Delving into sustainability reporting literature: The role of ethics

JEL Classification: C50; M14; M42; N40

Keywords: ethics; social accounting; corporate social responsibility; sustainability reporting; bibliometric analysis

Abstract

Research background: After major scandals in apparently reputable and solvent companies, added to the great economic crises of recent decades, accounting and finance have become a fundamental discipline for the correct study of these events from an ethical point of view. Philosophers, economists and even religious people have wanted to contribute their grain of sand to the study of the ethical behaviour of companies and make it go beyond mere administration. In recent years, non-financial reporting has been gaining ground, to the point that the legal system now makes it compulsory in most Western countries.
**Purpose of the article:** This study aims to review and summarize the role of ethics in the sustainability reporting so as to develop a holistic framework of ethics in the sustainability reporting; review the evolution of the research field; and identify the most significant research tendencies enabling the proposal of several future research directions.

**Methods:** Using the Scopus and Web of Science databases, a bibliometric analysis has been carried out in the field of accounting on this topic from its formal origins in the 1980s to the present day, in addition to highlighting the importance of sustainability. 271 articles have been used as a basis for developing the main trends at bibliographic, geographical and institutional levels.

**Findings & value added:** This study highlights the importance of incorporating ethics in non-financial information as a field of research, through two very different lines of research that have gained importance in recent years: ethics in business and the growing relevance of non-financial information. It also incorporates a bibliometric analysis with information obtained from two major databases: Scopus and Web of Science. The use of both databases makes it possible to broaden the body of articles covered, compared to other bibliometric analyses previously carried out on similar topics, and allows for the inclusion of more relevant articles on this subject.

**Introduction**

As early as the fourth century B.C., Aristotle said "the end and purpose of the polis is the good life" (Aristotle & Barker, 1946). Adam Smith concluded that the good life is defined through material goods and intellectual and moral experiences of character: "All for ourselves and nothing for other people, seems, in every age of the world, to have been the vile maxim of the masters of mankind" (Smith, 1759). For Dobson (1997), a rational agent is one who pursues personal advantage to infinity, making this rational being individualistic, materialistic and competitive; business is a game and, as in any game, the objective is to win, this gain being measured solely in terms of material wealth. This definition of rationality is unquestionable, as was already made clear years ago through the theory of the firm (Miller, 1986). From the latter point of view, financial ethics is a mathematical function of shareholder wealth and was the basis for the construction of mathematically robust models.

Thus, a part of economists interpreted, influenced by what is known as neoliberalism, that the objective of the economy was to maximize economic growth through consumption and accelerated production of goods and services (Kolk, 2008; Vanberg, 2023). This theory posits that open financial systems lead to faster economic growth by encouraging the inflow of foreign capital, thus causing parameters such as savings, employment, investment, productivity and, in general, welfare to increase, while corrup-
tion is contained (O’Neill, 1998). However, some schools of ethical philosophy criticized the initiative of this openness with minimal regulation on capital flows (Fortunati et al., 2020; Ghisellini et al., 2021). Raising economic growth to the highest value means admitting that welfare is subordinated, although neoliberals defend themselves by saying that the economic growth generated results in higher welfare than the rest of the known alternatives (Friedman, 1970; O’Neill, 1998).

Moving into the field of accounting, social accounting arises to alleviate possible bad business practices, for accountability purposes, facilitating the achievement of objectives for the good of society (Retolaza & San-Jose, 2021). Such objectives are usually defined in terms of social (Mahmood & Uddin, 2021) and environmental (Sheldon & Jenkins, 2020) desirability. Democratic systems are the best at implementing informed decisions about the goals set, since in such systems there are information flows in which those who control resources are accountable to society, i.e., there is a system of corporate accountability (Gray et al., 1996). Among the benefits offered by this system are the ability to identify social and environmental costs (Kanji & Chopra, 2010), the balance between the power of the organization and its responsibility (Nelling & Webb, 2009), the importance of transparency in the company (Kashyap & Iveroth, 2021) and respect for the information rights of stakeholders (García-Sánchez, 2020).

Because a fundamental part of social accounting is substantive reporting at the system level, these reports are referred to as social audits (Mahmood & Uddin, 2021). It was in 1981 that the first social accounting and auditing model was designed, with the aim of enabling social enterprises to plan and measure their progress both financially and socially (Spreckley, 1981). The non-profit organization Business in the Community (BITC) defines social accounting as "the process of reporting enterprise performance to stakeholders". This helps not only to integrate more sustainable practices into business practices, but also facilitates the identification of future risks and opportunities (BITC, 2008). Management control is thus left in the hands of the organization at the individual level, this point being the subject of criticism, since corporations are assumed to possess a benign nature (García-Meca & Martínez-Ferrero, 2021). For all these reasons, an in-depth analysis of the concept of ethics in the accounting profession and its relationship with the ever-increasing legislation on the communication of non-financial information is necessary, within a common framework that has these elements as indispensable for the development of the company.
This paper aims to analyze the concept of ethics within the presentation of non-financial information, thus achieving: (1) to follow the timeline of ethics in business accounting up to the present day; (2) to perform a bibliometric analysis of the importance of ethics in the communication of non-financial information; (3) to present an overview of global publications related to non-financial information, which deals with sustainability within the accounting sphere; and (4) to make a constructive contribution of the perspectives of sustainability reports that will be useful for future studies.

To achieve the proposed objectives, this study uses bibliometric techniques that allow detecting, structuring and reviewing information linked to a particular field of research, based on performance indicators and scientific mapping (Baier-Fuentes et al., 2019a). Specifically, three bibliometric methods are employed: co-authorship, co-citation and co-word analysis. Co-authorship allows the identification of collaborations between authors, i.e., of the social structure of ethics research within non-financial information (Acedo et al., 2006). On the other hand, co-citation shows the overall intellectual structure and theoretical underpinnings of research on the topic (Randhawa et al., 2016). Finally, with co-citation analysis, interactions between research topics and emerging research directions can be explored (Islam et al., 2022; Poje & Zaman-Groff, 2022). Because these bibliometric methods have advantages and disadvantages in applying them, merging various analyses to examine research dynamics within a field has become a strong trend in bibliometric studies (Leung et al., 2017).

In this way, studies related to the presentation of financial statements including sustainability-related information from the Scopus and Web of Science (WoS) databases have been filtered, obtaining data about the main authors, institutions, countries and scientific journals, among other information of interest. Although the issue of sustainability reporting occupies a prominent position in the literature, existing a great interest in the research community, the lack of a bibliometric approach to the role of ethics in the sustainability reporting remains latent. There are some literature reviews strongly linked to the sustainability reporting (Leal-Filho et al., 2022; Fusco & Ricci, 2019; García-Sánchez, 2020; Gulluscio et al., 2020; Rodrigues & Mendes, 2018; Turzo et al., 2022). All of them analyse the topic from different perspectives and undertake different literature reviews. While the studies of Rodrigues and Mendes (2018) and Leal-Filho et al. (2022) focus on the social perspective in the reporting, others studies take into account the environmental perspective (Fusco & Ricci, 2019; Gulluscio
et al., 2020). In addition, broader reviews of sustainability reporting or non-financial reporting are shown in García-Sánchez (2020) and Turzo et al., (2022). With regards to the scope of the review, only two articles focused on the both major databases, namely Web of Science and Scopus (Fusco & Ricci, 2019; Turzo et al., 2022), being the rest based on Web of Science (Leal-Filho et al., 2022; García-Sánchez, 2020; Gulluscio et al., 2020; Rodrigues & Mendes, 2018).

As far the authors’ knowledge, there is no a single review study that has adopted a bibliometric approach to analyze the concept of ethic in the sustainability reporting, including the two major databases, Web of Science and Scopus and, updating the review to 2022. Thus, this bibliometric study extends prior review studies, since it connects the concept of ethics with the sustainability reporting, identifying and analyzing influential aspects, such as trends and key themes research. The evolution of this research field raises many questions that may require responses. Not only are these questions linked to the social structure of the field, main authors, journals and institutions, but also the themes and streams that deserve further research. Therefore, our bibliometric review proposes to give answer to the following questions: (1) Who are the most influential authors, (2) Which are the most notable articles, journals, institutions and countries involved in this research field? and, (3) What are the key themes and avenues that we can take from previous research to set the best future research agenda in the field?

The rest of the study is structured as follows. A review of the literature regarding the concepts of ethics and sustainability reporting up to the most recent moment is shown in next section. The third section explains the methodology followed by the results in the fourth section. The results obtained and a general portrait of future research trends are exposed in fifth section. Finally, constructive criticism of the subject and conclusions are stated.

Ethics in the sustainability thinking

Ethics and the reporting process

Although controversial accounting practices have become an increasingly important issue since the beginning of this century in the wake of the En-
ron (2001) and WorldCom (2002) cases (Utz, 2019), misconduct in the accounting profession had many precedents in the last century, such as the Yale Express System (1965), Equity Funding (1973) and Waste Management (1998) cases (Poje & Zaman-Groff, 2022). Indeed, it has been corporate scandals in our most recent era that have served as a precedent for highlighting the potential lack of morality in both financial reporting, which is primarily intended to present fairly and truthfully an organisation’s situation to external users of financial statements, and in accountability to the wider public (Duska et al., 2018). Thus, the aforementioned scandals have come to set a new minimum standard for accountants (Kamaruddin et al., 2021). At the legislative level, standards were adopted, such as the Sarbanes-Oxley Act of 2002 in the United States, which established financial and auditing standards for public companies (USGPO, 2002); the European Union (EU) Directives 2006/43/EC (EUR-Lex, 2006) and 2014/56/EU (EUR-Lex, 2014a) on statutory audit of annual accounts and consolidated accounts; and Regulation No. 537/2014, also EU, on specific requirements for statutory audit of public interest entities (EUR-Lex, 2014b). Professional codes such as the Code of Ethics for Professional Accountants, developed by the International Ethics Standards Board for Accountants (IESBA), also underwent modifications (Poje & Zaman-Groff, 2022). Therefore, if one were to highlight some reasons for accountants’ behaviour in these cases, they would undoubtedly be professional scepticism (Boiral et al., 2019) and lack of auditor independence (Xu & Dellaportas, 2021).

The concept of ethics is framed within sustainability thinking, the latter being understood as a way of doing things that considers economic, environmental and social aspects at the same time (Elkington, 1998). It is an approach that must be adopted for the long term, to the point of thinking about the well-being of future generations. In this sense, ethics can be seen as the belief system that supports a form of morality (Stedham et al., 2007) and that ethics can lead to intention, which will lead to behaviour and this in turn will affect ethical decision-making (Tormo-Carbó et al., 2016). In this sense, ethics can lead to sustainable behaviour by organisations. In recent years, more and more companies are realising the benefits of being concerned with meeting not only economic objectives (Bansal, 2005; Fusco & Ricci, 2019), paying attention to social and environmental dimensions (Elkington, 1994).

Some work has focused on highlighting the importance of verifying sustainability reports. In this regard, Perego and Kolk (2012) examined a panel
of companies included in Fortune magazine's "Fortune Global 250" ranking over a ten-year period and analysed the direct relationship between the evolution of these auditing practices and the quality of the sustainability assurance statements provided by these companies. The authors emphasised the pressure from external institutions and concluded that internal resources and capabilities are key factors in the adoption of verification of information. However, the reasons for some entrepreneurs' awareness of the "conflict between business and social priorities" are largely unknown, nor is it known how this has been related to long-term climate change impacts (Rudyanto & Pirzada, 2021).

Both academics (Boiral et al., 2019; Gray, 2010; Milne & Gray, 2013) and practitioners (KPMG, 2015) agree that the reliability and materiality of Corporate Social Responsibility (CSR) is overlapping with the concern for transparency with stakeholders (Stocker et al., 2020). This again reinforces the belief that a qualified and independent external review is necessary (Adel et al., 2019), supporting credibility and validity in companies adapting sustainable behaviour. Sustainability assurance is interpreted as an indication of the credibility of CSR and is therefore fundamental to CSR compliance.

Increasing awareness of the sustainability information

Recently, the International Federation of Accountants (IFAC), the Principles for Responsible Investment (PRI) and the World Business Council for Sustainable Development (WBCSD) have supported efforts by different international bodies to fully reform corporate reporting to include sustainability information (IFAC, 2022). These include the International Sustainability Standards Board (ISSB), the US Securities and Exchange Commission (SEC) and the European Commission (EC), the latter in collaboration with the European Financial Reporting Advisory Group (EFRAG). However, because current initiatives and draft standards are not technically compatible at the level of concepts, metrics and terminology, collaboration and coordination between sustainability reporting and accounting standards implementation is necessary. While standardisation of this data will help reporting entities to reduce complexity, confusion and costs, it will provide potential investors with protection and the ability to incorporate ESG (Environmental, Social and Governance) issues into investment decisions that contribute to sustainable outcomes. On the other hand, professional ac-
countants will have a better basis for recognised quality sustainability reporting and assurance.

ESG criteria can be defined as an approach that evaluates the level of a corporation’s involvement in achieving social objectives that go beyond maximising the wealth of the corporation’s shareholders (CFI, 2022). Thus, among the objectives defended within this perspective are to study the direct and indirect effect that the activity of companies has on the environment, to analyse the impact of organisations on their social environment and to coherently incorporate the criteria of diversity, equity and inclusion in these entities (Barko et al., 2022; Rodrigues & Mendes, 2018).

In this sense, investors are increasingly concerned about ESG criteria. In the beginning, it was the rating agencies specialised in sustainability that essentially focused on these terms (Barko et al., 2022), focusing to a greater or lesser extent on one of them depending on the company’s activity to be analysed. The CSR teams were responsible for reporting to these agencies, which in turn passed on the assessments to their clients (Drempetic et al., 2020). In recent years, institutional investors' interest in social issues has gradually increased. Asset managers such as BlackRock, State Street Corporation or The Vanguard Group have set up specialised teams, creating internal mechanisms with the aim of assigning their own ratings. According to the 7th ESG Investment Watch (Georgeson, 2022), this global awareness was triggered by the COVID-19 pandemic in 2020. The report indicates that by 2021 the world’s largest asset managers will direct their investments towards an almost complete integration of ESG factors. Similarly, two turning points are worth noting: according to the financial services company Refinitiv Lipper, USD 649 trillion was managed by ESG funds, up from USD 542 billion in 2020 and USD 285 billion in 2019; and the EC published in February 2022 a proposal for a Directive on corporate sustainability due diligence, aiming to achieve effective protection of human rights and the environment as reflected in international conventions.

The importance and value of sustainable behaviour by organisations is highlighted, which leads to the need for a study of ethics within the concept of sustainability.
Methods

To achieve the objectives proposed in this research, the methodology employed is based on bibliometric analysis. This procedure has been widely used to identify and represent key aspects (articles, authors, countries, etc.) of different research disciplines (Cobo et al., 2011; Moed et al., 1995). As has been done in previous bibliometric studies (Casado-Belmonte et al., 2021; Castillo-Vergara et al., 2018; Núñez et al., 2020), this work follows the steps listed below: (1) definition of the research area, (2) selection of the database(s), (3) adjustment of the research criteria, (4) coding of the material found, and (5) analysis of the information. Figure 1 summarizes this methodology.

First, the central focus of this analysis, i.e., ethics within non-financial information, reflected in sustainability reports, is identified in order to expose data concerning scientific production and co-occurrence of keywords within this research.

The next step is the selection of the database. According to Agramunt et al. (2020), the results of the analysis may vary depending on the database used, so it was decided to use both Scopus (developed by Elsevier) and Web of Science (currently owned by Clarivate Analytics), due to the rigorous selection and maintenance of their contents (Gusenbauer, 2019; Rousseau et al., 2018). Although Google Scholar can offer additional coverage to Scopus and WoS, it presents certain associated problems: the inclusion of gray literature that is not peer-reviewed (Kraus et al., 2020a); having a non-reproducible search algorithm, with results only displayed based on previous searches and interactions (Gusenbauer & Haddaway, 2020); and the difficulty of using the base for large-scale analysis (Waltman & Noyons, 2018). Therefore, it was decided not to include Google Scholar in the study.

Once the databases have been selected, we proceed to the adjustment of the research criteria. Here, the search criteria are defined with Boolean operators ("AND" and "OR"), with the aim of performing an accurate search and facilitating the collection of big data. The parameters used in the search were: TITLE-ABS-KEY("sustainab* report*" OR "soc* account") AND TITLE-ABS-KEY("ethic*"), based on the title, abstract and keywords. The search period was from 1987 to 2022, since the first article on this topic was published in 1987. The search in the databases (Scopus and WoS) was carried out at the beginning of May 2023. Regarding the inclusion and exclusion criteria, only articles, both open access and closed access, were consid-
ered (Cossarini et al., 2014). The final number of articles exclusively extracted from Scopus was 51, while 83 were extracted from WoS. 137 were found in both databases. Thus, the final sample consisted of 271 articles (Figure 2). Seglen (1994) found that to obtain good correlations in bibliometric analysis it was necessary to group between 50 and 100 articles. Glänzel and Moed (2013) also suggested that the literature provides thresholds between 30 and 50 observations for an acceptable approximation in bibliometric practices. Recently, Rogers et al. (2020) suggested that at least 200 articles in bibliometric research produce better results, a criterion that we have applied for the development of the present article.

The fourth step was the coding of the material found, which was downloaded in CSV format and structured using Excel and VOSviewer (version 1.6.13). The data were preprocessed for further analysis. First, the articles that were duplicated, i.e., those found in both databases, were eliminated to avoid duplication. Next, the abstract and title of each article were reviewed to verify that they met the search criteria. Finally, articles with missing information were corrected and/or eliminated.

The last stage consisted of information analysis, which was carried out using two bibliometric analysis techniques: performance analysis and scientific mapping (Cobo et al., 2011). Firstly, and following previous studies (Baier-Fuentes et al., 2020; Terán-Yépez et al., 2020), performance analysis is based on productivity, with the main indicator being the number of publications. The number of citations and the h-index enrich this bibliometric technique, used at the level of journals and authors. For Alayo et al. (2020), the main objective here is to present an updated picture of the research field, distinguishing the works that constitute its intellectual base. On the other hand, scientific mapping tries to unveil the distribution and functioning of research fields (Zupic & Čater, 2015). It consists of making a graphical representation of the relationship between disciplines, fields, authors and articles. This working strategy meets the purpose of the study so, in order to examine different aspects of this research field, a scientific mapping based on co-authors, co-citations and co-words analysis will be performed. Co-author analysis identifies the social connections of a field of research through the links between its most prolific authors and the groups that emerge from the collaborations between them (Acedo et al., 2006). This system captures stronger social ties than other kinship measures, making it suitable for examining social networks (Zupic & Čater, 2015). Second, co-citations analysis will allow revealing the intellectual configuration and
theoretical underpinnings of the research field (Randhawa et al., 2016). Following the definition of Mas-Tur et al. (2020), co-citation occurs when two publications are cited together in the same article, so that co-cited references tend to be thought of as possessing similar concepts (Kraus et al., 2020b), exposing the influences, invisible development and relationships of the research (Ramos-Rodríguez & Ruíz-Navarro, 2004). Finally, the co-word (or co-occurrence) analysis of keywords makes it possible to implant the concepts of a field of science by creating a set of clusters that could be considered as semantic conglomerations of topics addressed by a field of research (Alayo et al., 2020). That is, the co-occurrence of keywords makes it possible to identify an area of study through the specific connections existing between these keywords (Islam et al., 2022; Poje & Zaman-Groff, 2022). In short, the keywords of an article show its main content, while the regularity of their occurrence and co-occurrence reflect the most relevant topics addressed by articles in a research area and their relationship (Zong et al., 2013). These bibliometric methods are considered complementary (Leung et al., 2017), so their combined use produces more robust results in the analysis of a research field (Randhawa et al., 2016), revealing a broader picture of the study of sustainability reporting. Finally, this study will be responsible for providing an integrative framework whose purpose is to advance new insights into the various avenues of research available in the field of ethics within non-financial reporting.

Results

As mentioned above, the results are studied in three subsections. The first is a descriptive analysis based on the examination of scientific production and collaborations, through a performance analysis and a co-authorship analysis, respectively. Then, the co-citation analysis allows for an examination of the publications that are frequently co-cited by other articles. Finally, the co-word analysis, i.e. keyword research, are shown.

Descriptive and performance analysis

Table 1 shows a summary of the coded data and quantifies the information used to develop this bibliometric analysis. This means that there are
a total of 271 articles by 584 authors, linked, in turn, to institutions in 43 countries and published in 167 journals, which have been cited 7,184 times.

Table 2 shows, by year, several of the main productive indicators of published articles, such as the total number of articles, citations and authors; the ratio of citations and authors per article; and the number of journals and countries in which at least one article was published that year. Regarding the number of articles, an upward trend can be observed, with the most productive years being 2021 and 2022, with 24 articles published each year. Analyzing the number of citations, 2008 is the year with the highest number (773) and 96.63 citations per article, although the highest figure is found in 2000, with a ratio of 124.50 citations per article and 249 citations. The number of authors has increased dramatically each year, with 67 authors involved in 2022, reflecting the growing interest and increased number of collaborations in the field of ethics in non-financial reporting. The number of journals and countries publishing articles with this theme has also been increasing: within the last decade, 60 journals and 22 countries were registered in 2012, reaching 167 journals and 43 countries in 2022 in which at least one article was published that had a relationship with this theme.

Figure 3 shows the chronological evolution of the number of articles published per year on the subject under study. Despite the alternating upward and downward figures, the trend over the time analyzed is one of increase. Furthermore, this period could be divided into three subperiods. The first of these is between 1987 and 2009, when the number of publications was low and no year exceeded ten articles. In terms of citations, the most important years were, by volume, 2008, 2007 and 2000, with 773, 382 and 249 citations, respectively, with 2008 also being the year that accumulated the most citations of the entire period analyzed. This subperiod is marked by several transcendental events. It begins in 1987, coinciding with the publication of the Brundtland Report (August 4), a real driver of sustainable development policies, drafted by the UN World Commission on Environment and Development (Alonso-Almeida et al., 2015); and the Black Monday crisis (October 19), characterized by a generalized collapse of stock markets worldwide, as a result of a disproportionate speculative attitude (Kurz-Kim, 2019). In the second subperiod, from 2010 to 2014, a take-off phase is observed, exceeding ten articles per year, with the exception of 2012. By the number of citations, the years 2013, 2014 and 2012 stand out in this subperiod, with 554, 533 and 493, respectively. 2013 and 2014 are
also the second and third years with the highest number of citations in the entire period analyzed. This subperiod begins after the events that occurred in the wake of the Great Recession, from 2007 to 2009 (Fassin & Gosselin, 2011). Thirdly, there would be the period from 2015 onwards, which shows a stabilization around twenty articles per year and growth in the final phase. Although it is too early to be able to make a pronouncement regarding the number of citations, it is expected that these will evolve in line with the increase in the number of articles published. This subperiod evolves following the publication of the Sustainable Development Goals (SDGs) by the United Nations General Assembly (UNGA) in 2015 (García-Meca & Martínez-Ferrero, 2021).

(1) Scientific production

Table 3 shows bibliometric indicators of the ten most prolific journals, these being the number of articles and citations, the citation ratio per article and year, the years of first and last publication, the country of origin and the h-index. The most important journal in this ranking is *Journal of Business Ethics*, with 24 articles and 1,437 citations during the period 1995–2022, the years of the first and last article published, respectively. In the second position, *Sustainability* stands out with 13 articles, followed by *Journal of Cleaner Production* with 10. *Journal of Business Ethics* is also the most influential journal by number of citations, followed in second place by *Journal of Cleaner Production* (679) and in third place by *Business Strategy and the Environment* (607). *Business Strategy and the Environment* also becomes the first journal in terms of number of citations per article (101.67) and *Journal of Cleaner Production* the first in terms of number of citations per article since the year of first publication (67.90), the latter being an indicator that tries to mitigate the impact of the year of publication. In addition, the h-index, as a quality index representing a balance between the number of publications and the citations received by them, reveals that *Journal of Business Ethics* ranks first (17), *Journal of Cleaner Production* would be in the second position (9) and *Accounting, Auditing & Accountability Journal* would have the third position (8). This indicator also shows that, although *Journal of Cleaner Production* ranks below *Sustainability* in terms of the number of articles, it can be said that the former journal has had a greater influence on the subject of ethics in non-financial reporting than the latter. Finally, with regard to the country of origin of the journals, the United Kingdom clearly stands out from
other countries, the Netherlands, Switzerland and the United States, occupying 70% of the table. All this indicates not only the British prominence, but also that Europe is the region at the forefront of ethics in non-financial reporting.

Table 4 shows the twenty most cited published articles, ordered according to the ratio of citations per year from the year of publication of the article; the consideration of the year of publication is a common practice that aims to overcome the limitation that more recent articles usually experience when only the total number of citations is taken into consideration (Zupic & Čater, 2015). García-Meca and Martínez-Ferrero (2021) is the leading article on ethics within non-financial reporting, with the highest number of citations per year (32). Exploring more specifically the research areas of the most influential articles, it is important to note that all of them have in common their interest in the practical usefulness of the information provided in sustainability reports, in some cases even analyzing it from the perspective of a specific sectoral activity. García-Meca and Martínez-Ferrero (2021) examine whether information on the Sustainable Development Goals is symbolic or substantive, specifically studying the role played by this information in companies belonging to controversial and environmentally sensitive sectors, where the incentives to use SDG disclosure as a symbolic strategy may be greater. Similarly, Kolk (2008), the second most influential article (30.43 citations per year), investigates to what extent and in what way sustainability reports of Fortune Global 250 companies incorporate corporate governance aspects, indicating the underlying dilemmas and complexities for managers in addressing accountability to shareholders and stakeholders, as well as the role of auditors. Boiral et al. (2019) present an analysis of verification service providers’ views on the quality and limitations of sustainability reports of mining and energy companies, as well as their recommendations for improvement, using the Global Reporting Initiative (GRI) as a framework. Finally, it is also worth mentioning the article by Vitolla et al. (2019), which contributes to the relevant literature by analyzing an additional factor influencing the quality of corporate reports, namely national culture, being the first study to investigate national culture as a determinant of integrated reporting quality.
(2) Scientific collaborations

This section is the co-authorship analysis, which establishes a structure of social networks based on collaborations between authors, allowing to examine the scope of countries (Zupic & Čater, 2015).

Table 5 reflects the ten most productive authors within the studied topic. The ten authors represent eight institutions, six countries and three regions: Europe, Oceania and North America. It is worth mentioning that the affiliation indicated in Table 5 belongs to the last year of those analyzed (2022). One author is affiliated with two different institutions, namely Dillard, J. F. The author mentioned belongs to Victoria University of Wellington (New Zealand) and Portland State University (United States of America). It is noteworthy that the nationality of the authors’ institutions reflected in Table 5 all appear in the co-authorship network in Figure 4, even though it contains additional countries.

In terms of number of articles, the leading author is Corazza, L., with a total of 5 articles on the topic and 70 citations since 2013. He is followed by Dillard, J. F., and Rezaee, Z., with 4 articles each. However, if the number of citations is taken into account, the most prominent author is García-Sánchez, I. M., with a total of 252 citations since 2013. Boiral, O., and Heras-Saizarbitoria, I., occupy the second and third positions, with 172 citations since 2017 each. In this line, García-Sánchez, I. M., also stands as the author with the highest ratio of citations per article (84), followed, again, by Boiral, O., and Heras-Saizarbitoria, I. (57.33). Furthermore, as regards the h-index, the two most influential authors are Corazza, L. (5) and Dillard, J. F. (4). Finally, it is worth mentioning that eight of these ten authors have started publishing on this topic in the last nine years, from 2013 onwards, this being an indicator of the growing popularity of the field of ethics within non-financial reporting among academics.

Collaborations between authors give rise to cross-country networks. Figure 4 shows these networks, which take into account five or more common scientific studies between countries, with four clusters and fifteen countries identified. The first cluster, in red, is led by Italy, which has strong collaborative links with Spain, Canada, Portugal and Denmark. The second cluster, in green, is led by the United Kingdom, with Australia, China, Germany and Sweden as its main collaborating countries. The third cluster, in blue, is led by the United States, which collaborates closely with New Zealand and South Africa. Finally, the fourth cluster, yellow, is led by
the Netherlands, which is closely linked to Malaysia. It is worth noting the presence of all the core countries of the Anglo-Sphere, i.e. Australia, Canada, New Zealand, the United Kingdom and the United States.

**Co-citation Analysis**

The theoretical pillars and intellectual structure of the study on ethics in non-financial reporting are shown in this section. Thus, Figure 5 shows the co-citation networks of the references of the analyzed topic, with a minimum of five citations per reference. The analysis reveals the fundamental theories and transcendent articles that compose the core of the foundations of ethics in non-financial reporting. The co-citation network establishes three clusters.

The first cluster, colored red, is composed of 79 articles, covering the period from 1970 to 2014. The main articles are, in decreasing order by number of citations, Freeman (1984), Donaldson and Preston (1995) and Gray et al. (1996). The central element here is the assessment of the importance of stakeholder theory. As this is a group with a wide variety of seminal articles on the subject matter of this study, such an assessment is made from a very primitive stage on most occasions. More specifically, it can be seen how Friedman (1970) did not even contemplate the possibility of the company having a social function beyond the generation of an economic benefit for the shareholder. Freeman (1984) was the first to define stakeholders and their necessary care by corporations, although authors such as Dowling and Pfeffer (1975) and Meyer and Rowan (1977) began to prioritize legitimacy over efficiency in companies, understanding legitimacy as the acceptance of the organization by the environment, i.e. by agents beyond the market, which is vital for its survival. More recently, Porter and Kramer (2006, 2011) stand out with their theory of shared value, understood as the implementation of the best operational policies and practices with the objective of improving the competitiveness of a company while helping to improve the economic and social conditions in the communities where the company operates.

The second group, colored green, is made up of 62 articles, spanning from 2000 to 2019. The most cited articles here are Simnett et al. (2009), Hahn and Kühnen (2013) and O’Dwyer and Owen (2005). The line of research of this group is mainly based on the effect that sustainability reports, whose origin dates back to the late 1990s (Hahn & Kühnen, 2013), have had.
on some of the companies that have decided to produce them. There is notable criticism of those companies that seem to use them as a way of covering up their management shortcomings. Ball et al. (2000) assessed the extent to which verification statements appearing in environmental reports published by a sample of companies promoted organizational transparency and external party empowerment, concluding that the verification practice showed "corporate spin" rather than representing those companies' commitment to external transparency and accountability. Within this line, Boiral (2013) went so far as to describe the sustainability reports in his study as a "sham" used to camouflage the real problems of sustainable development and project an idealized view of the situation of the companies under analysis. In relation to stakeholder theory, several authors demonstrate how country- and sector-specific effects can affect the decision to assure sustainability reports by identifying institutional pressures, evidencing that the regulatory factor exerts the greatest explanatory power on the demand for assurance, followed by coercive pressure (Hahn & Kühnen, 2013; Martínez-Ferrero & García-Sánchez, 2017; O'Dwyer & Owen, 2005).

The third cluster, colored blue, is composed of 47 articles, ranging from 1985 to 2011. The main articles are Gray (2002), Adams (2002) and Thomson and Bebbington (2005). This group encompasses studies that offer an explanation of the relevance of sustainability reporting through the concept of social accounting, i.e., providing corporate information that is not purely economic-financial. The seminal article by Roberts and Scapens (1985) argues that understanding accounting practices in their organizational contexts requires more than a technical description of accounting information systems as they are conceived and designed in the abstract. Subsequently, Gray's (2002) optimistic thinking makes the case that, despite their poor beginnings and the heavy weight of substantive critique, social accounting projects are moving forward and are increasingly nurtured by alternative/critical projects. The proposed way forward is for social accounting to draw more on the richness of theorizing and, at the same time, become more self-confident and learn to write (and publish) the broad experience of engagement that is so central to social accounting. Roberts (2009) also sees the benefits of adopting this form of accountability, while admitting certain limitations. His analysis serves as a basis for exploring what is argued to be our typically ambivalent acceptance of transparency as a form of accountability. The potential for a more "intelligent" form of accountability, based on an ethic of humility and generosity, made possible by the con-
Co-word analysis

(1) Identification and comprehensive analysis of semantic clusters

By studying the content of the articles, it is possible to distinguish the main trends in ethics research in non-financial reporting and to identify potential avenues for research. Figure 6 shows the network with the recognition of five clusters grouping the most important keywords. The identified clusters are: "sustainability" (red), "corporate social responsibility" (green), "performance" (blue), "business ethics" (yellow) and "quality" (purple). The name of each cluster has been determined based on the keyword that is found in the main node and is consequently best connected to the other keywords in the cluster (Islam et al., 2022; Poje & Zaman-Groff, 2022). The minimum number of occurrences is five per keyword. Ultimately, Figure 6 will be of great value to researchers who want to probe a particular topic within the field of study analysed in this paper, as these keywords and their associated links will facilitate the identification of the most important issues within the subject matter. Through the identification of clusters, the fundamental keywords will be treated with the aim of reorganising and consolidating the current literature.

In red, the first cluster appears and is named "Sustainability", as this is the main node of the cluster (Islam et al., 2022; Poje & Zaman-Groff, 2022). In the literature, it is difficult to reach a consensus on the definition of sustainability, as its meaning has varied from author to author and from period to period (Yan et al., 2022). It has sometimes been considered a "normative concept" (Schneider & Meins, 2012), being defined by Stocker et al. (2020) as "connecting what is known through scientific study with applications in pursuit of what people want for the future". Moreover, over the past few years, the sustainability education landscape has evolved to a point where work is underway to introduce the concept of sustainability into a multitude of laws and curricula (Deer & Zarestky, 2017). Thus, emerging legislation will not be exclusively linked to the environment (Boyce et al., 2012; Ritz et al., 2014), to the point of considering sustainable education as another competence (Rosati et al., 2018). The UN has even promoted, within the Sustainable Development Goals (specifically SDG 4), an educational...
programme focused on the dissemination and teaching of these principles, with the aim of providing students of all ages with the essential knowledge to overcome international challenges related to biodiversity loss, climate change and the unsustainable use of resources (Rusconi, 2021).

Another relevant node within this cluster is ethics. Companies try to address the relationship between their corporate governance and their code of ethics (Kolk, 2008), as well as their links with stakeholders (Vitolla et al., 2019). In contrast to the belief of some economists that the business of business is business, we should answer here that the business of business is responsibility (Clayton et al., 2015). This would be responsibility in all its aspects: promoting stakeholder value, protecting customer rights, ensuring good customer experience and responsible management of both employees and customers (Castelló & Lozano, 2011; Weber et al., 2014). The responsibility of business goes further, supporting all those who require assistance, whether through time, guidance or financial support. Management leadership becomes a key player in driving CSR and sustainability within organisations (Clarke, 2007). The board is the early adopter of corporate responsibility, as they are in charge of defining the company’s purpose and preferences (Albitar et al., 2021). The influence of the first executive produces a cascade effect on the rest of the organisation, as it stimulates the responsibility of the entire executive, who, in turn, influences their subordinates (Pérez-López et al., 2015).

Accountability is one of the fundamental processes within a transparency strategy in the business sphere (Kamaruddin et al., 2021). In short, it is the preparation of balance sheets, reports or sustainability reports, which attest to income, processes, collaborations, impacts or any other type of relevant data on administrative and business actions, always framed within what is considered acceptable ethical behaviour in the eyes of the environment in which the company operates (Frías-Aceituno et al., 2013).

The second cluster revolves around the key word "Corporate Social Responsibility" (CSR). CSR goes beyond mere compliance with existing laws (Fortunati et al., 2020), grouping together those behaviours that entities voluntarily undertake and that become determinants that foster economic, social and environmental development (Kanji & Chopra, 2010). A CSR plan should also include sustainability reporting to fulfil this mission. A company’s sustainability reporting compiles in an orderly fashion all the actions carried out by the company in the area of sustainability within a given period of time, usually one year (García-Sánchez, 2020). It also serves as
a map or guide to follow in terms of sustainability and even corporate compliance, as sustainability reporting can function as a diagnosis of the company's social responsibility situation in the three aforementioned areas (economic, social and environmental), and to find out where the company stands in these areas. It can even detect and identify business or compliance risks both within the company itself and in its supply chains (García-Sánchez et al., 2019; Munteanu et al., 2020). Moreover, as with the CSR plan, publishing this sustainability report contributes to improving the company’s image as well as its reputation (Corley et al., 2013).

However, if we had to highlight a differentiating element on which to structure this business paradigm, possibly the most appropriate one would be stakeholder theory (Vitolla et al., 2019). Power, importance and acceptance will be the nuances that condition preference when it comes to paying attention to the demands of these groups (Dameri & Ferrando, 2022; Simoni et al., 2020). Stakeholder theory incorporates the need for a company to relate to a specific public. Public relations would then integrate stakeholder theory into the CSR concept, underlining the obligation of organisations to the public that may be affected by the actions of these organisations (Rosthorn, 2000). Truly acceptable business management is based on optimal relations with stakeholders (Camilleri, 2015), nurturing cordial ties and granting exclusive benefits to collaborators, partners and investors (Rudyanto & Pirzada, 2021).

The commitment to sustainability of both business organisations and the rest of society has gained worldwide acceptance over the last decades (Conrad & Holtbrügge, 2021), and more and more companies have integrated this concept into their business strategy (Santos et al., 2018) and executives consider this aspect to be transcendental (Pérez-López et al., 2015).

The third cluster is called "Performance". Despite the relevance that issues related to tolerance and respect for the environment are taking on by companies, leading to a process of "humanisation of brands" (Turcsanyi & Sisaye, 2013), we must not forget the part that is more related to obtaining profits. There is a school of thought within economic science that is committed to the free market system, known as the Chicago School of Economics (Murphy et al., 2013). For these supporters of the liberal doctrine, the only responsibility of the company is to the performance of the investment made by the shareholder. Alternatively, there is a position that is more related to the subject of this paper, i.e. one that speaks of the existence of a responsibility of companies towards society, within a context in which
the aim is to go beyond the relationship between cost and profit (Castelló & Lozano, 2011).

Businesses continue to strive for a more cohesive, socially sensitive society capable of creating a positive impact on the environment (Du et al., 2014; Hammond et al., 2013); in short, for a fairer society (Haller et al., 2018). The involvement of different businesses with the community makes it necessary to analyse the disclosure of sustainability measures as a mechanism for information on the various actions that companies offer to the society in which they operate (Rezaee & Tuo, 2019).

The yellow colour represents the cluster headed by “Business Ethics”. CSR and business ethics are closely related, mainly because the information issued by companies through CSR reports would be integrated within business ethics (Pandey & Rishi, 2016; Turzo et al., 2022). What differentiates the two concepts is that while business ethics is the framework defined by the rules, foundations and values on which a specific entity bases its activity (Frias-Aceituno et al., 2013), CSR focuses on the effect that a company’s actions have on the society and, in general, on the environment (Rosthorn, 2000).

Another topic of relevance within this group is social responsibility. Sustainability as a term has its origins in the environmental sphere and arises from the obligation to find a new way for human beings to relate to their natural habitat (Brander et al., 2019). However, this concept can be extended to the business sphere due to its importance (Bendell, 2005; Corazza, 2018). Sometimes, the issue of sustainability is not directly related to the exhaustive use of natural resources, but rather to the depletion of circumstances or ecosystems, which, if they were to disappear completely, would make it unthinkable to continue with our current lifestyle (Miralles-Quiros et al., 2017). In this regard, the Global Reporting Initiative (GRI), an independent international standard-setting organisation tasked with helping governments, companies and other entities to communicate their impact on issues such as climate change, corruption and human rights (Kaspereit & Lopatta, 2016), stands out. The GRI was founded in 1997 under the umbrella of the United Nations Environment Programme (UNEP) and provides the so-called GRI standards, which are considered to be the most widely used sustainability reporting standards in the world (Willis, 2003).

Lastly, the fifth cluster of words, in purple, is led by "Quality". The reporting organisation should collect, record, analyse and communicate the information and processes used for the preparation of sustainability re-
ports, so that they can be subject to review and establish the quality and materiality of the information (Boiral et al., 2019). In particular, the quality of information is important for stakeholders to be able to do a content analysis and make sound and reasonable assessments of an organisation in order to take appropriate actions (Rezaee & Tuo, 2019; Rudyanto & Siregar, 2018).

It is clear that every industry and every company generates a footprint on its immediate surroundings, not only on the environment, but on all those in which it operates (Fortunati et al., 2020). Likewise, an organisation uses not only natural resources, but also economic and human resources, etc. (Rezaee, 2016). For all these reasons, both because of the potential consequences on the immediate environment and because of the use of the resources that are essential to carry out its actions, it is possible to speak of sustainability at a business level (Mion et al., 2019). Thus, as is the case with the environment, neither the environment in which the company operates can bear the entire footprint of its activity, nor are the resources it uses unlimited (Piecyk & Björklund, 2015). The fundamental goal here would be to implement measures that lead to poverty reduction and ensure a good quality of life for both present and future generations, all without risking the availability of the planet’s natural resources, i.e. without spending more resources than nature can generate (Kamla & Rammal, 2013; Vitolla et al., 2019).

(2) Research trends

In order to study the content of the articles in more depth, we proceeded to analyse the relative importance of the main keywords according to the three sub-periods justified above. Table 6 orders in decreasing order the top twenty keywords of the total period according to their frequency of occurrence (Agramunt et al., 2020), and then analyses the progression of this frequency over the three sub-periods of study. For all timelines, and with the intention of homogenising the analysis criteria, the minimum of five occurrences per keyword mentioned in subsection 4.3.1 has been considered.

In the first sub-period, which runs from 1987 to 2009 and the years in which up to ten articles have been published, only eight words out of the twenty words of the total period appear, according to their relevance in this sub-period: Corporate Social Responsibility, ethics, social accounting, business ethics, sustainability, accountability, social responsibility and sustainable deve...
opment. As can be seen, these terms are still only seminal, and sustainability reporting is not yet addressed in a concrete way. Subsequently, in the second sub-period, which starts in 2010 and ends in 2014, and in most years already exceeds ten articles per year, the concepts of performance, sustainability reporting, governance, management and corporate governance are incorporated. It is worth highlighting the incorporation of terms directly related to the importance of sustainability in companies, such as sustainability reporting, although the term sustainable development temporarily disappears in this sub-period. Finally, in the period 2015–2022, with the number of articles per year already around twenty, the following terms are incorporated, in decreasing order of relevance in this sub-period: disclosure, determinants, impact, legitimacy, Global Reporting Initiative, business and information. Thus, more and more specific vocabulary is appearing in the field of ethics in non-financial reporting. In addition, in this last sub-period, the term sustainable development is reintroduced. Corporate Social Responsibility is, both in the total period and in the sub-periods, the most relevant word.

Figure 7 shows the annual development of certain keywords, again considering the criterion of five occurrences per keyword as a minimum, thus emphasising the relevance of the keywords. Using this criterion on an annual basis, information is only available from 2015 onwards, while at the same time providing a representation of the latest trends within our topic of study. Thus, the driving theme, shown in green, is Corporate Social Responsibility. It can be seen as a term that stands out as the main keyword throughout the period. The term sustainability reporting is represented in orange and is also a basic theme related to the field of ethics within non-financial reporting, as it also appears in all years in which there is a pre-determined minimum number of occurrences. Finally, the theme in blue, namely sustainability, is again confirmed as a basic pillar of our work, although with a lower frequency, due to the fact that it is a less specific word than the previous ones.

(3) Challenging opportunities

The keyword trend analysis, as can be seen in Figure 7, allows for the detection of the most used keywords in recent years and the resulting challenging opportunities. Figure 8 shows the keyword trend overlay, where the more established topics are represented in darker shades of colour, and the emerging ones in yellow.
As mentioned above, the Corporate Social Responsibility, sustainability reporting and sustainability networks are the established concepts in the topic of ethics in non-financial reporting. On the other hand, there are the emerging themes, coloured yellow. The concepts legitimacy and assurance represent the basis of the terminology related to sustainability reporting, being two terms related to the beneficial nature of non-financial reporting. Financial performance and integrated reporting link non-financial and financial information in a more concrete way. Finally, firm value and Sustainable Development Goals are the terms most recently linked to the issue of ethics in non-financial reporting, reflecting, on the one hand, a vision more focused on the immediate environment of the company and, on the other, a perspective directly related to sustainability, such as the implementation of the SDGs at an international level.

Discussion of identified clusters, research trends and challenging opportunities: Detection of future research avenues

Following a thorough assessment of each cluster, analysing research trends and challenging opportunities, a framework (Figure 9) has been created for the five clusters, which provides further information on the linkages between them. This is intended to shed light on future research avenues to be explored in an effort to further develop the study of ethics in non-financial reporting. It is not intended that these avenues should be considered as unique, but only as a guide for future studies on this topic.

In order to reach the conclusions in Figure 9, the twenty most relevant articles related to the subject of this article were analysed, the details of which are given in Table 4. The twenty articles mentioned are grouped in Table 7 by thematic areas, corresponding to each of the clusters. The reason for choosing these articles, after analysing their respective abstracts, is due to the relevance of the keywords contained in them, related to the different clusters analysed, which obviously reinforces the close relationship of all these articles with the subject studied. The same table shows the empirical or theoretical nature of the articles analysed, and it is worth highlighting the existence of a greater number of empirical articles, which would show the influence of the preparation of non-financial information on business results.
The core of this bibliometric analysis is the examination of the nexus between the "Sustainability" and "CSR" clusters. Both terms emphasise the relevance of assessing the impact of the activity carried out on different stakeholders (Rezaee, 2016; Stocker et al., 2020; Vitolla et al., 2019). However, sustainability incorporates substantial nuances to the meaning of CSR, as it integrates a long-term perspective in the practice of CSR (Adel et al., 2019; García-Sánchez, 2020) and marks a series of environments that are particularly important when it comes to achieving sustainability over time (Fortunati et al., 2020; Kolk, 2008). The integration of sustainability in each company, through organisational culture and strategy (Alonso-Almeida et al., 2015), is part of the social responsibility of corporations, as they monitor the impact that their business can have on the environment (Marimon et al., 2012). In addition, as mentioned above, the idea of sustainability takes on a broader meaning here, since companies not only use natural resources, but also various other types of resources, which, like natural resources, are limited and not immediately replenishable (Du et al., 2014).

There is still no agreement on the actual link between sustainability and CSR (Fortunati et al., 2020; García-Meca & Martínez-Ferrero, 2021). The reason why these terms generate confusion when it comes to becoming effective examples of leadership is their disparate historical origin. Sustainability emerges with an essentially ecological scope, later encompassing other categories such as economics (Rezaee, 2016). On the other hand, CSR has an altruistic origin (Maniora, 2017), although it has evolved to take on a more strategic and global nature (Boiral et al., 2019; Castelló & Lozano, 2011). The two ideas coincide in similar scenarios, in which the valuation of the footprint left by companies at different levels of the community stands out (Rudyanto & Pirzada, 2021). The practical application of sustainability in CSR policies could be promoted as an avenue for research, taking into account the relationship between the two within the business environment (Albitar et al., 2021; Simoni et al., 2020), as well as the concept of CSR evolving towards a more concrete and measurable form of management, without it sometimes being a mere declaration of intentions (Frías-Aceituno et al., 2013; Rezaee & Tuo, 2019; Vitolla et al., 2019).

The “Business Ethics” cluster represents another pillar of the theoretical framework of this study. Sustainability reporting offers the opportunity to generate and communicate information about management, develop an ethically sound organisation and drive company value (Alonso-Almeida et al., 2015; Castelló & Lozano, 2011; Frías-Aceituno et al., 2013; Simoni et al.,
The possibility of reporting sustainability-related actions also allows companies to highlight strategies, insights and values, which are the factors that collectively characterise their management (Albitar et al., 2021; Du et al., 2014). Sustainability reporting serves to compensate for the constraints of financial reporting and can be used by management teams to explain their strategic approach (Rudyanto & Pirzada, 2021). Despite the positive aspects, caution should be exercised when embarking on this process. There may be opportunistic behaviour on the part of some companies, perceiving sustainability reporting more as a competitive advantage than as a business ethics issue (Albitar et al., 2021; Fortunati et al., 2020; Kolk, 2008). Such behaviour is referred to as "greenwashing" (Boiral et al., 2019; Maniora, 2017), and the proliferation of studies that delimit the characteristics of the campaigns of companies that abuse it, even going so far as to analyse real cases of these bad practices, can help consumers to become increasingly aware, learning to easily differentiate between companies that adopt achievable behaviours and those that only use sustainability as a low-cost advertising campaign (García-Meca & Martínez-Ferrero, 2021; Rezaee & Tuo, 2019; Simoni et al., 2020).

The next section deals with the objective of the actual functioning of the business system, i.e. the "Performance" aspect. Issues such as innovation, a good reputation and, unsurprisingly, performance are increasingly determined by how an organisation deals with non-financial issues (Frias-Aceituno et al., 2013; Rezaee & Tuo, 2019), which is why these issues are becoming essential in reporting at all levels, not just sustainability reporting (García-Meca & Martínez-Ferrero, 2021). This is evidenced by the increasing number of sustainability metrics that are becoming mandatory for accurate reporting, such as carbon dioxide emissions (Rezaee, 2016; Simoni et al., 2020) or corporate governance issues (Albitar et al., 2021). There is also a significant increase in voluntary sustainability reporting (Maniora, 2017) and, through an already internationally recognised set of tools and standards, accounting standard setters are beginning to engage actively in this debate (García-Meca & Martínez-Ferrero, 2021). Due to the value that sustainability measures are now known to bring, a scenario will gradually take shape in which classic financial reporting converges with sustainability reporting (Maniora, 2017; Rudyanto & Pirzada, 2021). This will lead to substantial changes in the method of reporting, as both financial and non-financial information will be increasingly integrated. This evolution may also lead to a shift towards more concise and even more frequent reporting...
(Stocker et al., 2020); in this case, the focus will be on disclosure rather than just reporting, and information will be available in a variety of formats, tailored to the target audience.

Finally, the “Quality” cluster highlights an essential feature of both accounting (Vitolla et al., 2019) and sustainability reporting (Boiral et al., 2019). Sustainability reporting, like corporate governance, is a process, not a product. This process involves strategic thinking about how sustainability issues affect a company (Rezaee & Tuo, 2019; Sætra, 2021), as well as how sustainability is affected by the company (Stocker et al., 2020). It also involves taking into account all stakeholders, both internal and external to the entity (Castelló & Lozano, 2011). For management, its exercise should lead to a stronger organisational culture and a clearer view of strengths and weaknesses, as well as threats and opportunities (Adel et al., 2019). While it is true that companies can adopt the reporting framework that best suits their sector, this possibility implies a lack of standardisation that hinders the effectiveness of the concept of quality in sustainability reporting (Vitolla et al., 2019). In this way, the abundance of reporting frameworks makes it more difficult for markets to interpret the information disclosed, making transparency and comparability of corporate performance less the primary objective of such reports (Rezaee & Tuo, 2019). This new paradigm re-emphasises the need for the study of the unification of concepts and standards, and increases the usefulness of non-financial information for both companies and consumers.

Conclusions

The aim of this study is to provide an overview of the field of ethics in non-financial reporting, to identify and synthesise key issues, and to outline future research opportunities. The study is based on performance research and scientific mapping using co-authorship, co-citation and co-word analyses. A total of 271 articles published in 167 journals by a total of 584 authors are included, covering the period 1987–2022.

The analysis of results highlights the growing interest in the field of ethics research in non-financial reporting worldwide, with a total of 43 countries having published articles on this topic. The period analysed can be divided into three sub-periods, which have been identified as the start-up phase (1987–2009), the take-off phase (2010–2014) and the boom phase
(2015–2022). The last sub-period shows a striking increase in the number of publications and citations, suggesting that research on ethics within non-financial reporting is in a developing stream that is expected to continue to grow in the future. Focusing on the researchers, the three most productive are Corazza, L., Dillard, J. F., and Rezaee, Z. In terms of journals, *Journal of Business Ethics*, *Sustainability* and *Journal of Cleaner Production* are the most productive, all of them being benchmarks in the publication of articles related to business ethics and sustainability. However, if we consider the most influential journals, it is *Journal of Cleaner Production* that occupies the first position, while *Corporate Social Responsibility and Environmental Management* and *Journal of Business Ethics* appear in the second and third position, respectively.

The co-authorship analysis identified clusters of social networks between authors from different institutions, who collaborate directly or indirectly to advance knowledge in the field. The results obtained highlight the strength of the international relationships generated by co-authorship.

The co-citation analysis recognised three clusters based mainly on (1) stakeholder concern, (2) the effect of sustainability reporting and (3) the relevance of sustainability reporting through the concept of social accounting. These form the pillars of the theoretical foundations and intellectual structure in the field of research on ethics in non-financial reporting.

With regard to the co-word analysis, five thematic clusters have been identified, headed by the following keywords: (1) sustainability, (2) CSR, (3) performance, (4) business ethics and (5) quality. The establishment of the clusters allows us to organise the literature related to these thematic areas driving research on ethics in non-financial reporting, and to identify the main themes developed. The sustainability cluster encompasses topics that seek to identify or help clarify how companies’ activities affect their environment. The CSR cluster focuses on the specificities of corporate sustainability reporting. The third cluster, which revolves around performance, highlights the relationship between financial and non-financial information provided by companies. The fourth cluster, headed by business ethics, shows the fundamental aspect related to non-financial reporting within the business environment, i.e. the most ethical way of acting in accordance with the characteristics of their environment. Finally, the fifth cluster represents the studies that have tried to highlight quality as a fundamental characteristic of social accounting.
This study makes several contributions to the existing literature. First, it advances the consolidation of ethics within non-financial reporting as a field of research, through the interplay of two different strands of research that have been prevalent in recent years: ethics in business and the growing relevance of non-financial reporting. In doing so, this study provides a broad understanding of the background and challenging opportunities for the study of ethics in non-financial reporting, complementing the lively debate on ethics in non-financial reporting already initiated, albeit in a more generalist way, by other scholars in the field (e.g. Gulluscio et al., 2020; Naciti et al., 2022).

Second, and linked to the above, an integrative framework is offered to open up an agenda to guide future researchers in this promising field of research. This framework points, among other issues, to the way in which business ethics has evolved, driven by financial scandals mainly in the last two decades, and encourages future research to explore potential ways of measuring sustainability within the firm, going beyond purely financial measures.

Third, as far as the authors are aware, this study is the first bibliometric analysis of ethics in non-financial reporting that includes the peak years of scientific production, namely 2021 and 2022. This continuous increase in scientific output is a true reflection of the growing interest in this field, which could be explained by different reasons: on the one hand, the clear change of paradigm in companies, especially in large companies, due to the need to impose themselves over competitors by trying to captivate the consumer also through compensations that go beyond the simple commercial exchange (García-Sánchez, 2020); and, on the other hand, the entrenchment of sustainability policies through the obligation to report the potential harmful effects that the company’s activity could cause in the immediate environment (Barko et al., 2022).

Finally, this study performs a bibliometric analysis covering two major databases: Scopus and Web of Science. The interaction of both databases allows a larger body of articles to be covered, compared to previous bibliometric analyses of similar subject matter (e.g. Gulluscio et al., 2020; Leal-Filho et al., 2022; Rodrigues & Mendes, 2018; Turzo et al., 2022), which allows the inclusion of the most relevant articles on this topic. Of the 271 articles analysed, only 137 were found in both databases, while 51 were exclusively in Scopus and 83 only in WoS. These figures justify the use of both databases. Thus, this study addresses a broader spectrum of ethics.
issues within non-financial reporting, with the aim of generating a more holistic and robust understanding of this field of research.

With regard to the management insights derived from this bibliometric study, owners, directors and managers, and members of a company in general, could benefit from a complete overview of the academic actors (authors and institutions) who are consistently cultivating the field of ethics within non-financial reporting. Knowledge of the researchers within our field of analysis, their institutions and countries, and thus their most influential publications, enables company decision-makers to understand how the research field is working. In addition, they can also benefit from an insight into a number of current research trends that are of interest to management. In this way, members of a company could find out how academic actors try to support companies in understanding various phenomena related to sustainability issues. For example, business managers should be aware of the need to develop an innovative culture and mindset within these organisations to promote behaviours more in line with the promotion of non-financial reporting (Ghisellini et al., 2021). They must also learn to balance emotional and financial considerations when making sustainable decisions (Conrad & Holtbrügge, 2021). In this sense, consultants and practitioners must be able to recognise the factors that may influence strategic decisions in order to properly implement projects linked to non-financial reporting (Xu & Dellaportas, 2021). Finally, identifying ongoing research trends in the area of ethics within non-financial reporting allows company members to stay in touch with controversial issues that could help them overcome certain barriers in their companies.

This study is not without limitations, forced by bibliometric techniques. Firstly, despite the advantages of using the Scopus and Web of Science databases, there is a possibility that other relevant articles, only available in alternative databases (e.g. ABI/INFORM from ProQuest), have been excluded. Needless to say, this is a problem endemic to all bibliometric studies (Jacsó, 2008). Second, documents such as national journals, conference proceedings and editorial material are excluded from the search formula, despite being perhaps equally influential in ethics research within non-financial reporting (Baier-Fuentes et al., 2019b). Third, some articles in the Web of Science database did not contain any keywords, so the keywords assigned by Web of Science itself were used to perform the co-word analysis. These keywords, although less specific than the keywords provided by the authors, have proven to be as effective as the latter in investigating the
knowledge structure of a scientific field (Zhang et al., 2016). Finally, this study has been developed under co-authorship, co-citation and co-word analyses, avoiding other bibliometric techniques such as bibliographic linkage (Tiberius et al., 2020). The use of alternative bibliometric techniques may be a valuable complement to our results. In any case, the aforementioned limitations provide guidance on how to strengthen or improve future bibliometric studies.

References


The journal is co-financed in the years 2022–2024 by the Ministry of Education and Science of the Republic of Poland in the framework of the ministerial programme “Development of Scientific Journals” (RCN) on the basis of contract no. RCN/SN/0129/2021/1 concluded on 29 September 2022 and being in force until 28 September 2024.
Annex

Table 1. Summary of data used

<table>
<thead>
<tr>
<th>Data</th>
<th>Study of ethics within non-financial reporting</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of articles</td>
<td>271</td>
</tr>
<tr>
<td>Number of journals</td>
<td>167</td>
</tr>
<tr>
<td>Number of authors</td>
<td>584</td>
</tr>
<tr>
<td>Number of countries</td>
<td>43</td>
</tr>
<tr>
<td>Number of citations</td>
<td>7,184</td>
</tr>
</tbody>
</table>

Table 2. Main characteristics of the data used

<table>
<thead>
<tr>
<th>Year</th>
<th>A</th>
<th>C</th>
<th>C/A</th>
<th>AU</th>
<th>AU/A</th>
<th>JA</th>
<th>COA</th>
</tr>
</thead>
<tbody>
<tr>
<td>1987</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1988</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1989</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1990</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1991</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1992</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1993</td>
<td>1</td>
<td>5</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1994</td>
<td>1</td>
<td>8</td>
<td>8</td>
<td>2</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1995</td>
<td>1</td>
<td>50</td>
<td>50</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>1996</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1997</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1998</td>
<td>0</td>
<td>0</td>
<td>-</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>1999</td>
<td>2</td>
<td>79</td>
<td>39.50</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2000</td>
<td>2</td>
<td>249</td>
<td>124.50</td>
<td>3</td>
<td>1.50</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>2001</td>
<td>2</td>
<td>36</td>
<td>18</td>
<td>4</td>
<td>2</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2002</td>
<td>2</td>
<td>176</td>
<td>88</td>
<td>3</td>
<td>1.50</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>2003</td>
<td>5</td>
<td>238</td>
<td>47.60</td>
<td>8</td>
<td>1.60</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>2004</td>
<td>3</td>
<td>57</td>
<td>19</td>
<td>4</td>
<td>1.33</td>
<td>3</td>
<td>3</td>
</tr>
<tr>
<td>2005</td>
<td>7</td>
<td>183</td>
<td>26.14</td>
<td>12</td>
<td>1.71</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td>2006</td>
<td>5</td>
<td>88</td>
<td>17.60</td>
<td>9</td>
<td>1.80</td>
<td>5</td>
<td>3</td>
</tr>
<tr>
<td>2007</td>
<td>7</td>
<td>382</td>
<td>54.57</td>
<td>13</td>
<td>1.86</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>2008</td>
<td>8</td>
<td>773</td>
<td>96.63</td>
<td>16</td>
<td>2</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>2009</td>
<td>7</td>
<td>132</td>
<td>18.86</td>
<td>13</td>
<td>1.86</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>2010</td>
<td>11</td>
<td>428</td>
<td>38.91</td>
<td>19</td>
<td>1.73</td>
<td>11</td>
<td>7</td>
</tr>
<tr>
<td>2011</td>
<td>13</td>
<td>389</td>
<td>29.92</td>
<td>23</td>
<td>1.77</td>
<td>12</td>
<td>13</td>
</tr>
<tr>
<td>2012</td>
<td>6</td>
<td>493</td>
<td>82.17</td>
<td>18</td>
<td>3</td>
<td>6</td>
<td>5</td>
</tr>
<tr>
<td>2013</td>
<td>14</td>
<td>554</td>
<td>39.57</td>
<td>34</td>
<td>2.43</td>
<td>12</td>
<td>9</td>
</tr>
<tr>
<td>2014</td>
<td>14</td>
<td>533</td>
<td>38.07</td>
<td>38</td>
<td>2.71</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>2015</td>
<td>21</td>
<td>476</td>
<td>22.67</td>
<td>38</td>
<td>1.81</td>
<td>19</td>
<td>10</td>
</tr>
<tr>
<td>2016</td>
<td>14</td>
<td>273</td>
<td>19.50</td>
<td>26</td>
<td>1.86</td>
<td>14</td>
<td>10</td>
</tr>
<tr>
<td>2017</td>
<td>19</td>
<td>438</td>
<td>23.05</td>
<td>45</td>
<td>2.37</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>2018</td>
<td>19</td>
<td>254</td>
<td>13.37</td>
<td>48</td>
<td>2.53</td>
<td>16</td>
<td>16</td>
</tr>
<tr>
<td>2019</td>
<td>20</td>
<td>451</td>
<td>22.55</td>
<td>53</td>
<td>2.65</td>
<td>15</td>
<td>13</td>
</tr>
<tr>
<td>2020</td>
<td>18</td>
<td>203</td>
<td>11.28</td>
<td>58</td>
<td>3.22</td>
<td>17</td>
<td>15</td>
</tr>
<tr>
<td>2021</td>
<td>24</td>
<td>183</td>
<td>7.63</td>
<td>71</td>
<td>2.96</td>
<td>22</td>
<td>14</td>
</tr>
<tr>
<td>2022</td>
<td>24</td>
<td>53</td>
<td>2.21</td>
<td>67</td>
<td>2.79</td>
<td>20</td>
<td>19</td>
</tr>
</tbody>
</table>

Note: A: number of articles published per year, C: number of citations per year, C/A: citation ratio per article, AU: number of authors per year, AU/A: author ratio per article, JA: number of journals that published at least one article in a given year, COA: number of countries that published at least one article in a given year.
Table 3. Ten most productive journals

<table>
<thead>
<tr>
<th>Rank</th>
<th>Journal</th>
<th>A</th>
<th>C</th>
<th>C/A</th>
<th>1st A</th>
<th>Last A</th>
<th>C/Y</th>
<th>COU</th>
<th>H-index</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Journal of Business Ethics</td>
<td>24</td>
<td>1,437</td>
<td>59.88</td>
<td>1995</td>
<td>2022</td>
<td>53.22</td>
<td>Netherlands</td>
<td>17</td>
</tr>
<tr>
<td>2</td>
<td>Sustainability</td>
<td>13</td>
<td>181</td>
<td>13.92</td>
<td>2017</td>
<td>2022</td>
<td>36.20</td>
<td>Switzerland</td>
<td>7</td>
</tr>
<tr>
<td>3</td>
<td>Journal of Cleaner Production</td>
<td>10</td>
<td>679</td>
<td>67.90</td>
<td>2012</td>
<td>2022</td>
<td>67.90</td>
<td>United Kingdom</td>
<td>9</td>
</tr>
<tr>
<td>4</td>
<td>Accounting, Auditing &amp; Accountability Journal Critical Perspectives on Accounting Business Strategy and the Environment Corporate Social Responsibility and Environmental Management Meditari Accountancy Research Social Responsibility Journal Accounting, Organizations and Society</td>
<td>9</td>
<td>428</td>
<td>47.56</td>
<td>2009</td>
<td>2020</td>
<td>38.91</td>
<td>United Kingdom</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>Journal of Cleaner Production</td>
<td>6</td>
<td>607</td>
<td>101.67</td>
<td>2008</td>
<td>2021</td>
<td>46.69</td>
<td>United Kingdom</td>
<td>6</td>
</tr>
</tbody>
</table>

Note: Rank: position of the journal according to the number of articles, A: number of articles published per journal, C: number of citations per journal, C/A: citation ratio per article, 1st A: year of the first article published per journal, Last A: year of the last article published per journal, C/Y: citation ratio per year since the publication of 1st A, COU: country of origin of the journal.

Table 4. Twenty most cited published articles taking into account the year of publication

<table>
<thead>
<tr>
<th>Rank</th>
<th>Title</th>
<th>Authors</th>
<th>Journal</th>
<th>C</th>
<th>Y</th>
<th>C/Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Is SDG reporting substantial or symbolic? An examination of controversial and environmentally sensitive industries Sustainability, accountability and corporate governance: Exploring multinationals' reporting practices</td>
<td>García-Meca, E.; Martinez-Ferrero, J.</td>
<td>Journal of Cleaner Production</td>
<td>32</td>
<td>2021</td>
<td>32</td>
</tr>
<tr>
<td>2</td>
<td>Kolk, A.</td>
<td>Business Strategy and the Environment</td>
<td>426</td>
<td>2008</td>
<td>30.43</td>
<td></td>
</tr>
<tr>
<td>Rank</td>
<td>Title</td>
<td>Authors</td>
<td>Journal</td>
<td>C</td>
<td>Y</td>
<td>C/Y</td>
</tr>
<tr>
<td>------</td>
<td>----------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
<td>--------------------------------------------------</td>
<td>-----</td>
<td>-------</td>
<td>-------</td>
</tr>
<tr>
<td>3</td>
<td>Assessing and Improving the Quality of Sustainability Reports: The Auditors' Perspective</td>
<td>Boiral, O.; Heras-Saizarbitoria, I.; Brotherton, M. C.</td>
<td>Journal of Business Ethics</td>
<td>86</td>
<td>2019</td>
<td>28.67</td>
</tr>
<tr>
<td>4</td>
<td>The impact of national culture on integrated reporting quality. A stakeholder theory approach Are the Quantity and Quality of Sustainability Disclosures Associated with the Innate and Discretionary Earnings Quality?</td>
<td>Vitolla, F.; Raimo, N.; Rubino, M.; Garzoni, M.</td>
<td>Business Strategy and the Environment</td>
<td>79</td>
<td>2019</td>
<td>26.33</td>
</tr>
<tr>
<td>5</td>
<td>Are the Quantity and Quality of Sustainability Disclosures Associated with the Innate and Discretionary Earnings Quality?</td>
<td>Rezaee, Z.; Tuo, L.</td>
<td>Journal of Business Ethics</td>
<td>69</td>
<td>2019</td>
<td>23</td>
</tr>
<tr>
<td>6</td>
<td>Is integrated reporting determined by a country’s legal system? An exploratory study</td>
<td>Frías-Aceituno, J. V.; Rodríguez-Arizia, L.; García-Sánchez, I. M. Alonso-Almeida, M. M.; Marimon, F.; Casani, F.; Rodríguez-Pomeda, J.</td>
<td>Journal of Cleaner Production</td>
<td>203</td>
<td>2013</td>
<td>22.56</td>
</tr>
<tr>
<td>9</td>
<td>Is Integrated Reporting Really the Superior Mechanism for the Integration of Ethics into the Core Business Model? An Empirical Analysis</td>
<td>Maniora, J.</td>
<td>Journal of Business Ethics</td>
<td>85</td>
<td>2017</td>
<td>17</td>
</tr>
<tr>
<td>Rank</td>
<td>Title</td>
<td>Authors</td>
<td>Journal</td>
<td>C</td>
<td>Y</td>
<td>C/Y</td>
</tr>
<tr>
<td>------</td>
<td>------------------------------------------------------------------------</td>
<td>----------------------------------------------</td>
<td>----------------------------------------------</td>
<td>-----</td>
<td>-----</td>
<td>-----</td>
</tr>
<tr>
<td>12</td>
<td>The worldwide diffusion of the global reporting initiative: what is the point?</td>
<td>Marimon, F.; Alonso-Almeida, M.; Rodríguez, M. P.; Cortez-Alejandro, K. A.</td>
<td>Journal of Cleaner Production</td>
<td>167</td>
<td>2012</td>
<td>16.70</td>
</tr>
<tr>
<td>13</td>
<td>Business sustainability research: A theoretical and integrated perspective</td>
<td>Rezaee, Z.</td>
<td>Journal of Accounting Literature</td>
<td>98</td>
<td>2016</td>
<td>16.33</td>
</tr>
<tr>
<td>15</td>
<td>The role of sustainability reporting in shareholder perception of tax avoidance Effects of social, environmental, and institutional factors on sustainability report assurance: evidence from European countries</td>
<td>Rudyanto, A.; Pirzada, K.</td>
<td>Social Responsibility Journal</td>
<td>16</td>
<td>2021</td>
<td>16</td>
</tr>
<tr>
<td>17</td>
<td>A Framework for Evaluating and Disclosing the ESG Related Impacts of AI with the SDGs Searching for New Forms of Legitimacy Through Corporate Responsibility Rhetoric</td>
<td>Stocker, F.; de-Arruda, M. P.; de-Mascena, K. M. C.; Boaventura, J. M. G.</td>
<td>Corporate Social Responsibility and Environmental Management</td>
<td>31</td>
<td>2020</td>
<td>15.50</td>
</tr>
<tr>
<td>18</td>
<td>Searching for New Forms of Legitimacy Through Corporate Responsibility Rhetoric</td>
<td>Sætra, H. S.</td>
<td>Sustainability</td>
<td>15</td>
<td>2021</td>
<td>15</td>
</tr>
</tbody>
</table>
Table 4. Continued

<table>
<thead>
<tr>
<th>Rank</th>
<th>Title</th>
<th>Authors</th>
<th>Journal</th>
<th>C</th>
<th>Y</th>
<th>C/Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>Do assurance and assurance providers enhance COVID-related disclosures in CSR reports? An examination in the UK context</td>
<td>Albitar, K.; Al-Shaer, H.; Elmarzouky, M.</td>
<td>International Journal of Accounting &amp; Information Management</td>
<td>14</td>
<td>2021</td>
<td>14</td>
</tr>
</tbody>
</table>

Note: Rank: position of the article according to the C/Y ratio, C: number of citations per article, C/Y: ratio of citations per year since the year of publication of the article.

Table 5. Ten most prolific authors in the field of ethics within non-financial reporting

<table>
<thead>
<tr>
<th>Rank</th>
<th>Author</th>
<th>A</th>
<th>C</th>
<th>C/A</th>
<th>1st A</th>
<th>Last A</th>
<th>H-index</th>
<th>Affiliation</th>
<th>COU</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Corazza, L.</td>
<td>5</td>
<td>70</td>
<td>14</td>
<td>2013</td>
<td>2020</td>
<td>5</td>
<td>University of Turin Victoria University of Wellington</td>
<td>Italy/New Zealand/United States of America</td>
</tr>
<tr>
<td>2</td>
<td>Dillard, J. F.</td>
<td>4</td>
<td>169</td>
<td>42.25</td>
<td>2007</td>
<td>2015</td>
<td>4</td>
<td>Roger Williams University/San Diego State University/United States of America</td>
<td>United States of America</td>
</tr>
<tr>
<td>3</td>
<td>Rezaee, Z.</td>
<td>4</td>
<td>167</td>
<td>41.75</td>
<td>2015</td>
<td>2019</td>
<td>2</td>
<td>University of Memphis</td>
<td>United States of America</td>
</tr>
<tr>
<td>4</td>
<td>Boyce, G.</td>
<td>3</td>
<td>172</td>
<td>57.33</td>
<td>2017</td>
<td>2019</td>
<td>3</td>
<td>Université Laval</td>
<td>Canada</td>
</tr>
<tr>
<td>5</td>
<td>Bravi, L.</td>
<td>3</td>
<td>66</td>
<td>22</td>
<td>2017</td>
<td>2020</td>
<td>2</td>
<td>Carlo Bo University of Urbino</td>
<td>Italy</td>
</tr>
<tr>
<td>6</td>
<td>Brown, J.</td>
<td>3</td>
<td>146</td>
<td>48.67</td>
<td>2013</td>
<td>2015</td>
<td>3</td>
<td>Victoria University of Wellington</td>
<td>New Zealand</td>
</tr>
<tr>
<td>7</td>
<td>García-Sánchez, I. M.</td>
<td>3</td>
<td>252</td>
<td>84</td>
<td>2013</td>
<td>2021</td>
<td>3</td>
<td>University of Salamanca</td>
<td>Spain</td>
</tr>
<tr>
<td>8</td>
<td>Heras-Saizarbitoria, I.</td>
<td>3</td>
<td>172</td>
<td>57.33</td>
<td>2017</td>
<td>2019</td>
<td>3</td>
<td>University of Basque Country</td>
<td>Spain</td>
</tr>
<tr>
<td>9</td>
<td>Murmura, F.</td>
<td>3</td>
<td>66</td>
<td>22</td>
<td>2017</td>
<td>2020</td>
<td>2</td>
<td>Carlo Bo University of Urbino</td>
<td>Italy</td>
</tr>
</tbody>
</table>

Rank: author's position according to the number of articles, A: number of articles published per author, C: number of citations per author, C/A: ratio of citations per article, 1st A: year of the first article published per author, Last A: year of the last article published per author, Affiliation: main institution to which the author belongs, COU: country to which the author’s institution belongs.
### Table 6. Evolution of the most used keywords

<table>
<thead>
<tr>
<th>Rank</th>
<th>Keywords</th>
<th>1987-2022</th>
<th>1987-2009</th>
<th>2010-2014</th>
<th>2015-2022</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Corporate Social Responsibility</td>
<td>104</td>
<td>12</td>
<td>19</td>
<td>73</td>
</tr>
<tr>
<td>2</td>
<td>Sustainability</td>
<td>65</td>
<td>8</td>
<td>18</td>
<td>39</td>
</tr>
<tr>
<td>3</td>
<td>Ethics</td>
<td>60</td>
<td>11</td>
<td>16</td>
<td>33</td>
</tr>
<tr>
<td>4</td>
<td>Sustainability reporting</td>
<td>57</td>
<td>0</td>
<td>10</td>
<td>44</td>
</tr>
<tr>
<td>5</td>
<td>Performance</td>
<td>38</td>
<td>0</td>
<td>10</td>
<td>25</td>
</tr>
<tr>
<td>6</td>
<td>Social accounting</td>
<td>33</td>
<td>9</td>
<td>11</td>
<td>13</td>
</tr>
<tr>
<td>7</td>
<td>Disclosure</td>
<td>32</td>
<td>0</td>
<td>0</td>
<td>27</td>
</tr>
<tr>
<td>8</td>
<td>Management</td>
<td>31</td>
<td>0</td>
<td>6</td>
<td>23</td>
</tr>
<tr>
<td>9</td>
<td>Accountability</td>
<td>26</td>
<td>6</td>
<td>6</td>
<td>14</td>
</tr>
<tr>
<td>10</td>
<td>Business ethics</td>
<td>26</td>
<td>8</td>
<td>11.27%</td>
<td>13</td>
</tr>
<tr>
<td>11</td>
<td>Governance</td>
<td>25</td>
<td>0</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>12</td>
<td>Determinants</td>
<td>22</td>
<td>0</td>
<td>0</td>
<td>21</td>
</tr>
<tr>
<td>13</td>
<td>Social responsibility</td>
<td>22</td>
<td>6</td>
<td>8.45%</td>
<td>8</td>
</tr>
<tr>
<td>14</td>
<td>Impact</td>
<td>20</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>15</td>
<td>Legitimacy</td>
<td>18</td>
<td>0</td>
<td>0</td>
<td>17</td>
</tr>
<tr>
<td>16</td>
<td>Sustainable development</td>
<td>18</td>
<td>6</td>
<td>8.45%</td>
<td>8</td>
</tr>
<tr>
<td>17</td>
<td>Corporate governance</td>
<td>17</td>
<td>0</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>18</td>
<td>Business</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>11</td>
</tr>
<tr>
<td>19</td>
<td>Global Reporting Initiative</td>
<td>15</td>
<td>0</td>
<td>0</td>
<td>12</td>
</tr>
<tr>
<td>20</td>
<td>Information</td>
<td>14</td>
<td>0</td>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>

### Table 7. Categorisation of the 20 most influential articles in the field of ethics in non-financial reporting

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
<th>Article</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sustainability</td>
<td>The main theme highlights non-financial information in accounting</td>
<td>1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 19, 20</td>
<td>19</td>
</tr>
<tr>
<td>Business Ethics</td>
<td>Emphasises the importance of ethics in business and economic activities</td>
<td>1, 2, 3, 5, 6, 7, 8, 10, 14, 15, 16, 19, 20</td>
<td>13</td>
</tr>
<tr>
<td>Performance</td>
<td>It reconciles profit-making with the application of non-financial reporting concepts</td>
<td>1, 5, 6, 10, 13, 15, 16, 17, 20</td>
<td>9</td>
</tr>
<tr>
<td>Quality</td>
<td>Emphasises the quality of the information disclosed by organisations</td>
<td>3, 4, 5, 9, 17, 18, 19</td>
<td>7</td>
</tr>
<tr>
<td>Empirical</td>
<td>Articles with a predominantly empirical character</td>
<td>1, 4, 5, 6, 7, 8, 9, 10, 12, 15, 16, 19, 20</td>
<td>13</td>
</tr>
<tr>
<td>Theoretical</td>
<td>Articles with a predominantly theoretical character</td>
<td>2, 3, 11, 13, 14, 17, 18, 19</td>
<td>8</td>
</tr>
</tbody>
</table>

Note: Article: article number as listed in Table 4, Frequency: number of articles corresponding to the category.
**Figure 1.** Five-step bibliometric methodology outline

**Step 1:** Definition of the research field

**Step 2:** Database selection

- **Scopus + Web of Science**
  
  TITLE-ABS-KEY("sustainab* report*" OR "soc* account") AND TITLE-ABS-KEY ("ethic*") AND (ethic*)
  
  1987-2022
  
  Articles (open access + non-open access)
  
  U = 271 documents

**Step 3:** Research criteria adjustment

- Search formula
- Time limitation
- Type of document
- Sample size

**Step 4:** Codification of recovered material

- Excel (data in CSV format)
  - Descriptive figures
  - Tables
  - Performance indicators

- VOSviewer (data in CSV format)
  - Countries clusters
  - References clusters
  - Keywords clusters

**Step 5:** Examination of the information

- Descriptive analysis
- Co-author co-citation and co-word analysis

---

**The Role of Ethics in Sustainability Reporting**

---

**The Role of Ethics in Sustainability Reporting**
Figure 2. Final sample of articles

![Venn diagram showing the overlap between SCOPUS and WEB OF SCIENCE with counts and total U = 271]

Figure 3. Evolution of published articles and citations from 1987 to 2022

![Graph showing the evolution of published articles and citations from 1987 to 2022]
Figure 4. Cooperation network based on co-authorship among countries from 1987 to 2022
Figure 5. Co-citation network in the field of ethics research within non-financial reporting from 1987 to 2022
Figure 6. Keyword network used from 1987 to 2022
Figure 7. Normalised annual frequency of occurrence of each main keyword in the articles published in the period considered.
Figure 8. Temporal evolution of the keyword network
Figure 9. An integrative framework for ethics research in non-financial reporting