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Big Data in Business: A Bibliometric Analysis of Relevant Literature

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Big Data in Business: A Bibliometric Analysis of Relevant Literature

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Abstract

This special issue was open for submissions in the field of big data in business. Accordingly, this special issue includes five contributions to the fields of business process innovation in the big data era, unstructured big data analytical methods in firms, online analytical processing (OLAP) approach for business intelligence in big data, geospatial insights for retail recommendation using similarity measures, and big data and operational changes through interactive data visualization. A bibliometric approach is used to visualize and highlight the exciting literature on big data followed by highlighting the contribution of this special issue.

Keywords: Big Data, Business, Bibliometric Analysis, Business Process Innovation, Business Intelligence

1. Introduction: derivation and structure of this Special Issue

Big Data is a fast-growing field that describes and analyses huge amounts of structured, semi-structured, or unstructured data that comes from various sources that are vast and complex. Also, it requires advanced analytics applications and sophisticated data-processing software. Big Data has revolutionized the way businesses and institutions operate. Business entities of several sizes and sectors are benefiting from big data applications. Business entities revealed such benefits could improve efficiency and increase profitability and growth. Many Business entities have several plans for using and implementing big data tools to improve operations, customer satisfaction, customer loyalty, enhancing corporate governance practices, fighting against fraud, cyber-attacks, money laundry, and other financial crimes. Big Data has many other applications in business. This special issue is devoted to publishing high-quality papers that involve theoretical and practical aspects related to big data in business.

2. The relevance of the topic

To visualize the overall relevance of big data in the business topic and the status of existing literature, we employed a bibliometric analysis (Kraus et al. 2019; Ahmad et al. 2020; Parlina et al, 2020; Huang and Yuan, 2020; Zhang et al, 2020) followed by highlighting the contributions of papers accepted in this special issue. The Scopus database includes 158,415 scientific documents in big data, focusing on big data in business results to 9,305 scientific documents, narrowing this down further to search documents only in the title and keywords, limiting the search to articles, reviews, conference papers, and limiting the search to scientific documents that are written in English, the final search results show 2,408 document results. Figure 1 shows the number of scientific documents related to big data in business by year. We can see that the number of scientific documents has increased rapidly in the past 8 years.

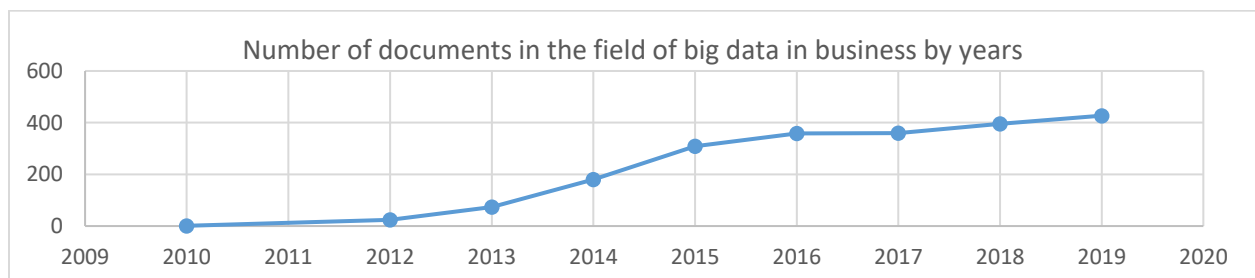


Figure 1: Number of documents in the field of big data in business by years

Table 1 and Figure 2 presents top authors by documents and citations and authors' visualization through VOSviewer software throughout 2010–2021 in big data in business literature. Wang Y. is the top author with the highest number of documents of 21 published scientific research, Chiang R.H.L. is the author that achieved the highest number of citations of 2712 citations.

Top authors by the number of documents				Top authors by citations			
Rank	Author	Documents	Citations	Rank	Author	Documents	Citations
1	Wang Y.	21	613	1	Chiang R.H.L.	3	2712
2	Liu X.	10	145	2	Chen H.	5	2593
3	Loos P.	10	109	3	Storey V.C.	2	2518
4	Wang H.	9	123	4	Akter S.	7	1581
5	Benatallah B.	8	152	5	Gunasekaran A.	7	1165

Table 1: Top authors by the number of documents and by citations

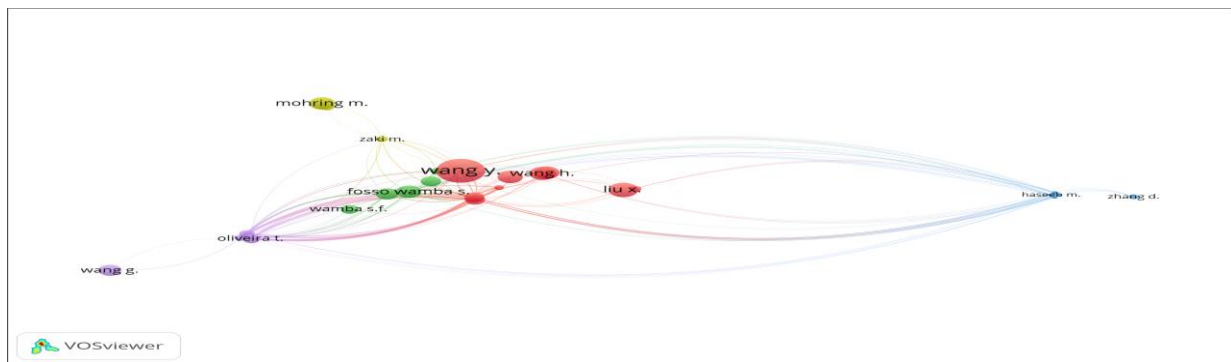


Figure 2: VOSviewer analysis of authors' network

Table 2 and Figure 3 presents the top ten most influenced and most cited scientific research in the field of big data in business. The document with the most citations is Chen (2012) with 2,515 citations. From Figure 3 we can see the growth of the topic through time; however, the majority of the top ten most influential articles belong to the period 2013- 2015.

Rank	Document	Citations	Rank	Document	Citations
1	Chen H. (2012)	2515	6	Gretzel U. (2015)	398
2	Fosso Wamba S. (2015)	595	7	Wamba S.F. (2017)	381
3	Wang G. (2016)	418	8	Hashem I.A.T. (2016)	331
4	Assuncao M.D. (2015)	405	9	Wang Y. (2018a)	312
5	Katal A. (2013)	405	10	Kwon O. (2014)	273

Table 2: Most influential and top-cited documents

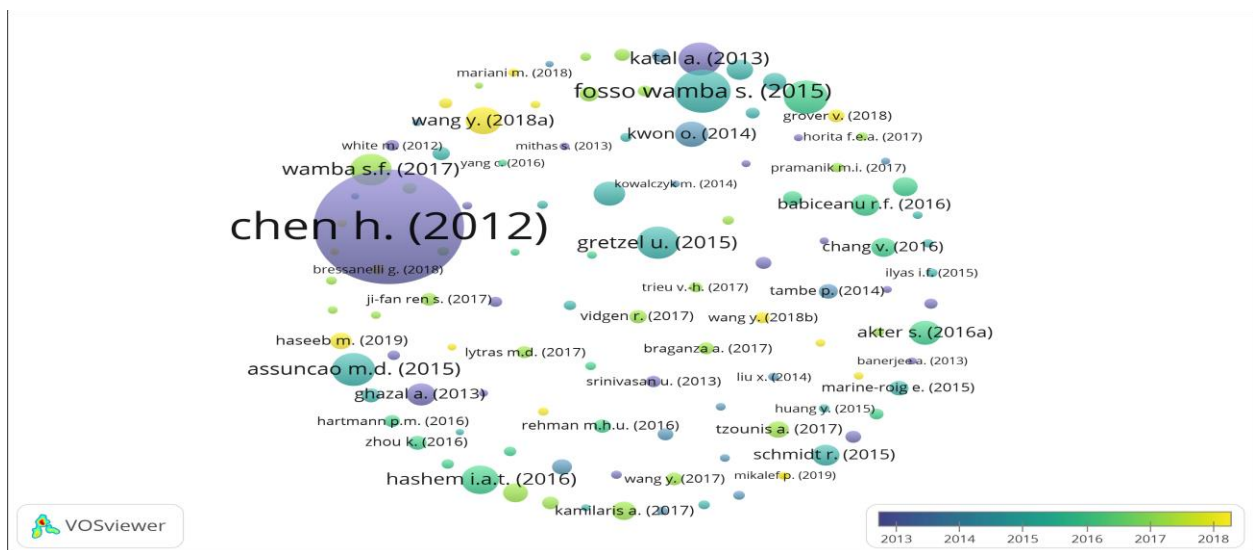


Figure 3: Documents' visualization

Figure 4. presents sources that include journals and conferences visualization through VOSviewer software throughout 2010–2020 big data in business literature. The most influenced sources include “Lecture Notes in Computer Science” with 123 papers, “ACM International Conference Proceeding Series” with 105 papers, “Advances in Intelligent Systems and Computing” with 82 papers, “Lecture Notes in

Business Information Processing” with 49 papers, and “Communications in Computer and Information Science” with 45 publications.

Figure 5 presents the most productive countries in the field of big data in business. The top countries with scientific research on big data in business are reported with two dimensions: citations and number of papers. The countries with the highest number of papers are China with 433 papers, then the United States with 410 papers, followed by India with 213 papers, then Germany with 187 papers, and finally the United Kingdom with 163 papers. Based on the number of citations, the United States ranked first with 9158 citations, followed by Australia with 3698 citations, then the United Kingdom ranked third with 3486 citations, followed by China with 2700 citations, and finally, France ranked fifth with 2472 citations.

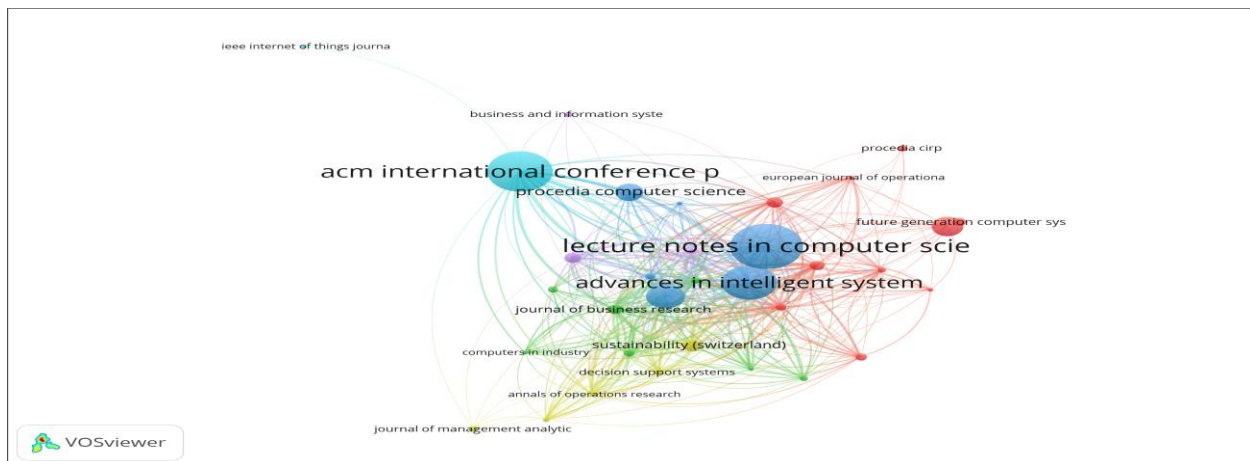


Figure 4: VOSviewer analysis of top sources and journals’ network

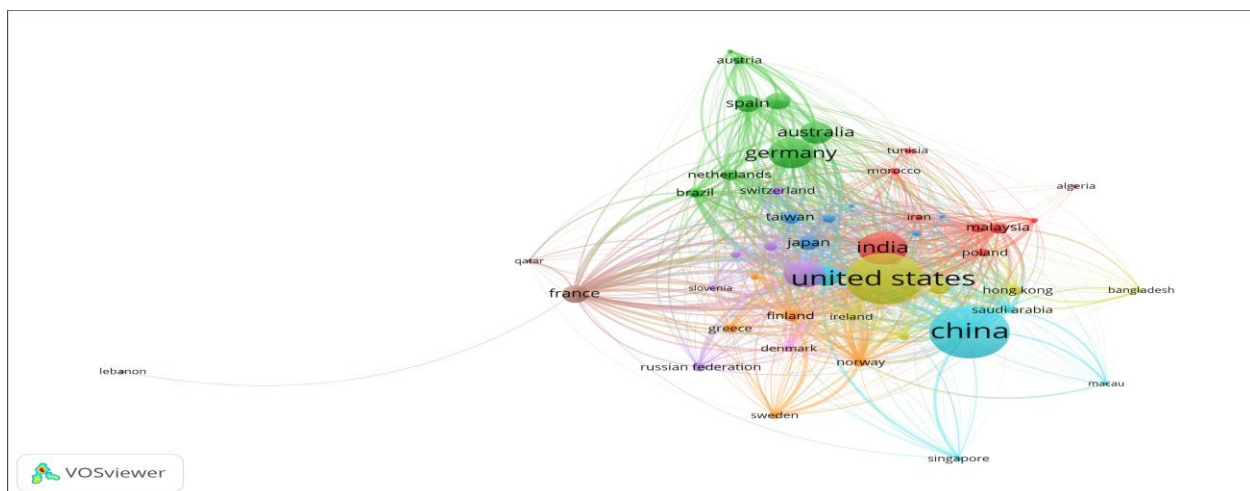


Figure 5: Most productive countries and their visualization

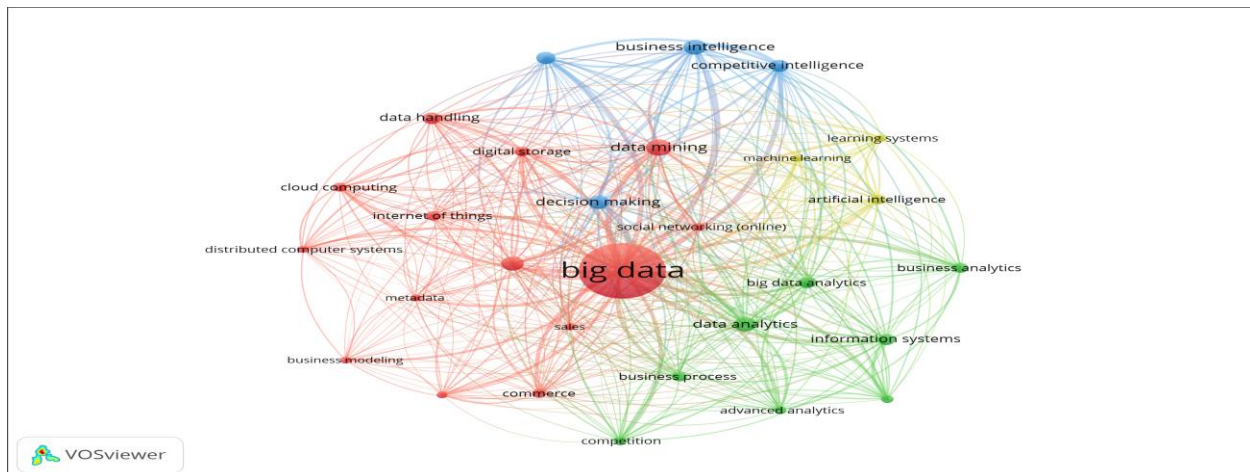


Figure 6: Identification of keywords in big data in business literature

Figure 6 above presents the most frequent keywords of big data in business literature in mapping analysis. The keyword with the most frequency is “big data” with 2231 occurrences, followed by “data mining” with 381 occurrences, then “business intelligence” with 332 occurrences, followed by “data analytics” with 312 occurrences, and the fifth most frequent keyword is “information management” with 303 occurrences.

3. Contributions

The special issue of big data in business accepted five contributions to the fields of business process innovation in the big data era, unstructured big data analytical methods in firms, online analytical processing (OLAP) approach for business intelligence in big data, geospatial insights for retail recommendation using similarity measures, and big data and operational changes through interactive data visualization. All submissions have been entered a screening process from the editor in chief and then by the guest editor, all screened papers for the special issue of big data in business had to go through an anonymous review process that required approval of a minimum of two reviewers in multiple reviewing cycles, then approval from the guest editor is required, followed by the final approval of the editor in chief. After rejecting a considerable number of submissions that didn’t meet the quality of the journal, ultimately five papers were finally accepted for publication in this special issue

4. References

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