Sustainability leadership: Conceptual foundations and research landscape

João Henrique Paulino Pires Eustachio [a,b,*], Adriana Cristina Ferreira Caldana [a], Walter Leal Filho [b,c]

[a] School of Economics, Business Administration and Accounting at Ribeirão Preto, University of São Paulo (USP), Avenida dos Bandeirantes 3900, 14040-905, Ribeirão Preto, SP, Brazil
[b] European School of Sustainability Science and Research (ESSSR), Hamburg University of Applied Sciences, Germany
[c] Department of Natural Sciences, Manchester Metropolitan University, Chester Street, Manchester, M1 5GD, UK

ABSTRACT

Sustainability leadership (SL) is a complex and relevant phenomenon that can contribute to several types of organisations during the process of becoming more sustainability-oriented. Over the past few years, a considerable number of publications have increased the level of knowledge in this field; however, on the other hand, it also has generated more complexity, literature dispersity and lack of complete understanding of the possible research avenues on SL. This paper aims to address this by complementing and building on previous qualitative and quantitative studies of SL by unveiling and exploring the landscape of the research field. This study differs from prior research in three main ways: (1) explores how the term SL evolved from the leadership theory, (2) explores the research streams that scholars have been conducting in the field by adopting a robust search string revised by specialists and considering a wide range of terms related to formal and informal leadership, as well as sustainability-related terms and (3) understands how the several leadership theories and styles are connected to sustainable development (SD) and corporate social responsibility (CSR). After applying the inclusion and exclusion criteria, a total of 1,813 well-cited papers published in top journals that directly tackle sustainability leadership were selected. This sample was then used for the bibliometric assessment based on the co-occurrence of terms technique. The results indicate the existence of four main clusters and twelve subclusters, which can be considered research strands. In addition, this study also explores how the selected studies build on several leadership theories in order to understand how leadership aspects can contribute to SD and CSR adoption.

1. Introduction

Much is being discussed about the importance of organisations in mitigating their negative externalities and contributing to the sustainable development goals (SDGs) (Montiel et al., 2021; Yamane and Kaneko, 2022) by implementing environmental, social and governance principles (ESG) and corporate social responsibility (CSR) strategies and practices (Fatima and Elbanna, 2022; Lisin et al., 2022). Among the several strands that discuss how organisations could change in order to assemble their managerial systems to contribute to sustainable development (SD), the change management theory gains attention since it states that change requires creating a new system in which leadership (Johannsdottir et al., 2015; Lozano et al., 2015) is not only desired but essential in this process (Kotter, 2012). In other words, leaders play a key role in influencing, motivating, and enabling other people to

contribute to the organisations' effectiveness and success (House et al., 2004, p.56), which could be, among other aspects, the process of change towards implementation of sustainability into their managerial systems and strategies (Caldana et al., 2022).

In this sense, many studies have been published in relevant journals that aim to tackle this research field. In business management, for example, researchers are exploring the extent to which the several leadership styles and proxies created for SL can affect the outputs and results of enterprises in several ways, such as financial performance (Wiengarten et al., 2017), increase in a firm's share price (Robinson et al., 2011), firm valuation (Miralles-Quiros et al., 2017), sustainability performance at the individual and organisational levels (Galpin and Lee Whittington, 2012) as well as guiding leaders on how to overcome sustainability challenges (Wolfgramm et al., 2015).

In the organisational psychology and organisational behaviour

management fields, the studies related to SL have focused on understanding the socially responsible leader. The most famous studies are from the authors Waldman and Siegel and Günter, who have spent almost more than a decade between their two exchange of letters exploring whether the strategist and integrator orientations would be related to the construct responsible leadership (Waldman et al., 2020; Waldman and Siegel, 2008) as well as which leadership theories, traits, behaviours, competencies, personal values and knowledge are related to the leader engaged in implanting CSR strategies and practices at the organisational level (Changar and Atan, 2021; Saha et al., 2020; Visser and Courtice, 2011).

Most recently, some studies also started to tackle SL in the context of HEIs, and authors have been exploring this perspective in a couple of ways, for example, (1) the characteristics of sustainability leaders in the context of higher education institutions (HEIs) (Leal Filho et al., 2020) (2) how universities are educating future leaders who will eventually hold important positions in enterprises (UN PRME, 2022) and (3) the non-conventional pedagogy and classroom strategies that the teaching staff could adopt to train students better to deal with the sustainability challenges (Caldana et al., 2021; Leal Filho, 2021).

All these perspectives are relevant to understand the research landscape of SL; however, the literature remains disorganised, with only a few attempts to understand the scenario through bibliometric analyses (Hallinger and Suriyankietkaew, 2018; Hategan and Hategan, 2021; Purnomo et al., 2021; L. Zhao et al., 2022). Although the research developed so far is relevant, to the best of the author's knowledge, none of the previously mentioned bibliometric analyses adopt a robust search string, revised by experts, considering all relevant terms related to sustainability in organisations, sustainability in HEIs, SD in general, and leadership (formal and informal leadership) theories. Moreover, no previous bibliometric analyses were able to successfully digest the contribution of the complex several leadership theories in the context of SD, CSR and sustainability in HEIs (Hallinger and Suriyankietkaew, 2018; Hategan and Hategan, 2021; Purnomo et al., 2021; L. Zhao et al., 2022). Finally, the majority of publications in the field tend to tackle leadership for SD in enterprises (i.e., leadership and CSR) (Dey et al., 2022; Waldman et al., 2020; L. Zhao et al., 2022), evidencing the need to foster the discussion beyond the context of companies, exploring the relevance of leadership in implementing sustainability in higher education institutions (Aung and Hallinger, 2022; Leal Filho et al., 2020), governments and communities (Harley et al., 2014; X. Wang et al., 2014).

In this sense, this article aims to address these gaps by delving into the leadership for SD literature and providing a landscape of the SL research field in three ways. First, it provides a theoretical background, reviewing the literature in order to organise the knowledge and discuss how SL evolved from the leadership theory as well as unveiling the differences between sustainability leadership, leadership for sustainable development, responsible leadership, CSR leadership, and systems leadership. Secondly, it aims to understand what researchers have covered on SL theory by conducting a bibliometric assessment of the literature based on the co-occurrence technique, using 1,813 well-cited papers published in top journals that directly tackle terms related to SL. Third, it unveils how the other leadership theories are connected to the SD and CSR aspects.

This article builds on previous literature and extends recent studies that argue that more research should be done on CSR leadership (Waldman et al., 2006, 2020; Waldman and Siegel, 2008) and broadening the discussion of the concept of SL by discussing its evolution, evidencing different contexts in which the term is used as well as providing a literature landscape in the research area. In addition, this paper also complements recent literature that explores the connection of leadership styles and theories to sustainability in several types of organisations (see Angus-Leppan et al., 2010; Q. Iqbal and Piwowar-Sulej, 2021; S. Iqbal et al., 2018; Zhao et al., 2022).

Moreover, it is important noticing that this study differs from previous literature for several reasons. Firstly, this study is the most comprehensive study on SL conducted so far, going beyond the SL aspects normally explored in the context of enterprises but also understanding SL in several other types of organisations. Secondly, the search string adopted and revised by experts considers terms related to leadership theory that are connected to the leadership theory and informal leadership phenomena (i.e., leadership, leader, follower, followership, etc.) as well as to formal leadership (CEO, boss, supervisor, top management teams, board of directors, etc.), which are also terms commonly explored in major leadership journals (Geletkanycz, 2020; P. Yang et al., 2019). Moreover, the search string also embraces terms related to sustainable development in several contexts, such as CSR and ESG (context of companies), Principles for Responsible Management Education (context of business schools) and sustainability, sustainable development or SDGs (general context). Therefore, the result of the adoption of a strong search string and inclusion and exclusion criteria resulted in a big picture, allowing to complement and extend previous bibliometric studies (Hallinger and Suriyankietkaew, 2018; Hategan and Hategan, 2021; Purnomo et al., 2021; L. Zhao et al., 2022), identifying other clusters that were not previously identified such as the HEIs aspects in leadership education and its three subclusters further discussed in section 4.

To achieve the goals of this study, this paper is divided into four interconnected sections. The introduction focuses on presenting the theoretical background, research gaps and how this study intends to tackle these gaps, as well as presenting the research goals. The second section, in turn, brings the theoretical background on SL. The methods section details the main data collection and data analysis methods and techniques deployed to achieve the goals of this paper. The fourth section refers to the main findings from the bibliometric assessment and theory exploration. Finally, the last section provides a conclusion of this study, highlighting the main theoretical and practical implications as well as evidencing the limitations and ideas for future studies.

2. From leadership theory to sustainability leadership

Over the last thirty years, the literature has recognised the integrative era of leadership (Crosby and Bryson, 2010a; Tourish, 2019; Van Seters and Field, 1990). It encompasses a more complex and interactive process, behavioural elements, relational understanding, and situational components. It occurs not only strictly in the leader's dimension but also within the followers, groups, organisational, relational (leader-follower dyad) and situational environment; it also considers the traditional top-down and the bottom-up perspectives by motivating employees in both intrinsic and extrinsic ways (Chen and Van Velsor, 1996; Crosby and Bryson, 2010a; Tourish, 2019; Van Seters and Field, 1990). The setting of this era can be considered as an evolution of the transformational because it became more systemic and holistic, with a proliferation of theories and different perspectives of connecting the elements of leadership; therefore, some authors consider 'integrative' as the best term to describe this era (Crosby and Bryson, 2010b; Van Seters and Field, 1990).

In this way, contemporary theories have been discussed within this era, such as the spiritual (Fry, 2003), authentic (Avolio and Gardner, 2005), ethical/moral (Brown and Treviño, 2006; Walumbwa, 2009), servant (Russell, 2001; van Dierendonck, 2011), abusive/toxic leadership (Johnson et al., 2012; Padilla et al., 2007; Starratt and Grandy, 2010), team leadership (Day et al., 2006; Kozlowski et al., 2009; Liu et al., 2011; Srivastava et al., 2006; Zaccaro et al., 2001), empowering leadership (Arnold et al., 2000; A. Srivastava et al., 2006, 2006; Zhang and Bartol, 2010), self-sacrificing leadership (Cremer and Knippenberg, 2004; van Knippenberg and van Knippenberg, 2005) and diversity leadership (Chen & Van Velsor, 1996, 1996; Chin et al., 2016; Dreachslin, 1999).

Among these contemporary theories, the SL and its several related concepts raise attention not only for the number of articles published in

the past years but also because of its adherence to the role of the leader in being a change agent in any desired system or organisation which he or she belongs such as government, NGOs or companies (Dreier et al., 2019; Visser and Courtice, 2011). However, despite the term SL seems to be simple at first glance, there is a variety of definitions which are not always adopted in a clear way, which could lead to confusion and misuse among researchers. In this sense, Fig. 1 was created to shed light on the different possible definitions gathered from the literature as well as explore their differences and similarities when compared to each other.

The broadest concept that also addresses SL identified in the literature is the systems leadership. According to Dreier et al. (2019), it aims to promote change in any desired system through the set of skills and capacities that individuals and organisations can adopt to foster and enable the desired changes. This concept implies that leaders have a deep understanding of the dynamics of the systems they belong to and wish to change, as well as the ability to engage and empower all stakeholders in an inclusive way (Dreier et al., 2019).

The second (leadership for SD or SL) is embedded in the previous definition. It focuses on leadership that could drive changes in the natural, social and economic systems, according to the most used definition of SD (Brundtland et al., 1987). This concept is more specific than the previous one since it aims to change the systems that SD embrace, such as those related to the 17 Sustainable Development Goals (United Nations, General Assembly, 2015).

Apart from the several definitions provided by the literature, and considering that SD is a contextual factor as suggested by Visser & Courtice (2011), the author of this paper presented believe that the best definition could simply rise from the combination of the most used and raw definition of sustainable development (Brundtland et al., 1987, p.41) with the mainstream definition of a leader which considers that they play an essential role "influencing, motivating, and enabling others to contribute to the effectiveness and success of the organisations of which they are members" (House et al., 2004, p.56). In this sense, combining both definitions, a raw definition of a sustainability leader could emerge as follows: The person who motivates and influences followers in order to overcome sustainability barriers and address sustainability challenges, guaranteeing that society meets the needs of the present without compromising the ability of future generations to meet their own needs.

The inner layer of the figure is related to the leadership aspects of sustainable development but is understood in the context of companies. In this respect, the literature is diverse and mostly adopts three main terms: responsible leadership, corporate sustainability leadership and CSR leadership. Despite the fact the term responsible leadership is not exclusively related to the context of companies, where the interaction between leaders and followers can also happen between different stakeholders outside of companies, most of the literature that adopts this term applies it in the context of organisations (Maak and Pless, 2006), especially when it is related to CSR (Waldman et al., 2020). From the several definitions that could be identified in the literature, the one provided by Maak, Pless and Voegtlin is among the most cited ones: "a relational influence process between leaders and stakeholders geared towards the establishment of accountability in matters pertaining to organisational value creation" (Maak and Pless, 2006, p. 314; Pless et al., 2022).

The term responsible leader also received great attention from the classic discussion that occurred from the exchange of letters between Waldman and Siegel in their attempt to define the socially responsible leader, generating an agreement that the best approach would be to conciliate their different perspectives on what would be a socially responsible leader (Waldman and Siegel, 2008). Approximately 12 years later, both authors resumed their exchange of letters under a different theoretical landscape of CSR research and agreed that the term could be defined in multiple ways, which pretty much depends on the theoretical lens that is used to analyse it. In this sense, they came up with two possible orientations of responsible leadership: the integrator and the strategist (Waldman et al., 2020).

Apart from the responsible leadership literature, which is the main term used in the context of companies, it is not hard to find other terms combining leadership with corporate sustainability or CSR, generating variants such as CSR leadership or leadership for corporate sustainability. The authors who commonly use these terms use them as synonyms of responsible leadership or SL in the context of companies, and most of the time, do not discuss them rigorously as the authors that study responsible leadership or sustainability leadership usually do. Still, studies that use these terms usually highlight the importance or the role of the leaders in conducting their companies in change management processes towards corporate sustainability, implementing sustainability practices and strategies or achieving performance (financial, CSR, sustainability) (Haski-Leventhal, 2022; Kopel, 2021; Phillips et al., 2019).

Finally, thinking beyond the business context, it is also important to consider that the term responsible leadership also appear in the United Nations' Principles for responsible management education (PRME), where PRME signatory business schools are expected to follow six principles in order to create educational frameworks and materials that could contribute to the education of the future responsible leaders (UN PRME, 2022).
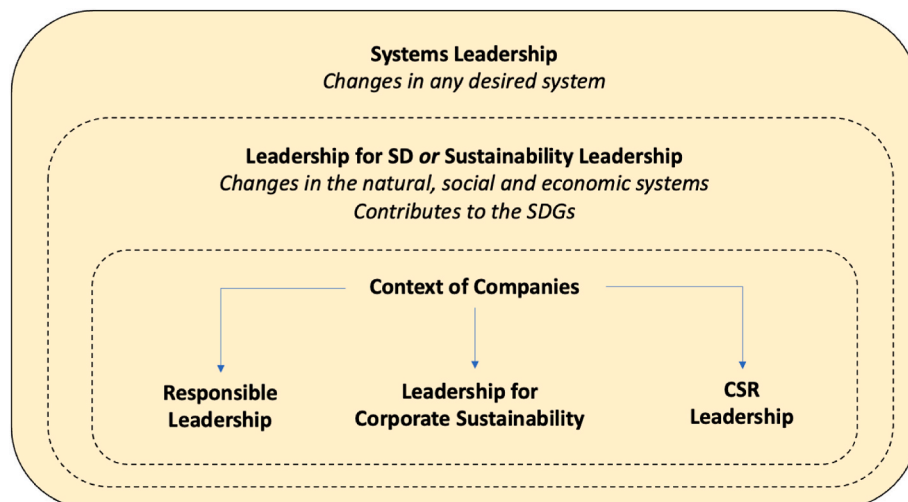

Fig. 1. Differences and similarities among leadership concepts.

3. Methods and techniques

This study relied on bibliometric analysis to unveil the cross-cutting aspects of the SL research field. The authors believe that bibliometric analysis is a suitable method to address the goals of this paper since it can contribute to understanding the complexity of SL literature and analyse a large volume of data (Donthu et al., 2021), showing the big picture and the structural dimensions as well as provide a theoretical advancement of the field (Dabić et al., 2020). Furthermore, the bibliometric analysis can also provide a science mapping and enhance research visibility, helping researchers understand a field's evolution, research trends and gaps which can be useful for generating insights for future research (Cosma et al., 2023; Ligorio et al., 2022; Zhao et al., 2022; Zupic and Čater, 2015).

3.1. Data collection strategy

The author reviewed 1,813 documents through bibliometric mapping, which can be considered a method that provides the big picture of a research field by unveiling research trends and streams. Drawing upon previous research that used the same method (Aung and Hallinger, 2022; Hategan and Hategan, 2021; Leal Filho et al., 2022; Purnomo et al., 2021), the author first created a search string capable of gathering the most relevant documents for the research.

The process of creating the search string took one month, moving back and forth by running new search strings several times and adding or excluding terms as the papers were read. In addition, the preliminary version of the search string was presented to a research committee (November 2021) composed of experts on CSR and sustainability innovation, achieving its final version after addressing the suggestions and comments (Table 1).

The search string was crafted in four blocks of terms. Because of the inherent variety of topics that could appear from the combination of 'leadership' and 'corporate social responsibility', it was decided to search for the terms only in the title, aiming to gather papers that precisely address the goal of this study. Therefore, the first part of the search string embraces terms connected to leadership, whether they are related to formal leadership positions (manager, supervisor, boss, etc.) or other specific terms from the leadership theory (leader, leadership, follower, followership, etc.). The second, in turn, brings relevant sustainability-related terms such as CSR, SD, ESG, etc. The third and fourth blocks were created to remove the unexpected and not desired terms that could appear (i.e., medicine, hospital, nurse, etc.).

The Scopus database was selected to search for peer-reviewed documents since it is among the most used scientific databases with the highest coverage in several fields such as life sciences, physical sciences, health sciences and social sciences and humanities. It covers more than 77 million records (peer-reviewed documents) from over 23,452 peer-reviewed journals (Scopus, 2022). According to (Ghani et al., 2022), the Scopus database has extensive coverage of subjects and presents quality peer-reviewed documents, being recognised as the biggest citation and abstract database. Moreover, other relevant studies in the sustainable development field also adopted Scopus as the preferred database to conduct bibliometric analysis based on the co-occurrence of terms.

After applying the search string, the database initially returned 3,150 entries, which were judiciously analysed and screened, following the criteria presented in Fig. 2. The screening process of this research was created to select well-cited papers that have been leveraged by the literature in the field.

After the first stage, the authors dropped 80 documents because of the fact they were not written in English language, remaining 3,070. In addition, another filter was applied to identify only documents that went through the peer review process (articles, conference papers, reviews, editorials, and short surveys), remaining 2,552 documents.

From this preliminary sample of 2,552 papers, the authors opted to divide the sample according to the year of publication since it is expected that old papers have a higher number of citations because of the time they are available for consulting. In this sense, five-time periods were created with different citation limits. The first encompasses papers published between 1987 and 2000, of which ten documents were selected because they presented more than fifteen citations. The second filter, in turn, is related to the documents published between 2001 and 2010, where 141 documents were added to the final sample for presenting ten or more citations. The third refers to the papers published between 2011 and 2020, where 916 documents with at least five citations remained. The fourth comprises papers only published in 2021, with three or more citations. No limit of citations was established for papers published in 2022. This approach used was inspired by some papers that opted for similar exclusion criteria, aiming at selecting only significant research with a good impact factor (see Sanches et al., 2021). After the screening process, from the initial sample of 3,150 documents, a total of 1,813 peer-reviewed papers remained and were used to perform the bibliometric assessment.

3.2. Data analysis strategy

This paper relied on the bibliometric analysis network to unveil the landscape of how the literature discusses SL in several aspects. The bibliometric analysis can be considered a quantitative technique which is often used to understand what scholars have been covering in a specific area of study. Among the uses of the technique, science mapping calls attention since it embraces bibliometrics to explore a specific field through a spatial representation of the connection of desired terms (Zupic and Čater, 2015).

In this sense, the data analysis in this paper was conducted through the co-occurrence of terms technique. Co-occurrence refers to the frequency with which two terms co-occur in a text (Tijssen and Van Raan, 1994; van Eck and Waltman, 2011, 2017). The output of this analysis is seen through a network graph, where the diameter of the node represents the frequency of a term, whereas the width of the connection represents how strong the connections between the units of analysis are. The closer one term appears to another, the higher their probability to co-occur, being likely to become a thematic cluster (van Eck and Waltman, 2011, 2017), represented by the different colours in Fig. 3.

All the text data pertaining to the papers selected after the screening process was downloaded in csv. format and used to conduct the co-occurrence analyses on the VOSviewer software (VOSviewer, 2022). In addition, a thesaurus file (replace by file) was used to standardise terms with different spelling (e.g., British, and American spelling) and the same meaning, but written in different ways (e.g., 'SDGs', 'Sustainable Development Goals', 'UN's Sustainable Development Goals, etc.), and for a better understanding and visualisation of the co-occurrence graph (Van Eck and Waltman, 2020), the software was set

Table 1
Search strategy.

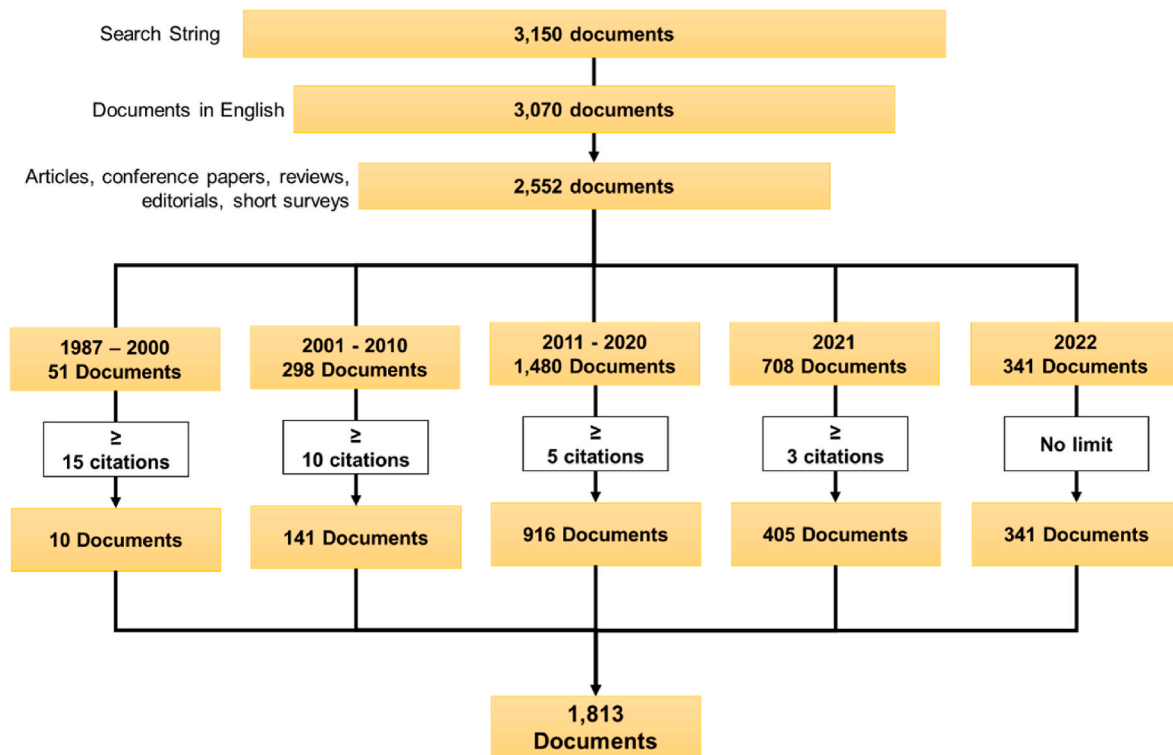| Database	Search String	Initial Number of Documents
Scopus	(TITLE (("leader*" OR "manager*" OR "Top Manage*" OR "TMT*" OR "CEO*" OR "chief" OR "head" OR "boss" OR "director*" OR "president*" OR "supervisor*" OR "board" OR "chairm*n" OR "follower*" OR "dean*" OR "rector*") AND ("responsible" OR "sustainab*" OR "CSR" OR "corporate social responsibility" OR "SDG*" OR "ESG" OR "PRME" OR "Principles for responsible management education" OR "Sustainable Development Goal*" OR "Sustainable Development") AND NOT ("respons*bilities" OR "respons*ble for" OR "response"))) AND NOT (TITLE-ABS-KEY ("medicine" OR "hospital*" OR "nurse*" OR "medical"))	3,150 documents

Fig. 2. Screening process.

up to show only terms that have a frequency of at least four.

4. Results and discussion

4.1. Co-occurrence of terms and research streams

Fig. 3 brings the main results related to the co-occurrence analysis of terms. Overall, the results evidence four main clusters which could be considered as research avenues of which scholars have been exploring the sustainability leadership field: 1) board characteristics, corporate governance and CSR performance; 2) leadership aspects towards corporate sustainability; 3) HEIs aspects in leadership education and training and 4) Responsible leadership: theories and concepts. Table 2 complements Fig. 3, where sub-clusters are identified as embedded in each one of the dimensions found. These subclusters were identified after setting the VOSViewer software parameters to provide more clusters than the standard analysis. This configuration was then combined with a visual analysis conducted by the authors of this paper, which contributed to providing names and conducting the discussion of each cluster.

The red cluster is the biggest in number of terms (41 nodes) and reports mainly on the board characteristics, corporate governance and CSR performance from several perspectives. Most of the studies embraced by this cluster try to understand the impact of corporate governance, board diversity and gender aspects and how it contributes to CSR performance, financial performance, green CSR and corporate reputation, etc. (Bear et al., 2010; Galbreath, 2018; Harjoto et al., 2015; Rao and Tilt, 2016). In addition, other studies also have identified other elements related to diversity, such as age and directors from Western European Countries, who also demonstrated to have relevance in implementing environmental governance practices and structures (Post et al., 2011). This cluster also brings connections on the board diversity aspects in sustainably reporting/disclosure quality where, for example, gender-diverse boards may influence sustainability reporting quality and CSR disclosure (Al-Shaer and Zaman, 2016; Katmon et al., 2019), although some studies indicate the contrary: in the context of USA

companies that belong to Standard & Poor's 500 Index, no significant evidence was found on the relationship between board gender diversity and ESG disclosure (Manita et al., 2018). Finally, another relevant aspect brought in this cluster is related to the attributes and characteristics of the CEO (e.g., power, altruism, reputation, educational specialisation) and whether these aspects can moderate the relationship between ESG and financial performance (Velte, 2020), influence corporate socially responsible investments (Borghesi et al., 2014) and companies' CSR performance (Huang, 2013).

The green cluster is the second in number of terms (39 nodes) and brings important aspects related to how leaders are conducting organisational change towards corporate sustainability (Dreier et al., 2019; Johannsdottir et al., 2015; Lenssen et al., 2009; Lozano, 2013; Thakur and Mangla, 2019). Studies in this cluster are related to understanding how managers and leaders assemble the companies' managerial systems, adopt sustainability practices or implement the SDGs (Mangondo and Thakhathi, 2021; Mattera & Alba Ruiz-Morales, 2020; Rashed and Shah, 2021; Wolff et al., 2020) as well as their role in implementing sustainability in the firms' strategy (Biswas et al., 2022; Caldana et al., 2022). The last strand in this field, in turn, is related to the role of human resources management in promoting practices inside companies to foster and support sustainability leadership development towards organisational sustainability (Buller and McEvoy, 2016; DuBois and Dubois, 2012; Gloet, 2006; Guerci et al., 2019; Macke and Genari, 2019).

The yellow cluster, in turn, highlights HEIs aspects of leadership education and training. This cluster can be considered as an innovation brought by this study since none of the previous bibliometric assessments has identified or discussed the education for sustainable development dimension (Hallinger and Suriyankietkaew, 2018; Hategan and Hategan, 2021; Purnomo et al., 2021; L. Zhao et al., 2022). Publications in this cluster consider three main aspects: (1) the perspective of management staff as leaders that will conduct the integration of SDGs into the universities educational systems, and fostering the HEIs social innovation tendency, guaranteeing universities' sustainable performance (Blanco-Portela et al., 2017; Q. Iqbal and Piwowar-Sulej, 2021; Leal Filho et al., 2020), (2) the importance of fostering ESD aspects in

Fig. 3. Co-occurrence of terms - sustainability leadership.
Notes: yellow cluster = 7 nodes; blue cluster = 18 nodes; green cluster = 39 nodes; red cluster = 41 nodes.

Table 2
Sustainability leadership research streams.

Clusters	Sub-Clusters
Red Cluster - board characteristics, corporate governance and CSR performance	1 Board characteristics (diversity, gender, composition, etc.)
	2 CEO and performance (CSR, ESG)
	3 Corporate governance, CSR and ESG disclosure and reporting
Green Cluster - Leadership aspects towards corporate sustainability	1 Corporate sustainability, sustainability practices and SDGs adoption
	2 Implementation of CS through human resources management.
	3 Response to external factors (pandemics, climate change, etc.)
	4 SDGs implementation in the companies' strategy
Yellow Cluster - HEIs aspects in leadership education and training	1 Management staff as sustainability leaders
	2 ESD and training of future leaders
	3 Pedagogical and classroom strategies to train leaders
Blue Cluster - Responsible leadership: theories and concepts	1 Leadership Styles
	2 Competencies and skills, values, knowledge

the HEIs, such as implementing the SDGs in the curriculum and addressing the challenges of implementation of responsible management education so that business s could be aligned with the PRME's six principles and be more prepared to educate the students which will eventually hold important positions in companies (Abdelgaffar, 2021;

Dyllick, 2015; Storey et al., 2017), and (3) the pedagogical aspects and classroom strategies related to the education of these future leaders, where there is a growing relevance of adopting non-conventional learning approaches that goes beyond the traditional formal education (Borges et al., 2017; Caldana et al., 2021; Leal Filho, 2021).

Finally, the blue cluster reports on the leadership theory and concepts connected to responsible leadership, exploring what are the essential leadership competencies, skills, values and attitudes required for a responsible leader (Visser and Courtice, 2011; Waldman et al., 2020; Waldman and Siegel, 2008). In addition, another aspect related to this cluster is how the literature explores responsibility leadership and SL under the lens of leadership theory. For example, the literature states that authentic leadership can moderate the relationship between CSR and job performance (H.-C. Yang and Kim, 2018), being an important aspect for responsible management in companies (Corriveau, 2020); the digital leadership, in turn, is suggested to contribute to the companies innovation capabilities, green process innovation and sustainable performance (Khaw et al., 2022; Sarfraz et al., 2022); ethical leadership is indicated to have a positive relationship with CSR performance and practices as well as affecting employees' socially responsible behaviour (De Roeck and Farooq, 2018; Pasricha et al., 2018; Saha et al., 2020; Tian et al., 2015; Tourigny et al., 2019); relational leadership is believed to foster corporate sustainability (Kurucz et al., 2017; Nicholson and Kurucz, 2019); responsible leadership has a positive effect on environmental performance, innovation, contributes to sustainable businesses and influences organisations' political CSR engagement (Han et al., 2019; Liao and Zhang, 2020; Maak et al., 2016; Y. Wang et al., 2021; H. Zhao and Zhou, 2019); servant leadership can moderated the relationship between CSR and the individual level pro-environmental behavior,

promote environmental citizenship behaviour through CSR mediation and has a has a positive influence on firm innovativeness and CSR at the employee level (Afsar et al., 2018; Ahmad et al., 2021; Batool et al., 2022; Gu and Liu, 2022; Islam et al., 2022; Luu, 2019; Mallén Broch et al., 2020); spiritual leadership is suggested to contribute to sustainable development in a broad perspective, and increase employee CSR participation through employee workplace spirituality (Crossman, 2011; Fry & Nisiewicz, 2013, 2013); sustainability leadership plays an important role in contributing to organisational change management towards sustainability in companies and HEIs (Caldana et al., 2021; S. Iqbal et al., 2018; Leal Filho et al., 2020); and transformational leadership can influence CSR engagement, has a positive impact on employees' sustainability performance and employees' innovative behavior in sustainable organisations (Begum et al., 2020; Burawat, 2019; Çop et al., 2021; Khan et al., 2018; Manzoor et al., 2021; Nabi et al., 2022).

The above-mentioned aspects are only a few examples of how the literature explores leadership theory in order to understand the possible connections and contributions to the CSR and SD literature. In this sense, Table 3 was created to bring a complete perspective of what the literature covers on the possible connections published in top journals of the area.

4.2. Conclusions

This paper aimed to extend and complement previous qualitative and quantitative literature reviews of the sustainability leadership research field. In this sense, a bibliometric analysis based on the co-occurrence of terms technique was adopted to analyse a sample of 1,813 well-cited papers published in top journals. The results indicate that the literature on SL is largely disorganised, and because previous studies did not adopt a robust search string revised by a panel of experts, it lacks exploring sustainability leadership in the context of higher education institutions and the leadership theories connected to sustainable development and corporate social responsibility. In addition, the results from the bibliometric analysis evidence the existence of four clusters and twelve sub-clusters, which can be considered research strands that researchers can delve into and explore in a more detailed way.

The implication of this research is threefold. Firstly, it contributes to the theory by delivering a definition of a sustainability leader that naturally emerges from the most used definition of sustainable development and the mainstream leadership definition: The person who motivates and influences followers in order to overcome sustainability barriers and address sustainability challenges, guaranteeing that society meets the needs of the present without compromising the ability of future generations to meet their own needs. Secondly, it explores the several definitions related to sustainability leadership found in the literature and delivers a conceptual framework that researchers can use to select the best term for their future studies. Third, to the best of the authors' knowledge, this is the first study that adopts a comprehensive search string, revised by experts, that considers the complexity of the leadership theory. This allowed us to conduct a bibliometric analysis that unveiled the real holistic research landscape of sustainability leadership (and its several terminological variations) as well as the possible connections to the several sustainability-related terms explored. Fourth, as this research was able to identify, as a consequence of the analysis of the blue cluster, how concepts related to the leadership theory are being adopted in sustainable development and corporate social responsibility research, where Table 3 can serve as a summary and help researchers to identify research gaps not previously discussed in the literature.

In terms of practical implications, the authors believe that several types of organisations (companies, higher education institutions, NGOs, governments, communities, etc.) could use the findings to reflect on the importance of SL and what are the main leadership theories, styles, competencies and knowledge that leaders should develop in order to

Table 3
Connection of leadership constructs to the CSR and SD literature.

Leadership Constructs	Connection to the CSR and SD Literature
Authentic Leadership	• Impacts on employees' safety performance (Cavazotte et al., 2021) • Effect of green authentic leadership on sustainability in higher education (Srivastava et al., 2020) • Starting point to responsible management (Corriveau, 2020) • Impacts organisational citizenship behaviour (Iqbal et al., 2018) • Moderates the relationship between CSR and job performance (H.-C. Yang and Kim, 2018) • Moderates the relationship between CSR and organisational identification (Kim et al., 2018)
Digital Leadership	• Social media usage has a positive impact on innovation capabilities and sustainable SMEs performance (Borah et al., 2022) • Positive relationship with sustainable performance (Khaw et al., 2022) • Positive relationship with innovation capabilities, green process innovation and sustainable performance (Sarfraz et al., 2022) • Digital leaders are expected to exploit new technologies for sustainable community-based tourism (Haider et al., 2022)
Ethical Leadership	• Influences organisational trust of employees and improves engagement at the workplace (Ilyas et al., 2020) • Affects CSR and firm performance (Saha et al., 2020) • Positive effect on CSR practices (Pasricha et al., 2018; Tian et al., 2015; Tourigny et al., 2019) • Affects employees' socially responsible behaviour (De Roeck and Farooq, 2018) • Increases organisational citizenship behaviour through CSR (Gao and He, 2017) • Influences positively CSR through organisational ethical culture (Wu et al., 2015) • Moderates its own indirect effect on firm reputation through CSR (Zhu et al., 2014) • Moderates the indirect effect of CSR on firm performance through firm reputation (Zhu et al., 2014)
Relational Leadership	• Relational Leadership fosters sustainability (Kurucz et al., 2017; Nicholson and Kurucz, 2019)
Responsible Leadership	• CEOs' responsibility leadership can foster environmental innovation (Wang et al., 2021) • Positive effect on environmental innovation (Liao and Zhang, 2020) • Positive effect on environmental performance (Liao and Zhang, 2020) • Positively related to the leader's perceived effectiveness (Voegtlin et al., 2020) • Positively related to favourable stakeholder evaluation (Voegtlin et al., 2020) • Positively related to organisational citizenship behaviour for the environment (Han et al., 2019; H. Zhao and Zhou, 2019) • Employee turnover intentions mediated the relationship between responsible leadership and organisational commitment (Haque and Ntim, 2018) • Indirect effect of responsible leadership on employee's pro-environmental behaviour through organisational commitment (Afsar et al., 2018) • Influences political CSR engagement of organisations in social innovation and multi-stakeholder initiatives (Maak et al., 2016) • Contributes to building social capital and sustainable business (Maak, 2007)
Servant Leadership	• Has indirect effects on organisational sustainability through creativity and psychological resilience (Batool et al., 2022) • CSR mediates the relationship between perceived environment servant leadership and environmental citizenship behaviour (Islam et al., 2022) • Moderated the relationship between CSR and individual-level pro-environmental behaviour (Afsar et al., 2018; Gu and Liu, 2022)

Table 3 (*continued*)

Leadership Constructs	Connection to the CSR and SD Literature
Spiritual Leadership	• Mediates the relationship between CSR at the employee level and innovative work behaviour (Ahmad et al., 2021) • Positive influence on firm innovativeness and CSR at the employee level (Mallén Broch et al., 2020) • Moderates the role between CSR and customer value co-creation (Luu, 2019) • Employee workplace spirituality mediates the relationship between spiritual leadership and employee CSR participation (Zou et al., 2022) • It is suggested that spiritual leadership can contribute to sustainable development (Crossman, 2011; Fry and Nisiewicz, 2013)
Sustainability Leadership	• Contributes to the SDGs implementation in the HEIs' practices, such as teaching (Caldana et al., 2021; Leal Filho et al., 2020) • Sustainability innovation is considered a mediator between sustainable leadership and sustainable performance (Q. Iqbal and Piwowar-Sulej, 2021) • Affects financial performance (Suriyankietkaew and Avery, 2016; Wiengarten et al., 2017) • Sustainability leadership practices are positively related to employee satisfaction (Suriyankietkaew and Avery, 2014) • Is an essential aspect of organisational change towards corporate sustainability (Lenssen et al., 2009)
Transformational Leadership	• Has a positive impact on knowledge management capabilities (Nabi et al., 2022) • Has a positive impact on radical innovation (Nabi et al., 2022) • Positively predicts job performance (Manzoor et al., 2021) • CSR mediates the relationship between transformational leadership and job performance (Manzoor et al., 2021) • Has a positive effect on green work engagement (Çop et al., 2021) • Has a positive effect on green team resilience (Çop et al., 2021) • Green work engagement mediates the relationship between transformational leadership and green team resilience (Çop et al., 2021) • Psychological empowerment mediated the relationship between transformational leadership and sustainable organisational innovation (Begum et al., 2020) • Has a positive influence on employees' innovative behaviour in sustainable organisations (Li et al., 2019) • There is a positive relationship between transformational leadership and lean manufacturing (Burawat, 2019) • There is a positive relationship between transformational leadership and organisational performance (Khan et al., 2018) • Transformational leadership has a positive impact on employee sustainable performance (Jiang et al., 2017) • Organisational citizenship behaviour mediates the influence of transformational leadership on employee sustainable performance (Jiang et al., 2017) • Leader's integrity is a predictor of transformational leadership behaviour (Veríssimo and Lacerda, 2015) • Values congruence mediates the relationship between transformational leadership and follower organisational citizenship behaviour (Groves and LaRocca, 2011) • The intellectual stimulation component of transformational leadership influences CSR engagement (Waldman et al., 2006)

conduct their practices and help organisations to achieve a more sustainability-oriented state. This could be adopted, for example, through SL development training programs for employees (context of companies) or even by higher education institutions (especially business schools) that may wish to revise and evaluate how they are educating the future leaders that will eventually hold important positions when they graduate.

This research also has limitations which could be further used as opportunities for future research. For example, future articles could use the cluster structure provided in Table 2 and indicate what are the clusters and subclusters that are not being discussed anymore and what are the ones that are promising and could drive relevant research in the future. In addition, this research identified that several leadership theories and styles are considered relevant to implementing SD in several contexts; however, it did not aim to identify which ones are the most promising in different contexts. Therefore, the authors believe that a systematic literature review combined with a weighting technique (i.e., number of citations or impact factor of journals publishing these articles) could indicate the magnitude of which each one of these theories is the most promising.

Compliance with Ethical Standards

All authors have approved and have agreed to submit the manuscript to this journal. This manuscript has not been published and is not under consideration for publication elsewhere.

The authors declare that they have no conflicts of interest to disclose.

CRediT authorship contribution statement

João Henrique Paulino Pires Eustachio: Conceptualization, Methodology, Formal analysis, Investigation, Data curation, Writing – original draft, Software. **Adriana Cristina Ferreira Caldana:** Conceptualization, Writing – original draft, Supervision. **Walter Leal Filho:** Conceptualization, Writing – original draft, Supervision.

Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Data availability

Data will be made available on request.

References

Abdelgaffar, H.A., 2021. A review of responsible management education: practices, outcomes and challenges. J. Manag. Dev. 40 (9/10), 613–638. https://doi.org/10.1108/JMD-03-2020-0087.

Afsar, B., Cheema, S., Javed, F., 2018. Activating employee's pro-environmental behaviors: the role of CSR, organizational identification, and environmentally specific servant leadership. Corp. Soc. Responsib. Environ. Manag. 25 (5), 904–911. https://doi.org/10.1002/csr.1506. Scopus.

Ahmad, N., Scholz, M., Arshad, M.Z., Jafri, S.K.A., Sabir, R.I., Khan, W.A., Han, H., 2021. The inter-relation of corporate social responsibility at employee level, servant leadership, and innovative work behavior in the time of crisis from the healthcare

sector of Pakistan. Int. J. Environ. Res. Publ. Health 18 (9). https://doi.org/10.3390/ijerph18094608. Scopus.

Al-Shaer, H., Zaman, M., 2016. Board gender diversity and sustainability reporting quality. J. Contemp. Account. Econ. 12 (3), 210–222. https://doi.org/10.1016/j.jcae.2016.09.001. Scopus.

Angus-Leppan, T., Metcalf, L., Benn, S., 2010. Leadership styles and CSR practice: an examination of sensemaking, institutional drivers and CSR leadership. J. Bus. Ethics 93 (2), 189–213. https://doi.org/10.1007/s10551-009-0221-y.

Arnold, J.A., Arad, S., Rhoades, J.A., Drasgow, F., 2000. The empowering leadership questionnaire: the construction and validation of a new scale for measuring leader behaviors. J. Organ. Behav. 21 (3), 249–269. https://doi.org/10.1002/(SICI)1099-1379, 200005)21:3<249::AID-JOB10>3.0.CO;2-#.

Aung, P.N., Hallinger, P., 2022. Research on sustainability leadership in higher education: a scoping review. Int. J. Sustain. High Educ. 24 (3), 517–534. https://doi.org/10.1108/IJSHE-09-2021-0367.

Avolio, B.J., Gardner, W.L., 2005. Authentic leadership development: getting to the root of positive forms of leadership. Leader. Q. 16 (3), 315–338. https://doi.org/10.1016/j.leaqua.2005.03.001.

Batool, F., Mohammad, J., Awang, S.R., 2022. The effect of servant leadership on organisational sustainability: the parallel mediation role of creativity and psychological resilience. Leader. Organ. Dev. J. 43 (1), 71–95. https://doi.org/10.1108/LODJ-06-2021-0264. Scopus.

Bear, S., Rahman, N., Post, C., 2010. The impact of board diversity and gender composition on corporate social responsibility and firm reputation. J. Bus. Ethics 97 (2), 207–221. https://doi.org/10.1007/s10551-010-0505-2. Scopus.

Begum, S., Xia, E., Mehmood, K., Iftikhar, Y., Li, Y., 2020. The impact of ceos' transformational leadership on sustainable organizational innovation in smes: a three-wave mediating role of organizational learning and psychological empowerment. Sustainability 12 (20), 1–16. https://doi.org/10.3390/su12208620. Scopus.

Biswas, S.R., Uddin, M.A., Bhattacharjee, S., Dey, M., Rana, T., 2022. Ecocentric leadership and voluntary environmental behavior for promoting sustainability strategy: the role of psychological green climate. Bus. Strat. Environ. 31 (4), 1705–1718. https://doi.org/10.1002/bse.2978. Scopus.

Blanco-Portela, N., Benayas, J., Pertierra, L.R., Lozano, R., 2017. Towards the integration of sustainability in Higher Education Institutions: a review of drivers of and barriers to organisational change and their comparison against those found of companies. J. Clean. Prod. 166, 563–578. https://doi.org/10.1016/j.jclepro.2017.07.252.

Borah, P.S., Iqbal, S., Akhtar, S., 2022. Linking social media usage and SME's sustainable performance: the role of digital leadership and innovation capabilities. Technol. Soc. 68 https://doi.org/10.1016/j.techsoc.2022.101900. Scopus.

Borges, J.C., Ferreira, T.C., Borges de Oliveira, M.S., Macini, N., Caldana, A.C.F., 2017. Hidden curriculum in student organizations: learning, practice, socialization and responsible management in a business school. Int. J. Manag. Educ. 15 (2), 153–161. https://doi.org/10.1016/j.ijme.2017.03.003. Part B).

Borghesi, R., Houston, J.F., Naranjo, A., 2014. Corporate socially responsible investments: CEO altruism, reputation, and shareholder interests. J. Corp. Finance 26, 164–181. https://doi.org/10.1016/j.jcorpfin.2014.03.008. Scopus.

Brown, M.E., Treviño, L.K., 2006. Ethical leadership: a review and future directions. Leader. Q. 17 (6), 595–616. https://doi.org/10.1016/j.leaqua.2006.10.004.

Brundtland, G.H., Khalid, M., Agnelli, S., Al-Athel, S., Chidzero, B., 1987. Our Common Future, p. 8. New York.

Buller, P.F., McEvoy, G.M., 2016. A model for implementing a sustainability strategy through HRM practices. Bus. Soc. Rev. 121 (4), 465–495. https://doi.org/10.1111/basr.12099.

Burawat, P., 2019. The relationships among transformational leadership, sustainable leadership, lean manufacturing and sustainability performance in Thai SMEs manufacturing industry. Int. J. Qual. Reliab. Manag. 36 (6), 1014–1036. https://doi.org/10.1108/IJQRM-09-2017-0178.

Caldana, A.C.F., Eustachio, J.H.P.P., Lespinasse Sampaio, B., Gianotto, M.L., Talarico, A. C., Batalhão, A.C. da S., 2021. A hybrid approach to sustainable development competencies: the role of formal, informal and non-formal learning experiences. Int. J. Sustain. High Educ. https://doi.org/10.1108/IJSHE-10-2020-0420. *ahead-of-print* (ahead-of-print).

Caldana, A.C.F., Marchiori Pacheco, L., Fernandes Rodrigues Alves, M., Henrique Paulino Pires Eustachio, J., Bastos Fernandes dos Santos, N.M., 2022. Strategy implementation for the 2030 agenda: insights from Brazilian companies. Bus. Ethics Environ. Respons. 31 (2), 296–306. https://doi.org/10.1111/beer.12409.

Cavazotte, F., Mansur, J., Moreno, V., 2021. Authentic leadership and sustainable operations: how leader morality and selflessness can foster frontline safety performance. J. Clean. Prod. 313 https://doi.org/10.1016/j.jclepro.2021.127819. Scopus.

Changar, M., Atan, T., 2021. The role of transformational and transactional leadership approaches on environmental and ethical aspects of CSR. Sustainability 13 (3). https://doi.org/10.3390/su13031411. Article 3.

Chen, C.C., Van Velsor, E., 1996. New directions for research and practice in diversity leadership. Leader. Q. 7 (2), 285–302. https://doi.org/10.1016/S1048-9843(96)90045-4.

Chin, J.L., Desormeaux, L., Sawyer, K., 2016. Making way for paradigms of diversity leadership. Consult. Psychol. J. Pract. Res. 68 (1), 49–71. https://doi.org/10.1037/cpb0000051.

Çop, S., Olorunsola, V.O., Alola, U.V., 2021. Achieving environmental sustainability through green transformational leadership policy: can green team resilience help? Bus. Strat. Environ. 30 (1), 671–682. https://doi.org/10.1002/bse.2646.

Corriveau, A.-M., 2020. Developing authentic leadership as a starting point to responsible management: a Canadian university case study. Int. J. Manag. Educ. 18 (1) https://doi.org/10.1016/j.ijme.2020.100364. Scopus.

Cosma, S., Rimo, G., Cosma, S., 2023. Conservation finance: what are we not doing? A review and research agenda. J. Environ. Manag. 336, 117649 https://doi.org/10.1016/j.jenvman.2023.117649.

Cremer, D.D., Knippenberg, D. van, 2004. Leader self-sacrifice and leadership effectiveness: the moderating role of leader self-confidence. Organ. Behav. Hum. Decis. Process. 95 (2), 140–155. https://doi.org/10.1016/j.obhdp.2004.04.002.

Crosby, B.C., Bryson, J.M., 2010a. Integrative leadership and the creation and maintenance of cross-sector collaborations. Leader. Q. 21 (2), 211–230. https://doi.org/10.1016/j.leaqua.2010.01.003.

Crosby, B.C., Bryson, J.M., 2010b. Integrative leadership and the creation and maintenance of cross-sector collaborations. Leader. Q. 21 (2), 211–230. https://doi.org/10.1016/j.leaqua.2010.01.003.

Crossman, J., 2011. Environmental and spiritual leadership: tracing the synergies from an organizational perspective. J. Bus. Ethics 103 (4), 553–565. https://doi.org/10.1007/s10551-011-0880-3.

Dabić, M., Maley, J., Dana, L.-P., Novak, I., Pellegrini, M.M., Caputo, A., 2020. Pathways of SME internationalization: a bibliometric and systematic review. Small Bus. Econ. 55 (3), 705–725. https://doi.org/10.1007/s11187-019-00181-6.

Day, D.V., Gronn, P., Salas, E., 2006. Leadership in team-based organizations: on the threshold of a new era. Leader. Q. 17 (3), 211–216. https://doi.org/10.1016/j.leaqua.2006.02.001.

De Roeck, K., Farooq, O., 2018. Corporate social responsibility and ethical leadership: investigating their interactive effect on employees' socially responsible behaviors. J. Bus. Ethics 151 (4), 923–939. https://doi.org/10.1007/s10551-017-3656-6. Scopus.

Dey, M., Bhattacharjee, S., Mahmood, M., Uddin, M.A., Biswas, S.R., 2022. Ethical leadership for better sustainable performance: role of employee values, behavior and ethical climate. J. Clean. Prod. 337, 130527 https://doi.org/10.1016/j.jclepro.2022.130527.

Donthu, N., Kumar, S., Mukherjee, D., Pandey, N., Lim, W.M., 2021. How to conduct a bibliometric analysis: an overview and guidelines. J. Bus. Res. 133, 285–296. https://doi.org/10.1016/j.jbusres.2021.04.070.

Dreachslin, J.L., 1999. Diversity leadership and organizational transformation: performance indicators for health services organizations. J. Healthc. Manag. 44 (6), 427–439.

Dreier, L., Nabarro, D., Nelson, J., 2019. Systems Leadership for Sustainable Development: Strategies for Achieving Systemic Change. CR Initiative at the Harvard Kennedy School.

DuBois, C.L.Z., Dubois, D.A., 2012. Strategic HRM as social design for environmental sustainability in organization. Hum. Resour. Manag. 51 (6), 799–826. https://doi.org/10.1002/hrm.21504.

Dyllick, T., 2015. Responsible management education for a sustainable world: the challenges for business schools. J. Manag. Dev. 34 (1), 16–33. https://doi.org/10.1108/JMD-02-2013-0022.

Fatima, T., Elbanna, S., 2022. Corporate social responsibility (CSR) implementation: a review and a research agenda towards an integrative framework. J. Bus. Ethics. https://doi.org/10.1007/s10551-022-05047-8.

Fry, L.W., 2003. Toward a theory of spiritual leadership. Leader. Q. 14 (6), 693–727.

Fry, L.W., Nisiewicz, M.S., 2013. Maximizing the Triple Bottom Line through Spiritual Leadership. Stanford University Press.

Galbreath, J., 2018. Is board gender diversity linked to financial performance? The mediating mechanism of CSR. Bus. Soc. 57 (5), 863–889. https://doi.org/10.1177/0007650316647967.

Galpin, T., Lee Whittington, J., 2012. Sustainability leadership: from strategy to results. J. Bus. Strat. 33 (4), 40–48. https://doi.org/10.1108/02756661211242690.

Gao, Y., He, W., 2017. Corporate social responsibility and employee organizational citizenship behavior: the pivotal roles of ethical leadership and organizational justice. Manag. Decis. 55 (2), 294–309. https://doi.org/10.1108/MD-05-2016-0284. Scopus.

Geletkanycz, M.A., 2020. Social movement spillover: barriers to board gender diversity posed by contemporary governance reform. Leader. Q. 31 (6), 101438 https://doi.org/10.1016/j.leaqua.2020.101438.

Ghani, N.A., Teo, P.-C., Ho, T.C.F., Choo, L.S., Kelana, B.W.Y., Adam, S., Ramliy, M.K., 2022. Bibliometric analysis of global research trends on higher education internationalization using Scopus database: towards sustainability of higher education institutions. Sustainability 14 (14). https://doi.org/10.3390/su14148810. Article 14.

Gloet, M., 2006. Knowledge management and the links to HRM: developing leadership and management capabilities to support sustainability. Manag. Res. News 29 (7), 402–413. https://doi.org/10.1108/01409170610690862.

Groves, K.S., LaRocca, M.A., 2011. Responsible leadership outcomes via stakeholder CSR values: testing a values-centered model of transformational leadership. J. Bus. Ethics 98 (Suppl. 1), 37–55. https://doi.org/10.1007/s10551-011-1019-2. Scopus.

Gu, F., Liu, J., 2022. Environmentally specific servant leadership and employee workplace green behavior: moderated mediation model of green role modeling and employees' perceived CSR. Sustainability 14 (19). https://doi.org/10.3390/su141911965. Scopus.

Guerci, M., Decramer, A., Van Waeyenberg, T., Aust, I., 2019. Moving beyond the link between HRM and economic performance: a study on the individual reactions of HR managers and professionals to sustainable HRM. J. Bus. Ethics 160 (3), 783–800. https://doi.org/10.1007/s10551-018-3879-1. Scopus.

Haider, M., Shannon, R.M., Vatananan-Thesenvitz, R., 2022. *Digital Leadership for sustainable community-based tourism (CBT)*. PICMET 2022 - portland international

conference on management of engineering and technology: technology management and leadership in digital transformation - looking ahead to post-COVID era. Proceedings. https://doi.org/10.23919/PICMET53225.2022.9882550. Scopus.

Hallinger, P., Suriyankietkaew, S., 2018. Science mapping of the knowledge base on sustainable leadership, 1990–2018. Sustainability 10 (12). https://doi.org/10.3390/su10124846. Article 12.

Han, Z., Wang, Q., Yan, X., 2019. How responsible leadership motivates employees to engage in organizational citizenship behavior for the environment: a double-mediation model. Sustainability 11 (3). https://doi.org/10.3390/su11030605. Scopus.

Haque, F., Ntim, C.G., 2018. Environmental policy, sustainable development, governance mechanisms and environmental performance. Bus. Strat. Environ. 27 (3), 415–435. https://doi.org/10.1002/bse.2007.

Harjoto, M., Laksmana, I., Lee, R., 2015. Board diversity and corporate social responsibility. J. Bus. Ethics 132 (4), 641–660. https://doi.org/10.1007/s10551-014-2343-0. Scopus.

Harley, C., Metcalf, L., Irwin, J., 2014. An exploratory study in community perspectives of sustainability leadership in the murray darling basin. J. Bus. Ethics 124 (3), 413–433. https://doi.org/10.1007/s10551-013-1877-x.

Haski-Leventhal, D., 2022. Editorial: the role of CSR leadership. Soc. Bus. Rev. 17 (2), 157–159. https://doi.org/10.1108/SBR-05-2022-195.

Hategan, V.-P., Hategan, C.-D., 2021. Sustainable leadership: philosophical and practical approach in organizations. Sustainability 13 (14). https://doi.org/10.3390/su13147918. Article 14.

House, R.J., Hanges, P.J., Javidan, M., Dorfman, P.W., Gupta, V., 2004. Culture, Leadership, and Organizations: the GLOBE Study of 62 Societies. SAGE Publications.

Huang, S.K., 2013. The impact of CEO characteristics on corporate sustainable development. Corp. Soc. Responsib. Environ. Manag. 20 (4), 234–244. https://doi.org/10.1002/csr.1295. Scopus.

Ilyas, S., Abid, G., Ashfaq, F., 2020. Ethical leadership in sustainable organizations: the moderating role of general self-efficacy and the mediating role of organizational trust. Sustain. Prod. Consum. 22, 195–204. https://doi.org/10.1016/j.spc.2020.03.003. Scopus.

Iqbal, Q., Piwowar-Sulej, K., 2021. Sustainable leadership in higher education institutions: social innovation as a mechanism. Int. J. Sustain. High Educ. 23 (8), 1–20. https://doi.org/10.1108/IJSHE-04-2021-0162.

Iqbal, S., Farid, T., Ma, J., Khattak, A., Nurunnabi, M., 2018. The impact of authentic leadership on organizational citizenship behaviours and the mediating role of corporate social responsibility in the banking sector of Pakistan. Sustainability 10 (7). https://doi.org/10.3390/su10072170. Article 7.

Islam, T., Ahmad, S., Ahmed, I., 2022. Linking Environment Specific Servant Leadership with Organizational Environmental Citizenship Behavior: the Roles of CSR and Attachment Anxiety. Review of Managerial Science. https://doi.org/10.1007/s11846-022-00547-3. Scopus.

Jiang, W., Zhao, X., Ni, J., 2017. The impact of transformational leadership on employee sustainable performance: the mediating role of organizational citizenship behavior. Sustainability 9 (9). https://doi.org/10.3390/su9091567. Scopus.

Johannsdottir, L., Olafsson, S., Davidsdottir, B., 2015. Leadership role and employee acceptance of change: implementing environmental sustainability strategies within Nordic insurance companies. J. Organ. Change Manag. 28 (1), 72–96. https://doi.org/10.1108/JOCM-12-2013-0238.

Johnson, R.E., Venus, M., Lanaj, K., Mao, C., Chang, C.-H., 2012. Leader identity as an antecedent of the frequency and consistency of transformational, consideration, and abusive leadership behaviors. J. Appl. Psychol. 97 (6), 1262–1272. https://doi.org/10.1037/a0029043.

Katmon, N., Mohamad, Z.Z., Norwani, N.M., Farooque, O.A., 2019. Comprehensive board diversity and quality of corporate social responsibility disclosure: evidence from an emerging market. J. Bus. Ethics 157 (2), 447–481. https://doi.org/10.1007/s10551-017-3672-6. Scopus.

Khan, H.U.R., Ali, M., Olya, H.G.T., Zulqarnain, M., Khan, Z.R., 2018. Transformational leadership, corporate social responsibility, organizational innovation, and organizational performance: symmetrical and asymmetrical analytical approaches. Corp. Soc. Responsib. Environ. Manag. 25 (6), 1270–1283. https://doi.org/10.1002/csr.1637. Scopus.

Khaw, T.Y., Teoh, A.P., Abdul Khalid, S.N., Letchmunan, S., 2022. The impact of digital leadership on sustainable performance: a systematic literature review. J. Manag. Develop. Scopus. https://doi.org/10.1108/JMD-03-2022-0070.

Kim, B.-J., Nurunnabi, M., Kim, T.-H., Kim, T., 2018. Doing good is not enough, you should have been authentic: organizational identification, authentic leadership and CSR. Sustainability 10 (6). https://doi.org/10.3390/su10062026. Scopus.

Kopel, M., 2021. CSR leadership, spillovers, and first-mover advantage. Decis. Econ. Finance 44 (2), 489–505. https://doi.org/10.1007/s10203-021-00328-9.

Kotter, J.P., 2012. Leading Change. Harvard Business Press.

Kozlowski, S.W.J., Watola, D.J., Jensen, J.M., Kim, B.H., Botero, I.C., 2009. Developing adaptive teams: a theory of dynamic team leadership. In: Team Effectiveness in Complex Organizations: Cross-Disciplinary Perspectives and Approaches. Routledge/Taylor & Francis Group, pp. 113–155.

Kurucz, E.C., Colbert, B.A., Lüdeke-Freund, F., Upward, A., Willard, B., 2017. Relational leadership for strategic sustainability: practices and capabilities to advance the design and assessment of sustainable business models. J. Clean. Prod. 140, 189–204. https://doi.org/10.1016/j.jclepro.2016.03.087.

Leal Filho, W., 2021. Non-conventional learning on sustainable development: achieving the SDGs. Environ. Sci. Eur. 33 (1), 97. https://doi.org/10.1186/s12302-021-00525-8.

Leal Filho, W., Eustachio, J.H.P.P., Caldana, A.C.F., Will, M., Lange Salvia, A., Rampasso, I.S., Anholon, R., Platje, J., Kovaleva, M., 2020. Sustainability leadership in higher education institutions: an overview of challenges. Sustainability 12 (9), 3761.

Leal Filho, W., Henrique Paulino Pires Eustachio, J., Dinis, M.A.P., Sharifi, A., Venkatesan, M., Donkor, F.K., Doni, F., Abubakar, I.R., Cichos, K., Vargas-Hernández, J., 2022. Transient poverty in a sustainable development context. Int. J. Sustain. Dev. World Ecol. 29 (5), 415–428. https://doi.org/10.1080/13504509.2022.2029612.

Lenssen, G., Tyson, S., Pickard, S., Bevan, D., 2009. Corporate responsibility and sustainability: leadership and organizational change. Corp. Govern.: The International Journal of Business in Society 9 (4). https://doi.org/10.1108/cg.2009.26809daa.001.

Li, H., Sajjad, N., Wang, Q., Ali, A.M., Khaqan, Z., Amina, S., 2019. Influence of transformational leadership on employees' innovative work behavior in sustainable organizations: test of mediation and moderation processes. Sustainability 11 (6). https://doi.org/10.3390/su11061594. Scopus.

Liao, Z., Zhang, M., 2020. The influence of responsible leadership on environmental innovation and environmental performance: the moderating role of managerial discretion. Corp. Soc. Responsib. Environ. Manag. 27 (5), 2016–2027. https://doi.org/10.1002/csr.1942. Scopus.

Ligorio, L., Venturelli, A., Caputo, F., 2022. Tracing the boundaries between sustainable cities and cities for sustainable development. An LDA analysis of management studies. Technol. Forecast. Soc. Change 176, 121447. https://doi.org/10.1016/j.techfore.2021.121447.

Lisin, A., Kushnir, A., Koryakov, A.G., Fomenko, N., Shchukina, T., 2022. Financial stability in companies with high ESG scores: evidence from North America using the ohlson O-score. Sustainability 14 (1). https://doi.org/10.3390/su14010479. Article 1.

Liu, J., Liu, X., Zeng, X., 2011. Does transactional leadership count for team innovativeness? The moderating role of emotional labor and the mediating role of team efficacy. J. Organ. Change Manag. 24 (3), 282–298. https://doi.org/10.1108/09534811111132695.

Lozano, R., 2013. Are companies planning their organisational changes for corporate sustainability? An analysis of three case studies on resistance to change and their strategies to overcome it: are companies planning their organisational changes for corp. Sust. Corp. Soc. Responsib. Environ. Manag. 20 (5), 275–295. https://doi.org/10.1002/csr.1290.

Lozano, R., Ceulemans, K., Scarff Seatter, C., 2015. Teaching organisational change management for sustainability: designing and delivering a course at the University of Leeds to better prepare future sustainability change agents. J. Clean. Prod. 106, 205–215. https://doi.org/10.1016/j.jclepro.2014.03.031.

Luu, T.T., 2019. CSR and customer value Co-creation behavior: the moderation mechanisms of servant leadership and relationship marketing orientation. J. Bus. Ethics 155 (2), 379–398. https://doi.org/10.1007/s10551-017-3493-7. Scopus.

Maak, T., 2007. Responsible leadership, stakeholder engagement, and the emergence of social capital. J. Bus. Ethics 74 (4), 329–343. https://doi.org/10.1007/s10551-007-9510-5. Scopus.

Maak, T., Pless, N.M., 2006. Responsible leadership in a stakeholder society – a relational perspective. J. Bus. Ethics 66 (1), 99–115. https://doi.org/10.1007/s10551-006-9047-z.

Maak, T., Pless, N.M., Voegtlin, C., 2016. Business statesman or shareholder advocate? CEO responsible leadership styles and the micro-foundations of political CSR. J. Manag. Stud. 53 (3), 463–493. https://doi.org/10.1111/joms.12195. Scopus.

Macke, J., Genari, D., 2019. Systematic literature review on sustainable human resource management. J. Clean. Prod. 208, 806–815. https://doi.org/10.1016/j.jclepro.2018.10.091.

Mallén Broch, F.F., Domínguez Escrig, E., Chiva Gómez, R., Lapiedra Alcamí, R., 2020. Promoting firm innovativeness through servant leadership and corporate social responsibility to employees. Leader. Organ. Dev. J. 41 (4), 615–633. https://doi.org/10.1108/LODJ-03-2019-0127. Scopus.

Mangondo, T., Thakhathi, A., 2021. Leadership capabilities for successful implementation of SDG 7 targets at energy company X. In: Nhamo, G., Chikodzi, D., Dube, K. (Eds.), Sustainable Development Goals for Society Vol. 2: Food Security, Energy, Climate Action and Biodiversity. Springer International Publishing, pp. 123–137. https://doi.org/10.1007/978-3-030-70952-5_9.

Manita, R., Bruna, M.G., Dang, R., Houanti, L., 2018. Board gender diversity and ESG disclosure: evidence from the USA. J. Appl. Account. Res. 19 (2), 206–224. https://doi.org/10.1108/JAAR-01-2017-0024. Scopus.

Manzoor, F., Wei, L., Sahito, N., 2021. The role of SMEs in rural development: access of SMEs to finance as a mediator. PLoS One 16 (3), e0247598. https://doi.org/10.1371/journal.pone.0247598.

Mattera, M., Alba Ruiz-Morales, C., 2020. UNGC principles and SDGs: perception and business implementation. Market. Intell. Plann. 39 (2), 249–264. https://doi.org/10.1108/MIP-08-2018-0319.

Miralles-Quiros, M. del M., Miralles-Quiros, J.L., Arraiano, I.G., 2017. Sustainable development, sustainability leadership and firm valuation: differences across europe. Bus. Strat. Environ. 26 (7), 1014–1028. https://doi.org/10.1002/bse.1964.

Montiel, I., Cuervo-Cazurra, A., Park, J., Antolín-López, R., Husted, B.W., 2021. Implementing the united Nations' sustainable development goals in international business. J. Int. Bus. Stud. 52 (5), 999–1030. https://doi.org/10.1057/s41267-021-00445-y.

Nabi, M.N., Zhiqiang, L., Akter, M., 2022. Transformational Leadership and Radical Innovation for Sustainability: Mediating Role of Knowledge Management Capability and Moderating Role of Competitive Intensity. Innovation and Management Review. https://doi.org/10.1108/INMR-05-2021-0075. Scopus.

Nicholson, J., Kurucz, E., 2019. Relational leadership for sustainability: building an ethical framework from the moral theory of 'ethics of care'. J. Bus. Ethics 156 (1), 25–43. https://doi.org/10.1007/s10551-017-3593-4. Scopus.

Padilla, A., Hogan, R., Kaiser, R.B., 2007. The toxic triangle: destructive leaders, susceptible followers, and conducive environments. Leader. Q. 18 (3), 176–194. https://doi.org/10.1016/j.leaqua.2007.03.001.

Pasricha, P., Singh, B., Verma, P., 2018. Ethical leadership, organic organizational cultures and corporate social responsibility: an empirical study in social enterprises. J. Bus. Ethics 151 (4), 941–958. https://doi.org/10.1007/s10551-017-3568-5. Scopus.

Phillips, S., Thai, V.V., Halim, Z., 2019. Airline value chain capabilities and CSR performance: the connection between CSR leadership and CSR culture with CSR performance, customer satisfaction and financial performance. Asian J. Ship. Logistics 35 (1), 30–40. https://doi.org/10.1016/j.ajsl.2019.03.005.

Pless, N.M., Sengupta, A., Wheeler, M.A., Maak, T., 2022. Responsible leadership and the reflective CEO: resolving stakeholder conflict by imagining what could be done. J. Bus. Ethics 180 (1), 313–337. https://doi.org/10.1007/s10551-021-04865-6.

Post, C., Rahman, N., Rubow, E., 2011. Green governance: boards of directors' composition and environmental corporate social responsibility. Bus. Soc. 50 (1), 189–223. https://doi.org/10.1177/0007650310394642. Scopus.

Purnomo, A., Septianto, A., Anam, F., Rahmayanti, A., Wiyono, M., 2021. Sustainable Leadership: A Scientific Literature Positioning Using Scientometric Analysis.

Rao, K., Tilt, C., 2016. Board composition and corporate social responsibility: the role of diversity, gender, strategy and decision making. J. Bus. Ethics 138 (2), 327–347. https://doi.org/10.1007/s10551-015-2613-5. Scopus.

Rashed, A.H., Shah, A., 2021. The role of private sector in the implementation of sustainable development goals. Environ. Dev. Sustain. 23 (3), 2931–2948. https://doi.org/10.1007/s10668-020-00718-w.

Robinson, M., Kleffner, A., Bertels, S., 2011. Signaling sustainability leadership: empirical evidence of the value of DJSI membership. J. Bus. Ethics 101 (3), 493–505. https://doi.org/10.1007/s10551-011-0735-y.

Russell, R.F., 2001. The role of values in servant leadership. Leader. Organ. Dev. J. 22 (2), 76–84. https://doi.org/10.1108/01437730110382631.

Saha, R., Shashi, Cerchione, R., Singh, R., Dahiya, R., 2020. Effect of ethical leadership and corporate social responsibility on firm performance: a systematic review. Corp. Soc. Responsib. Environ. Manag. 27 (2), 409–429. https://doi.org/10.1002/csr.1824.

Sanches, F.E.F., Campos, M.L., Gaio, L.E., Belli, M.M., 2021. Proposal for sustainability action archetypes for higher education institutions. Int. J. Sustain. High Educ. 23 (4), 915–939. https://doi.org/10.1108/IJSHE-01-2021-0026.

Sarfraz, M., Ivascu, L., Abdullah, M.I., Ozturk, I., Tariq, J., 2022. Exploring a pathway to sustainable performance in manufacturing firms: the interplay between innovation capabilities, green process and product innovations and digital leadership. Sustainability 14 (10). https://doi.org/10.3390/su14105945. Scopus.

Scopus, 2022. Content: How Scopus Works. Elsevier solutions. https://www.elsevier.com/solutions/scopus/how-scopus-works/content?dgcid=RN_AGCM_Sourced_300005030.

Srivastava, A., Bartol, K.M., Locke, E.A., 2006. Empowering leadership in management teams: effects on knowledge sharing, efficacy, and performance. Acad. Manag. J. 49 (6), 1239–1251. https://doi.org/10.5465/amj.2006.23478718.

Srivastava, A.P., Mani, V., Yadav, M., Joshi, Y., 2020. Authentic leadership towards sustainability in higher education – an integrated green model. Int. J. Manpow. 41 (7), 901–923. https://doi.org/10.1108/IJM-08-2019-0404. Scopus.

Starratt, A., Grandy, G., 2010. Young workers' experiences of abusive leadership. Leader. Organ. Dev. J. 31 (2), 136–158. https://doi.org/10.1108/01437731011024394.

Storey, M., Killian, S., O'Regan, P., 2017. Responsible management education: mapping the field in the context of the SDGs. Int. J. Manag. Educ. 15 (2), 93–103. https://doi.org/10.1016/j.ijme.2017.02.009. Part B).

Suriyankietkaew, S., Avery, G., 2016. Sustainable leadership practices driving financial performance: empirical evidence from Thai SMEs. Sustainability 8 (4). https://doi.org/10.3390/su8040327. Scopus.

Suriyankietkaew, S., Avery, G.C., 2014. Employee satisfaction and sustainable leadership practices in Thai SMEs. J. Global Respons. 5 (1), 160–173. https://doi.org/10.1108/JGR-02-2014-0003. Scopus.

Thakur, V., Mangla, S.K., 2019. Change management for sustainability: evaluating the role of human, operational and technological factors in leading Indian firms in home appliances sector. J. Clean. Prod. 213, 847–862. https://doi.org/10.1016/j.jclepro.2018.12.201.

Tian, Q., Liu, Y., Fan, J., 2015. The effects of external stakeholder pressure and ethical leadership on corporate social responsibility in China. J. Manag. Organ. 21 (4), 388–410. https://doi.org/10.1017/jmo.2015.14. Scopus.

Tijssen, R.J.W., Van Raan, A.F.J., 1994. Mapping changes in science and technology: bibliometric Co-occurrence analysis of the R&D literature. Eval. Rev. 18 (1), 98–115. https://doi.org/10.1177/0193841X9401800110.

Tourigny, L., Han, J., Baba, V.V., Pan, P., 2019. Ethical leadership and corporate social responsibility in China: a multilevel study of their effects on trust and organizational citizenship behavior. J. Bus. Ethics 158 (2), 427–440. https://doi.org/10.1007/s10551-017-3745-6. Scopus.

Tourish, D., 2019. Is Complexity Leadership Theory Complex Enough? A critical appraisal, some modifications and suggestions for further research. Organ. Stud. 40 (2), 219–238. https://doi.org/10.1177/0170840618789207.

UN PRME, 2022. United Nations. PRME - Principles for Responsible Management Education. UNPRME. https://www.unprme.org/.

United Nations, General Assembly, 2015. *Transforming Our World: the 2030 Agenda for Sustainable Development* (A/RES/70/1, p. 35. United Nations. https://www.un.org/ga/search/view_doc.asp?symbol=A/RES/70/1&Lang=E.

van Dierendonck, D., 2011. Servant leadership: a review and synthesis. J. Manag. 37 (4), 1228–1261. https://doi.org/10.1177/0149206310380462.

van Eck, N.J., Waltman, L., 2011. Text Mining and Visualization Using VOSviewer. https://doi.org/10.48550/arXiv.1109.2058 arXiv:1109.2058). arXiv.

van Eck, N.J., Waltman, L., 2017. Citation-based clustering of publications using CitNetExplorer and VOSviewer. Scientometrics 111 (2), 1053–1070. https://doi.org/10.1007/s11192-017-2300-7.

Van Eck, N.J., Waltman, L., 2020. VOSviewer Manual, vol. 16, 1.6. https://www.vosviewer.com/getting-started#vosviewer-manual.

van Knippenberg, B., van Knippenberg, D., 2005. Leader self-sacrifice and leadership effectiveness: the moderating role of leader prototypicality. J. Appl. Psychol. 90 (1), 25–37. https://doi.org/10.1037/0021-9010.90.1.25.

Van Seters, D.A., Field, R.H.G., 1990. The evolution of leadership theory. J. Organ. Change Manag. 3 (3), 29–45. https://doi.org/10.1108/09534819010142139.

Velte, P., 2020. Does CEO power moderate the link between ESG performance and financial performance?: a focus on the German two-tier system. Manag. Res. Rev. 43 (5), 497–520. https://doi.org/10.1108/MRR-04-2019-0182. Scopus.

Veríssimo, J.M.C., Lacerda, T.M.C., 2015. Does integrity matter for CSR practice in organizations? The mediating role of transformational leadership. Business Ethics 24 (1), 34–51. https://doi.org/10.1111/beer.12065. Scopus.

Visser, W., Courtice, P., 2011. *Sustainability Leadership: Linking Theory and Practice* (SSRN Scholarly Paper No. 1947221). https://doi.org/10.2139/ssrn.1947221.

Voegtlin, C., Frisch, C., Walther, A., Schwab, P., 2020. Theoretical development and empirical examination of a three-roles model of responsible leadership. J. Bus. Ethics 167 (3), 411–431. https://doi.org/10.1007/s10551-019-04155-2. Scopus.

VOSviewer, 2022. *VOSviewer—Visualizing scientific Landscapes*. VOSviewer. https://www.vosviewer.com//.

Waldman, D.A., Siegel, D., 2008. Defining the socially responsible leader. Leader. Q. 19 (1), 117–131. https://doi.org/10.1016/j.leaqua.2007.12.008.

Waldman, D.A., Siegel, D.S., Javidan, M., 2006. Components of CEO transformational leadership and corporate social responsibility. J. Manag. Stud. 43 (8), 1703–1725. https://doi.org/10.1111/j.1467-6486.2006.00642.x. Scopus.

Waldman, D.A., Siegel, D.S., Stahl, G.K., 2020. Defining the socially responsible leader: revisiting issues in responsible leadership. J. Leader. Organ Stud. 27 (1), 5–20. https://doi.org/10.1177/1548051819872201.

Walumbwa, F.O., 2009. Leader personality traits and employee voice behavior: mediating roles of ethical leadership and work group psychological safety. J. Appl. Psychol.; US. https://doi.org/10.1037/a0015848. American Psychological Association.

Wang, X., Van Wart, M., Lebredo, N., 2014. Sustainability leadership in a local government context. Publ. Perform. Manag. Rev. 37 (3), 339–364. https://doi.org/10.2753/PMR1530-9576370301.

Wang, Y., Shen, T., Chen, Y., Carmeli, A., 2021. CEO environmentally responsible leadership and firm environmental innovation: a socio-psychological perspective. J. Bus. Res. 126, 327–340. https://doi.org/10.1016/j.jbusres.2021.01.004. Scopus.

Wiengarten, F., Lo, C.K.Y., Lam, J.Y.K., 2017. How does sustainability leadership affect firm performance? The choices associated with appointing a chief officer of corporate social responsibility. J. Bus. Ethics 140 (3), 477–493. https://doi.org/10.1007/s10551-015-2666-5.

Wolff, S., Brönner, M., Held, M., Lienkamp, M., 2020. Transforming automotive companies into sustainability leaders: a concept for managing current challenges. J. Clean. Prod. 276, 124179 https://doi.org/10.1016/j.jclepro.2020.124179.

Wolfgramm, R., Flynn-Coleman, S., Conroy, D., 2015. Dynamic interactions of agency in leadership (DIAL): an integrative framework for analysing agency in sustainability leadership. J. Bus. Ethics 126 (4), 649–662. https://doi.org/10.1007/s10551-013-1977-7.

Wu, L.-Z., Kwan, H.K., Yim, F.H.-K., Chiu, R.K., He, X., 2015. CEO ethical leadership and corporate social responsibility: a moderated mediation model. J. Bus. Ethics 130 (4), 819–831. https://doi.org/10.1007/s10551-014-2108-9. Scopus.

Yamane, T., Kaneko, S., 2022. The Sustainable Development Goals as new business norms: a survey experiment on stakeholder preferences. Ecol. Econ. 191, 107236 https://doi.org/10.1016/j.ecolecon.2021.107236.

Yang, H.-C., Kim, Y.-E., 2018. The effects of corporate social responsibility on job performance: moderating effects of authentic leadership and meaningfulness of work. J. Asian Finance, Econ. Bus. 5 (3), 121–132. https://doi.org/10.13106/jafeb.2018.vol5.no3.121.

Yang, P., Riepe, J., Moser, K., Pull, K., Terjesen, S., 2019. Women directors, firm performance, and firm risk: a causal perspective. Leader. Q. 30 (5), 101297 https://doi.org/10.1016/j.leaqua.2019.05.004.

Zaccaro, S.J., Rittman, A.L., Marks, M.A., 2001. Team leadership. Leader. Q. 12 (4), 451–483. https://doi.org/10.1016/S1048-9843(01)00093-5.

Zhang, X., Bartol, K.M., 2010. Linking empowering leadership and employee creativity: the influence of psychological empowerment, intrinsic motivation, and creative process engagement. Acad. Manag. J. 53 (1), 107–128. https://doi.org/10.5465/amj.2010.48037118.

Zhao, H., Zhou, Q., 2019. Exploring the impact of responsible leadership on organizational citizenship behavior for the environment: a leadership identity perspective. Sustainability 11 (4). https://doi.org/10.3390/su11040944. Scopus.

Zhao, L., Yang, M.M., Wang, Z., Michelson, G., 2022. Trends in the dynamic evolution of corporate social responsibility and leadership: a literature review and bibliometric analysis. J. Bus. Ethics. https://doi.org/10.1007/s10551-022-05035-y.

Zhu, Y., Sun, L.-Y., Leung, A.S.M., 2014. Corporate social responsibility, firm reputation, and firm performance: the role of ethical leadership. Asia Pac. J. Manag. 31 (4), 925–947. https://doi.org/10.1007/s10490-013-9369-1. Scopus.

Zou, W.C., Lin, B.W., Su, L., Houghton, J.D., 2022. Spiritual leadership and employee CSR participation: a probe from a sensemaking perspective. J. Bus. Ethics. Scopus. https://doi.org/10.1007/s10551-022-05227-6.

Zupic, I., Čater, T., 2015. Bibliometric methods in management and organization. Organ. Res. Methods 18 (3), 429–472. https://doi.org/10.1177/1094428114562629.