meeting specifications, prices & payments. • Cooperation in audits and studies, transparency, openness to information and document sharing, support in managing the operation. • Reliability, innovation, survival. • Easy communication with the company for questions and complaints. • Timely response/resolution to questions and complaints. • Emission reduction efforts on climate change and sustainability. • Fulfillment of the set Objectives and Strategies. • Compliance of personnel with the specified conditions (quality, legislation, workplace rules, etc.). • Appropriate working environment (optimum temperature, working and rest periods, peaceful and harmonious working environment, etc.). • Ensuring the security of all shared information, including personal data. • Timely payment, increase in volume and scope of procurement, long-term supply and work contract, continuity, notification for future purchases and new projects. • Cooperation in audits and studies, transparency.

(a)

Internal Context	• Organizational work culture, policies, procedures and instructions. • Education levels, knowledge, knowledge and experience of the organization's employees, organizational policies, procedures and instructions. • Financial resources of the organization. • Organizational structure acquired customer contact information. • Increased awareness of employees on this issue • Strategies, Targets, Resources, Budget, Organizational culture, policies and procedures. • The organization's work culture, policy, financial resources, compliance with legal regulations, fringe benefits, environmental measurements, OHS security, and measures related to the security of personal data. • Establishment of organizational structure acquired information. • Organization financial resources, and administrative assets. • Implementation of standards
External Context	• External providers (suppliers and external subcontractors), legal requirements set by legal authorities, customer requirements. • External providers with sector-specific training programs, government incentives. • Customer special conditions. • Technological elements. • Resources (financial and human resources) that the organization will provide on climate change and sustainability. • Market conditions, economic factors, geopolitical factors and neighbors, competitors, external providers. • Rules set by legal authorities, economic factors. • Elements of contract and working procedures. • Management Systems and certification of the laboratory

(b)

Fig. 9. Example analysis of organizational context and stakeholder expectations under agile management, showing identification of internal and external factors, needs, risks, and opportunities

Understanding the context of the organization	Describe the parameters taken into account when determining internal and external aspects and how they are determined
	Management policy and process performance compliance with indicators, formation and continuity of IMS documentation
Understanding the needs and expectations of relevant parties	Identify relevant parties and define their requirements and expectations
Determining IMS coverage	Determining IMS coverage and boundaries, where coverage is defined
IMS and Processes	Identifying the processes and applications needed for IMS, determining the sequence and interactions of the processes, monitoring, measuring and analyzing the processes, implementing the necessary activities for continuous improvement of the processes, identifying risks and opportunities, identifying process needs
Leadership	Leadership and commitment from senior management for the IMS, senior management identifying and securing customer requirements and applicable legal and regulatory requirements, policy with IMS objectives aligned with the strategic direction of the organization
	Determination of corporate duties, authorities and responsibilities
Planning	Identification of risks and opportunities that need to be addressed to provide assurance that the intended outcomes of the IMS can be achieved
	Formation of objectives within the IMS, ensuring that the objectives are measurable and consistent with the management policy, planning the path and resources to be followed to achieve the objectives
	Change planning, determining the necessity of changes to the IMS and the methodology for implementation, resource availability, job descriptions, IMS system as a whole, and evaluation of changes
Support	The organization should identify the resources (including people, environment and infrastructure requirements) necessary to establish, implement, maintain and continuously improve the IMS
	The IMS contains the documented information required by the standard and the documented information deemed necessary by the organization for the effectiveness of the IMS, and the document list is up-to-date.
	Documented information required by the IMS and standards is accessible, protectable and available, IMS records are kept
	Determining the list of outsourced documents, defining procedures
Operation	The organization plans and delivers to the process owners the processes needed to meet the requirements and perform the activities to deliver products and services, collecting information.
	Customer-related processes, design and development of products and services, satisfaction measurement.
	Planning of design and development, identification and control of inputs and outputs of design and development
Performance Evaluation	Monitoring, measuring, analyzing and evaluating, internal audit, management review, performance monitoring, customer satisfaction
	Conducting internal audits on whether the IMS is effectively implemented.
	Conducting management meetings for the improvement of IMS and having minutes of the meeting.
	Management reviews inputs and outputs
Improvement	Planning and follow-up of remedial actions, initiating actions to correct nonconformities when non-conformities related to processes are detected, keeping records of nonconformities
	Continuous improvement means that the organization decides how to address the need to continuously improve the relevance

Fig. 10. Roadmap for implementing an Integrated Management System (IMS) aligned with agile and lean principles, covering stakeholder identification, leadership commitment, planning, risk analysis, and continuous improvement

One of the other approaches of agile management; it can be clearly seen that the relationship between evaluating stakeholder de-mands step by step and communicating at every stage in ensuring corporate sustainability (Gianni et al., 2017; Maletič et al., 2016). In addition, as the literature studies emphasize on the human factor; with the perspective that modern management approaches will bring; employees with high job owner-ship, who feel competent and sufficient, highly motivated and strive

at all levels will emerge. Therefore, the following steps can be suggested for the establishment of a sustainable IMS in line with modern management trends:

1. Establishing an IMS team, identifying quality representatives and sharing tasks, providing IMS system training to increase employee awareness:
2. Preparation of IMS documentation, identification of gaps for IMS requirements:
3. Expanding documentation and creating an integrated documentation structure in accordance with IMS requirements:
4. Preparation of implementation records in compliance with IMS requirements:
5. Analysis of the organization's site and system infrastructure and documentation in terms of IMS requirements.
6. Providing ISO Standards Basic and Internal Auditor Training to employees and con-ducting process analysis.
7. Checking the compliance of employee contracts with IMS requirements.
8. Conducting Risk Analyses in terms of Quality, OHS, Environment and Information Security dimensions.
9. Submission of the prepared Risk Report to senior management.
10. Establishment of Quality, OHS, Environment and Information Security policies, regulations and boards.
11. Expansion of internal regulations to meet IMS requirements.
12. Establishment of a disciplinary board and preparation of disciplinary regulations.
13. Initiation of IMS implementations.
14. Adding definitions related to IMS to employee job descriptions.
15. Reviewing internal processes, identifying IMS requirements and restructuring the necessary process steps.
16. Ensuring that IMS internal audits are conducted and reported.
17. Informing about keeping the necessary forms and records.

Establishing an IMS team ensures coordination between departments, awareness of responsibility and holistic progress of processes. Experts in different fields offer a more comprehensive perspective and can develop suggestions for improvement. In addition, the identification of quality representatives, clarification of responsibilities, realisation of goals and strong communication within the team can provide strong communication and quick solutions.

Providing trainings to employees for IMS awareness and sharing information at regular intervals is of great importance for the system to be sustainable and effective. Thanks to trainings, employees can contribute by understanding and adopting the requirements, objectives and benefits of IMS. With increased motivation and awareness, it stays connected to the system, can help to implement the processes with the right steps, increase the quality and improve the performance of the organisation. The competencies gained through training and information flow between teams facilitate integrated processes and can also improve sustainability awareness in corporate culture (Bernardo and Simon, 2014; Savino and Batbaatar, 2015).

Determining the policy, establishing procedures, instructions and forms, determining the management of records, analyzing the current situation, creating, implementing and reviewing action plans to identify and analyze deficiencies are important stages in the implementation of the IMS. In addition, analyzing the standards, establishing the hierarchical structure of the documentation, determining its scope and purpose, determining responsibilities within the senior management team to increase the effectiveness of the system and the traceability of the processes, conducting risk analyses, conducting internal audits and presenting them to senior management, and monitoring the extent to which sustainability goals are achieved by senior management are other important steps.

This is because the role of leadership commitment is crucial for the successful operation of IMS and CS. While setting strategy, leaders can create the necessary environment and culture and raise awareness among employees to increase employee motivation and encourage their participation, which is important not only for environmental and economic but also for the social dimension of sustainability. They can also support their sustainability goals by making investments and providing financial or human resources. In addition, tracking and monitoring performance indicators and targets, communicating and collaborating with all stakeholders, and encouraging continuous development and innovation are the most critical points for a leadership role.

Apart from the resources that make up the IMS, covering the integration process; it can be seen that integration strategy, integration methodology, integration level and integration of control systems are directly related to corporate sustainability performance (Bernardo et al., 2015). Because the strategy of a successful IMS must be strong. Integration and procedures must be defined, legal obligations, objectives and steps to be followed must be well determined. On the other hand, method components; planning, measuring the integration of the management system and decision-making points must be well determined (Ispas and Mironeasa, 2022). Like this; strong strategy and continuous improvement activities will contribute to sustainability performance. Because to fully establish and maintain the relationship between IMS and sustainability in a positive way; it is important that social, economic and environmental performances are measurable and constantly improving (Santos et al., 2019).

To ensure continuous improvement and constantly increase sustainability performance; modern trends aimed at continuous improvement, such as agile and lean management, will need to be adopted and implemented. Collaboration and work

sharing, team empowerment, motivation and transparent communication, sharing responsibility, self-evaluation of goals and results, increased development activities, increasing customer participation and always adapting to change, performing better quality and less costly work in a short time; it will create a sustainable IMS.

For a sustainability-oriented IMS; how can the impact and contribution of lean and agile management be, how can the relationship be evaluated, and which stages should be focused on, organizations need to understand these first. Therefore, the relationships between them are discussed in detail in the light of the existing literature. Since there is limited research examining the relationship between lean and agile management approaches and IMS, determining the processes, practices and interactions that will ensure sustainability and are needed for IMS will guide organizations. In addition, the importance of the social dimension of sustainability, corporate culture and human factors are emphasized, as well as the activities required for continuous improvement of processes, how continuous improvement can contribute to sustainability, and showing again that identifying risks and opportunities in advance can be an important part of the agile management approach.

5. Future research directions

The main purpose of this study is provide an essential information to companies and managers by reviewing IMS from different perspectives. It is believed that this study will help companies in gaining a deeper understanding about the competitive advantage in terms of IMS implementation. However, companies often have diverse strategies, which can pose challenges when integrating management systems. In order to overcome these challenges and ensure that the IMS operates effectively, it's crucial to establish guidelines or frameworks for integration. These guidelines provide a structured approach for aligning different management perspectives, processes, and objectives within the IMS framework. They help in streamline operations, minimizing duplication of efforts, and ensuring that all components of the organization work cohesively towards common goals. Without such guidelines, the integration process can become disjointed, leading to inefficiencies and suboptimal outcomes. For this reason, as a future study it is aimed to develop a guideline for companies to facilitate the integration of their management systems.

Potential future researches could also explore several critical aspects of implementing sustainable IMS. One of the promising area is the analysis of its effectiveness when adding lean or agile methodologies to sustainable IMS dimensions in different sectors. Examining the role of leadership styles in shaping the understanding and implementation of sustainable IMS within organizational cultures is another essential area. Different leadership approaches can significantly influence how sustainability principles are integrated into management systems, impacting employee engagement and commitment to sustainable practices. Measuring the impact of sustainable IMS on supply chain flow and sustainability performance, or comparison of the measurability of sustainable IMS models in different geographical regions can be considered as another potential research area. This research could highlight regional best practices, challenges, and variations in the implementation of sustainable IMS, providing a broader perspective on its global applicability. Focusing on these analyses will provide valuable information to improve the theoretical understanding and practical applications of sustainable IMS in various organizational structures.

Since digital technologies are reshaping the way businesses operate, one of the most crucial area for future research is the impact of digitalization on IMS. Digital technologies offer unprecedented opportunities for enhancing efficiency, optimizing processes, and driving innovation within IMS frameworks. But, this transformation not only streamlines operations through automation but also fosters collaboration across departments, creating a unified approach to achieving CS goals. Digital tools enable organizations to collect and analyse vast amounts of data regarding their operations and sustainability metrics thus allows for immediate insights into resource consumption, emissions, and overall sustainability performance. In this regard, the intersection of digitalization with IMS and CS, enables a holistic approach. Project management platforms can streamline communication and coordination among teams, ensuring that sustainability considerations are embedded in every operational facet. However, digital transformation also brings challenges, particularly in data management and governance. Future studies aimed at analysing the effect of digitalization on IMS will provide valuable insights for companies striving to adapt and thrive in the digital age.

6. Conclusions

Businesses face the challenge of balancing environmental and social sustainability responsibilities with the imperative of safeguarding and augmenting shareholder value. However, apart from issues related to the environmental and social impacts of business activities, organizations also demand measures for benchmarking performance from a corporate social and environmental perspective across different industrial business shares. Investors also demand disclosure of significant environmental risk factors and associated compliance costs, responsibilities and liabilities. Organization managers are constantly searching to enhance triple bottom line performance and evaluate the right choices between often overlapping financial, environmental and social aims. As a result, it is required to expand its environmental, social and economic performance to include it in its management control systems.

In light of all these problems; there is a need to integrate existing management systems. However, they face the problem of sustainability because simply integrating is not enough. Therefore, by changing their perspective on the management style; applying agile management, which has become popular in recent years, and the lean management approach, which has indisputably brought countless benefits especially, in production areas, at every step can ensure that the IMS they need is sustainable.

The conducted literature review revealed the synergies and benefits that lean management and agile management will add to the IMS and ensure its sustainability. Literature evaluations suggest that when examining the development methods and analyses recommended for an IMS, several key approaches emerge. In general, integration of these modern management trends with IMS can undoubtedly provide many benefits that can significantly enhance organizational performance.

Adopting modern management practices can lead to remarkable time efficiency by streamlining processes and eliminating redundancies. This allows organizations to allocate resources more effectively and focus on core activities that drive value. Integration facilitates long-term planning by providing a structured framework that aligns organizational goals with strategic objectives, supporting sustainable growth and ensuring preparedness for changing market conditions. A consistent commitment to these integrated practices fosters a strong organizational culture characterized by reliability and accountability. This environment encourages employees to take ownership of their roles, leading to improved performance and higher employee satisfaction. Ongoing evaluation and feedback are crucial in this context, as they enable organizations to assess the effectiveness of their strategies, identify areas for improvement, and adapt to evolving challenges. This continuous loop of evaluation ensures that the IMS remains dynamic and responsive to the organization's needs.

The focus on value creation nurtures a culture of continuous development and innovation. By promoting an atmosphere that encourages creativity, organizations can enhance their innovation capabilities, enabling them to stay competitive in a rapidly evolving marketplace. Lastly, establishing an IMS cultivates a learning organization where a disciplined work environment promotes ongoing education and adaptability. This approach not only empowers employees but also strengthens collaboration across departments, creating a cohesive working model that maximizes effectiveness and adds meaning to the organizational mission. By aligning quality management systems with other operational functions, companies can ensure consistent delivery of better quality products and services to customers. In addition, this approach can contribute to policy makers and institutional leaders designing more effective, flexible, open to change and innovation-encouraging policies, effective use of resources, and the creation of an agile, efficient and sustainable competitive environment.

While businesses recognize the importance of establishing a comprehensive and successful IMS, the resources and competencies may not be sufficient to achieve this goal. Limitations in resources or expertise can hinder the full practical application. Due to their corporate structures and cultures, businesses may prioritize a single dimension of sustainability, while neglecting other critical aspects. This narrow focus can limit the evaluation and integration of other dimensions, resulting in a fragmented approach to sustainability. Management attitudes or business processes can pose significant barriers to the implementation as well. Resistance to change, lack of leadership commitment, or insufficient training can prevent organizations from fully embracing the principles of an integrated approach. To overcome these limitations, businesses must take proactive steps to enhance their resources and capabilities in sustainability. This may involve investing in training programs to build expertise, acquiring new technologies, or reallocating resources to support a more holistic implementation of an IMS.

References

Accerboni F., Sartor M., (2019), *ISO/IEC 27001*, In: *Quality Management: Tools, Methods, and Standards*, Emerald Publishing Limited, 245-264.

Adams W.M., (2006), The future of sustainability: Re-thinking environment and development in the twenty-first century, IUCN: International Union for Conservation of Nature, IUCN-Rep-2006-002, On line at: https://portals.iucn.org/library/sites/library/files/documents/Rep-2006-002.pdf

Ahidar I., Sarsri D., Sefiani N., (2019), Approach to integrating management systems: Path to excellence application for the automotive sector using SYSML language, *The TQM Journal*, **31**, 183-204.

Ansoff H.I., (1988), *The Concept of Strategy*, Marketing: Critical Perspectives on Business and Management, New York, 75-89.

Asif M., Joost de Bruijn E., Fisscher O.A., Searcy C., (2010), Metamanagement of integration of management systems, *The TQM Journal*, **22**, 570-582.

Asprion P.M., Giovanoli C., Scherb C., Bhat S., (2023), Agile management in cybersecurity, *Proceedings of Society*, **93**, 21-32.

Barnas K., (2014), *Beyond heroes: A lean management system for healthcare*, Barnas K., Toussaint J., MD, Womack J. (Eds.), 1st Edition, ThedaCare Center for Healthcare Value.

Basiago A.D., (1995), Methods of defining 'sustainability', *Sustainable Development*, **3**, 109-119.

Beck K., Beedle M., Van Bennekum A., Cockburn A., Cunningham W., Fowler M., Thomas D., (2001), The agile manifesto, On line at: https://agilemanifesto.org/

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**, 210-228.

Behrends K.U., (2010), Integrated Management system against risk, (in German), *QZ–Qualität und*

Zuverlässigkeit, **55**, 53.
Bernardo M., Casadesus M., Karapetrovic S., Heras I., (2009), How integrated are environmental, quality and other standardized management systems? An empirical study, *Journal of Cleaner Production*, **17**, 742-750.
Bernardo M., Simon A., (2014), *Implementing Multiple Management Systems: Is It Sustainable?*, In: *Action-Based Quality Management: Strategy and Tools for Continuous Improvement*, Cham, Springer International Publishing, 115-125.
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.
Cambalikova A., (2021), *Modern Trends in Business Management in the Light of Globalization*, SHS Web of Conferences, Globalization and its Socio-Economic Consequence, vol. 92, 02009, https://doi.org/10.1051/shsconf/20219202009.
Chen Q., (2004), Sustainable development of occupational health and safety management system-Active upgrading of corporate safety culture, *International Journal on Architectural Science*, **5**, 108-113.
Chiang S.Y., Wei C.C., Chiang T.H., Chen W.L., (2011), How can electronics industries become green manufacturers in Taiwan and Japan, *Clean Technologies and Environmental Policy*, **13**, 37-47.
Cilhoroz Y., Arslan I., (2018), Lean management approach and applications in health services, *Journal of Suleyman Demirel University Institute of Social Sciences*, **1**, 156-185.
Comoglio C., Botta S., (2012), The use of indicators and the role of environmental management systems for environmental performances improvement: a survey on ISO 14001 certified companies in the automotive sector, *Journal of Cleaner Production*, **20**, 92-102.
Darabont D.C., Bejinariu C., Lonita I., Bernevig-Sava M.A., Baciu C., Baciu E.R., (2018), Considerations on improving occupational health and safety performance in companies using ISO 45001 standard, *Environmental Engineering and Management Journal*, **17**, 2711-2717.
De Borba J.C.R., Trabasso L.G., Pessôa M.V.P., (2019), Agile management in product development, *Research-Technology Management*, **62**, 63-67.
De Oliveira O.J., (2013), Guidelines for the integration of certifiable management systems in industrial companies, *Journal of Cleaner Production*, **57**, 124-133.
Domingues J.P.T., Sampaio P., Arezes P.M., (2015), Analysis of integrated management systems from various perspectives, *Total Quality Management and Business Excellence*, **26**, 1311-1334.
Dyllick T., Hockerts K., (2002), Beyond the business case for corporate sustainability, *Business Strategy and the Environment*, **11**, 130-141.
Galeazzo A., Furlan A., Vinelli A., (2014), Lean and green in action: interdependencies and performance of pollution prevention projects, *Journal of Cleaner Production*, **85**, 191-200.
Geronimo B.M., Benatti C.T., Fenerich F.C., Lautenschlager S.R., (2020), An audit approach to assess and improve the quality management systems of environmental laboratories, *Environmental Engineering and Management Journal*, **19**, 1033-1041.
Gianni M., Gotzamani K., Tsiotras G., (2017), Multiple perspectives on integrated management systems and corporate sustainability performance, *Journal of Cleaner Production*, **168**, 1297-1311.
Gök B., (2000), *Integration of Quality, Environment, Occupational Health and Safety Management Systems*, PhD Thesis, Istanbul Technical University, Institute of Science and Technology, Istanbul.
Gomes Silva F.J., Kirytopoulos K., Pinto Ferreira L., Sá J.C., Santos G., Cancela Nogueira M.C., (2022), The three pillars of sustainability and agile project management: How do they influence each other, *Corporate Social Responsibility and Environmental Management*, **29**, 1495-1512.
González-García S., Feijoo G., Widsten P., Kandelbauer A., Zikulnig-Rusch E., Moreira M.T., (2009), Environmental performance assessment of hardboard manufacture, *The International Journal of Life Cycle Assessment*, **14**, 456-466.
Helms W.S., Oliver C., Webb K., (2012), Antecedents of settlement on a new institutional practice: negotiation of the ISO 26000 standard on social responsibility, *Academy of Management Journal*, **55**, 1120-1145.
Howell R.D., Breivik E., Wilcox J.B., (2007), Reconsidering formative measurement, *Psychological Methods*, **12**, 205-218.
Hřebíček J., Popelka O., Štencl M., Trenz O., (2012), Corporate performance indicators for agriculture and food processing sector, *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis*, **60**, 121-132.
International Standard ISO 14001:2015, (2015), Environmental management systems-Requirements with guidance for use (ISO 14001:2015), On line at: https://www.iso.org/standard/60857.html
International Standard ISO 45001, (2018), Occupational health and safety management systems -Requirements with guidance for use (ISO 45001:2018), On line at: https://www.iso.org/standard/88428.html
Ispas L., Mironeasa C., (2022), The Identification of Common Models Applied for the Integration of Management Systems: A Review, *Sustainability*, **14**, 3559, https://doi.org/10.3390/su14063559.
Jørgensen T.H., Remmen A., Mellado M.D., (2006), Integrated management systems–three different levels of integration, *Journal of Cleaner Production*, **14**, 713-722.
Joshi S., Li Y., (2016), What is corporate sustainability and how do firms practice it? A management accounting research perspective, *Journal of Management Accounting Research*, **28**, 1-11.
Karapetrovic S., Willborn W., (1998), Integration of quality and environmental management systems, *The TQM Magazine*, **10**, 204-213.
Karapetrovic S., (2002), Strategies for the integration of management systems and standards, *The TQM Magazine*, **14**, 61-67.
Karapetrovic S., Casadesús M., (2009), Implementing environmental with other standardized management systems: Scope, sequence, time and integration, *Journal of Cleaner Production*, **17**, 533-540.
Kasauli R., Knauss E., Horkoff J., Liebel G., De Oliveira Neto F.G., (2021), Requirements engineering challenges and practices in large- scale agile system development, *Journal of Systems and Software*, **172**, 110851, https://doi.org/10.1016/j.jss.2020.110851.
Klute-Wenig S., Refflinghaus R., (2015), Integrating sustainability aspects into an integrated management system, *The TQM Journal*, **27**, 303-315.
Kor B., (2017), Regulations and supports related to corporate sustainability strategies of businesses, *Sustainability Dynamics in Businesses*, 404-444.
Kropp J.P., (2013), Sustainability: A path-breaking idea, but

still associated with huge challenges, *Challenges in Sustainability*, **1**, 1-2.

Kuru A., Akın B., (2012), Integrated management systems approach to the use of multiple criteria decision making techniques and applications, *Journal of Recommendation*, **10**, 129-144.

López-Fresno P., (2010), Implementation of an integrated management system in an airline: a case study, *The TQM Journal*, **22**, 629-647.

Lorek S., Fuchs D., (2011), Strong sustainable consumption governance e precondition for a degrowth path, *Journal of Cleaner Production*, **38**, 36-43.

Lozano R., (2015), A holistic perspective on corporate sustainability drivers, *Corporate Social Responsibility and Environmental Management*, **22**, 32-44.

Mackau D., (2003), SME integrated management system: a proposed experiences model, *The TQM Magazine*, **15**, 43-51.

Maiga A.S., Jacobs F.A., (2008), Assessing JIT performance: An econometric approach, *Journal of Management Accounting Research*, **20**, 47-59.

Malatji M., (2023), *Management of enterprise cyber security: A review of ISO/IEC 27001: 2022*, Proc. International conference on cyber management and engineering (CyMaEn), Bangkok, Thailand, 26-27 January, 117-122.

Maletič M., Maletič D., Gomišček B., (2016), The impact of sustainability exploration and sustainability exploitation practices on the organisational performance: A cross-country comparison, *Journal of Cleaner Production*, **138**, 158-169.

Martínez J.B., Fernández M.L., Fernández P.M.R., (2016), Corporate social responsibility: Evolution through institutional and stakeholder perspectives, *European Journal of Management and Business Economics*, **25**, 8-14.

Martínez-Jurado P.J., Moyano-Fuentes J., (2014), Lean management, supply chain management and sustainability: a literature review, *Journal of Cleaner Production*, **85**, 134-150.

Masuin R., Latief Y., Zagloel T.Y., Sagita L., (2018), *Integrated Management System to Achieve Sustainable Construction-A Conceptual Framework*, Proc. 4th International Conference on Engineering, Technology and Industrial Application, vol. 1977, Surakarta, Indonesia, 13-14 December.

McDonald A.T., Lane S.N., Kirkby M.J., Holden J., Ashley D., Reid S.C., Brookes C.J., (2002), Information requirements for the integrated management of agricultural areas in sensitive river basins, R&D Technical Report E1-108/TR, Environment Agency, Bristol, UK.

Medić S., Karlović B., Cindrić Z., (2016), New standard ISO 9001: 2015 and its effect on organisations, *Interdisciplinary Description of Complex Systems*, **14**, 188-193.

Melnyk S.A., Sroufe R.P., Calantone R., (2003), Assessing the impact of environmental management systems on corporate and environmental performance, *Journal of Operations Management*, **21**, 329-351.

Mueckenberger U., Jastram S., (2010), Transnational norm-building networks and the legitimacy of corporate social responsibility standards, *Journal of Business Ethics*, **97**, 223-239.

Nadae J.D., Carvalho M.M.D., (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**, e20180048, https://doi.org/10.1590/0103-6513.20180048.

Nunhes T.V., Barbosa L.C.F.M., De Oliveira O.J., (2017), Identification and analysis of the elements and functions integrable in integrated management systems, *Journal of Cleaner Production*, **142**, 3225-3235.

Nunhes T.V., Motta L.C.F., De Oliveira O.J., (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.

Ozkan N., Gok M.Ş., Kose B.Ö., (2020), *Towards A Better Understanding of Agile Mindset By Using Principles of Agile Methods*, Proc. 15th Conference on Computer Science and Information Systems (FedCSIS), Sofia, Bulgaria, 6-9 September, 721-730.

Paulraj A., De Jong P., (2011), The effect of ISO 14001 certification announcements on stock performance, *International Journal of Operations & Production Management*, **31**, 765-788.

Pop A.B., Ţîţu A.M., (2018), Implementation of an integrated management system: quality-information security in an industrial knowledge-based organization, *Calitatea*, **19**, 87-93.

Purcidonio P.M., Grillo N.M.L., Alarcão V.D.C.C., (2020), Critical success factors in integrating sustainability with quality: The case of a food and beverage company, *Brazilian Journal of Operations and Production Management*, **17**, 1-14.

Reynolds M., Yuthas K., (2007), Moral discourse and corporate social responsibility reporting, *Journal of Business Ethics*, **78**, 47-64.

Sampaio P., Saraiva P., Domingues P., (2012), Management systems: integration or addition, *International Journal of Quality and Reliability Management*, **29**, 402-424.

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**, 985-1000.

Santos G., Carvalho F., (2019). Subrata Talapatra main benefits of integrated management systems through, *International Journal for Quality Research*, **13**, 1037–1054, https://doi.org/10.24874/IJQR13.04-10

Santos G., Uddin K., Carvalho F., (2019), Main benefits of integrated management systems through, *International Journal for Quality Research*, **13**, 1037-1054.

Sartor M., Orzes G., Moras E., (2019), *13.1. Environmental Management Systems*, Bingley, Emerald Publishing Limited, UK.

Savino M.M., Batbaatar E., (2015), Investigating the resources for integrated management systems within resource-based and contingency perspective in manufacturing firms, *Journal of Cleaner Production*, **104**, 392-402.

Schaltegger S., Burritt R., (2005), *Corporate sustainability*, PhD Thesis, UK Edward Elgar.

Seghezzi H.D., (1997), Business concept redesign, *Total Quality Management*, **8**, 36-43.

Sen H., Kaya A., Alpaslan B., (2018), A historical and current perspective on sustainability, *Economic Approach*, **29**, 1-1.

Silva C.S., Magano J., Matos A., Nogueira T., (2021), Sustainable quality management systems in the current paradigm: The role of leadership, *Sustainability*, **13**, 2056, https://doi.org/10.3390/su13042056.

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**, 5892, https://doi.org/10.3390/su12155892.

Simon A., Bernardo M., Karapetrovic S., Casadesus M., (2013), Implementing integrated management systems in chemical firms, *Total Quality Management and Business Excellence*, **24**, 294-309.

Simon A., Karapetrovic S., Casadesús M., (2012), Difficulties and benefits of integrated management systems, *Industrial Management and Data Systems*, **112**, 828-846.

Simon A., Karapetrovic S., Casadesus M., (2017), Exploring the options for management system standards and integration levels, *Environmental Engineering and Management Journal*, **16**, 391-400.

Simon A., (2023), Organizational citizenship behavior for integrated management systems performance, *Environmental Engineering and Management Journal*, **22**, 2117-2126.

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.

Sodhi M.S., (2015), Conceptualizing social responsibility in operations via stakeholder resource-based view, *Production and Operations Management*, **24**, 1375-1389.

Šolc M., Blaško P., Girmanová L., Kliment J., (2022), The development trend of the occupational health and safety in the context of ISO 45001: 2018, *Standards*, **2**, 294-305.

Sonnemann G., Gemechu E.D., Remmen A., Frydendal J., Jensen A.A., (2015), *Life Cycle Management: Implementing Sustainability in Business Practice*, In: *Life Cycle Management, LCA Compendium – The Complete World of Life Cycle Assessment*, Sonnemann G., Margni M. (Eds.), Springer, Dordrecht, 7-21.

Souza J.P.E., Alves J.M., (2018), Lean-integrated management system: A model for sustainability improvement, *Journal of Cleaner Production*, **172**, 2667-2682.

Starik M., Kanashiro P., (2013), Toward a theory of sustainability management: Uncovering and integrating the nearly obvious, *Organization and Environment*, **26**, 7-30.

Székely F., Knirsch M., (2005), Responsible leadership and corporate social responsibility: Metrics for sustainable performance, *European Management Journal*, **23**, 628-647.

Turhan G.D., Ozen T., Albayrak R.S., (2018), Corporate sustainability concept, strategic importance and sustainability performance measurement, *Aegean Journal of Strategic Research*, **9**, 17-37.

Valentinov V., (2023), Sustainability and stakeholder theory: a processual perspective, *Kybernetes*, **52**, 61-77.

Vieira Nunhes T., 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**, 1617-1635.

Vladimirovna E.E., (2015), Approaches to implementation of an integrated management system in the pharmaceutical industry, Galenical pharmaceutical production, *International Journal for Quality Research*, **9**, 527-546.

Von Ahsen A., (2014), The integration of quality, environmental and health and safety management by car manufacturers-A long-term empirical study, *Business Strategy and the Environment*, **23**, 395-416.

Wagner M., (2011), Corporate performance implications of extended stakeholder management: New insights on mediation and moderation effects, *Ecological Economics*, **70**, 942-950.

Wagner M., (2015), The link of environmental and economic performance: Drivers and limitations of sustainability integration, *Journal of Business Research*, **68**, 1306-1317.

Watson S., D'Annunzio-Green N., (1996), Implementing cultural change through human resources: the elusive organization alchemy?, *International Journal of Contemporary Hospitality Management*, **8**, 25-30.

Wilkinson G., Dale B.G., (1999), Integrated management systems: an examination of the concept and theory, *The TQM Magazine*, **11**, 95-104.

Wolniak R., (2018), The history of ISO 9001 series past 2000, *Organization and Management/Silesian University of Technology Scientific Papers (*in Polish: *Organizacja i Zarządzanie/Politechnika Śląska Zeszyty Naukowe*, **119**, 341-350.

Zakrzewska M., Piwowar-Sulej K., Jarosz S., Sagan A., Sołtysik M., (2022), The linkage between Agile project management and sustainable development: A theoretical and empirical view, *Sustainable Development*, **30**, 855-869.

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**, 1760-1767.