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The Journey to a Sustainable Economy. Accounting and Auditing for Long-Term Performance

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ABSTRACT

Financial professionals, accountants and auditors are demonstrating their commitment to sustainability research through a series of studies that address global concerns related to environmental accounting, sustainable business practices and participation in environmental conservation as they relate to accounting, auditing and financial reporting practices. By using various techniques and protocols applied in accounting, professionals present in their research, outstanding results for modelling sustainable development processes.As a result of the massive media coverage of international business concerns on sustainability, accountants and auditors are working tirelessly to develop economic processes applied in organisations. Thus, in order to outline the opportunities in the field and the trends addressed by business professionals in the sphere of sustainable accounting, this paper outlines a quantitative analysis, an applied bibliometric research for a sample extracted from the WOS- Web of Science database and an analysis of sustainability relationships using the VOS Viewer. The conclusions of the study conducted by the authors highlight that the economic environment is constantly changing in the accounting and auditing sphere, and the approaches of financial specialists in the sustainability sphere present new visions that have a significant impact on the lifecycle of organisations and overall sustainability.

1. Introduction

The upward trajectory of sustainability in the economy has provided new challenges for accounting and auditing professionals to identify solutions to increase the efficiency of financial and non-financial performance reporting processes in relation to sustainability.

The present study aims to analyse the relationship of professionals with the defining elements and specific circumstances of the concept of sustainable accounting, which has gained increasing importance recently, both in the corporate sector and on the international economic scene. Sustainable accounting is a fascinating field that complements mainstream accounting practices. This concept creates the idea that traditional accounting methods go beyond the classical view by creating a new profile extended and applied in the area of economic prosperity. Sustainable accounting therefore encompasses three distinct connected and interdependent dimensions that aim to ensure global economic balance.

Figure 1. Sustainable accounting
Source: Elaborated by the authors

Next, this paper outlines a review of the literature, where we have highlighted a number of papers that refer to the main topic of the authors' research. Regarding the research methodology section, a bibliometric study has been applied which will be followed by a section presenting the results, conclusions and impact on sustainability in accounting.

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2. Literature review

The concept of a sustainable economy has gained ground in the accounting and business literature over the last decade, with a major impact on corporate financial and investment decisions. But the links between this new economic dimension and sustainability are still unclear because it encompasses so many different and new ideas (Loiseau et al., 2016). Sustainability and sustainable development are terms that refer to the ability to meet current demands without sacrificing the ability of future generations to improve their living standards (Feleagă et al. 2012). The notion of sustainable development is well recognised globally, but its implementation at the organisational level poses significant challenges (Gray, 2002). Understanding corporate sustainability is problematic because of recent academic literature's interpretation of 'sustainable' as synonymous with the continued ability to exploit resources and conduct business.

According to the study by Dumitrana et al. (2009), the idea of sustainable development suggests that accounting adjustments need to be made to meet the requirements of both internal and external users of financial and accounting information. According to Thabit H. et al. (2019), several nations are also embracing the crucial trend of auditing sustainable development processes. To ensure sustainable development of the firm, it is necessary to achieve a harmonious balance between economic, social and environmental activities. The financial auditor plays a crucial role in ensuring transparency in financial reporting and applying discipline in sustainable reporting (Grosu et al. 2023).

Globally, sustainability addresses a number of issues of concern that have a direct impact on the business environment, including the economic and accounting environment. These are aimed at creating new, environmentally friendly products that are achieved through the implementation of the 3R policy (Homan, 2016). Procedures for reduction, recycling and reuse of various materials, improvement of manufacturing processes that have a significant impact on environmental pollution but also projects that can support current businesses to make quick and correct steps to address sustainable transitions and development of new business ideas with direct application in the sustainability sphere are brought up. (HSBC Business, 2024) Accordingly, through sustainable accounting, a variety of accounting techniques are used to monitor, document and disclose how an entity's environmental actions influence its financial results (Tu & Huang, 2015).

The next steps to be taken are described as "a long and challenging journey" under the UN Sustainable Development Goals, which aim primarily at expanding activities and actions in certain areas that are critical for the planet and its people. According to Bebbington et al. (2018), accounting professionals actively participate and continuously engage in the processes that the United Nations proposes through the 17 Sustainable Development Goals shown in Figure 2.

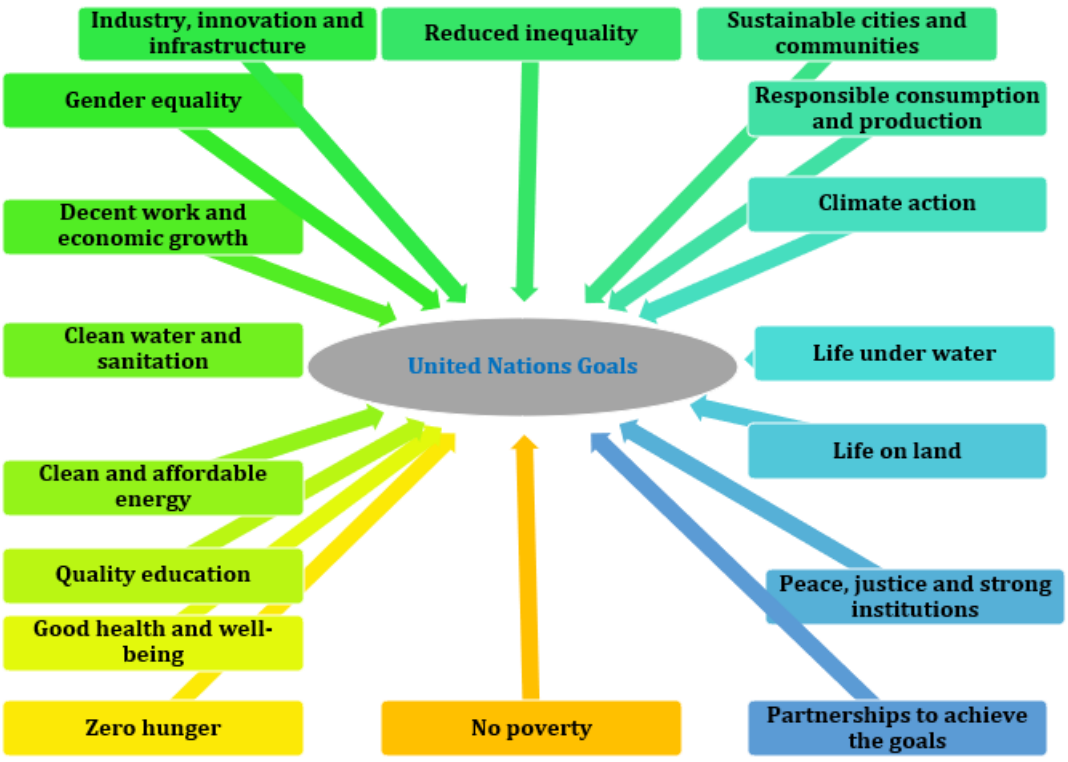

Figure 2. Sustainable Development Goals

Source: Elaborated by the author

The undeniable synergy between the environment and global organisations is necessary for the implementation of the above objectives. As a result, a number of experts stress that this issue should not be

neglected at global level and that all regulatory agencies and economic stakeholders should instead closely monitor the situation (Greenly, 2023).

The Sustainable Development Goals (SDGs) are not sufficiently promoted and explained, but businesses are taking visible steps to support and encourage each other, so that economic entities are in a continuous competition on issues of implementing sustainability in business. Growth, advancing knowledge and improving the world are fundamental aspects of human nature (Mabenge et al., 2020). Businesses therefore need much more assistance in areas such as cooperation, inclusiveness, building long-term alliances and effective communication on sustainable aspects of business. According to, Stal and Jansson, (2017), understanding and recognising the 'long-term' benefits, which is an essential component of the business approach in the sustainable economy sphere, generally results in the alignment of interests. This will pose a significant challenge to conventional models of corporate governance as companies seek to achieve both financial and non-financial goals (Petricica, 2023). The field of sustainable development presents many untapped research opportunities and has the potential to advance further in academia (Nechita, 2019). Accounting practitioners and experts in this area delineate the function and influence of sustainable development in accounting. However, the existing literature may be limited in providing conclusive and succinct evidence establishing a direct causal relationship between economic progress and sustainable accounting. Sustainability reporting has gained significant attention in the field of economic analysis. Non-financial reporting has gained popularity, particularly in the global context, by providing relevant information and measures of the social and environmental impacts that distinguish corporations from market economies (TPA, 2024). The research and financial adaptation of these criteria has not been sufficiently explored and we identify the need to develop in-depth studies over a long period of time to note the evolution in time and space of the results of economic sustainability practices. It is therefore important to pay more attention to current trends in sustainable reporting and the procedures that influence them (Petricica, 2023). The global economic crisis has served as an undeniable and compelling reminder to global businesses that adhering to a flawed or environmentally negligent business model will ultimately lead to the collapse of the entire ecosystem (Motta et al., 2018). The financial savings industry constantly requires a revolution in the methods and regulations that govern its recurring operations (Chersan, 2015). The Brundtland Commission (1987, p. 43) defines sustainable development as the kind of development that meets the needs of present generations while safeguarding the same needs of future generations. This notion considers sustainable economic, environmental and social development as an indivisible whole. Modern businesses are obliged to address the issues arising from this strategy and must therefore also incorporate economic, social and environmental objectives. Managing pollution reduction, equitable income distribution and improved social services is an issue, as the value of the company must be increased for stakeholders, ensuring that social and environmental debt is not neglected (Hódi Hernádi, 2012).

3. Research methodology

The aim of this paper is to present the relevance of accounting and auditing implications for sustainability in the literature using bibliometrics. Through the application of this scientific method of quantitative analysis it is intended to highlight trends in research carried out by numerous authors from different countries.

For the bibliometric study, a sample was selected on 23 March 2024, consisting of publications that can be found in the WOS - Web of Science Core Collection database. The following key terms were used to obtain the research sample as shown in Figure 3.

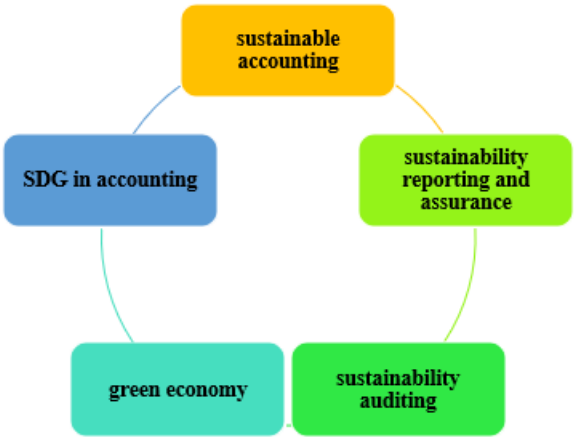

Figure 3. Web of Science Core Collection - Selection Criteria (TOPIC- OR)

Source: Elaborated by the authors

The statistical sample initially obtained using keywords alone within the Web of Science Core Collection platform was 55,201 results providing publications from 1975-2024. Resulting in an overall statistical sample, we decided to increase the degree of restrictiveness and thus increased the relevance of the results to our area of interest. We also note that the presence of keywords set by the authors is recurrent in other research areas such as ecology, engineering, chemistry, agriculture, etc. This supports the fact that sustainability is an interdisciplinary area with a broad connection and applicability. Thus, the authors restricted the area of the results by using the filters available in the database and the following criteria were used: the period of publication years covers the range 2015-2024, the research area is applicable for Business Economics and the Web of Scence categories are Economics, Business or Business Finance.

Applying the words of the mentioned selection criteria resulted in a sample of 5,495 papers in the field of Economics, Accounting and Finance that were published between 2015 and 2024. The publications fall into the following categories according to the graph in Figure 4, where 83.44% of the sample is represented by article papers.

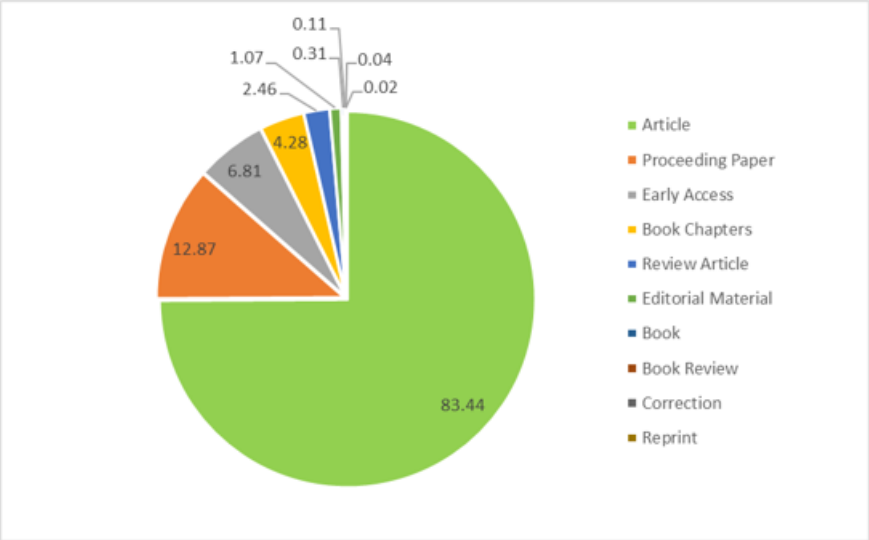

Figure 4. Publications analysed

Source: Elaborated by the authors

In order to preform the quantitative analysis of the current research, a descriptive bibliometric analysis was applied to outline the trends from 2015-2024 of authors who presented interest in the field of finance-sustainability. The results obtained from 4 distinct perspectives, considered relevant by the authors to bring a new and current perspective to the accounting literature, will be presented. Expanding knowledge through the present study contributes to the understanding of the implications for accounting professionals and auditors in the sustainability development sphere.

Therefore, the four strands of the descriptive bibliometric study present the time axis distribution of papers, the geographical distribution of publications, the most cited papers, and the most outstanding authors analysed in terms of volume of papers published.

In the next stage of the present research, an analysis was carried out and interpreted using the VOS viewer application from the perspective of the key topics addressed by the authors, and the network generated by the keywords of the publications was analysed.

4. Results and discussions

Bibliometric descriptive analysis is a quantitative research method that highlights the main characteristics of trends in accounting finance and the interest of accounting professionals and auditors in sustainable business development topics.

This method outlines the fundamental features of scientific and academic publications in the economic sphere. The bibliometric analysis mainly highlights scientific papers published in reputable journals, peer-reviewed studies, books and other valid academic sources. The aim of this bibliometric analysis is to provide a picture of current trends in the area of economic research for sustainability and the contribution of professionals in this field to the literature.

The graphical analysis and distribution of publications according to time axis is shown in Figure 5. Annual distribution of studies. The selected sample covers publications from 2015-2024. From the present figure we notice that there is a predominantly upward trend from 2015 to the present. The analysis of publication years starts with a number of 320 papers in 2015, with a peak of 837 papers in 2023.

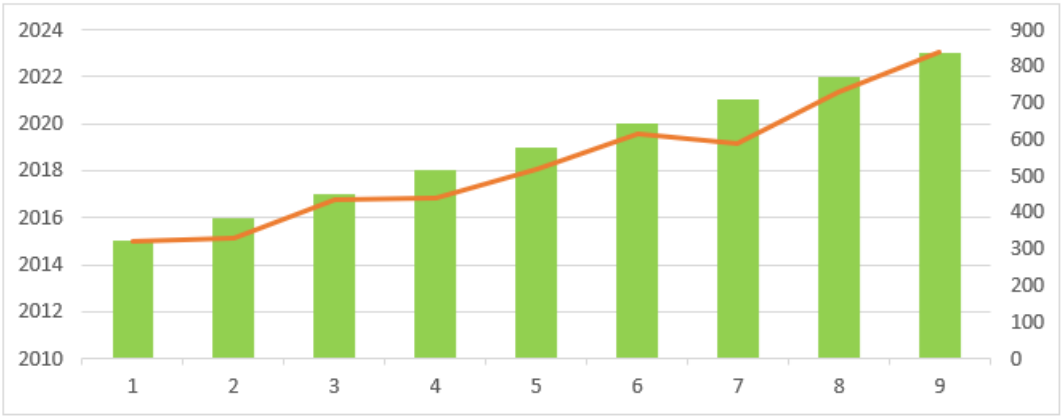

Figure 5. Annual distribution of studies 2015-2023

Source: authors' processing in WoS database, 2024

There is a slight downward trend in sustainability publications in 2021, a result that can be justified by the unprecedented global situation of the COVID-19 pandemic at that time. During the year 2021, the trends on scientific research on the economic level are temporarily influenced, with 588 publications. The report produced is extracted at the end of the first quarter of 2024, during which 313 papers were published. If the pace of publication of papers is maintained for the year 2024, the upward trend of financial research for sustainability will be respected. We also note that in the sample selected for the 6.8% time analysis of publications, 374 papers do not show the exact date of publication.

The concept of sustainable development has gained momentum both within Europe and beyond. The challenges of evolving accounting processes and adapting accounting and auditing professionals in the economic sphere is evidenced by the dispersion of research around the world. As shown in the table below, the authors present the geographical distribution of articles according to the number of publications and the frequency of citations of the papers.

Table 1. Geographical distribution of articles

Country	Number of publications	Number of citations
China	845	21,710
England	513	13,830
United States of America	492	12,007
Italy	319	6,727
Australia	283	6,340
Russia	276	752
Germany	271	4,960
Spain	267	5,473
Ukraine	267	872
France	240	5,043
India	206	3,365
Romania	196	903
Poland	160	1,189
Malysia	138	2,663
Canada	130	2,939
Netherlands	115	3,765
Pakistan	109	2,960
South Africa	109	2,400
Turkey	89	1,442
Sweden	83	2,333
Vietnam	79	1,620
Brazil	75	1,544
New Zealand	75	1,438
Indonesia	67	383
Portugal	66	1,361
Czech Republic	65	460
Austria	64	1,001
Norway	62	1,585
Japan	61	1,862
Switzerland	59	1,353
Scotland	58	1,830
Denmark	56	1,254
Taiwan	56	980
Saudi Arabia	53	837
Slovakia	51	142

Country	Number of publications	Number of citations
Belgium	48	992
Finland	47	1,347
United Arab Emirates	47	822
Lithuania	43	483
Nigeria	43	422
Croatia	42	202
Ghana	41	603
Greece	41	867
Ireland	39	733
Latvia	38	120
South Korea	38	841
Tunisia	36	158
Lebanon	35	356
Thailand	35	374
Bangladesh	32	296
Egypt	30	461
Colombia	27	192
Iran	27	387
Turkey	26	49
Mexico	25	346
Hungary	24	105
Kazakhstan	23	166
Jordan	22	196
Wales	22	547
Singapore	21	931
Serbia	19	70
Morocco	17	259
Chile	15	297
Kuwait	15	293
Azerbaijan	13	99
Kenya	13	86
Cyprus	11	135
Ecuador	11	265
Ethiopia	11	132
Oman	11	126
Qatar	11	139
Argentina	10	66
Bahrain	10	138
Bulgaria	10	50
Cameroon	10	205
Uzbekistan	10	164
Slovenia	9	108
Sri Lanka	9	166
Georgia	8	56
Iraq	8	68
Luxembourg	8	221
Peru	8	83
Estonia	7	21
Malta	7	146
Northern Ireland	7	408
Yemen	7	17
Belarus	6	34
Bosnia and Herzegovina	5	29
Moldova	5	11
Palestine	5	194

Source: Elaborated by the authors

Topping the list of countries concerned by research is China with 845 publications cited 21,710 times. Our country also holds a remarkable position in this ranking, with Romania ranked 12th with a total of 196 articles and 903 citations. According to the information provided in Table 2, the auditors can express opinions on the reasons why the top countries in the ranking are in these positions. Technologically, economically and culturally they are leading the way in development, thus providing an environment conducive to support, development and continued research for a greater number than the countries at the bottom of the ranking.

For further bibliometric research in terms of the characteristics attributed to authors. We will consider a ranking of authors according to the number of articles published and a ranking for the most cited researchers within the statistical sample. According to Table 2 we observe that the most active researcher present in the statistical sample is Taghizadeh-Hesary Farhad, a remarkable presence in the Japanese academic space with more than 15 years of experience in economics.

Table 2. Top researchers in terms of publication volume

No.	Author	Published papers	Number of citations
1	Taghizadeh-Hesary Farhad	19	1,448
2	Martinez-Ferrero Jennifer	17	698
3	Garcia-Sanchez Isabel-Maria	15	756
4	Maroun Warren	15	569
5	De Villiers Charl	13	423
6	Uyar Ali	13	267
7	Rezaee Zabihollah	13	146
8	Lee Chien-Chiang	11	942
9	Kuzey Cemil	10	140
10	Jabbour Charbel Jose Chiappetta	9	598

Source: Elaborated by authors

Consistent with the data presented in Table 3, the top most cited researchers include the research conducted by Du Kerui, who is particularly noted for his articles addressing sustainability through green technological evolution, process and technology innovation.

Table 3. Top researchers in terms of number of citations

No.	Author	Published papers	Number of citations
1	Du Kerui	5	1,564
2	Taghizadeh-Hesary Farhad	19	1,448
3	Hao Yu	8	981
4	Lee Chien-Chiang	11	942
5	Wu Haitao	8	909
6	Mohsin Muhammad	5	820
7	Boiral Olivier	8	815
8	Garcia-Sanchez Isabel-Maria	15	756
9	Martinez-Ferrero Jennifer	17	698
10	Bebbington Jan	6	629

Source: Elaborated by authors

For the evaluation of the most cited articles, the top 10 publications highlighting concerns in the economic sphere with a focus on sustainable economy, circular economy, green accounting and sustainable innovation were selected.

Table 4. Top articles in terms of number of citations

No.	Title	Author	Year	Number of citations
1	China's manufacturing locus in 2025: With a comparison of "Made-in-China 2025" and "Industry 4.0"	Li Ling	2018	541
2	How do environmental regulation and environmental decentralization affect green total factor energy efficiency: Evidence from China	Wu Haitao, et. al.	2020	504
3	Lost in Transition? Drivers and Barriers in the Eco-innovation Road to the Circular Economy	Jesus Ana, et. al.	2018	497
4	Environmental regulation, green technology innovation, and industrial structure upgrading: The road to the green transformation of Chinese cities	Du Kerui, et. al.	2021	489
5	CSR reporting practices and the quality of disclosure: An empirical analysis	Michelon G. et. al.	2015	485
6	Do green technology innovations contribute to carbon dioxide emission reduction? Empirical evidence from patent data	Du Kerui, et. al.	2019	462
7	How does green finance affect green total factor productivity? Evidence from China	Lee CC. et. al.	2022	459
8	Towards a green world: How do green technology innovations affect total-factor carbon productivity	Du Kerui, et. al.	2019	434
9	Public spending and green economic growth in BRI region: Mediating role of green finance	Zhang DY. et. al.	2021	424
10	Institutional quality, green innovation and energy efficiency	Sun HP, et. al.	2019	423

Source: Elaborated by authors

The current research also considers keyword analysis through co-occurrence using the available results provided by the VOS Viewer application. A co-occurrence analysis was implemented to highlight the existence, frequency of occurrence and proximity of key words in the selected sample. The evaluation of the links made in the keyword network and the representation of the graphical dynamics of the research topic is essential to deepen the knowledge in the domain under analysis.

To carry out this investigation, a minimum criterion of 5 occurrences for each keyword was established. Out of the total number of publications analysed, 680 publications met this minimum criterion and the top 10 ranked keywords have the highest occupancy with a score of over 100, thus outlining the strongest connections. The key nodes represented in the VOS Viewer diagram are the top 10 positions of the co-occurrence ranking are shown in Table 5.

Table 5. Co-occurrence ranking

No.	Keywords	Occurrences	Total Link Strength
1	Sustainable development	493	1026
2	Sustainability	423	991
3	Green economy	218	438
4	Circular economy	195	435
5	Corporate social responsibility	147	320
6	Sustainability reporting	132	312
7	Climate change	130	295
8	Green finance	108	243
9	Green innovation	105	197

Source: Elaborated by authors

The size and colour of the figure highlights the frequency of terms such as sustainable accounting, circular economy or sustainability.

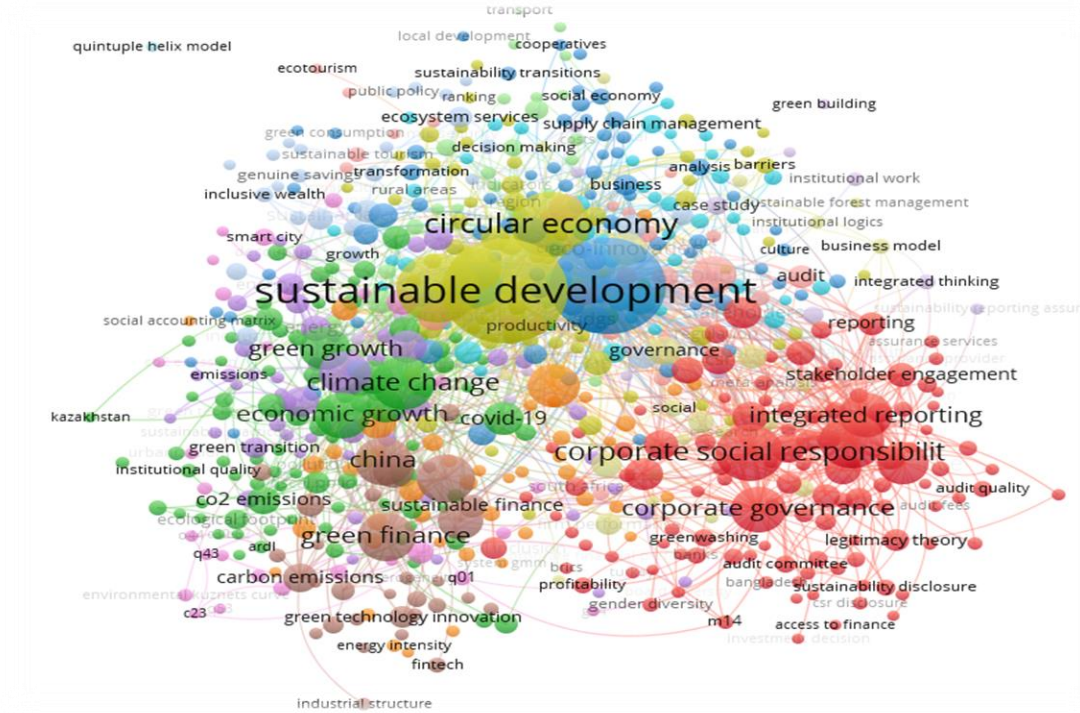

Figure 6. Network diagram made by keywords

Source: authors' processing in VOS Viewer, 2024

The structure of the network is divided into 15 clusters, groupings of keywords specific to the field of research. These clusters largely highlight the interest in sustainability but also the approach to sustainability in relation to related fields.

The intensity of the terms is visibly predominantly concentrated in the sphere of sustainability and social responsibility.

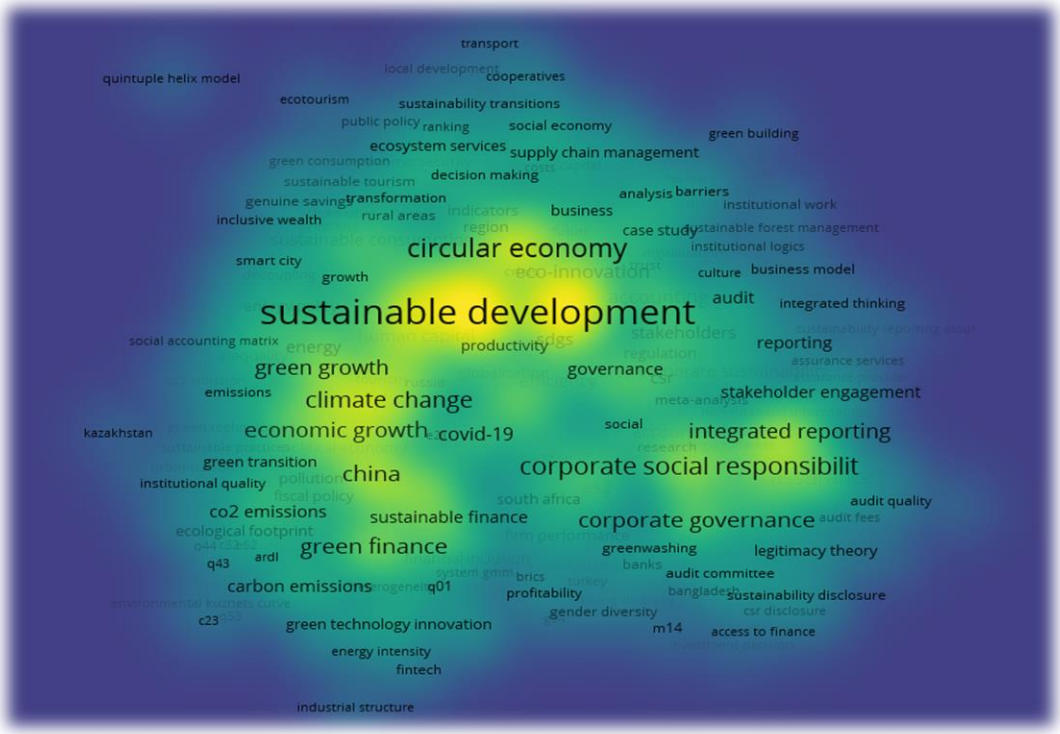

Figure 7. Keyword network intensity diagram

Source: authors' processing in VOS Viewer, 2024

5. Conclusions

The results of the present research highlight through descriptive analysis a remarkably ascendant involvement on the analysis, development and refinement of sustainability research in the economic and accounting space. The increasing number of publications evolving from one year to another proves that the involvement of accountants and audit professionals in the area of sustainability applicability and extension is remarkable. Although the research results are effervescent, the place of academic development for sustainable accounting is unquestionable.

The research conducted by the authors, considered a section of bibliometric analysis techniques on a limited sample, thus we mention that the current study provides opportunities for extending the research over a longer period and applying more detailed selections of statistical sample construction. The current bibliometric study brings to academic attention the connections and representative network of sustainability in correlation with sustainable innovation, green accounting, but also alongside the keyword China, which is also a new research direction for exploring sustainability and the research results conducted by this people.

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