

*In this study, a systematic analysis of the global trends of the studies carried out between 1988–2021 on integrated reporting, which is a non-financial reporting tool that focuses on the process evolving from the shareholder approach to the stakeholder approach and the concept of value creation, which is jointly focused on corporate governance and reporting and visualization is performed. It is thought that bibliometric analysis of academic studies in the field of integrated reporting will make important contributions in terms of revealing which concepts are discussed in the literature and which relationship dimension. For this purpose, the data obtained from the Web of Science Core Collection Database were analyzed with the VOSviewer software. In the database, 462 studies were reached in the date range determined by the keyword “integrated reporting” in the title category. A systematic bibliometric analysis was conducted that included different variables such as citation counts, leading authors, organizations, keywords, and countries where the articles were written. According to the findings from the analysis, the three most influential journals for integrated reporting research are *Meditari Accountancy Research*, *Journal of Intellectual Capital*, and *Sustainability*. The vast majority of studies were published in the English language. The three most published authors are Raimo Nicola, Vitolla Filippo and Dumay John. The most influential institutions are Bucharest University of Economic Studies, Lum Jean Monnet University and Macquarie University. The findings will help researchers in the field understand the overall trend, relevance and performance of variables in globally integrated reporting research, and will provide guidelines for further research*

*Keywords: integrated reporting, VOSviewer, bibliometrics analysis, network visualization, Web of Science*

# GLOBAL RESEARCH TRENDS OF INTEGRATED REPORTING WITH NETWORK MAP TECHNIQUE ANALYSIS

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## 1. Introduction

Integrated reporting is a contemporary reporting model by which financial and non-financial data are simultaneously presented to stakeholders, which is based on value creation and offering solutions with a strategic approach for the risks and threats that may arise throughout this process [1]. In integrated reporting, stakeholders are classified and information to be shared with stakeholders is prioritized by considering stakeholder prioritization [2]. Since the main purpose of integrated reporting is effective and efficient information sharing, ranking based on the materiality principle, which is one of the integrated reporting guidelines, contributes to value creation. Integrated reporting is described by the International Integrated Reporting Council (IIRC) as a concise communication regarding the extent to which an organization's strategy, management, performance, and prospects create value in the short-, medium- and long-run within the context of its external environment [3]. The integrated reporting idea consists of six capital components: intellectual capital, financial capital, human capital, relationship capital, manufactured capital, and natural capital. The integrated report is a transparency and accountability instrument that allows for enhanced trust in institutions [4, 5]. The integrated report, which is prepared with a holistic point of view, is future-oriented, reveals the value created for the institution and its stakeholders, explains the extent to which the strategies and targets would be achieved, and reveals the strategies that are crucial in terms of the institution and its

stakeholders [6, 7]. It provides information in line with the Sustainable Development (Global) Goals [8]. Integrated reporting guidelines, consisting of strategic focus and future orientation, information linkage, stakeholder relationships, materiality, conciseness, reliability and completeness, consistency, and comparability, inform about the content of the report and indicate the way information is presented [9, 10]. The aim of the principle-based approach is to strike a balance between flexibility and order to maintain a sufficient level of comparability among the unique circumstances of different organizations. An integrated report is comprised of eight fundamentally-interconnected, however, non-mutually exclusive content items:

- corporate overview and external environment;
- corporate governance;
- business model;
- risks and opportunities;
- strategic resource allocation;
- performance;
- outlook;
- basis of the presentation [10, 11].

Eight content items are included in an integrated report, along with questions regarding the items and responses to those questions [12].

Along with the discussion on the concept of sustainability, which became debatable for the first time in the 1700s and 1800s, under the headlines of “Stakeholder Approach”, “Sustainable Development Goals”, and “Climate Change” by the international community at the institutional level in

the 2000s, the need for presentation of these three interacted concepts based on value creation contributed to the development of integrated reporting [13]. The concept of integrated reporting, which has begun to take place frequently in the corporate governance and financial reporting literature and whose different dimensions have been examined by researchers, is still pervious to improvement and emerges as a topic that needs further research. According to corporate behavior, since the boards of directors and managers addressing the demands and expectations of stakeholders have a positive impact on firm value, it is thought that expanding the stakeholder approach would lead to a value-creating, transparency- and accountability-enhancing impact [14]. The integrated report, having the main objective of explaining to financial capital providers how an organization would create value over time, is also of great importance in terms of literature since it provides information regarding the resources/relationships that an organization utilizes/affects [15, 16].

In this study, the bibliometric analysis method was used to analyze and visualize the integrated reporting literature in a systematic way. This method of analysis is a discipline carried out systematically to evaluate the importance of the subject in the determined field. The bibliometric analysis method helps to interpret the place of the subject in the literature and the distribution of studies according to regions and time [17, 18].

Bibliometrics is a statistical technique analyzing a chosen topic quantitatively in academic literature [19, 20]. It is also an indispensable statistical tool for identifying key information for various purposes such as mapping the latest state of affairs in a particular field of scientific knowledge, seeking research opportunities, and validating scientific research [21, 22]. With this analysis method, an overview of research trends in different disciplines is presented by identifying the most contributing publications, journals, countries, institutions, prominent authors, keywords, intensities, and collaborations in important research areas. The first work on the bibliometric method was published by Henry Armstrong in 1896 [23, 24]. In this study, the subject distributions of the publications with the specified criteria were analyzed with a statistical method [25, 26]. After Armstrong's work, many research studies have been conducted in the field by using different techniques. Articles in different disciplines have been published with the VOSviewer (Visualization of Similarities Viewer) software, which is one of the tools in bibliometric analysis. For example, university-industry cooperation [18], multiple criteria decision-making, safety culture, social networking, health inequalities, digital humanities, management information systems, and policy sciences.

Integrated reporting is of great importance in terms of the importance of value creation in today's world, the importance of eliminating non-value-creating activities and the costs associated with these activities in terms of increasing the sustainability and competitiveness of businesses. In addition, it aims to provide comprehensive but concise information to all stakeholders in terms of the scope of integrated reporting, which is one of the most important sources emphasizing the approach that has evolved from a shareholder approach to a stakeholder approach. Integrated reporting is an important tool to reach the most accurate information, which is the most prominent feature of the information age, and to present the most reliable information to information users. Studies to be carried out in the field of integrated reporting and related issues are of great importance.

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## 2. Literature review and problem statement

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Integrated reporting (IR) is a new form of corporate reporting that has emerged after decades of calls by academics and practitioners for more holistic and integrated corporate reporting on the economic, environmental and social aspects of business. The current research was based on a critical review of the literature on IR practices and sustainability reporting. Indexed journals were reviewed and evidence was used to develop a model examining possible predictors of IR in annual reports [27, 28]. Integrated reporting (IR), which combines a firm's financial and non-financial information into a single reporting, is the latest evolution of corporate financial reporting today [29, 30]. As a result of the literature review on integrated reporting, it is seen that the issue of integrated reporting is handled in connection with the issue of corporate governance, which has transformed from a shareholder approach to a stakeholder approach [31]. The first studies on integrated reporting emerged in the light of the regulations in South Africa arising from the sensitivity of sustainability and environmental issues [24, 25]. At the same time, the formation of integrated reporting reduces the risks of corporate value loss. Finally, the accounting method (reporting) is a tool for sustainable development. Integrated reporting should be created and published not only by large enterprises, but also by medium and small companies. This ultimately depends on the region, industry, country, etc. It leads to sustainable development [25, 31]. Studies on the concept of value creation continue. Integrated reporting quality (IRQ) differs according to the fields of activity of companies that make integrated reporting [32]. Since this situation makes the appropriateness of financial and non-financial information presented to stakeholders controversial, it will be effective for companies to report in accordance with the sensitivity of their stakeholders in achieving the purpose of integrated reporting [6, 23]. It is accepted in the literature that there is an important relationship between the quality and length of integrated reports. In addition, there are differences in the quality level of integrated reports due to the profitability of companies, the size of the board of directors, the gender distribution between company employees and senior management, and differences in company size. This shows that the length of the integrated report indicates the level of quality of such a report that may be necessary in explaining all the important issues to meet the needs of a wide variety of stakeholders [25]. Firms tend to view integrated reporting as a hegemonic challenge or internalize it as part of a positive organizational change process. Therefore, the integrated reporting perspective also deeply affects the reporting system [5]. In this context, it is of great importance to analyze the year of the article, the language of the article, the authors of the articles, the countries/universities where the authors work, the keywords given in the articles and related topics, and the field information of the publishers and publishers of the studies conducted in the field of integrated reporting [33]. Based on this importance, detailed analysis of the subject through bibliometric analysis contributes to the literature. Bibliometric studies have been frequently used in the literature in the last decade. It is an interdisciplinary analysis model. The use of VOSviewer software in Web of Science Core Collection in bibliometric analysis studies has become more common in the last three years in the literature. The first practical solution offered to researchers by studies in the literature using VOSviewer software is to facilitate the confusion in the literature review process and the complex process experienced in reaching research results. It is of great importance in terms

of the support it provides to this research process. As a result of the studies carried out through VOSViewer, it is also possible to reduce, compile or expand the needed data to make more comprehensive findings.

VOSviewer software is used for clustering scientific publications in an important problem in bibliometric research and analyzing clustering solutions in the resulting clusters. VOSviewer focuses on the analysis of studies at the aggregate level [3, 34]. VOSviewer, a free computer program developed to create and display bibliometric maps, pays special attention to the graphical representation of bibliometric maps, unlike most computer programs used for bibliometric mapping. VOSviewer’s functionality is particularly useful for viewing large bibliometric maps in an easy-to-interpret way [33, 35].

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### 3. The aim and objectives of the study

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The aim of the study is to determine the trends of integrated reporting and related issues in research in the literature. These data will be a guide for academics working on the literature.

To achieve this aim, the following objectives are accomplished:

- to determine the distribution of publications on integrated reporting by years and the most effective years;
- to carry out the co-occurrence analysis of keywords;
- to determine the most effective studies on citation in the 2012–2017 period;
- to discover the most influential journals by the number of publications.

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### 4. Materials and methods

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#### 4. 1. Object and hypothesis of the study

Studies conducted on “integrated reporting” performing a bibliometric analysis, which is a quantitative technique used to review the literature in any field, have been assessed in detail. Bibliometric analysis is a useful and widely accepted instrument that can be performed in multidisciplinary research studies ranging from micro- to macro-level, helping to interpret progress in a particular scientific field by employing quantitative methods [18, 36]. The size of each item is determined by the number of documents, and the thickness of each link among the items is determined by the total link strength. Due to the large database size, the maximum number of items per document is chosen as 25 and the minimum number of documents of an item is chosen as 5 to generate all visualizations [37, 38].

Through the bibliometric analysis conducted with the integrated reporting keyword within the scope of the study, research trends in the academic literature on integrated reporting, prominent journals, researchers and research institutions in the field of research, the most cited studies and thematic research clusters and research terms were determined [39].

In the field of integrated reporting, the following research questions are included in the bibliometric analysis.

As a result of the analysis conducted in this context, it is aimed to reveal the keyword links regarding the content of academic publications in the field of integrated reporting, the most influential authors, the most influential journals and publishing houses, and finally the intensity of studies in the related field on a yearly basis.

#### 4. 2. Sample

The data utilized in this study is based on the “Core Collection Database of Web of Science” (<https://www.webof-science.com/>) since it is a peer-reviewed, accessible, comprehensive, and multi-disciplinary database. 462 documents are reached by searching the term “integrated reporting” in the title section. The dataset, consisting of 462 documents, includes all types of publications, including articles, conference manuscripts, books, and book chapters. Studies published over the period 1988–2021 were downloaded as “Full Record” from “Export Records to RIS File” and “Export Records to Tab Delimited File” options on June 30, 2022.

#### 4. 3. Data Analysis

The academic studies listed as a result of the research are analyzed by creating bibliometric network maps by means of VOSviewer visualization software for co-authorship relationships at author, organization, and country levels, respectively. VOSviewer software allows users to generate clustering and text mining analyses, as well as visualization of co-authorship, co-citation, and co-occurrence network, density, and overlay.

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### 5. Results of research of Global Research Trends of Integrated Reporting

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#### 5. 1. Results of the Statistical Analysis

The distribution of publications on integrated reporting by years and the most influential years are shown in Fig. 1.

From the first research on integrated reporting published in 1988 until 2021, 462 articles were indexed in the Web of Science database. In the last 30 years, integrated reporting document production has grown exponentially and has been stable and continuous over time. While only 8 articles were written until 2013, the studies gained momentum especially after 2017 (Fig. 1). Approximately 65 % of all publications were made in 2019 (19.6 %), 2020 (22.2 %), and 2021 (22.7 %). The information is compiled and presented in Fig. 1. As a result of the search in the Web of Science database regarding the concept of integrated reporting, a total of 462 different publications were accessed over the period 1988–2021. Of these studies, 367 are articles, 79 are conference manuscripts, 29 are book chapters, and 46 are other types of publications. Although approximately 80 % of the indexed publications consist of articles, the total ratio of books, book chapters, and book reviews is approximately 7 %. The types of publications are listed in Table 1.

Table 1

Types of Publications

| Document Types      | Number |
|---------------------|--------|
| Articles            | 367    |
| Proceedings Papers  | 79     |
| Book Chapters       | 29     |
| Early Access        | 20     |
| Editorial Materials | 14     |
| Meeting Abstracts   | 6      |
| Books               | 3      |
| Book Reviews        | 2      |
| Corrections         | 1      |

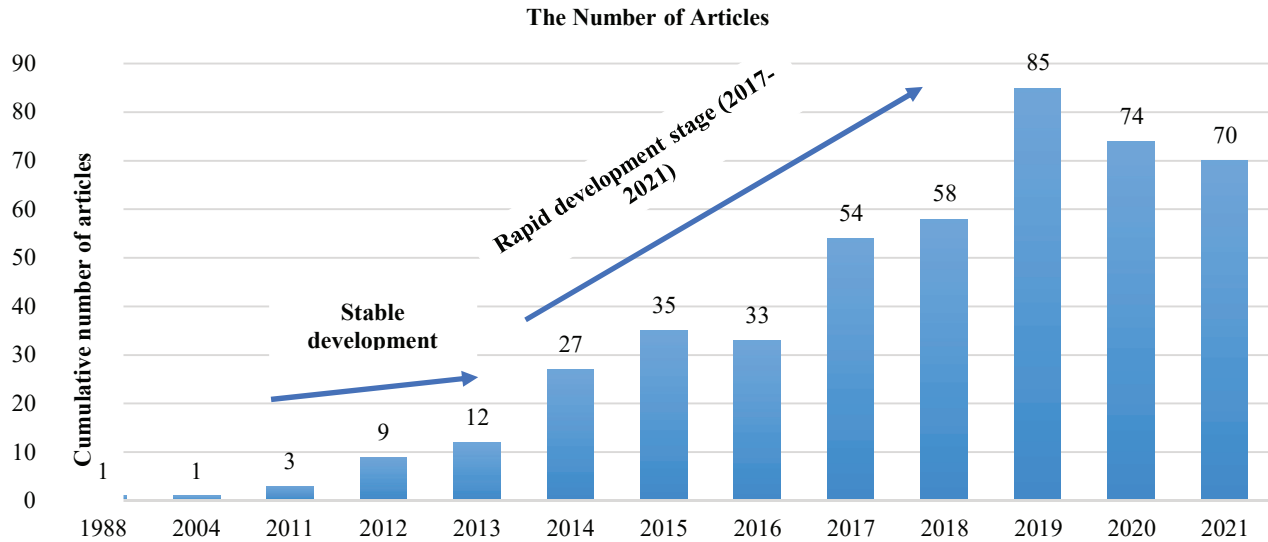


Fig. 1. Most effective years

When we look at the publication weighting related to integrated reporting, it is seen that the publications related to the subject are concentrated in the article group.

**5. 2. Results of the Co-occurrence analysis of Keywords**

According to the analysis results, 217 different keywords are visualized in 15 clusters. Some keywords in these clusters are listed in Table 2.

When the keywords are sorted according to the frequency of use, integrated reporting, sustainability, determinants, management, corporate social responsibility, disclosure, companies, firms, performance, and framework are the most used keywords. The integrated reporting keyword has been used 34 times, sustainability 14, and determinants 11 times. It is seen that there is a parallelism between the keywords' occurrences and total link strength.

Integrated reporting, which ranks first in terms of link strength, has strong links to sustainability, determinants, system, and management. Fig. 2 shows the network visualization map of keywords.

A network visualization map of keywords with high frequency is illustrated in Fig. 2. Blue colors in the map correspond to studies published on earlier dates. The colors turning from blue to yellow indicate the updated publications. On the basis of the average publication year, the keywords 'ethics' (2013), 'financial reports' (2013), 'cultural system edge' (2013), 'management accounting' (2014) and 'strategies' (2015) are displayed in blue color. The keywords 'corporate governance', 'visual tools', 'market value', and 'gaps' are used in up-to-date studies.

Table 2

**Co-occurrence analysis of Keywords**

|            |                                                                        |
|------------|------------------------------------------------------------------------|
| Cluster 1  | Benefits, capital, stakeholder, sustainability, firms                  |
| Cluster 2  | Companies, system, edges, legitimacy, human capital                    |
| Cluster 3  | CEO, disclosure, governance, agency theory, information asymmetry      |
| Cluster 4  | Credibility, education, need, integrated reporting, impact             |
| Cluster 5  | Determinants, earning, risk management, simulation, attributes         |
| Cluster 6  | Power, gaps, materiality, perceptions, completeness                    |
| Cluster 7  | Content analysis, state, university, perspective, IR quality           |
| Cluster 8  | Cost, market value, information, investors, relevance                  |
| Cluster 9  | Event, quality, firm, share, behavior                                  |
| Cluster 10 | Perspectives, narratives, compromise, exploration, integrated thinking |
| Cluster 11 | Vision, values, functions, enterprises, indicators                     |
| Cluster 12 | Adaption, challenges, CSR, value creation, assurance                   |
| Cluster 13 | Readability, insight, earning management, board, visual tools          |
| Cluster 14 | Management, portals, framework, enterprise portal, integrated system   |
| Cluster 15 | Ethics, financial reports, cultural systems, information disclosure    |

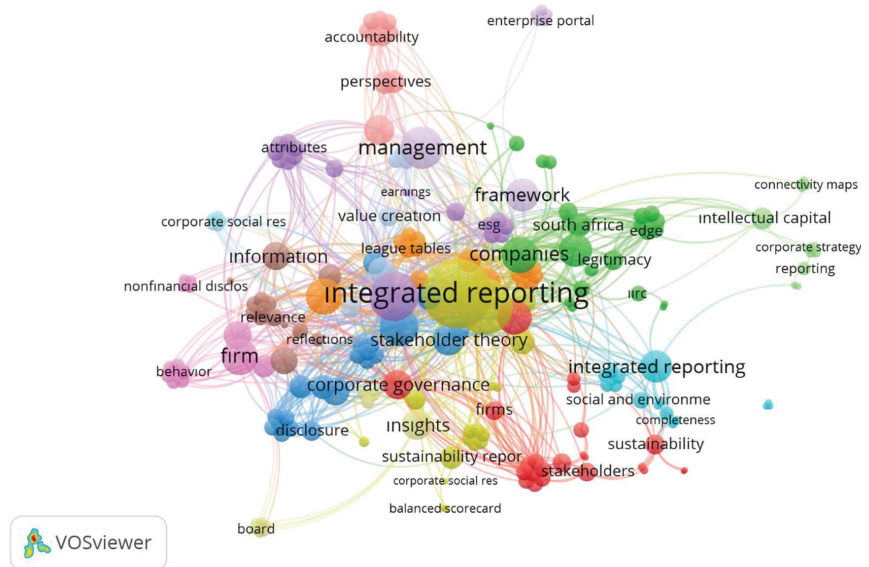


Fig. 2. Network visualization map of keywords

An overlay visualization map of keywords associated with integrated reporting is shown in Fig. 3.

Upon analyzing the countries by the number of citations, 24 different countries are listed. Australia ranks first with 738 citations in 8 different publications, followed by Italy with 404 citations in the same number of publications. The total number of links between Australia and Italy, which rank first two places, is 14. The number of links between Australia and the UK is 5.

A density visualization map of keywords associated with integrated reporting is shown in Fig. 4.

Studies in the Web of Science database received an average of 24.4 citations and a total of 11,273 citations. Approximately 6.45 % of these citations have been made by the authors to their own studies. The average h-index of the entire study is 60. Upon ranking the publications by the number of citations, the article that was conducted in 2014 by 4 authors from the Universities of Waikato, Pretoria, and London ranks first. The article has been cited 354 times since then. The second-rank article was published in 2016 and has been cited 279 times. Upon taking the top 10 rankings into consideration, the most effective journal in terms of citation count is the Accounting Auditing & Accountability Journal in which three of the top 10 studies with the largest number of citations have been published. Upon considering the average number of citations, the second-rank article rises to the first rank with 39.86.

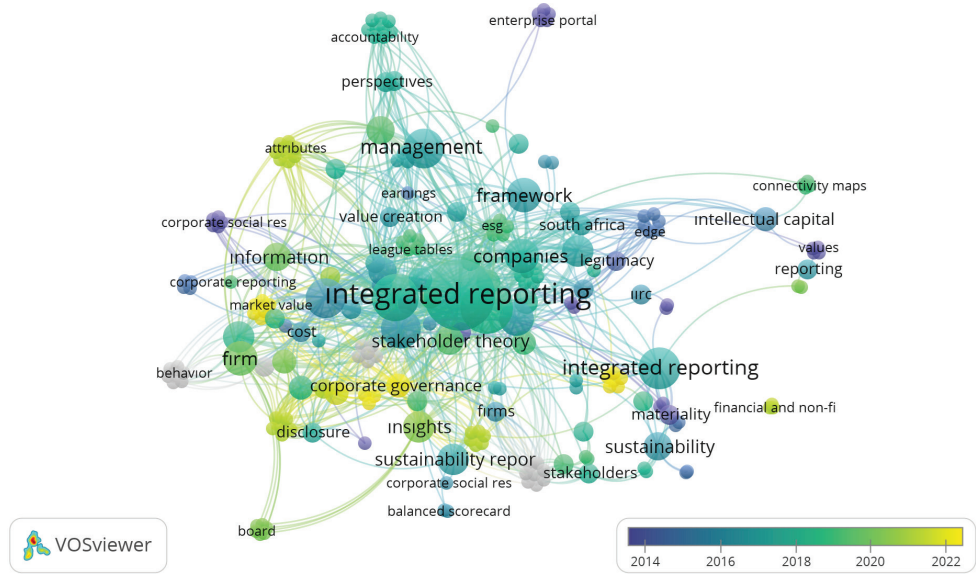


Fig. 3. Overlay visualization map of keywords

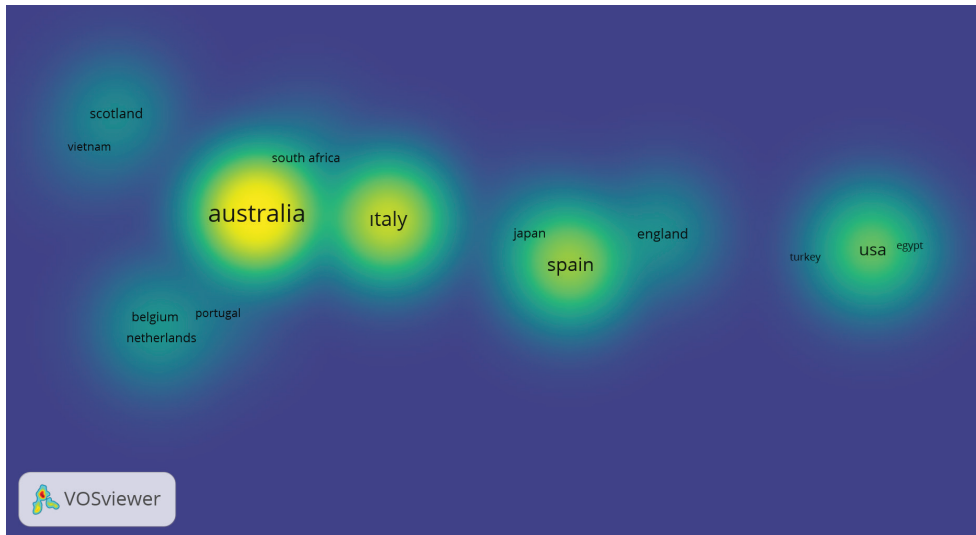


Fig. 4. Density visualization map of keywords

### 5.3. Results of Mapping and analysis on title and authors

The most effective studies on citation have been conducted over the period 2012–2017. The low number of citations for the studies conducted after 2017 is thought to be directly associated with the spread of the publication process over several years. The most effective articles are listed in Table 3.

Table 3

Most Effective Articles

| Rank | Title                                                                   | Total citations | References | Years | Average citations | Place of Publication                         |
|------|-------------------------------------------------------------------------|-----------------|------------|-------|-------------------|----------------------------------------------|
| 1    | 2                                                                       | 3               | 4          | 5     | 6                 | 7                                            |
| 1    | Integrated Reporting: Insights, gaps, and an agenda for future research | 354             | [12]       | 2014  | 39.33             | Accounting Auditing & Accountability Journal |
| 2    | Integrated reporting: A structured literature review                    | 279             | [10]       | 2016  | 39.86             | Accounting Forum                             |
| 3    | The International Integrated Reporting Council: A story of failure      | 273             | [16]       | 2015  | 34.13             | Critical Perspectives on Accounting          |

Continuation of Table 3

| 1  | 2                                                                                                           | 3   | 4    | 5    | 6     | 7                                                           |
|----|-------------------------------------------------------------------------------------------------------------|-----|------|------|-------|-------------------------------------------------------------|
| 4  | Determinants of Traditional Sustainability Reporting Versus Integrated Reporting. An Institutional Approach | 245 | [35] | 2012 | 22.27 | Business Strategy and The Environment                       |
| 5  | The International Integrated Reporting Council: A call to action                                            | 221 | [1]  | 2015 | 27.63 | Critical Perspectives on Accounting                         |
| 6  | Integrated Reporting and internal mechanisms of change                                                      | 208 | [40] | 2014 | 23.11 | Accounting Auditing & Accountability Journal                |
| 7  | Integrated reporting: On the need for broadening out and opening up                                         | 185 | [2]  | 2014 | 20.56 | Accounting Auditing & Accountability Journal                |
| 8  | Is integrated reporting determined by a country's legal system? An exploratory study                        | 177 | [26] | 2013 | 17.07 | Journal of Cleaner Production                               |
| 9  | The cultural system and integrated reporting                                                                | 175 | [17] | 2013 | 17.05 | International Business Review                               |
| 10 | Does Integrated Reporting Matter to the Capital Market?                                                     | 171 | [32] | 2017 | 28.05 | Abacus-a Journal of Accounting Finance and Business Studies |

Upon analyzing the publication source by the distribution of the studies, the studies have been published in 250 different sources (journals, books, conference manuscripts). The superiority of the journals is clear upon examining the most published sources. Nine of the top 10 sources are journals. Meditari Accountancy Research ranks first with 29 publications. The Journal of Intellectual Capital has the second-highest number of publications on integrated reporting with 22 publications. Sustainability journal ranks third. Upon conducting the analysis by the number of citations, the ranking order varies and Accounting Auditing Accountability Journal ranks first with 1,507 citations. Meditari Accountancy Research, the journal with the highest number of publications, ranks second by the number of citations. Although the UK gains weight in the countries with the most influential journals, journal indexes consist of merely ESCI and SSCI.

**5. 4. Results of Mapping and analysis on publications**

The most influential journals by the number of publications are listed in Table 4.

Table 4

Most Influential Journals by the Number of Publications

| Rank | Journal                                                      | Total Papers | Total Citations | Country     | Index |
|------|--------------------------------------------------------------|--------------|-----------------|-------------|-------|
| 1    | Meditari Accountancy Research                                | 29           | 903             | England     | ESCI  |
| 2    | Journal of Intellectual Capital                              | 22           | 707             | England     | SSCI  |
| 3    | Sustainability                                               | 17           | 186             | Switzerland | SSCI  |
| 4    | Accounting Auditing Accountability Journal                   | 16           | 1507            | England     | SSCI  |
| 5    | Business Strategy and the Environment                        | 16           | 881             | USA         | SSCI  |
| 6    | Corporate Social Responsibility and Environmental Management | 13           | 551             | USA         | SSCI  |
| 7    | Journal of Financial Reporting and Accounting                | 13           | 129             | England     | ESCI  |
| 8    | Sustainability Accounting Management and Policy Journal      | 12           | 567             | England     | SSCI  |
| 9    | Journal of Management Governance                             | 11           | 212             | USA         | ESCI  |
| 10   | Journal of Applied Accounting Research                       | 8            | 50              | England     | ESCI  |

Upon examining the studies conducted on integrated reporting, it is seen that the majority of the publications have been prepared in the field of business finance (192). In terms of density, the field of management (163) ranks second. Again, studies conducted in the field of business provide superiority to other fields in terms of quantity. Although there is an intensity of the aforementioned fields in the integrated reporting studies, a lower number of publications have been made in law and environmental engineering.

Research studies have been conducted on integrated reporting with the contributions of institutions and organizations from different countries. Upon considering the studies conducted by the institutions in terms of proportionality, there are no major proportional differences. The top 10 institutions have produced approximately 27 % of the total number of publications. The rate of Bucharest University of Economic Studies institution, which has conducted the largest number of academic studies on the subject, is 4.329 %, whereas the rate of Lum Jean Monnet University, which ranks second, is 3.679 %, and the rate of Macquarie University is 3.246 %. No institution from Turkey was included in the list of top 10 institutions.

In the field of integrated reporting, 176 of the publications in the Web of Science database have SSCI; 160 have ESCI; 69 have CPCI-SSH; 42 have SCI-EXPANDED; 32 have BKCI-SSH; 19 have CPCI-S; 1 has BKCI-S, and 1 has A&HCI index. The fact that the studies on the subject have been mainly published in the form of articles accounts for the low number of books and conference manuscripts. 446 of the conducted studies have been published in English, which is accepted as an academically international language. The weight of the English language in the total number of publications is approximately 96.5 %. There are some studies published in different languages such as Turkish, Spanish, Ukrainian, Portuguese, and Chinese.

The most influential years, fields of study, institutions, languages, countries and publishers are shown in Table 5.

It is seen that academicians working on integrated reporting and related subjects mostly prefer English. Most of the academics work in Italy. Emerald publishing is the first-ranked publishing. It is seen that the articles are mainly published in the journal groups that publish in the field of business and management. Although it is an interdisciplinary field in terms of its integrated reporting structure, it is a subject that focuses on environmental issues, value creation and sustainability issues that emerged with the evolution of the shareholder approach to the stakeholder approach, but the prominence of business and management related issues is also reflected in the journal areas.

Table 5

Most Influential Years, Fields of Study, Institutions, Languages, Countries and Publishers

| Rank | Years     | Web of Science Categories                         | Affiliations                                  | Languages      | Countries         | Publishers                                            |
|------|-----------|---------------------------------------------------|-----------------------------------------------|----------------|-------------------|-------------------------------------------------------|
| 1    | 2019 – 85 | Business Finance – 192                            | Bucharest University of Economic studies – 20 | English – 446  | Italy – 92        | Emerald Group Publishing – 141                        |
| 2    | 2020 – 74 | Management – 163                                  | Lum Jean Monnet University – 17               | Turkish – 5    | Australia – 53    | Wiley – 56                                            |
| 3    | 2021 – 70 | Business – 133                                    | Macquarie University – 15                     | Spanish – 4    | England – 48      | Elsevier – 41                                         |
| 4    | 2018 – 58 | Environmental Studies – 63                        | University of Auckland – 14                   | Ukrainian – 3  | South Africa – 45 | Springer Nature – 39                                  |
| 5    | 2017 – 54 | Green and Sustainable Science and Technology – 57 | University of Pretoria – 14                   | Portuguese – 2 | Romania – 35      | MDPI – 21                                             |
| 6    | 2015 – 35 | Economics – 48                                    | University of South Africa – 11               | Chinese – 1    | USA – 31          | Taylor & Francis – 20                                 |
| 7    | 2016 – 33 | Environmental Sciences – 27                       | University of Verona – 11                     | Malay – 1      | Spain – 21        | Editura Ase – 12                                      |
| 8    | 2014 – 27 | Social Sciences Interdisciplinary – 11            | University of Witwatersrand – 10              | German – 1     | Germany – 20      | Int Business Information Management Assoc – Ibima – 8 |
| 9    | 2013 – 12 | Environmental Engineering – 9                     | Babes Bolyai University From Cluj – 9         | English – 2    | New Zealand – 20  | Anglo – Amer Univ – 7                                 |
| 10   | 2012 – 9  | Law – 7                                           | University of Bologna – 8                     | Russian – 3    | Russia – 18       | Acad Conferences Ltd – 4                              |

## 6. Discussion of the results of global research trends of integrated reporting with network map technique analysis

The data obtained as a result of the research carried out using the VOSViewer software in the Web of Science Core Collection database using the integrated reporting keyword shows that the relevant keyword follows a course in parallel with the developments in the world. The findings show that many different dimensions of the integrated reporting issue are in the focus of researchers in connection with the topics such as sustainability, value creation, and knowledge economy, which are in the agenda of the world in recent years.

The use of VOSViewer in putting the publication trends there offers the opportunity to make user-friendly, scientific-based research and evaluate the findings in different ways to the literature and researchers doing research on similar topics in the literature. The use of VOSViewer offers the opportunity and advantage of systematically interpreting the findings and making it visually easy to understand, whatever the research topic is. However, like every scientific study, this study has some limitations. VOSViewer software performs scanning only through the Web of Science database. From another point of view, Web of Science is the most prestigious database accepted all over the world. However, the inability to dominate all the literature is the limitation of the study.

As a result of the analysis carried out through the VOSviewer software, the distribution of studies in the field of integrated reporting by years was determined and it was seen that the first publication was made in 1988 as a result of this analysis. Although there are 462 publications in total, the publications made in 2019 have the highest statistical rate (Fig. 1). In 2019, when the most publications were made, it is seen that integrated reporting and stakeholder relations, corporate governance, non-financial reporting and sustainability issues were studied. Conference proceedings, book chapters, and early-view publications follow, respectively (Table 1). According to the analysis findings regarding the keyword links, 15 clusters were created. The keywords in the first cluster are the links to the integrated reporting and benefits, capital, stakeholder, sustainability and companies keywords. The fact that the keywords are distributed into 15 groups shows that integrated reporting has been discussed in the literature in close connection with many sub-topics. The subject has the appearance of an interdisciplin-

ary subject (Table 2). The network visualization map of keywords shows that the most heavily linked keywords are management, stakeholder theory, corporate governance (Fig. 2). In the overlay visualization map of keywords, a concentration color from yellow to dark blue has been determined. Keywords in yellow show the most recent keywords associated with integrated reporting, while the dark blue color distribution shows the keyword links that were addressed in the past (Fig. 3). On the density visualization map of keywords, the countries highlighted in yellow indicate the countries with the largest number of publications on integrated reporting. Australia, Italy, Spain and the USA are the countries with the largest number of publications, respectively (Fig. 4). Upon analyzing the publication sources by the distribution of the studies, the studies have been published in 250 different sources (journals, books, conferences manuscripts). The superiority of the journals is clear upon examining the most published sources. Nine of the top 10 sources are journals. Meditari Accountancy Research ranks first with 29 publications. The Journal of Intellectual Capital has the second-highest number of publications on integrated reporting with 22 publications. Sustainability journal ranks third. Upon conducting the analysis by the number of citations, the ranking order varies and Accounting Auditing Accountability Journal ranks first with 1,507 citations. Meditari Accountancy Research, the journal with the highest number of publications, ranks second by the number of citations. Although the UK gains weight in the countries with the most influential journals, journal indexes consist of merely ESCI and SSCI (Table 4). In the field of integrated reporting, 176 of the publications in the Web of Science database have SSCI; 160 have ESCI; 69 have CPCI-SSH; 42 have SCI-EXPANDED; 32 have BKCI-SSH; 19 have CPCI-S; 1 has BKCI-S, and 1 has A&HCI index. The fact that the studies on the subject have been mainly published in the form of articles accounts for the low number of books and conference manuscripts. 446 of the conducted studies have been published in English, which is accepted as an academically international language. The weight of the English language in the total number of publications is approximately 96.5%. There are some studies published in different languages such as Turkish, Spanish, Ukrainian, Portuguese, and Chinese (Table 5). Consequently, the study prepared in this context contains a clear description of the evolution of research studies in the field of integrated reporting. The findings and assessments of the

study would enable local authorities, governments, researchers, students, and practitioners to perceive the literature in a holistic manner, save time and resources, and acquire useful information. The most prominent limitation of the study is that the VOSViewer software only includes studies published in the Web of Science Core Collection in the analysis. However, when this disadvantage is evaluated in terms of the literature, it is necessary to keep in mind that the studies published in the Web of Science Core Collection are determinative for the literature and guide the researchers in terms of having a certain quality standard. This limitation of the study can be solved by supporting the data obtained as a result of a manual literature review; however, a different method was not included in the study as the global trend was tried to be determined by handling the subject in Web of Science within the scope of this study.

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## 7. Conclusions

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1. With the VOSViewer software, 462 publications including all kinds of studies were reached in the Web of Science Core Collection database in the years from 1988 to 2021. The fact that the number of publications reached is 462 shows that integrated reporting is a current field of study. The findings are compatible with the aim of the study. While there was no significant change in the number of publications on integrated reporting in the Web of Science Core Collection database with the VOSViewer software until 2013, there has been a significant increase in the number of publications since 2013. In 2019, 85 publications were registered in the field of integrated reporting. This number indicates the year in which the highest number of publications was reached. In other words, the issue of integrated reporting has been frequently mentioned in the literature since 2007. The highest number of articles were produced between 1988–2021. The most preferred language in these works was English at a very high rate (96.5 %). When the institutions with active studies on the subject are listed, the universities with the largest number of academic studies are Bucharest University of Economics Studies, Lum Jean Monnet and Macquarie Universities, respectively. Publications on integrated reporting, research areas of business

finance, management, business and environmental studies dominate. As in research areas, various journals come to the fore in publishing organizations. *Meditari Accountancy Research*, *Journal of Intellectual Capital and Sustainability* journals mainly include integrated reporting studies in this sense. The study titled 'Integrated Reporting: Insights, gaps and an agenda for future research' published in 2014 has an important place among the studies with 354 citations.

2. When the keywords are sorted according to the frequency of use, integrated reporting, sustainability, determinants, management, corporate social responsibility, disclosure, companies, firms, performance, and framework are the most used keywords. The integrated reporting keyword has been used 34 times, sustainability 14, and determinants 11 times. It is seen that there is a parallelism between the keywords' occurrences and total link strength.

3. The most effective studies on citation have been conducted over the period 2012–2017. The low number of citations for the studies conducted after 2017 is thought to be directly associated with the spread of the publication process over several years.

4. Research studies have been conducted on integrated reporting with the contributions of institutions and organizations from different countries. Upon considering the studies conducted by the institutions in terms of proportionality, there are no major proportional differences. The top 10 institutions have produced approximately 27 % of the total number of publications. The rate of Bucharest University of Economic Studies institution, which has conducted the largest number of academic studies on the subject, is 4.329 %, whereas the rate of Lum Jean Monnet University, which ranks second, is 3.679 %, and the rate of Macquarie University is 3.246 %. No institution from Turkey was included in the list of top 10 institutions.

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## Conflict of interest

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The authors declare that they have no conflict of interest in relation to this research, whether financial, personal, authorship or otherwise, that could affect the research and its results presented in this paper.

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