

ASSESSING THE TREND OF THE RESEARCH ON INTEGRATED REPORTING: A BIBLIOMETRIC REVIEW

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ABSTRACT

Integrated reporting is an innovative reporting medium that overcomes the limitations of financial reporting. Trend studies using a bibliometric approach are relatively scarce despite the growing interest in integrated reporting. This study addressed this limitation by exploring the essential publications on integrated reporting broadly using the bibliometric approach. Therefore, this article aimed to analyze and report published documents on integrated reporting based on the Scopus database. A total of 358 related documents were extracted and analyzed for this purpose in November 2020. This article reports on research productivity, documents, subject area, most active source title, country distribution of publications, most active institutions, authorship, keywords, and network analysis of citations. The findings found an increase in integrated reporting research, particularly from 2013 to 2020. Various studies on integrated reporting involving multi-author collaboration were conducted by 120 authors from 59 countries and 160 institutions.

Keywords: Integrated reporting, Bibliometric analysis, Scopus, VOSviewer

INTRODUCTION

“Integrated reporting is a process based on integrated thinking – the report is the physical output of this evolution in the way organizations think, plan, and report on their organization”.

Paul Druckman, CEO, IIRC: Integrated reporting is inspired by King Reports I, II, and III from South Africa (Dumay, Bernardi, Guthrie & Demartini, 2016), which have improved reporting aspects in the country. The International Integrated Reporting Council (IIRC) was established in 2010 and subsequently issued a Consultation Draft Report in 2011. The initiative initially aimed at developing a form of reporting that combines financial, governance, performance and sustainability. The proposed framework for integrated reporting was released in December 2013 based on stakeholders’ feedback (IIRC, 2013). Integrated reporting has gained global attention in the corporate sector and received support from professional bodies since its introduction.

Trend studies using a bibliometric approach are relatively scarce despite the growing interest in integrated reporting. Segui-Mas & Helena (2019) analyzed 35 integrated reporting studies based on a bibliometric approach. Unfortunately, the study only focused on the assurance of integrated reporting from 2012 to 2018, published in the book chapter. Thus, the current study addresses these limitations by exploring the latest major publications related to integrated reporting through a bibliometric approach.

The approach enables a more descriptive and broader network analysis. Therefore, this article analyses and reports published documents related to integrated reporting available in the existing database, based on the latest source data. The reviews of academic literature emphasizing the integrated reporting were five-fold. An introduction of the review was presented in Section 1, while a summary of prior academic literature was presented in Section 2. The article’s research methodology is elaborated in Section 3, whereas Section 4 explains the descriptive and network analysis findings. Further conclusions and discussions are addressed in Section 5.

LITERATURE REVIEW

Previous researchers have highlighted that traditional reporting remains insufficient to fulfil the various stakeholders' information needs (Adams & Simnett, 2011; Cohen, Holder-Webb, Nath & Wood, 2012; Flower, 2015), particularly integrating financial and non-financial information. Traditional reporting or financial reporting is more likely to emphasize past performance (Adams & Simnett, 2011). The non-financial information does not support investors' decision-making (Du Toit, Van Zyl & Schütte, 2017) and minimally focuses on forward-looking expectations (Guthrie, Manes-Rossi & Orelli, 2017).

The IIRC, a global coalition of legislators, investors, companies, standards makers, accounting professionals and Non-Governmental Organizations (NGOs), introduced an integrated reporting framework in 2013 to address these issues (IIRC, 2013). IIRC defines integrated reporting "as a concise communication about how an organization's strategy, governance, performance, and prospects, in the context of its external environment, leading to value creation over the short, medium and long-term." Integrated reporting comprises three key components: Fundamental Concepts, Guiding Principles and Content Elements.

Fundamental concepts are the framework's basic foundations, based on the creation of value and six essential organizational capitals: finance, production, intellectual, human, social, and natural capitals (Adam & Simnett, 2011; IIRC, 2013, 2021; Cheng, Green, Conradie, Konishi & Romi, 2014). The guiding principles that explain the integrated reporting concept encompass strategic focus and future orientation, connectivity of information, stakeholder relationships, materiality, conciseness, reliability and completeness, consistency, and comparability.

On the other hand, content elements define the reported information category, including an organizational overview, external environment, governance, risks and opportunities, strategy and resource allocation, business model, performance, outlook and the basis of preparation and presentation. The 'integrated thinking' concept that forms the essential integrated reporting process will generate reports capable of becoming a value creation communication medium over time (IIRC, 2013).

The importance of integrated reporting to an organization remains a question. As an evolution to traditional accounting reporting, integrated reporting enhances the organizations' performance through value creation to fulfill its various stakeholders' expectations (Vitolla, Raimo & Rubino, 2019). Earlier studies on integrated reporting showed that researchers frequently focused on the benefits of preparing the report. The benefits identified include more comprehensive and holistic information, support for multi-stakeholder decision-making (Guthrie et al., 2017), increased transparency (Eccles & Krzus, 2010; Adams & Simnett, 2011) and an organizational sustainability mechanism (Guthrie et al., 2017).

However, it was also criticized by researchers in the initial phase of the integrated reporting study. These include doubts on understanding the source of resources or capital that are the report's main principles (Cheng et al., 2014; Oprisor, Tudor & Nistor, 2016), difficulties in applying integrated thinking (Oprisor et al., 2016; Dumay et al., 2016; Guthrie et al., 2017) and impediments in meeting the stakeholders' needs clearly (Flower, 2015). Dumay (2016) explained that harmonization between practitioners, policymakers and leaders is essential to measure the integrated reporting's impact and success as the process of developing integrated reporting is still immature.

METHODOLOGY

Bibliometric Analysis

The term bibliometric was first introduced by Alan Pritchard in 1969 (Broadus, 1987). Pritchard (1969) defines bibliometrics as “the application of mathematics and statistical methods to books and other media of communication”. Various researchers provided definition to bibliometrics, but in general, it can be described as “the quantitative study of physical published units, or of bibliographic units, or of the surrogates for either” (Broadus, 1987). Besides involving quantitative studies on bibliographic or publishing units and other similar items, a qualitative method can be used to study such publishing units (Sweileh et al., 2017). According to Donthu, Kumar & Pattnaik (2020), bibliometric studies generally refer to the process of analysing and classifying bibliographic material from literary sources obtained in a concise set of facts.

Studies employing bibliometric approaches are gaining widespread attention (Ellegaard & Wallin, 2015) and are applied in various scientific fields (Sweileh, 2017). Several indicators and metrics may be used to measure performance in the bibliometric studies’ analysis (Ahmi & Mohd Nasir, 2019). According to Hall (2011), indicators or metrics used in performance measurements can be classified as productivity, impact and hybrid metrics. The number of cited papers, the number of papers per academic year, and the number of papers per author are examples of productivity metrics. The number of citations per academic year, the total number of citations, and the number of citations per individual author/journal are among the indicators of impact metrics. In comparison, hybrid metrics include the average number of citations per paper, such as the h-index, g-index, and other indices.

The method of bibliometric networks visualization is complementary to bibliometric studies. It has begun to attract the attention of various publishers, including research institutions, research funders and articles’ publishers. Specific software can be used to visualize a bibliometric network. They are categorized into general network analysis tools and specifically for bibliometric networks’ visualization (Van Eck & Waltman, 2014). Pajek (de Nooy et al., 2005); Gephi (Bastian, Heymann & Jacomy, 2009) are among the available general network analysis software.

However, the software is incapable of analyzing bibliographic information comprehensively because it is unequipped with specific functions, such as uploading bibliographic data from specific databases to provide information for the visualization process. Tools such as CiteSpace, Sci2 and VOSviewer were specifically developed as a result of widespread demand for increasing technical bibliometric network visualization needs. The tools are primarily available at no costs. VOSviewer is user-friendly and easy-to-use software than other software (Van Eck & Waltman, 2014).

The components of the bibliometric network consist of nodes and edges. Nodes describe subjects on a network, such as affiliation, keyword, country, or article. On the other hand, the edges elaborate the relationship between the nodes. Visualization analysis found in the VOSviewer software includes co-authorship, co-occurrence, citation, bibliography and co-citation.

Co-authorship and co-occurrence are two analysis types frequently employed by previous studies. Co-authorship comprises a network of authors, organizations or countries linked to each other based on the number of publications produced. In contrast, the co-occurrence involves a network of keywords (Van Eck & Waltman, 2014), including keywords, author keywords, and index keywords.

Sources and Data Collection

This study extracted data sources from previous research available in the Scopus database. Scopus is the most extensive database covering multidisciplinary social science literature that is widely used for quantitative analysis. The source covers more than 24,000 active titles and includes more than 5,000 publishers (Scopus, 2020).

The search was conducted based on the keyword “integrated reporting” query for publication sources in the Scopus database on November, 2020. The search generated 361 publications. However, three publications that failed to discuss the intended integrated reporting content were excluded. Hence, only 358 publications thoroughly analyzed. The data was then exported to the software, including Microsoft Excel, Harzing’s Publish and Perish, and VOSviewer using Comma-Separated Values (CSV) and Research Information Systems (RIS) formats (Ahmi & Mohd Nasir, 2019).

Descriptive analysis and publication impacts were conducted in the context of this study encompassing Document Type; Subject Area; Year of Publication; Top 10 Countries Contributed to Publications; 10 Most Active Source Title; Citations Metrics; 10 Most Influential Publications Institutions; 10 Most Productive Authors; 10 Highly Cited Articles; and Top Keywords. This study also applied the co-authorship and co-occurrence analyses used in previous studies (Ahmi & Mohd Nasir, 2019; Donthu et al., 2020).

FINDINGS AND RESULTS

Citation Structure and Publication Trend by Year

The descriptive analysis was evaluated based on the number of publications per year that can assist researchers in identifying the publication pattern and its priority for a given period of time. Researchers began paying attention to integrated reporting studies when the framework was published in 2013 (IIRC, 2013). The number of studies has steadily increased annually. This trend denotes that the researchers’ interest in this field of study is growing (Dumay et al., 2016).

According to the number of publications identified, the year 2020 (until November) generated the highest number of publications. The year 2015 was the most productive in terms of the number of cited publications (28 or 93.3 %), with the average publication is 46.07 times. Additionally, 2017 has been identified as the most significant year for publication impact as the h-index and g-index were 19 and 32, respectively (Table 1).

| Year | TP | NCP | TC | C/P | C/CP | h | g |
|--|------------|------------|-----------|------------|-------------|----------|----------|
| 2020 | 78 | 29 | 149 | 1.91 | 5.14 | 6 | 10 |
| 2019 | 74 | 58 | 433 | 5.85 | 7.47 | 12 | 15 |
| 2018 | 51 | 44 | 662 | 12.98 | 15.05 | 16 | 24 |
| 2017 | 51 | 43 | 1038 | 20.35 | 24.14 | 19 | 32 |
| 2016 | 29 | 29 | 949 | 32.72 | 32.72 | 15 | 29 |
| 2015 | 30 | 28 | 1290 | 43 | 46.07 | 16 | 30 |
| 2014 | 20 | 20 | 1082 | 54.1 | 54.1 | 10 | 20 |
| 2013 | 19 | 16 | 545 | 28.68 | 34.06 | 10 | 19 |
| 2012 | 3 | 3 | 203 | 67.67 | 67.67 | 3 | 3 |
| 2011 | 2 | 2 | 113 | 56.5 | 56.5 | 1 | 2 |
| 2010 | 1 | 1 | 18 | 18 | 18 | 1 | 1 |
| Total | 358 | | | | | | |
| Notes: TP=total number of publications; NCP=number of cited publications; TC=total citations; C/P=average citations per publication; C/CP=average citations per cited publication; h=h-index; and g=g-index. | | | | | | | |

Document Type

Further analysis was based on the documents' type and source. There are seven types of publication documents, with more than 80.2% are articles. It is followed by book chapter (7.3 %), conference paper (5.3 %), review (3.9 %), book (1.7 %), notes (0.8 %), and editorial notes (0.6%) According to Sweileh, et al., (2017), the conference papers that appeared under document type were different from those under source type. In document type, conference papers refer to document presented in conferences, published as full journal articles and could not be published twice. One publication was found to be undefined in the database (Table 2).

| Document Type | Total Publications (TP) | Percentage (%) |
|----------------------|--------------------------------|-----------------------|
| Article | 287 | 80.2 |
| Book Chapter | 26 | 7.3 |
| Conference Paper | 19 | 5.3 |
| Review | 14 | 3.9 |
| Book | 6 | 1.7 |
| Note | 3 | 0.8 |
| Editorial | 2 | 0.6 |
| Undefined | 1 | 0.3 |
| Total | 358 | 100 |

Subject Area

An analysis based on the subject area was also done. In total, there are 16 types of subject areas whereby Business, Management and Accounting cover 39.7% of the area, as integrated reporting is an innovation in the accounting field. It is followed by Social Sciences (18.2 %), Economics, Economics and Finance (16.2 %), Environmental Science (8.4 %) and Energy Science (4.9 %) (Table 3).

| Subject Area | Total Publications (TP) | Percentage (%) |
|--|--------------------------------|-----------------------|
| Agricultural and Biological Sciences | 2 | 0.3 |
| Arts and Humanities | 10 | 1.4 |
| Biochemistry, Genetics and Molecular Biology | 1 | 0.1 |
| Business, Management and Accounting | 290 | 39.7 |
| Computer Science | 16 | 2.2 |
| Decision Sciences | 28 | 3.8 |
| Earth and Planetary Sciences | 3 | 0.4 |
| Economics, Econometrics and Finance | 118 | 16.2 |
| Energy | 36 | 4.9 |
| Engineering | 21 | 2.9 |
| Environmental Science | 61 | 8.4 |
| Health Professions | 2 | 0.3 |
| Mathematics | 3 | 0.4 |
| Medicine | 5 | 0.7 |
| Psychology | 1 | 0.1 |
| Social Sciences | 133 | 18.2 |

Top 10 Countries Contributed to the Publications

According to the Scopus database, 59 countries are contributing to the integrated reporting publication. The similarities and differences between countries are generally driven by specific cultural characteristics such as tolerance versus aversion to uncertainty, masculinity versus femininity, individualism versus collectivism, power distance (Hofstede, 2001) and time orientation (Hofstede & Hofstede, 2005). European and Australasian countries dominate the integrated reporting research. The only Asian country to contribute to publications in the top 10 countries is Malaysia.

However, the study's coverage focuses only on the corporate sector. Italy produces the highest Total Publication (TP) with 87 TPs, followed by Australia and the UK with 86 TPs. Italy achieves the highest number of publications with 72 Cited Publication Numbers (NCPs). For other metrics, Australia is dominant in achieving Total Citations (TC), Average Citations Per Publication (C/P), Average Citations Per Cited Publication (C/CP), h-index, and g-index with the highest volume of 1853 TC, 40.28 C/P, 46.33 C/CP, 23 h-index, and 43 g-index, respectively.

| Table 4 TOP 10 COUNTRIES CONTRIBUTED TO THE PUBLICATIONS | | | | | | | |
|---|----|-----|------|-------|-------|----------|----------|
| Country | TP | NCP | TC | C/P | C/CP | <i>h</i> | <i>g</i> |
| Italy | 87 | 72 | 1296 | 14.9 | 18 | 19 | 33 |
| Australia | 46 | 40 | 1853 | 40.28 | 46.33 | 21 | 43 |
| United Kingdom | 46 | 40 | 1098 | 23.87 | 27.45 | 16 | 33 |
| South Africa | 38 | 32 | 1046 | 27.53 | 32.69 | 15 | 32 |
| United States | 25 | 22 | 350 | 14 | 15.91 | 9 | 18 |
| Spain | 21 | 18 | 545 | 25.95 | 30.28 | 10 | 21 |
| Germany | 18 | 14 | 550 | 30.56 | 39.29 | 11 | 18 |
| New Zealand | 17 | 16 | 952 | 56 | 59.5 | 11 | 17 |
| Malaysia | 16 | 10 | 161 | 10.06 | 16.1 | 5 | 12 |
| Russian Federation | 16 | 11 | 60 | 3.75 | 5.45 | 5 | 7 |

Notes: TP=Total Number of Publications; NCP=Number of Cited Publications; TC=Total Citations; C/P=Average Citations Per Publication; C/CP=Average Citations Per Cited Publication; *h*=*h*-index; and *g*=*g*-index.

For the network analysis between the relationship of “countries” based on co-authorship and the relationship between the numbers of publications, the calculation method is fractional. The following diagram symbolizes a visualization of the country network, based on a minimum of five documents. According to Scopus data, 16 countries were divided into five different clusters. Italy has the highest ‘total link strength’ with 25 as there are 87 publications with 1300 citations.

Cluster 1 combined four countries, namely France, Germany, the Netherlands, and the United Kingdom, while Cluster 2 consists of Australia, Russia, Turkey, and the United States of America. Cluster 3 is composed of Italy, Romania and Spain. Clusters 4 and 5 brought together two countries each, namely Malaysia and Indonesia, and New Zealand and South Africa.

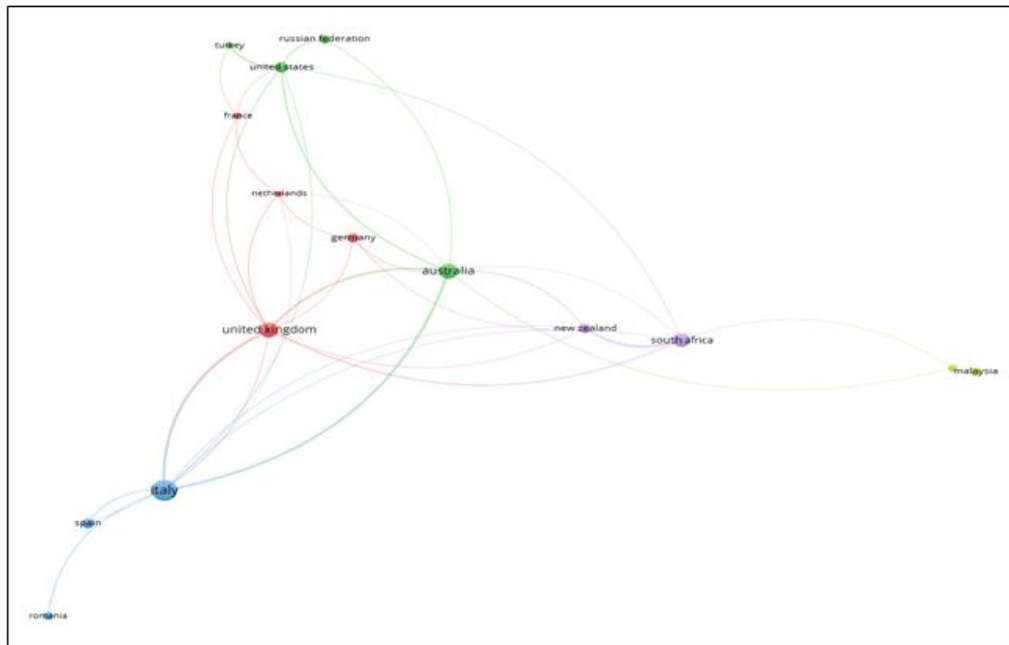


FIGURE 1
NETWORK VISUALISATION MAP OF THE CO-AUTHORSHIP BASED ON COUNTRIES THAT HAVE A MINIMUM OF FIVE DOCUMENTS (FRACTIONAL COUNTING)

10 Most Active Source Title

Table 5 shows the 10 Most Active Source Titles for Integrated Reporting from 2010 to 2020. Besides TP and TC, the metrics included Cite Score, SCImago Journal Rank (SJR), and Source Normalised Impact per Paper (SNIP). Cite Score is one of the metrics used to measure a journal's impact in the Scopus database, whereas SJR is used to determine scientific journals' position based on the number and source of quotations obtained. On the other hand, SNIP measures the impact of citations based on the source of the potential citations in the study field.

Based on the information found in the database, the Journal of Intellectual Capital published by Emerald Group Publishing Ltd. produces the highest TP with 21 TP, followed by the Meditari Accountancy Research and Accounting, Auditing and Accountability Journal published by the same publisher with 18 and 16 TP. The Journal of Cleaner Production, published by Elsevier Ltd., achieved the highest Cite Score (10.9), SJR (1.886), and SNIP (2.394) in 2019.

| Source Title | TP | TC | Publisher | Cite Score (2019) | SJR (2019) | SNIP (2019) |
|--|----|------|-------------------------------|-------------------|------------|-------------|
| Journal of Intellectual Capital | 21 | 433 | Emerald Group Publishing Ltd. | 8.6 | 1.184 | 2.29 |
| Meditari Accountancy Research | 18 | 522 | Emerald Group Publishing Ltd. | 5.0 | 0.954 | 1.472 |
| Accounting Auditing and Accountability Journal | 16 | 1037 | Emerald Group Publishing Ltd. | 4.9 | 1.459 | 1.879 |
| Business Strategy and The Environment | 15 | 444 | John Wiley and Sons Ltd. | 8.4 | 1.877 | 1.877 |
| Sustainability Switzerland | 14 | 70 | MDPI AG | 3.2 | 0.581 | 1.165 |
| Sustainability Accounting Management and Policy Journal | 11 | 363 | Emerald Group Publishing Ltd. | 3.8 | 0.672 | 1.161 |
| Corporate Social Responsibility and Environmental Management | 10 | 248 | John Wiley and Sons Ltd. | 5.9 | 0.974 | 1.625 |
| Journal of Management and Governance | 8 | 25 | Springer | 2.6 | 0.555 | 1.136 |
| Critical Perspectives on Accounting | 7 | 564 | Academic Press | 5.1 | 1.823 | 1.936 |
| Journal of Cleaner Production | 6 | 348 | Elsevier Ltd. | 10.9 | 1.886 | 2.394 |
| Notes: TP=Total Number of Publications; TC=Total Citations; | | | | | | |

Citations Metrics

Table 6 summarizes Citations Metrics based on the Research Information Systems (RIS)-based Scopus database. The summary was generated through Harzing's Publish and Perish software on November, 2020. Based on these metrics, 6482 citations were reported from 358 publications within ten years from 2010 to 2020 on integrated reporting. Rate of citations/year, citations/papers, and citations/authors reported were 648.2, 18.11 and 3223.97, respectively.

| Metrics | Data |
|-------------------|----------------|
| Publication years | 2010-2020 |
| Citation years | 10 (2010-2020) |
| Papers | 358 |
| Citations | 6482 |
| Citations/year | 648.2 |
| Citations/paper | 18.11 |
| Citations/author | 3223.97 |
| Papers/author | 173.79 |
| h-index | 44 |
| g-index | 71 |

Top 10 Most Influential Affiliations of Publications

A total of 160 affiliations contributed to the integrated report publication. Table 7 enlists the Top 10 Most Influential Affiliations of Publications from 2010 to 2020. Macquarie University, Australia produced the highest TP with 17, followed by Universiteit van Pretoria, South Africa, with 13 TP and Auckland University, New Zealand, with 11 TP. Macquarie University also led other affiliations for NCP and g-index with 16 NCP and 17 g-index. The highest TC and C/P were recorded by Universiteit van Pretoria, whereas the Universidad de Salamanca, Spain, recorded the highest C/CP. In comparison, Universiteit van Pretoria and the University of Auckland obtained the highest h-index.

| Affiliation | Country | TP | NCP | TC | C/P | C/CP | h | g |
|--|----------------|-----------|------------|-----------|------------|-------------|----------|----------|
| Macquarie University | Australia | 17 | 16 | 515 | 30.29 | 32.19 | 8 | 17 |
| Universiteit van Pretoria | South Africa | 13 | 13 | 656 | 50.46 | 50.46 | 9 | 13 |
| University of Auckland | New Zealand | 11 | 11 | 321 | 29.18 | 29.18 | 9 | 11 |
| University of Witwatersrand | South Africa | 10 | 10 | 269 | 26.9 | 26.9 | 6 | 10 |
| Macquarie Business School | Australia | 10 | 10 | 317 | 31.7 | 31.7 | 6 | 10 |
| LUM Jean Monnet University | Italy | 9 | 6 | 86 | 9.56 | 14.33 | 5 | 9 |
| Università degli Studi di Siena | Italy | 7 | 6 | 54 | 7.71 | 9 | 3 | 7 |
| Universidad de Salamanca | Spain | 7 | 6 | 325 | 46.43 | 54.17 | 5 | 7 |
| Alma Mater Studiorum Università di Bologna | Italy | 7 | 6 | 134 | 19.14 | 22.33 | 5 | 7 |
| Università degli Studi Roma Tre | Italy | 6 | 6 | 104 | 17.33 | 17.33 | 4 | 6 |
| Notes: TP=Total Number Of Publications; NCP=Number of Cited Publications; TC=Total Citations; C/P=Average Citations Per Publication; C/CP=Average Citations Per Cited Publication; h=h-index; and g=g-index. | | | | | | | | |

Most Productive Authors

According to the Scopus database, 120 authors contributed to the integrated reporting research between 2010 and 2020. Raimo & Vitolla from the Department of Economics and Management, Italy, LUM Jean Monnet University, shared the highest number of publications with 13 publications. Dumay leads the NCP to other authors. De Villiers recorded the highest TC and C/P, whereas Bernardi achieved the highest C/CP. Both Dumay & de Villiers dominate the h-index category; with at least eight articles written by them have been cited. The g-index shows that 12 top-notch articles written by Dumay were cited at least 12 times (Table 8).

| Author's Name | Affiliation | Country | TP | NCP | TC | C/P | C/CP | h | g |
|----------------------|--|----------------|-----------|------------|-----------|------------|-------------|----------|----------|
| Raimo, N. | LUM Jean Monnet University, Department of Economics and Management | Italy | 13 | 10 | 118 | 9.08 | 11.08 | 6 | 10 |
| Vitolla, F. | LUM Jean Monnet University, Department of Economics and Management | Italy | 13 | 10 | 118 | 9.08 | 11.08 | 6 | 10 |
| Dumay, J. | Macquarie University, North Ryde | Australia | 12 | 12 | 403 | 33.58 | 33.58 | 8 | 12 |
| Rubino, M. | LUM Jean Monnet University, Department of Economics and Management | Italy | 11 | 9 | 117 | 10.64 | 12 | 6 | 10 |
| Maroun, W. | University of Witwatersrand, School of Accountancy | South Africa | 9 | 9 | 217 | 29.67 | 29.67 | 6 | 9 |
| de Villiers, C. | University of Auckland Business School | New Zealand | 8 | 8 | 460 | 57.5 | 57.5 | 8 | 8 |
| Bernardi, C. | Università degli Studi Roma Tre | Italy | 6 | 5 | 341 | 56.83 | 68.2 | 4 | 6 |
| García-Sánchez, I.M. | Universidad de Salamanca, Instituto Multidisciplinar de Empresa | Spain | 6 | 6 | 325 | 54.17 | 54.17 | 5 | 6 |
| Guthrie, J. | Macquarie Business School, North Ryde | Australia | 6 | 5 | 336 | 56 | 67.2 | 4 | 6 |
| Melloni, G. | Université de Lausanne (UNIL), Department of Accounting | Switzerland | 6 | 5 | 292 | 48.67 | 48.67 | 6 | 6 |

According to Figure 2, the data were analyzed from a network of relationships between authors based on related publications' co-authorship. This network analysis employs a fractional calculation method based on a minimum of three documents. Ten authors were linked to three different clusters based on the Scopus data. Cluster 1 combined five authors, namely Abhayawansa, Bernardi, Dumay, Guthrie & La Torre. Cluster 2 links four authors comprising De Villiers, Hsiao, Maroun & Unerman, whereas Cluster 3 is represented by Farneti. Raimo & Vitolla, with 13 publications and 118 citations, have the highest overall link strength with 11.

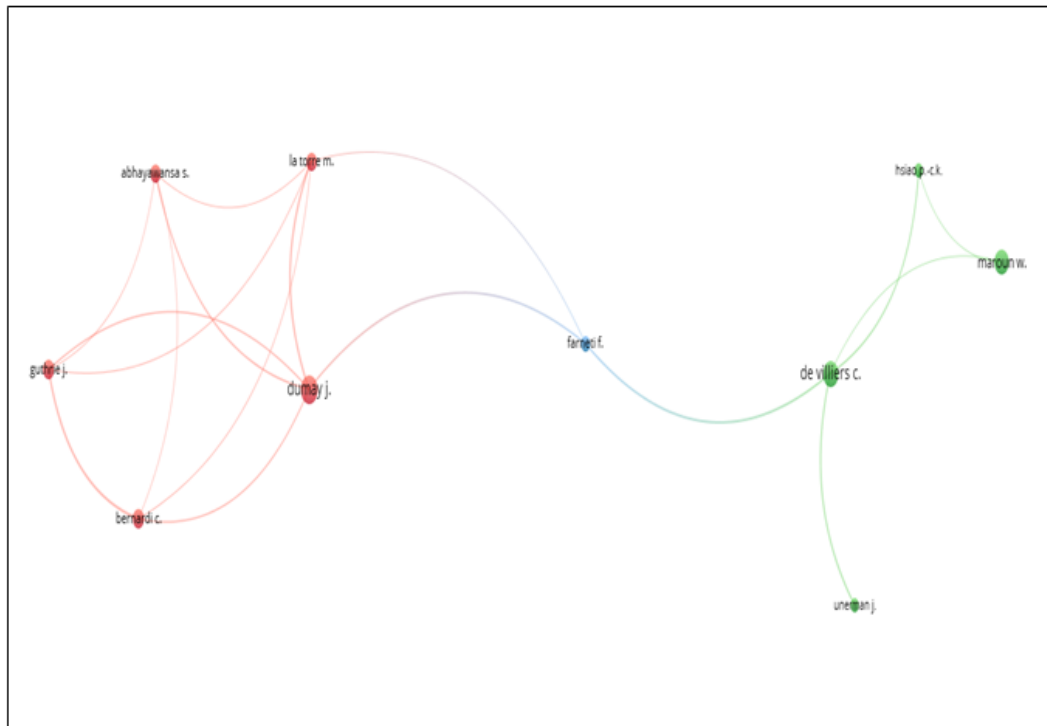


FIGURE 2
NETWORK VISUALISATION MAP OF THE CO-AUTHORSHIP BASED ON AUTHORS THAT HAVE A MINIMUM OF 3 NUMBER OF DOCUMENTS (FRACTIONAL COUNTING)

10 Highly Cited Articles

Table 9 shows the highly cited articles on integrated reporting from 2010 to 2020. ‘Integrated Reporting: Insights, Gaps and An Agenda for Future Research’ by de Villiers, et al., (2014) received the highest TC with 252 TC, followed by ‘International Integrated Reporting Council: A Story of Failure’ by Flower (2015) and ‘Integrated Reporting: A Structured Literature Review’ by Dumay, et al., (2016). The article written by Dumay, et al., (2016) received the highest cites per year with 47.75.

Furthermore, de Villiers, et al., (2014) analyzed the initial development of integrated reporting and practice since its introduction. The researchers examined the challenges posed by the report’s theoretical and empirical aspects and the potential research scope that could be explored in the context of reporting policies and practices. Cheng, et al., (2014) also highlighted the report’s initial development. The researchers also analyzed the vital concepts and integrated reporting issues based on the International Association for Accounting Education and Research report. Financial capital providers, the meaning of trade-offs between different capitals, and integrated reporting assurance were the three main issues highlighted.

However, Flower’s study raised criticism of integrated reporting by stating that the reporting framework does not significantly affect corporate reporting practices, besides sustainability accounting. The value concept of the reporting inclines to benefit few stakeholders.

Adams (2015) responded to the highlighted criticism by emphasizing that integrated reporting can influence corporate thinking, resulting in improved corporate strategic planning and decision-making. He recommended that studies should be undertaken to strengthen the evidence on the impact of such reporting on organizations. Some other researchers (Jensen & Berg, 2012;

García-Sánchez, Rodríguez & Frias-Aceituno, 2013) studied the determinants that could influence integrated reporting, including the national culture, legal system, and other institutional factors.

Dumay, et al., (2016) expressed views on the status and criticism of integrated reporting researches through a systematic literature review of 56 articles. The researchers criticized the integrated reporting framework's content, highlighting that they did not clearly define it in a particular context. The IIRC framework does not provide specific guidance on the report's size or elaborate on value definition.

On the other hand, reporting applications depend on the integrated reporting users' interpretation or understanding. Likewise, integrated reporting researches often do not involve practitioners as fellow researchers and authors. Only three out of 56 studies were conducted by practitioners. They identified four different stages to illustrate the integrated reporting researches scenario:

- First stage: Awareness of the importance and potential of integrated reporting
- Second stage: Understanding the impact of integrated reporting
- Third stage: Critical and performative analysis of integrated reporting
- Fourth stage: Understanding the outcome of the integrated reporting's values creation on the country and the local community.

Dumay, et al., (2016) concluded that the integrated reporting research remains in the initial phase (first stage), and the journey from the second to fourth stages is still winding. In addition, Dumay, et al., (2016) also identified future research opportunities to be explored. The research coverage is limited and focused highly on developed nations and corporate sectors, overlooking the public sector. Researchers should explore public sectors, as suggested by Adams (2015). Only two studies from the 56 studies analyzed by Dumay, et al., (2016) were undertaken on the public sector.

One of the studies proposed a new form of public reporting framework through Integrated Popular Reporting (IPR) as an alternative integrated reporting model (Cohen & Karatzimas, 2015). IPR is an integrated report with a simpler, easier-to-read, comprehensive and user-friendly format that focuses on different stakeholders' needs. Nevertheless, the proposal was only explained in the form of concepts. Cohen & Karatzimas (2015) suggested that additional effort should be taken to develop more inclusive and holistic frameworks for the public sector.

The integrated reporting study in the public sector is not prevalent (Dumay et al., 2016). Based on 358 articles, only a total of 32 (8.9%) publications focused on the public sector. Guthrie, et al., 2017) received the highest TC, with 67 TC, whereas Veltri & Silvestri (2015) received 41 TC; Bartocci & Picciaia (2013) received 20 TC. Guthrie, et al., (2017) examined the integrated reporting framework that contributes to creating 'integrated thinking', while Veltri & Silvestri (2015) compared the integrated reporting of a South African public university to the integrated reporting framework.

Bartocci & Picciaia (2013) provided a preliminary overview of applying the integrated reporting guiding principles and content elements in the public sector context. There are varied opinions on the integrated reporting framework application in the public sector. The materiality concerns have to be connected to the public value (Guthrie et al., 2017). Furthermore, the perception of capital (Bartocci & Picciaia, 2013) and business model (Veltri & Silvestri, 2015) should be flexible according to the public sector's characteristics. Adjustments must be made to public capital items, including a more explicit capital definition, available information, methods of use, specific disclosure, transparency requirements and measurable quantitative indicators (Bartocci & Picciaia, 2013).

On average, the ten most cited articles received more than 117 citations. Overall, it can be concluded that the aspects covered by previous researchers include concept, practice, key issues,

determinants, impact on the organization and potential future research on integrated reporting. Integrated reporting research provides an open and broad opportunity for future studies to explore *via* different research contexts (Table 9).

| No. | Authors | Title | Year | Cites | Cites per Year |
|-----|---|---|------|-------|----------------|
| 1 | C. de Villiers, L. Rinaldi, J. Unerman | Integrated reporting: Insights, gaps and an agenda for future research | 2014 | 252 | 42 |
| 2 | J. Flower | The international integrated reporting council: A story of failure | 2015 | 210 | 42 |
| 3 | J. Dumay, C. Bernardi, J. Guthrie, P. Demartini | Integrated reporting: A structured literature review | 2016 | 191 | 47.75 |
| 4 | C.A. Adams | The international integrated reporting council: A call to action | 2015 | 190 | 38 |
| 5 | J.C. Jensen, N. Berg | Determinants of Traditional Sustainability Reporting Versus Integrated Reporting. An Institutional Approach | 2012 | 186 | 23.25 |
| 6 | W. Stubbs, C. Higgins | Integrated reporting and internal mechanisms of change | 2014 | 145 | 24.17 |
| 7 | J. Brown, J. Dillard | Integrated reporting: On the need for broadening out and opening up | 2014 | 145 | 24.17 |
| 8 | J.V. FrÃas-Aceituno, L. RodrÃ-guez-Ariza, I.M. GarcÃa-SÃnchez | Is integrated reporting determined by a country's legal system? An exploratory study | 2013 | 128 | 18.29 |
| 9 | I.-M. GarcÃa-SÃnchez, L. RodrÃ-guez-Ariza, J.-V. FrÃas-Aceituno | The cultural system and integrated reporting | 2013 | 122 | 17.43 |
| 10 | M. Cheng, W. Green, P. Conradie, N. Konishi, A. Romi | The International Integrated Reporting Framework: Key Issues and Future Research Opportunities | 2014 | 118 | 19.67 |

Top Keywords

The final analysis was based on the keywords used. After the ‘integrated reporting’ keyword, the main keyword is ‘sustainability reporting’, encompassing 3.3% of the total keywords. ‘Sustainability reporting’ is a form of non-financial reporting focusing on environmental aspects as an alternative to financial reporting. Other commonly used keywords include sustainability, corporate governance, corporate social responsibility, integrated thinking intellectual capital, South Africa, sustainable development, corporate reporting, integrated approach and disclosure (Table 10).

| Author Keywords | Total Publications (TP) | Percentage (%) |
|---------------------------------|--------------------------------|-----------------------|
| Integrated Reporting | 246 | 22.8 |
| Sustainability Reporting | 36 | 3.3 |
| Sustainability | 34 | 3.2 |
| Corporate Governance | 21 | 1.9 |
| Corporate Social Responsibility | 21 | 1.9 |
| Integrated Thinking | 20 | 1.9 |
| Intellectual Capital | 20 | 1.9 |
| South Africa | 19 | 1.8 |
| Sustainable Development | 19 | 1.8 |
| Corporate Reporting | 18 | 1.7 |
| Integrated Approach | 18 | 1.7 |
| Disclosure | 17 | 1.6 |

Data imported from the Scopus database has been analyzed from the “author keywords” network based on co-occurrence or a network of keywords used in the publications involved with VOSviewer software. This network analysis uses the binary calculation method. The term will be calculated only once, regardless of its total frequency (Van Eck & Waltman, 2014). The following diagram shows the network “author keywords” visualization based on a minimum of five keyword occurrences.

‘Sustainability reporting’ is described as the most frequently mentioned keyword in the publication document after the primary keyword ‘Integrated reporting’, is the primary term that acts as a focal point for the research’s entire network this The larger the node size, the stronger the relationship between the terms. The same color depicts the related terms. For example, the keywords ‘financial reporting’ and ‘sustainability reporting’ are shown in the same color to indicate a relationship indirectly. The diagram shows that VOSviewer has produced seven different colors representing seven clusters with 37 terms from “author keywords”.

reporting' is described as the most frequently searched keyword in the publication document after the primary keyword 'integrated reporting'.

Articles written by de Villiers et al., (2014); Flower (2015); Dumay, et al., (2016) were identified as the three most cited articles. Early development, practice, concept, key issues, determinants, impact on the organization, and criticism of the integrated report were included in past researchers' coverage. The studies provide insights into the study's scope, contributions and gaps for other researchers to explore in an integrated reporting context. These findings and insights will inspire researchers to examine potential quality studies to improve integrated reporting. Its widespread impact needs to be empirically strengthened since integrated reporting research is still in its infancy. Previous researchers highlighted those previous studies have widely emphasized the corporate sector, particularly on listed companies. Future studies should concentrate on public sector entities that have been underrepresented in previous integrated reporting studies. The reporting is essential in the public sector context to produce better decision-making, improve transparency and long-term outcomes that are important for public service sustainability. Future studies should also be extended to cover developing countries and reflect a more holistic global integrated reporting phenomenon.

Integrated reporting has become a new phenomenon. The concepts, principles, and content elements should be embraced if new reporting reforms, such as integrated reporting, are accepted. Nevertheless, future researchers have an opportunity to explore improvements of the reporting framework's content as the reporting framework's suitability continues to be criticized in previous studies. The focus is mainly on its three main components: Fundamental Concepts, Guiding Principles, and Content Elements. The development of an appropriate reporting framework in other contexts, such as the public sector, is a significant contribution to the related field and is essential for the future. The public sector is a distinct context that necessitates specialized research tailored to fulfill the sector's characteristics. Future research is expected to explore more empirical studies as integrated reporting will be a new reporting tool. Hence, the impact will be more practical and meaningful for the stakeholders. Future studies should incorporate more practitioners' contributions to ensure that the impact of integrated reporting is meaningful and realistic with actual practice and not only rhetoric.

Coordination and communication between numerous parties, particularly practitioners, policymakers and academic researchers, are essential for the integrated reporting's future development. Additionally, researchers should also evaluate the benefits of integrated reporting in a broader group of stakeholders. Stakeholders' involvement in decision-making is vital for integrated thinking processes, an important basis of integrated reporting.

Similar to other researches, this study is bound to limitations. First, the search process is limited to the keyword "integrated reporting", based on the query "TITLE" used by researchers. Another query's form, such as "TITLE-ABS-KEY", was not used in this study. The author's objective is to analyze integrated reporting trends in a broader context and not focus on a specific scope. Thus, future researchers can expand bibliometric studies within a specific scope of integrated reporting using other types of queries. Second, the research findings are limited to the data imported from the Scopus database only. The literature generated may not represent all the studies on integrated reporting published in other databases. The use of other databases such as Web of Science, Google Scholar, and Dimensions should be considered in future studies to produce more diverse and meaningful findings.

Hence, the researchers take full responsibility for any errors or omissions present in the study's findings. This research is hoped to contribute knowledge by presenting the latest research trend analysis widely on integrated reporting. Moreover, the research is expected to expand the findings on the integrated reporting literature that is increasingly gaining the attention of researchers, practitioners, and policymakers through the bibliometric approach.

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