Taylor & Francis
Taylor & Francis Group

Journal of Decision Systems

ISSN: (Print) (Online) Journal homepage: www.tandfonline.com/journals/tjds20

Designing the CSRD System: Insights from Management Systems to Advance a Strategic Approach

Mária Farkas & Réka Matolay

To cite this article: Mária Farkas & Réka Matolay (26 May 2024): Designing the CSRD System: Insights from Management Systems to Advance a Strategic Approach, Journal of Decision Systems, DOI: 10.1080/12460125.2024.2354614

To link to this article: https://doi.org/10.1080/12460125.2024.2354614

Published online: 26 May 2024.

JOURNAL OF DECISION SYSTEMS
https://doi.org/10.1080/12460125.2024.2354614

Taylor & Francis
Taylor & Francis Group

Designing the CSRD System: Insights from Management Systems to Advance a Strategic Approach

Mária Farkas[a] and Réka Matolay[b]

[a]Institute of Operations and Decision Sciences, Corvinus University of Budapest, Budapest, Hungary;
[b]Institute of Entrepreneurship and Innovation, Corvinus University of Budapest, Budapest, Hungary

ABSTRACT

The Corporate Sustainability Reporting Directive (CSRD) represents a pivotal opportunity to embed sustainability into corporate strategy. This article investigates CSRD from strategic and Decision System Support (DSS) perspectives, both being novel fields of CSRD research. By exploring the interconnection between these domains through the lens of management systems, particularly ISO14001, our study aims to uncover strategic insights and inform the development of robust DSS for CSRD. We conduct a thematic comparison of CSRD and ISO14001 standards, revealing strategic potentials of CSRD and implications for DSS development. Drawing on an integrative literature review, we identify key factors influencing the integration of sustainability into corporate strategy and provide insights into the strategic implications of management systems. Our study contributes to the professional debate on CSRD by elucidating its relationship with strategy, environmental management systems, and DSS, offering practical guidance for corporations navigating the complexities of sustainability reporting and management challenge never seen before.

ARTICLE HISTORY
Received 21 February 2024
Accepted 30 April 2024

KEYWORDS
CSRD; decision support systems; ESG; ISO 14001; sustainability strategy

Introduction

There is a vast preparation for the implementation of the Corporate Sustainability Reporting Directive (CSRD), a legally binding instrument for promoting a sustainable transformation of the European economy (Ottenstein et al., 2022; Primec & Belak, 2022). Although it is based on established tools and incorporates professional practice and understanding gained over the past decades (Fiandrino et al., 2022; Primec & Belak, 2022), there are plenty of its features still to be unfold. In preparing for the CSRD voluntary and involuntary standards and management systems were looked at, academic recommendations were not in the focus though (Michalak et al., 2023). CSRD relies on the Global Reporting Initiative (GRI) (Fiandrino et al., 2022) and incorporates the Task Force on Climate-related Financial Disclosures' (TCFD) framework (Glaveli et al., 2023; Lombardi et al., 2022). It also utilises the management system components (Primec & Belak, 2022). The requirements imposed by CSRD are laid down in the European Sustainability

CONTACT Mária Farkas maria.farkas@stud.uni-corvinus.hu Institute of Operations and Decision Sciences, Corvinus University of Budapest, Fővám tér 8, Budapest 1093, Hungary

Reporting Standards (ESRS), which – being reporting standards – presupposes a one-time annual reporting activity. However, the requirements expect regular, ongoing management process during the entire year. Not having a process or a management system behind the report may prevent companies to reach the set targets and to demonstrate real behaviour change to the stakeholders (European Financial Reporting Advisory Group EFRAG, 2022). This is a critical aspect for decision support systems (DSS) for CSRD compliance, because it does matter whether the software is intended to serve the annual report or the entire management system: the requirements for content, methodology, and tools of DSS will significantly differ accordingly. Another key aspect of CSRD is its requirements for companies to incorporate environmental, social and governance (ESG) aspects into their strategies (Fiandrino et al., 2022; Glaveli et al., 2023; Primec & Belak, 2022), again, to promote behaviour change (European Financial Reporting Advisory Group EFRAG, 2022). This article discusses CSRD from a strategic as well as a DSS point of view – both being novel fields of CSRD research (see. e.g. Glaveli et al., 2023 for strategy, and Mehedintu & Soava, 2023 for DSS in CSRD research) –, by exploring its relationship with environmental management systems. As for the latter, ISO 14,001 was selected since (i) according to EFRAG, from among the ESG aspects environmental challenges are the most difficult to tackle (European Financial Reporting Advisory Group EFRAG, 2022), and (ii) this management system is the most common for integrating environmental challenges into corporate operations with currently over 500,000 companies worldwide (International Organization for Standardization, n.d.). By studying the standard of, the research on, and corporate practice with ISO 14,001, a well-established environmental management system with almost 30 years of history, we are aiming to draw conclusions for the strategic embeddedness of as well as the decision support for CSRD. The research aim is served by a thematic comparison of the standards and an integrative literature review.

Theoretical background

This chapter introduces CSRD and ISO14001 with strategic considerations in mind. It is preceded by an overview of the intersection of sustainability and strategy and followed by the DSS aspects of driving towards sustainability.

Sustainability and strategy

The relationship of strategic management and sustainability is an emerging research field. Although numerous articles take or promise to take a strategic approach to sustainability, only a few identify clearly their understanding of strategy in relation to sustainability. From using the term strategy or strategic in everyday sense with no connotation to professional definition, through employing the terms corporate and business strategy interchangeably there is a diversity of identifying where and in what sustainability should enter the corporations strategically. There is also a mixed approach whether corporate sustainability strategy is a subset of corporate strategy or sustainability is embedded into corporate strategy. Furthermore, several researchers have noted the lack of empirical research about the embeddedness of sustainability into strategy (Engert et al., 2016; Kitsios et al., 2020; Suriyankietkaew & Petison, 2020).

Kitsios et al. (2020) note that there is a lack of guidelines and action plans for integrating ESG consideration into strategic management and decision-making (Kitsios et al., 2020). In practice, companies have often integrated sustainability at an operational level rather than at a strategic level due to market pressure and weak stakeholder expectations (Bonn & Fisher, 2011; Glaveli et al., 2023; Kitsios et al., 2020). Glaveli et al. (2023) highlights that companies add certain sustainability elements to their strategy but tend to focus more on addressing positive sustainability impacts than negative ones, and on short-term horizon with weak communication of values (Glaveli et al., 2023). Integration into the strategy can be challenging due to the complexity of sustainability challenges, uncertainty, and the lack or immaturity of management tools (Kitsios et al., 2020).

Integrating strategic considerations into ISO 14001 and CSDR

ISO 14,001 is 'intended for use by an organisation seeking to manage its environmental responsibilities in a systematic manner that contributes to the environmental pillar of sustainability' (International Organization for Standardization, 2015, p. 1). This voluntary management system was revised in 2015 (Bravi et al., 2020) as a result of a continual development survey with 5,000 responses. One of its findings highlighted that ISO 14,001 supports the achievement of strategic goals and integration into corporate management systems (International Organization for Standardization, 2014). It is voluntary standard and can be applied to the entire company or only specific functions or sections of it (International Organization for Standardization, 2015). In CSRD, the company – falling under the scope of the directive – must report all material sustainability impacts, risks, and opportunities that can be directly linked to the company or caused by the company's entire value chain (European Commission, 2023). This eliminates the possibility of previous cherry picking of sustainability reports (Fiandrino et al., 2022; Glaveli et al., 2023). The scope and experience of CSRD are significant when compared to ISO 14,001. As a result, the DSS supporting the CSRD report must be more complex than any previous DSS serving corporate sustainability.

Decision support systems for sustainability

Well-made ESG decisions will be increasingly vital for companies in the future due to their strategic and financial importance, therefore, a well-developed DSS will be crucial in the decision-making process (Brenner & Hartl, 2021; Mehedintu & Soava, 2023). The previously used Excel solutions will unlikely suffice for the complexity of the task (Glaveli et al., 2023). DSS such as Environmental Management Information Systems (EMIS) or Green Information Systems (Green IS), as referred to in academic research, can supply valuable help (Farkas & Matolay, 2022; Klör, 2016; Renatus & Geldermann, 2016; Stindt et al., 2014). Due to the digital report to central platform and because digitisation permeates all industries, the expectations of the ESRS drive companies to software solutions. The software providers have significant responsibility, as many companies may lack the human ability to understand the ESRS accurately and comprehensively, and model it effectively. Statistical, simulation and optimisation tools with automated data collection, artificial intelligence, visual solutions such as dashboards and multimedia may also need

to be integrated into the DSS (Glaveli et al., 2023; Mehedintu & Soava, 2023; Stindt et al., 2014).

Research methodology

In order to contribute to the professional debate on the nature of CSRD, we aimed to capture learnings from the academic literature and the standards themselves by exploring them at three levels: strategy, management system, and DSS. We were keen to explore previous research on the relationship between corporate strategy and environmental management systems; learn about the similarities and differences of CSRD and ISO14001 with regard to strategy, and their management system features; and look for conclusions for a DSS for CSRD.

Our research methodology has two key components: an integrative literature review and a thematic comparison of two systems, CSRD and ISO14001. Figure 1 depicts the key details of these components as well as how we address the three levels – corporate strategy, management system and DSS – in our research.

The integrative literature review was selected to inform a new field (CSRD) from the learnings of established fields (environmental management systems, environmental decision support). Our decision to employ an integrative literature review in our study of the CSRD and its implications for strategic management and DSS is guided by the need for a comprehensive, interdisciplinary approach, the exploration of emerging research areas, the critical synthesis and evaluation of existing literature, and the integration of professional experience in line with Snyder (2019) and Torraco (2005). We opted against a systematic literature review as we were seeking starting points for further research and a potential for comparisons, and also against a semi-systematic literature review as our aim was not to review and understand the development of the topic (Snyder, 2019). Instead, we aimed to explore specific individual issues, for which the integrative method is more appropriate. Snyder (2019) notes that while semi-systematic and integrative methods are similar, the latter involves critical synthesis and evaluation, which can aid in the development of new theoretical frameworks and perspectives. This methodological choice may assist in pre-planning how CSRD will aid decision-making and its impact on corporate strategy. The aim is to utilise the knowledge of a mature research field as a starting point for specific aspects of an aspiring field, aid in the development and subsequent testing of preliminary theories and hypotheses (Snyder, 2019), and benefit

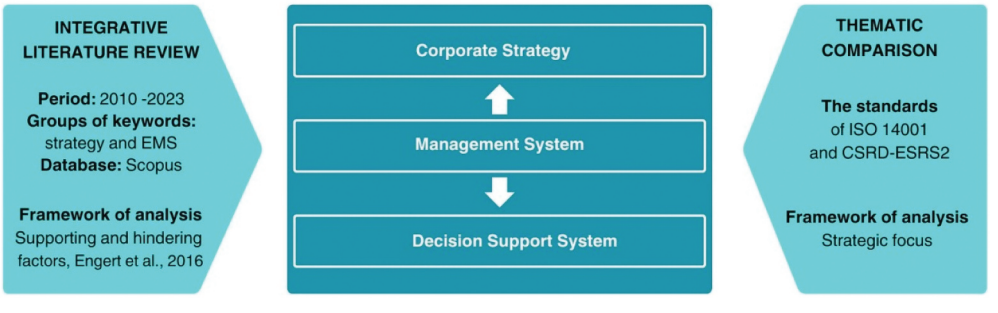

Figure 1. Research design. Source: own compilation

researchers working on CSRD in the future by identifying new research questions, directions, and theories (Torraco, 2005). 'The purpose is usually not to cover all articles ever published on the topic but rather to combine perspectives and insights from different fields or research traditions' (Snyder, 2019, p. 336). It can generate a deeper understanding of the phenomenon beyond what is possible with other types of literature reviews (Torraco, 2005). The integrative research also acknowledges the professional experience of the participants and researchers (Torraco, 2005). In this research, they have expertise in corporate sustainability, including environmental aspects of building and operating environmental management systems, managing sustainability KPIs, and researching corporate social responsibility.

A search was conducted in Scopus, covering English-language literature with a starting date of 2010, based on their titles, abstracts, and keywords, using keyword combinations of strategy (corporate strategy, business strategy, sustainability strategy), environmental management system (ISO14001, environmental management system). The total number of 176 entries were consolidated, then filtered first by title, and second by abstract. As a result, 54 publications were selected for review, out of which 16 provided rich and relevant content, thus these were analysed in full length and detail. Another 38 journal articles were reviewed partially: these were promising ones by title and abstract, their content was relevant only to a certain extent though. For our analysis, we applied a coding system built on the model developed by Engert et al. (2016). In their literature review, they identified the key factors influencing the integration of corporate sustainability into strategic management. Out of their three main areas – organisational influence; internal and external drivers; supporting and hindering factors (Engert et al., 2016) – we translated the factors of the latter group into codes to explore the details of the selected articles in our integrative literature review.

The second component of the research is the detailed comparison of two systems: the ESRS framework of CSRD and the ISO 14,001 framework. The entire standards were looked at except for the first two chapters of ESRS 2, as they describe the basis of preparation for the sustainability statement. We were looking for those elements in titles and content that are using the TCFD logic through thematic coding. In this process, we were greatly supported by the knowledge and experience with the implementation and operation of environmental management system of the authors as well as working with CSRD in our teaching practices. Our comparative table (Table 1) provides the findings in the next chapter.

Results

First, we provide the comparison of ISO 14,001 and the ESRS2 standard of CSRD, highlighting their similarities and differences in Table 1, and giving insights into their approaches to strategy. Then, the findings of the integrative literature review are presented according to the framework suggested by Engert et al. (2016).

The two systems use similar elements, the main difference lies in the sequence and interweaving of these elements. The elements of ISO 14,001 are arranged in a loose relationship to each other following the logic of the PDCA cycle. The standard emphasises that the processes serve to achieve the objectives. In the ESRS, the elements are consciously intertwined and built on each other according to the logic

Table 1. Comparison of the chapters of ESRS2 and ISO 14,001:2015.

	ESRS2 reporting areas	In ISO 14,001?	ISO 14,001 chapter
Governance (GOV)	The role of the administrative, management and supervisory bodies	X	5.1 Leadership and commitment; 5.3 Org'l roles, responsibilities and authorities; 7.1 Resources
	Info provided to & sust. matters addressed by the undertaking's admin., mgt, supervisory bodies	X	7.2 Competence 7.3 Awareness 7.4.2 Internal communication
	Integration of sust.-related performance in incentive schemes	-	
	Statement on due diligence	Partly	9.1 Monitoring, measurement, analysis and evaluation
	Risk management and internal controls over sustainability reporting	X	6.1 Actions to address risks and opportunities; 8.2 Emergency preparedness and response
Strategy (SBM)	Strategy, business model and value chain	Partly	5.1 Leadership and commitment
	Interests and views of stakeholders	X	4.2 Understanding the needs and expectations of interested parties
	Material impacts, risks and opportunities, their interaction with strategy and business model	Partly	5.1 Leadership and commitment
Impact, risk and opportunity (IRO)	Disclosures on the materiality assessment process	X	4 Context of the organization
	Minimum disclosure requirement on policies and actions	X	5.2 Environmental policy; 8.1 Operational planning and control; 6.1 Actions to address risks & opportunities; 8.1 Operational planning and control
Metrics and targets (MDR)	Metrics in relation to material sustainability matters	X	9 Performance evaluation
	Tracking effectiveness of policies and actions through targets	X	6.2 Environmental objectives and planning to achieve them; 10 Improvement

Source: own compilation based on European Commission (2023); International Organization for Standardization (2015).

of the TCFD. This logic is present in all ESRS topical standards and must not deviate from it, and as a result, the DSS supporting the CSRD report must follow the same logic.

The 2015 version of ISO 14,001 integrated strategic considerations but did not provide detailed expectations in this regard. Chapter 5.1 Leadership and Commitment of the standard specifies that it is the responsibility of top management to ensure that the company's environmental goals align with its 'strategic direction' (International Organization for Standardization, 2015, p. 7). However, it lists these as one of the nine elements among the responsibilities of top management, and does not impose unique tools for integrating sustainability into the strategy.

In contrast to ISO 14,001, the CSRD framework places a significant emphasis on corporate strategy, following the logic of TCFD's business operations model. An entire chapter is dedicated to in ESRS2, and according to it companies are required to report on the sustainability aspects of their strategy, including how they consider the interests and perspectives of their key stakeholders, as well as how they integrate material impact, risk, and opportunity into their strategy (European Commission, 2023).

Our framework for presenting the findings of the integrative literature review is based on the research by Engert et al. (2016). As a result of their literature review, they identified eight supporting or hindering factors with regard to the integration of corporate sustainability into strategic management (Engert et al., 2016). In our integrative review, we are

Table 2. Findings on strategy implications of management systems.

Supporting and hindering factors by Engert et al. (2016)	Selected learnings in ISO14001 literature on embedding sustainability into strategy via an integrated management system	Source
Management control	There can be a mutual engagement between the business strategy and the integrated management system which can cause structural and behavioural changes	Barbosa et al. (2018)
Stakeholder engagement	Meeting stakeholder expectations should be clearly defined in ISO 14,001	Curkovic and Sroufe (2011)
Organizational learning and knowledge management	Companies that implement an environmental management system by learning from industry peers have embraced both the efficient operation of the systems and the technical and organizational solutions from each other. This allows them to generate innovative green solutions	Daddi et al. (2016)
Transparency communication	Companies with a good reputation can benefit in various ways, both internally, such as by promoting a greener corporate culture, and externally, for example, by improving cooperation with authorities	Daddi et al. (2016)
Manager attitude and behaviour	The organizational strategy and decision-making should also be influenced by the managerial attitude. Regular reviews of the nature of that attitude are necessary.	Asif et al. (2011)
Organizational culture	To ensure successful integration of a management system with strategy, it is imperative that all pertinent employees actively take part and invest in the process.	Barbosa et al. (2018)
Complexity and investments	The escalating intricacies of the business environment requires an agile approach. To achieve this, it is essential to continuously monitor changes and adjust strategies accordingly.	Asif et al. (2011)

Source: Own compilation based on Asif et al. (2011); Barbosa et al. (2018); Curkovic and Sroufe (2011); Daddi et al. (2016); Engert et al. (2016).

building our findings around these factors, presenting selected learning for each of them based on the mature field of ISO14001 for the novel field of CSRD.

Table 2 provides selected learnings from a rich literature, and this overview is finished here with Asif et al. (2011), who point out that the biggest advantage of management systems is their ability to provide a framework for companies to develop themselves along their sustainability strategy. This framework can ensure that sustainability is integrated both vertically (from the management to individual employees) and horizontally (through business activities, departments and locations) throughout the organisation. Integration is necessary as a 'unintegrated stand alone' system – that is detached from the strategy – can 'create confusion for employees and, invariably, ineffective and inefficient use of resources' (Asif et al., 2011, p. 361).

Discussion

Although ISO 14,001 specifies its expectations regarding strategy only to limited extent in Chapter 5.1 on Leadership and commitment, research on ISO 14,001 reveals strategic relevance. The integrative literature review suggests that companies implementing and operating their management system in a rigours manner have also been able to elevate their strategy (Barbosa et al., 2018; Daddi et al., 2016). Furthermore, a management system that is isolated from the corporate strategy may also have a detrimental impact on the performance of a company (Asif et al., 2011). This can occur in numerous ways, such as a company may fail to take account of the latest industry knowledge (Daddi et al., 2016), its communication with

stakeholders may be flawed (Barbosa et al., 2018; Curkovic & Sroufe, 2011; Daddi et al., 2016) or sustainability is reduced to a mere bureaucratic exercise (Barbosa et al., 2018).

The ESRS is recognised as a reporting system, therefore preparing an annual digital report is a minimum requirement for a DSS. However, companies will be unable to demonstrate their progress without the systematic and ongoing management of material topics. When developing a DSS, it is crucial to decide whether to support only the annual report or the entire management system of ESRS. In other words, when conceptualising DSS for CSRD, there shall be a deliberation between endorsing solely the annual reporting function or encompassing the wholeness of the ESRS management system. Should the latter be selected, the extent of support must also be determined. In contemporary corporate systems, the gathering of ESG information from disparate sources, including Environmental Health and Safety (EHS), Human Resources (HR), financial accounting, and procurement domains, emerges as a resource-intensive and temporally demanding endeavour. There is an evident need for developing a DSS adept at serving the ESG information requisites of all internal stakeholders, including executives, middle management, and other employees, within a seamlessly unified and centralised platform.

The question arises as to what logic is required to connect the individual building blocks and their subsequent categorisation beyond the delineated reporting areas of the ESRS. A DSS assumes a pivotal role in facilitating the comprehension of data. It can make the complexity of data more understandable by categorisation based on variables such as business activity and geographic location. Moreover, DSS can also be utilised for task management, including monitoring actions, and ensuring deadlines are met. Other preliminary assessment support tools can also be incorporated, such as double materiality assessment, context and stakeholder analysis, and supplier evaluation.

Compared to ISO 14,001, CSRD covers more than the environmental management system. It is yet unclear whether ISO 14,001 will continue to be used or if it will be replaced by CSRD, which is expected to become more prevalent in the business world.

Conclusion

CSRD mandates the integration of sustainability into corporate strategy, necessitating the implementation of suitable processes and management systems. Consequently, DSS should facilitate the seamless integration of sustainability across the organisation. This transformation may influence the behaviour of economic actors, fostering the transition to a more sustainable economy. When exploring the relationship between CSRD, strategy, environmental management systems and DSS, we emphasise the importance of considering the interconnectedness of these topics. The comparison of the reporting areas of the CSRD framework standard, ESRS 2 and the chapters of ISO 14,001 reveals numerous similarities these standards share. As a result, the corporations having diligently implemented their ISO 14,001 system will find several familiar elements in the CSRD. Besides the management system implementations of the ISO 14,001, we identified implications to strategy both in the standard of and in the literature on ISO 14,001. In order to move corporations towards behaviour change for sustainability, the software to be designed and utilised for the CSRD should support the entire management system, not only the year-end report.

For future research directions, exploring and developing new methodologies and corporate practices for integrating sustainability into strategy is recommended, given the apparent current deficiency (Engert et al., 2016; Kitsios et al., 2020; Suriyankietkaew & Petison, 2020).

Disclosure statement

No potential conflict of interest was reported by the author(s).

ORCID

Mária Farkas http://orcid.org/0000-0001-6048-4607

References

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

Barbosa, L.C.F., de Oliveira, O.J., & Santos, G. (2018). Proposition for the alignment of the integrated management system (quality, environmental and safety) with the business strategy. *International Journal for Quality Research*, *12*(4), 925–940. https://doi.org/10.18421/IJQR12.04-09

Bonn, I., & Fisher, J. (2011). Sustainability: The missing ingredient in strategy. *Journal of Business Strategy*, *32*(1), 5–14. https://doi.org/10.1108/02756661111100274

Bravi, L., Santos, G., Pagano, A., & Murmura, F. (2020). Environmental management system according to ISO 14001: 2015 as a driver to sustainable development. *Corporate Social Responsibility and Environmental Management*, *27*(6), 2599–2614. https://doi.org/10.1002/csr.1985

Brenner, B., & Hartl, B. (2021). The perceived relationship between digitalization and ecological, economic, and social sustainability. *Journal of Cleaner Production*, *315*, 128128. 1–12. https://doi.org/10.1016/j.jclepro.2021.128128

Curkovic, S., & Sroufe, R. (2011). Using ISO 14001 to promote a sustainable supply chain strategy. *Business Strategy and the Environment*, *20*(2), 71–93. https://doi.org/10.1002/bse.671

Daddi, T., Testa, F., Frey, M., & Iraldo, F. (2016). Exploring the link between institutional pressures and environmental management systems effectiveness: An empirical study. *Journal of Environmental Management*, *183*, 647–656. https://doi.org/10.1016/j.jenvman.2016.09.025

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

European Commission. (2023). *ANNEX to the commission delegated regulation (EU) . . ./. . . supplementing directive 2013/34/EU of the European parliament and of the council as regards sustainability reporting standards*. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=pi_com%3AC%282023%295303

European Financial Reporting Advisory Group (EFRAG). (2022, November). *Efrag's cover letter on the cost-benefit analysis of the first set of draft ESRS; cost-benefit analysis of the first set of draft ESRS prepared by CEPS and Milieu*. https://www.efrag.org/Assets/Download?assetUrl=%2Fsites%2Fwebpublishing%2FSiteAssets%2F05%2520EFRAGs%2520Cover%2520Letter%2520on%2520the%2520Cost-benefit%2520analysis.pdf

Farkas, M., & Matolay, R. (2022). Decision support for corporate sustainability: Systems and stakeholders. *Journal of Decision Systems*, *31*(Suppl. 1), 214–225. https://doi.org/10.1080/12460125.2022.2073864

Fiandrino, S., Gromis di Trana, M., Tonelli, A., & Lucchese, A. (2022). The multi-faceted dimensions for the disclosure quality of non-financial information in revising directive 2014/95/EU. *Journal of Applied Accounting Research*, *23*(1), 274–300. https://doi.org/10.1108/JAAR-04-2021-0118

Glaveli, N., Alexiou, M., Maragos, A., Daskalopoulou, A., & Voulgari, V. (2023). Assessing the maturity of sustainable business model and strategy reporting under the CSRD shadow. *Journal of Risk and Financial Management*, *16*(10), 445. 1–17. https://doi.org/10.3390/jrfm16100445

International Organization for Standardization. (2014). *ISO 14001 continual improvement survey 2013. Final report and analysis*. https://www.iso.org/files/live/sites/isoorg/files/archive/pdf/en/iso_14001_survey_2013_-_final_report_and_analysis.pdf

International Organization for Standardization. (2015). *Environmental management systems — requirements with guidance for use*. Reference number ISO 14001:2015(E.

International Organization for Standardization. (n.d.). *ISO 1400 family: Environmental Management*. https://www.iso.org/standards/popular/iso-14000-family

Kitsios, F., Kamariotou, M., & Talias, M.A. (2020). Corporate sustainability strategies and decision support methods: A bibliometric analysis. *Sustainability*, *12*(2), 521. 1–21. https://doi.org/10.3390/su12020521

Klör, B. (2016). Understanding the role of decision support systems in green is research: Literature review and research agenda. *20th Pacific Asia Conference on Information Systems* (Vol. 378. pp. 1–18, Chiayi, Taiwan.

Lombardi, R., Schimperna, F., Paoloni, P., & Galeotti, M. (2022). The climate-related information in the changing EU directive on non-financial reporting and disclosure: First evidence by Italian large companies. *Journal of Applied Accounting Research*, *23*(1), 250–273. https://doi.org/10.1108/JAAR-04-2021-0117

Mehedintu, A., & Soava, G. (2023). Approach to the impact of digital technologies on sustainability reporting through structural equation modeling and artificial neural networks. *Electronics*, *12*(9), 2048. 1–29. https://doi.org/10.3390/electronics12092048

Michalak, J., Staszkiewicz, P., & Waniak-Michalak, H. (2023). Is academic recommendation translated into the European Union corporate sustainability reporting directive proposal. *Journal of Cleaner Production*, *137186*, 1–13. https://doi.org/10.1016/j.jclepro.2023.137186

Ottenstein, P., Erben, S., Jost, S., Weuster, C.W., & Zülch, H. (2022). From voluntarism to regulation: Effects of directive 2014/95/EU on sustainability reporting in the EU. *Journal of Applied Accounting Research*, *23*(1), 55–98. https://doi.org/10.1108/JAAR-03-2021-0075

Primec, A., & Belak, J. (2022). Sustainable CSR: Legal and managerial demands of the new EU legislation (CSRD) for the future corporate governance practices. *Sustainability*, *14*(24), 16648. 1–28. https://doi.org/10.3390/su142416648

Renatus, F., & Geldermann, J. (2016). Multi-criteria decision support based on iterative comparisons with reference points. *Journal of Cleaner Production*, *110*, 99–108. https://doi.org/10.1016/j.jclepro.2015.07.125

Snyder, H. (2019). Literature review as a research methodology: An overview and guidelines. *Journal of Business Research*, *104*, 333–339. https://doi.org/10.1016/j.jbusres.2019.07.039

Stindt, D., Nuss, C., Bensch, S., Dirr, M., & Tuma, A. (2014). *An environmental management information system for closing knowledge gaps in corporate sustainable decision-making*. Thirty Fifth International Conference on Information Systems, Auckland, New Zealand.

Suriyankietkaew, S., & Petison, P. (2020). A retrospective and foresight: Bibliometric review of international research on strategic management for sustainability, 1991–2019. *Sustainability*, *12*(1), 91. 1–27. https://doi.org/10.3390/su12010091

Torraco, R. (2005). Writing integrative literature reviews: Guidelines and examples. *Human Resource Development Review*, *4*(3), 356–367. https://doi.org/10.1177/1534484305278283