Journal of Organisational Studies and Innovation
Vol. 12, no3, Fall 2025

Mapping the Research Landscape of Blockchain in Cryptocurrencies: A Bibliometric Review

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Received: March 26, 2024; Revised: Oct 14, 2024; Accepted: Nov 5, 2024

Abstract:This paper performs a critical review of the literature available on the application of blockchain technology in cryptocurrencies. This was intended to review the present level of research, research setting and themes, and propose future research directions. The research uses bibliometric methods through such tools as VosViewer, BibExcel, and R-Bibloshiny to gather, analyze, and visualize data. The results indicate that the trend in blockchain research has been increasing in 2016 and reached its peak in 2022. The leading countries in terms of contribution are the USA, the UK, and India. The keywords, authors, and collaboration networks analysis demonstrates the importance of blockchain, Cryptocurrency, and Bitcoin in the literature. The thematic analysis reveals the overall research themes and new areas of interest. The research is useful in understanding the research environment and offers recommendations to future blockchain research on the cryptocurrency field.

Keywords: *Blockchain, Cryptocurrencies, Digital Currency, Digitalization, Bibliometric Review.*

Introduction

In the contemporary world, intensive digitalization has led to the introduction of transformative technologies: big data analytics, IoT, cloud computing, AI, blockchain, and digital currency, which are transforming many spheres of human life (Nair and Tyagi, 2023, Swan, 2017; Bughin et al., 2018). One of such technologies is blockchain which has recently gained a significant amount of attention as it enables transparent, secure and decentralized global transactions (Tyagi, 2023; Nakamoto, 2008; Yermack, 2015). It has achieved broad recognition and has been the focus of substantial study in the world of cryptocurrency (Swan, 2015; Yli-Huumo et al., 2016; Beck et al., 2018), supply chain management, healthcare, community financing, and banking are among the sectors where it is used (Beck et al., 2016; Casado-Vara and Corchado, 2019; Kamble et al., 2019). Blockchain technology is enhancing security by reducing intermediaries and improving transparency which is significantly boosting entrepreneurial capabilities, marketing performance, and marketing capabilities in the health tourism industry, particularly for hospitals and medical centers (Sarhadi et al., 2023). So,

[1] https://doi.org/10.51659/josi.24.222

blockchain technology is a key player in digitalization to enhance security, transparency, and efficiency across diverse sectors, including cryptocurrencies, supply chain management, and healthcare.

In addition, blockchain has been referred to as the supporting technology of cryptocurrencies like Bitcoin and Ethereum (Scott, 2016; Verny et al., 2024). In the recent past, scientists have shifted their focus to cryptocurrencies blockchain technology as it is decentralized and secured (Ertemel, 2018). Blockchain technology has reached maturity, and different researchers have considered different technical foundations, applications and implications (Chang, & Chen, 2020). Nevertheless, even being recognized, the existing studies about the block technology within cryptocurrencies are fragmented addressing the discussed topics at different angles and perspectives (Wang et al., 2021). It is therefore also vital to harmonize the research environment, and investigate the similar tendencies and gaps to be further studied and enhanced. To bridge this gap, we offered a comprehensive bibliometric review of blockchain studies on cryptocurrencies by filling the disjointed research environment. Although the significance of blockchain as a decentralized and secure solution in the cryptocurrency market is acknowledged, the current body of knowledge about this issue is still divided. Our work has brought together numerous points of view that have singled out essential research themes, research trends, research contributors and point where research gaps exist. We have made use of such as VosViewer, BibExcel and R-Bibloshiny, to learn the useful lessons about the geographical distribution of the literature, collaboration systems, and suggestions of future research, and thereby make contributions to an overall picture of blockchain technology in the cryptocurrency sector.

As a result, we must improve our knowledge of the uses and limits of blockchain technology (White, 2017; Mendling et al., 2018). Therefore, this bibliometric study aims to analyze and summarize the research on the use of blockchain technology in cryptocurrencies. Using methodologically sound bibliometric methodologies, we aim to identify the most important research subjects, famous authors, and notable publications in this discipline. Moreover, it will highlight untapped potential or overlooked challenges that have received less attention. Some of the research questions that the research hopes to solve are as follows.

RQ1. What is the present status of the research on Blockchain use for Cryptocurrency?

RQ2.What research contexts and themes in Blockchain have been explored in the literature?

RQ3. What opportunities or themes can be addressed in future research?

Moreover, information science is concerned with the creation of information as well as its structure, retrieval, and dissemination (Meadows, 1990). Information science offers a theoretical ground for studying the implications of digitalization and developing technologies in the information environment (Vickery and Vickery, 2005). The theory of information science helps us understand the transformative technologies and the influence these technologies have on a variety of facets of human life.

To the best of our knowledge, no bibliometric study on the usage of blockchain technology in Cryptocurrency is currently in existence. In the process of the study, we apply the latest software applications in the data collection, analysis, and presentation. This study results would present a unified view of the research environment, and assist in the development of future research agenda. Moreover, the results can be utilized by industry players to gain a clearer comprehension of the current extent of the blockchain technology and identify the possibility of expanding the application of the technology in the procurement and other similar sectors.

The rest of the paper will follow the following structure: Section two will deal with the overview of the bibliometric review, and section 3 will deal with the methodology. Then section 4 talks about the outcomes of the bibliometric analyses. Section 5 is then followed by an exhaustive discussion of the findings and future research directions and section five is the conclusion.

Literature Review

Agbo et al. (2019) present a review, which discloses the range of suggested ways to use blockchain in healthcare, including the focus on inadequate prototype implementations and research to analyze their efficiency, as well as the current weaknesses and the opportunities to conduct research in the future. Further on, a recent study offers additional insights based on the systematic review on the potential transformative capabilities of blockchain technology in healthcare to enable better data management, security, and patient care processes, although it also notes that the area of research such as data protection and regulatory compliance requires more research (Saeed, et al. 2022). The increasing uses of blockchain technology in healthcare, including the possibility of improving data sharing, health record management, and access control, are presented, although there are few prototype applications and technical specifications of this field in the literature. At that, blockchain technology already possesses transformational opportunities in healthcare and biomedical sciences as it presents such solutions as secure patient IDs and interoperable health records, but its implementation will probably be a gradual process with time (Justinia, 2019). The findings of the study also indicate that blockchain technology can contribute to improving the entrepreneurial and marketing capacities of health tourism hospitals and firms and, therefore, allowing them to be more effective in marketing (Sarhadi et al. 2023). Having broad potential, it can be used to create an enormous impact on supply chain traceability by boosting transparency and auditability in different SCM functions and industries (Song et al., 2019).

The development of blockchain technology as a cryptocurrency-oriented tool to the diversification of its applications in other fields has raised the research interest and trending issues in recent years (Lopez-Sorribes et al., 2023). Such development and influence of blockchain in governance structure, emphasizing the current trends, intellectual frameworks, and future research opportunities are boosting the insight and covering the current gaps in blockchain governance (Yang et al., 2024). A bibliometric investigates the complex effects of the blockchain technology on other than cryptocurrencies by presenting the discrete clusters of research in the fields of supply chain management, smart contracts, and healthcare and identifying the important documents and future research directions (Kuzior& Sira, 2022). It can also contribute to the improvement of privacy and security in IoT applications in different fields, and determines the important research trends, publications that have impact and future research directions of young researchers (Kamran et al., 2020).

Bibliometric Review – An Overview

Prichard (1969) introduced bibliometric analysis as a scientific method to understand the development of research fields through the prism of multidisciplinary perspective (Bhatt et al., 2020; Caviggioli and Ughetto, 2019; Khanra et al., 2021). This discussion will help in understanding a research field fully, establishing the boundaries, identifying the key authors, and discovering the new opportunities of research in the future (Donthu et al., 2020; Leung et al., 2017). The method has been used to research various issues by researchers in various fields, such as manufacturing (Caviggioli and Ughetto, 2019), management (Zupic and Čater, 2015; Ferreira, 2018), marketing (Donthu et al., 2021; Gurzki and Woisetschlager, 2017), social media (Shiau et al., 2017), finance (Corbet et al., 2018), technology and innovation innovation(Van Oorschot et al., 2018).

Bibliometric method was chosen because it can objectively identify how a research field will be organized (Xue et al., 2018). It has been suggested that the approach can be helpful in tracing the trends and patterns of evolution of a particular sphere in different fields (Liao et al., 2018; Martínez-Lopez et al., 2018). In this way, this paper will attempt to understand how the studies of the application of blockchain in management and related disciplines have evolved since the advent of technology. To achieve this, we used bibliometric analysis, which involved bibliographic coupling, co-occurrence and network analysis.

Methodology

To perform the current bibliometric analysis, we used four steps proposed by Fosso Wamba and Mishra (2017):

i. Indicated the search database and the keywords.
ii. Made a preliminary analysis of the data.
iii. Bibliometric network analysis analysed.
iv. Conducted a thematic analysis.

Database Selection

We conducted a comprehensive literature search in connection with our work through the application of such a famous database as Scopus. Scopus is a famous scholarly database hosting an enormous collection of abstracts and citations of the publications that have undergone peer review (Omotehinwa, 2022). Academics are likely to utilize Scopus to perform a bibliometric analysis due to its broad functionality and capacity to collect high-quality data (Yao et al., 2018; Aazami et al., 2020) because of the possibility of supplying information of a wide range of sources (Garrido-Cardenas et al., 2020).

As it is seen, Scopus as an Elsevier property is more comprehensive and detailed and covers more than the databases like PubMed or Web of Science (WoS). Scopus has 84 per cent of the titles of WOS and only 54 per cent of the articles of Scopus are available in WoS. As a result of seven distinct decisions and improved futility of Scopus, including controlled indexing, it has more precise and succinct outputs to be used in research (Dinic and Jevremov, 2020). In light of these outstanding differences, the Scopus database was among the most optimal choices to conduct our study (Mongeon and Paul-Hus, 2016). Such aspects as ease of use, extensive accessibility to academic materials, and reliability in terms of selecting relevant publications to serve the purposes of our research were the primary decision to select Scopus.

Keywords Identification

The second step of the bibliometric analysis was the specification of keywords to be utilized in the selection of the articles. Keywords used must be informative, and it was necessary to pay attention to the derivatives and synonyms of the words (Subramanyam, 1983; Wallin,2005; Donthu et al., 2021). Our main goal was to search for research papers related to Cryptocurrency using Blockchain technology. Cryptocurrency is a generic term used to describe the currency using encryption for security reasons. There are many types used to describe Cryptocurrency. The most common and famous names are Bitcoin, Ethereum, Altcoin, Ripple and Litecoin. There were two main words relevant to the topic: Blockchain and Cryptocurrency. Therefore, the combinations of keywords used to search data were “Blockchain” AND “Cryptocurrency”, “Blockchain” AND “Crypto currencies”, “Blockchain” AND “Bitcoin”, “Blockchain” AND “Ethereum”, “Blockchain” AND “Altcoin”, “Blockchain” AND “Ripple” and “Blockchain” AND “Litecoin”.

Literature Search

The literature was searched using the keywords mentioned. A total number of 11,143 documents were found, including conference papers, articles, book chapters, reviews, and conference reviews of different subject areas like computer science, engineering, mathematics, business management and accounting, social sciences, energy, etc. The articles were in ten different languages like English, Chinese, Spanish, Russian, German, etc.

Inclusion/Exclusion Criteria

The first results are filtered by avoiding conference papers, articles, book chapters, etc. According to the research objectives, we have taken into account only the articles pertaining to the subject of the category of Business Management and Accounting. Lastly, only English language was selected. This narrowing down resulted in 558 pertinent papers that were

published in 20162023. The resulting data file will be stored in the RIS and CSV format to be assessed further.

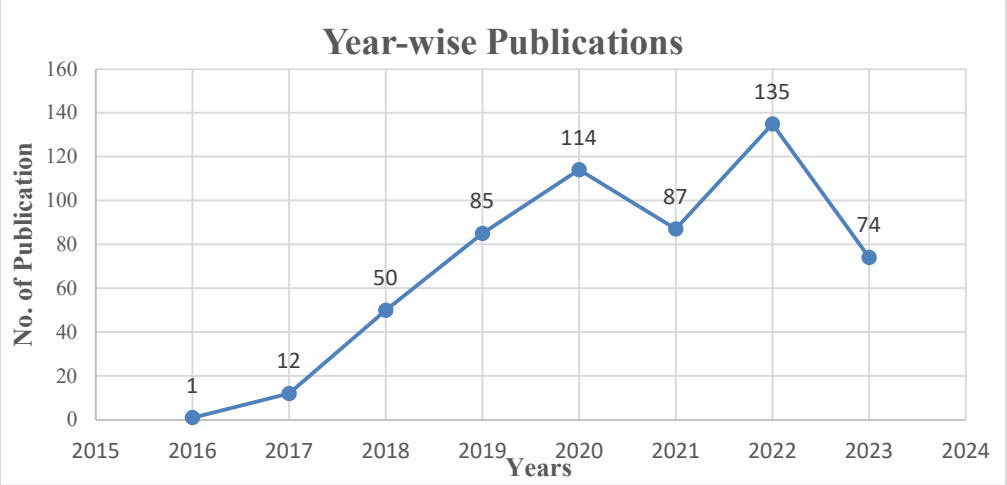
Analysis

Descriptive Analysis of the Literature

Distribution of Publication by Year

Figure 1 has demonstrated that the number of publications on blockchain has showed an overall upward trend over the years.

Figure 1: Year-wise Publications



Since the count of articles in 2016 was only 1, there was a gradual upward trend in the number of articles until it peaked in 2017, with 12 articles. The number of publications was always growing in the period between 2018 and 2021, which is a sign of increasing interest towards Cryptocurrency using Blockchain research with reference to Cryptocurrency. The number of publications significantly increased during this year with 50 in 2018, 85 in 2019 and 114 in 2020. The highest amount of publications on blockchain was 135 publications in 2022. Figure 1 shows the information about years-wise publications.

Distribution of Publications by Journals

Table 1 shows the details of the top 10 journals that published documents on relevant topics.

Table 1: Top 10 Journals

Journal's Name	No. of Articles
IEEE Transactions on Engineering Management	28
International Journal of Recent Technology and Engineering	19
Technological Forecasting and Social Change	19
International Journal of Scientific and Technology Research	14
Computer Law and Security Review	9
Journal of Risk and Financial Management	9
Management Science	9
Business Horizons	8
Financial Innovation	8
Technology in Society	8

The sources used in the distribution of publications indicate a multidisciplinary nature of research on blockchain. It shows that researchers have varied interests and views on researching blockchain and its implications in various fields. IEEE Transactions on

Engineering Management is the one with the most articles i.e. 28. It means that the engineering management field has a huge role in the Cryptocurrency research with blockchain technology. The second most prominent source is International Journal of Recent Technology and Engineering that has 19 articles. It implies paying attention to recent technological innovations and the way they affect the studies of Cryptocurrency with the help of blockchain. There are also 19 articles in Technological Forecasting and Social Change journal, which implies that it concentrates on the overlap of technological forecasting, social change, and blockchain concerning Cryptocurrency. This implies that one is interested in forecasting the future of Cryptocurrency using blockchain technology and its effects on society.

Distribution of Countries

Research on Blockchain technology in Cryptocurrency was posted in different countries. As reported in Table 2, the USA is at the top with 124 publications with total citations of 4191, followed by the UK with 71 publications with 1970 citations, and India is at number three with 68 publications with a citation of 392.

Table 2: Top 10 Countries

Country	No. Article Published	Total Citations
USA	124	4191
UK	71	1970
India	68	392
China	38	694
Germany	29	2095
Canada	28	1138
Australia	25	656
Italy	22	596
Russian	22	1040
Spain	20	162

The results show that the USA is the leading country in publications on Blockchain Technology, followed by the rest of the world, as the citations are very high. The UK is the second number. Surprisingly, India is at number, which shows that research on blockchain technology for Cryptocurrency is also the topic of discussion in this region. China is at number 4 with 38 publications.

Top 10 Institutions

Different institutions/universities published articles on blockchain technology use for Cryptocurrency. Table 3 shows the list of the top 10 institutions published on the topic.

Table 3:Top 10 Institutions/Universities

Institution/University Name	Articles Published
City University of New York, USA	7
Lehman College, NY, USA	6
Copenhagen Business School, Denmark	6
Erasmus Universiteit Rotterdam, Netherlands	5
The University of Auckland, New Zealand	5
Higher Colleges of Technology, UAE	5
Khalifa University of Science and Technology, UAE	5
University of Warwick, UK	4
Hofstra University, USA	4

UNSW Sydney, Australia	4

City University New York is at the top with 7 publications, followed by Lehman College USA with 6 publications, and Copenhagen Business School also published 6 articles.

Most Cited Articles

Table 4 indicates the "Most Cited Articles" which is the articles with the most amount of citations in other academic literature.

Table 4: Top 10 Cited Articles

Document	Citations
Ivanov D. (2019)	752
Gomber P. (2018)	499
Kim H.M. (2018)	400
Min H. (2019)	394
Dai J. (2017)	320
Fanning K. (2016)	270
Adhami S. (2018)	268
Li X. (2017)	267
Fisch C. (2019)	237
Chen Y. (2018)	235

The most mentioned article is Ivanov (2019) with 752 citations, which means that it is a highly impactful and relevant article in the field. Another article that has a huge impact and is also quite popular among the citations is Gomber (2018), which has 499 citations. Kim (2018) is next with 400 citations, which makes it also a highly cited article. The article by Min (2019) includes 394 citations, which also proves its significance in the research community. Dai (2017) contains 320 citations, which indicates that it has received a lot of interest and reference.

Most Relevant Author

The most common articles are those of Smith Ss, which is 5. Also, his articles possess a fractionalized value of 3.17. This means that this work is more impactful or meaningful than the others of the authors. There are 4 articles by Ante L, Kumar A, and Li Y, as illustrated in Table 5.

Table 5:Top 10 Authors

Authors	Articles	Articles Fractionalized
Salah K	5	0.95
Smith Ss	5	3.17
Ante L	4	1.83
Jayaraman R	4	0.7
Kumar A	4	1.19
Li Y	4	1.28
Zhang D	4	0.95
Chen Y	3	1.39
Dutta A	3	0.65
Fiedler I	3	0.83

Their values at 1.83, 1.19, and 1.28 are so fractionated that it indicates a relatively high influence on the work. Salah K and Zhang D also have 4 articles each but their fractionalized values are lower at 0.95. This implies that their work might not have contributed significantly as compared to the above authors.

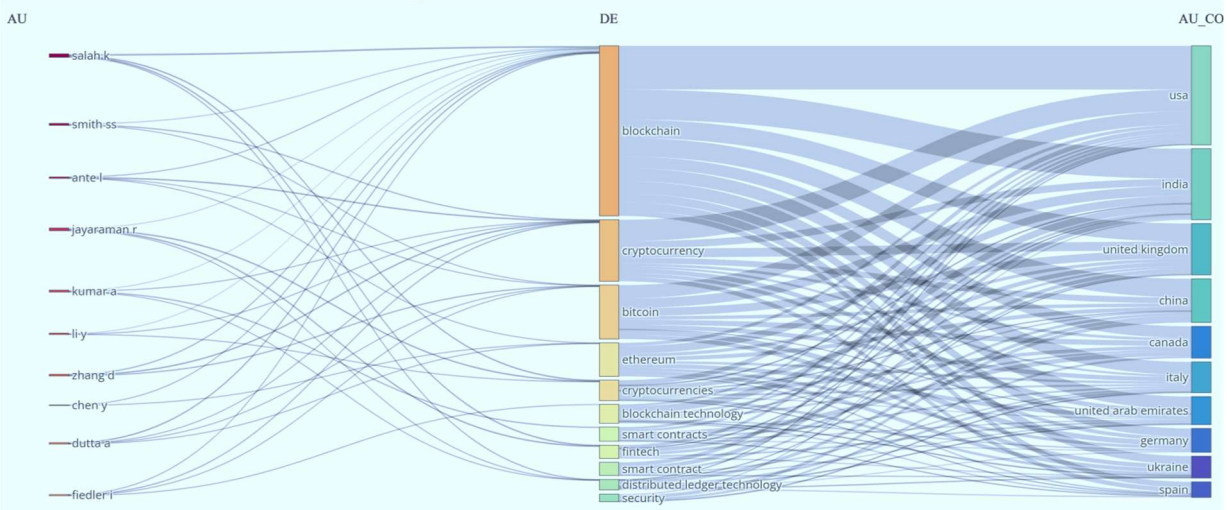
Network Analysis

Visualizing bibliometric networks is the application of visualization instruments and methods to capture and analyze the relationships among various academic publications, using bibliometric data, i.e., citations, co-authorship, and co-citations (Perianes-Rodriguez et al., 2016; Najmi et al., 2017; Liao et al., 2018; Jiang, Ritchie and Benckendorff, 2019). Examples of visualizations applied to bibliometric networks are graphs, maps, and network diagrams, which may give insights into the organization, development, and influence of research fields, institutions, or single researchers (Lee and Chen, 2012; Pradhan, 2017; Aparicio, Iturralde and Maseda, 2019).

Co-Author Analysis (Authors, Keywords, Countries)

In Figure 2, a three-field plot or Sankey diagram is presented which visualizes the connection between authors and keywords and countries.

Figure 2: Three-Field Plot (Authors, Keywords and Countries)



The frequency of keywords, authors and countries in the collaboration network is the height of the rectangle. The thickness of the line in between the nodes is proportional to the connections. The figure indicates that the keyword that had the most number of connections was the blockchain, the second was Cryptocurrency and the third one was Bitcoin.

Co-Citation Analysis (Authors)

Various Authors have significantly contributed to their area of expertise as is shown by the number of citation and overall link strength in the co-citation analysis. This has been extensively cited and has created an intertwined web of research in the field as shown in Table 6.

Table 6: Co-Citation Analysis (Top 10 Authors)

Author	Citations	Total Link Strength
Nakamoto, S.	227	4166
De Filippi, P.	113	2939
Wang, H.	111	3501
Moore, T.	87	2751
Chen, X.	86	2673
Yermack, D.	85	2272
Wang, Y.	84	2557
Buterin, V.	83	2148
Roubaud, D.	83	3137
Bouri, E.	82	3208

The author that has the highest number of citations in the analysis is Nakamoto, S., which is cited 227 times. The overall link strength of Nakamoto, S. is 4166, which implies that their work has been cited by other authors many times, and thus has a high number of co-citations. It is followed by De Filippi, P. with 113 citations and the overall link strength of his work is 2939. Although not as highly cited as Nakamoto, S and De Filippi, P.'s work still demonstrates significant influence and interconnectedness within the co-citation network. The 3rd Highest is Wang, H, which follows closely with 111 citations and total link strength of 3501. This suggests that Wang, H.'s work has received substantial attention and influenced the research community.

Collaborative Networks

The collaboration network represented in Figure 3 appears to have a relatively equal distribution of centrality measures among the nodes. The nodes are evenly connected and do not exhibit significant variations in terms of their betweenness, closeness, and PageRank values. The collaboration among authors was also analyzed. The collaboration network highlights research groups that indicate specific topics and their relationship in addition to the individuality of the largest research group in the analyzed area.

Figure 3: Collaborative Networks

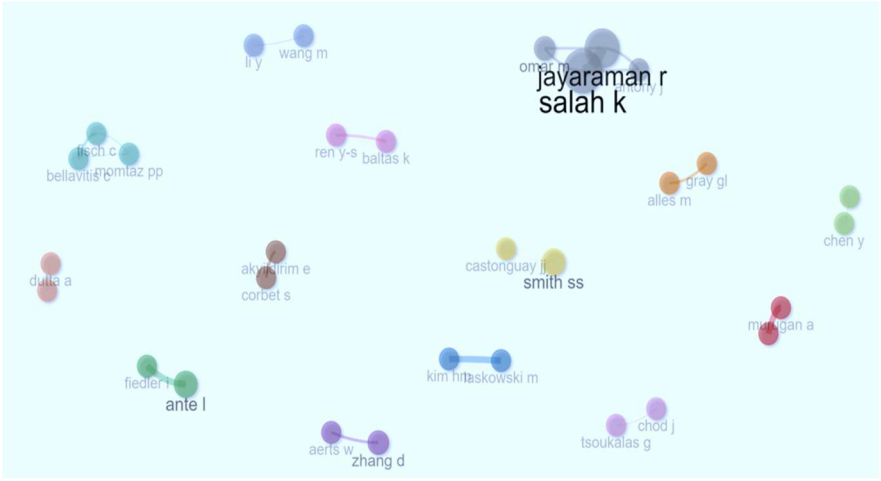


Figure 3 displays a total of 14 research groups for research in blockchain and cryptocurrencies. The largest group is composed of four authors, and twelve out of fourteen consist of only two members. Moreover, the graph shows that there are not many collaborations between the groups.

Keywords and Keywords Co-occurrence

The patterns of co-occurrence of these keywords and the fact that they are closely related imply that blockchain technology, cryptocurrencies (Bitcoin and Ethereum) and such concepts as smart contracts have a very strong connection. The given analysis will help to understand the frequency and correlations of the keywords in the provided dataset or context as it is presented in Table 7 and Figure 4.

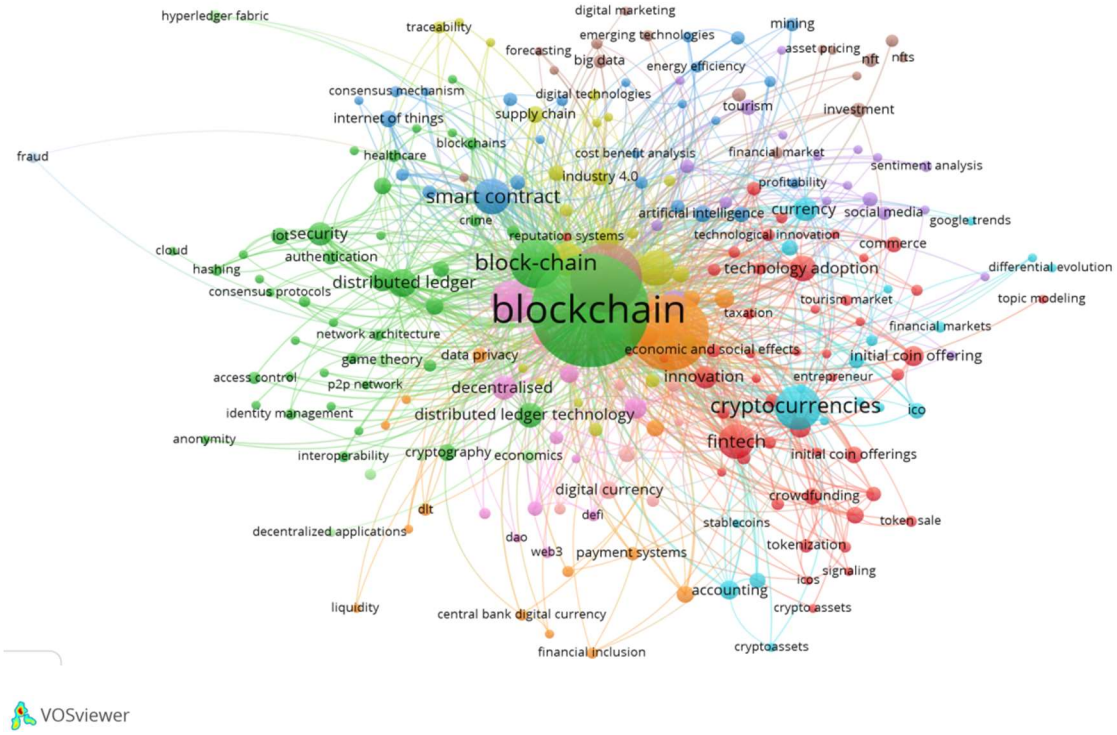
Table 7: Keywords Co-occurrence

Keyword	Occurrences	Total Link Strength
Blockchain	416	1675
Cryptocurrency	183	671
Bitcoin	154	657
Blockchain	78	559
Cryptocurrencies	63	241
Ethereum	56	280

Blockchain Technology	41	181
Smart Contract	41	246
Fintech	39	201
Smart Contracts	36	187

Table 7 contained the list of different keywords and the number of times when they appeared within a certain context or a dataset. The word blockchain has a frequency of 416 times which means that it is also very common and relevant in the environment. The second most common words are "Cryptocurrency" which appears 183 times. Bitcoin comes second with 154 instances. The word blockchain is used 78 times, and could be the misspelling or variation of “Blockchain”.

Figure 4: Keywords and Keywords Co-occurrence

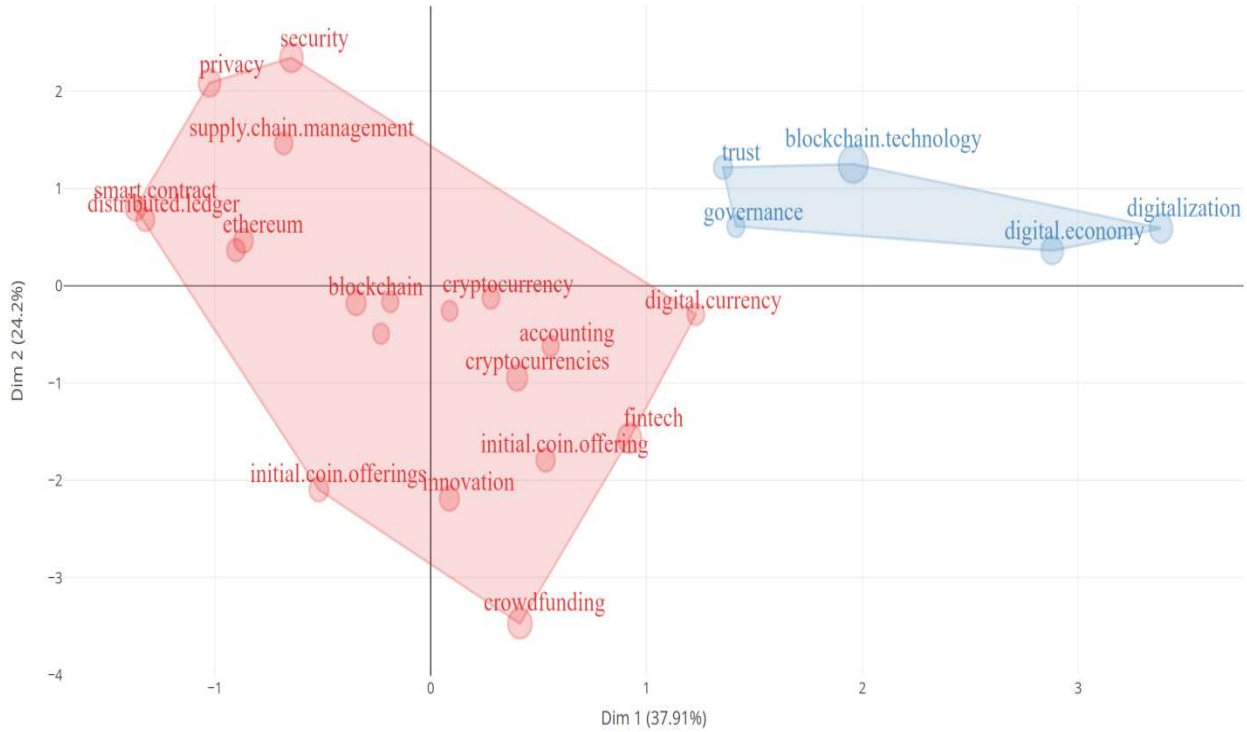


Conceptual Structure

We conducted a multiple correspondence analysis (MCA) to investigate the conceptual structure. The conceptual structure map was generated in R-bibliometrix package with the help of MCA, which computed the distance between keywords in articles. The keywords that are distributionally similar are attracted closer to each other on the map (Mobin et al., 2021).

Figure 5 portrays the conceptual structure map of the publications on Cryptocurrency using Blockchain technology.

Figure 5: Conceptual Structure Map

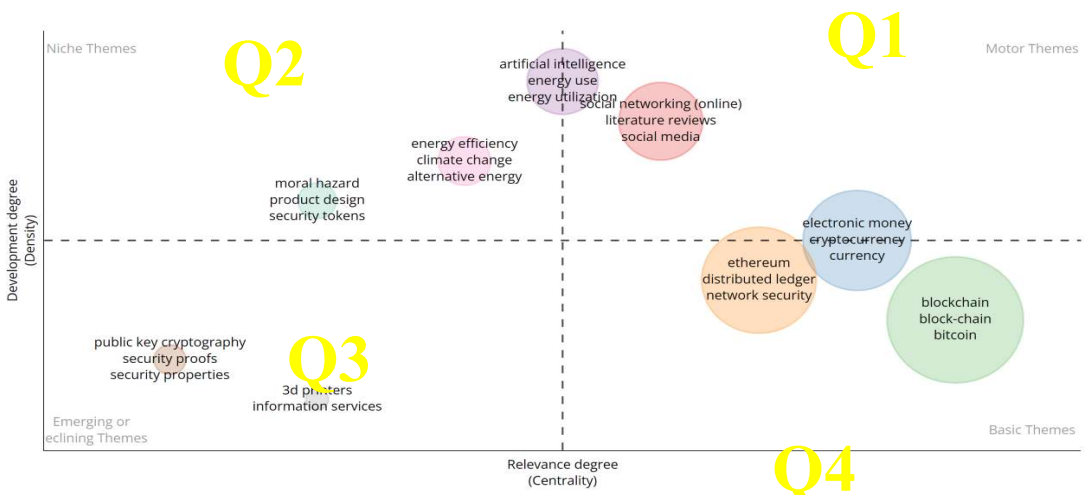


The diagram demonstrates two different clusters for the research's intellectual structure. The red cluster contains keywords that focus on the main characteristics of research, including Blockchain, Cryptocurrency, Digital Currency, Ethereum, etc. So, this cluster revolves around the different Cryptocurrencies and Blockchain types. Whereas the blue cluster includes keywords like Governance, Trust, Digital Economy, digitalization and blockchain technology. This cluster revolves around the governance and technology related to blockchain.

Thematic Map

A map was created to show the importance of different themes in the research. The map has two dimensions: density and centrality. Density measures how developed the themes are internal, while centrality measures how relevant the themes are external. The size of the bubbles represents how often the keywords appear in the publications. The map is divided into four quadrants. The sizes of the bubbles denote the number of times the keywords occur in the chosen publications. The map is composed of four quadrants Q1, Q2, Q3 and Q4. According to Cobo et al. (2011), the motor theme quadrant contains internally and externally well-developed themes characterized by a high density and a high centrality. The motor themes quadrant contains well-developed and important themes. The niche themes quadrant contains well-developed themes but are not very important externally. The emerging or declining themes quadrant contains themes with weak connections and low importance. The basic themes quadrant contains themes with low development but high importance. Themes with high density and centrality are in the top-right quadrant and greatly impact the research field, as depicted in Figure 6.

Figure 6: Thematic Map



Consequently, themes such as “Blockchain”, “Bitcoin”, “Ethereum” and “Cryptocurrency” have remained the foundation or basic themes for research on the use of Blockchain technology for Cryptocurrency. In contrast, themes like “Artificial Intelligence”, “Social Networking”, and “Crowdsourcing” established that they can impact other areas; they are not completely recognized, and may indicate future research gaps. Keywords in the upper-left quadrant constitute a niche theme with weak external linkages and minimal relevance. Keywords situated in the lower-left quadrant, such as “Information Services”, “Public Cryptography” and “Security” are examples of weakly developed and emerging themes.

Discussion

In this paper, a bibliometric analysis has been conducted to assess the current state of research on the use of blockchain in Cryptocurrency and gain an overview of the research situation, priorities, active authors, and other publications that can be of interest in the field. This study was meant to examine the use of blockchain to Cryptocurrency. Strong bibliometric techniques were employed to determine the most topical study topics, the most influential authors, and the most interesting publications in the sphere of blockchain technology as the cryptocurrency. One of the methods was data gathering, analysis and presentation.

The initial research question to be addressed was the current state of research on the use of blockchain technology in Cryptocurrency which was performed through a descriptive analysis. The amount of publications related to blockchain has been growing steadily since 2018 and is likely to grow in 2020 and 2022. IEEE Transactions on Engineering Management contains the largest number of papers, which focus on the importance of engineering management in studying crypto money based on blockchain technology.

The study was conducted by many countries, the United States was the first country that published 124 papers, followed by the United Kingdom with 71 publications and India with 68 publications. City University of New York, Lehman College USA and Copenhagen Business School have the most publications according to an evaluation of institutional linkages. Ivanov (2019) selected the study that had the greatest number of citations on the topic of blockchain use in cryptocurrencies. This article has 752 citations that indicate its significance and fame.

The network analysis and multiple correspondence analysis (MCA) were used to address the second and third research topics that encompassed the setting of the previous research, the themes that were discovered in the previous research, and the likely future research directions. The terms that were connected most through the network analysis were the terms blockchain, cryptocurrency, and Bitcoin, which indicate that these terms are significant to the field. The cooperation network was studied, and the centrality measures were distributed among authors, which gave a clue on the level of collaboration between researchers.

The MCA conceptualized a structure map of scientific publications on cryptocurrencies based on blockchain technology on the Internet. The red cluster was related to phrases related to blockchain, Cryptocurrency, and digital currency, whereas the blue cluster included such terms as governance, trust, digital economy, and blockchain technology.

The query was also sent to theme analysis through the assistance of Biblioshiny. This has enabled finding important research topics like blockchain, Bitcoin, Etherium, and cryptocurrency. Other challenges like artificial intelligence, social networking, and crowdsourcing were indicators of the possibility of affecting the sector, though additional research was required. Moreover, new themes which had been formed incompleteely were also discovered, pointing to the future study requirements.

Generally, the bibliometric study provided immensely significant knowledge about the current state of research on the application of blockchain technology in Cryptocurrency, the research topics, influential authors, and notable publications. The findings can affect further research and help to understand the depth of the topic and its future use in other fields of governance, trust, and the digital economy.

Implications

Theoretical Implications

This Paper has important theoretical value and contributes greatly to the knowledge of the application of blockchain technology in cryptocurrencies. The extensive bibliometric research has given a good insight to the research surroundings, topics, and notable authors in the field. This paper makes an important contribution to the knowledge development as it starts with an in-depth summary of the most recent findings of the corresponding studies. Through the determination of key research topics and trends, researchers and scholars can be more familiar with the theoretical bases and build interest in this field. Such information can be used to clarify future research, guide future research, and promote theoretical development. Moreover, exploration of study setting and themes provide valuable information about topics that have been already explored in published studies. The research paper examines the key concepts and their connections in the field of cryptocurrency blockchain applications through the analysis of the relationships between the keywords and co-occurrence of the keywords. This awareness of study topics could help the researchers identify gaps, overlaps, and future research areas in addition to the theoretical expansion of the discipline. The analysis of the conceptual structure was performed with the help of the multiple correspondence analysis (MCA), and the graphical representation of the scholarly articles about blockchain technology usage in cryptocurrencies was offered. This analysis displays the association among the sets of keywords by disaggregating them; that means, it shows underlying ideas and their interrelation to each other. This knowledge of the conceptual framework may help researchers in carrying out an informed search on the primary issues of blockchain technology in relation to cryptocurrencies, and identifying new issues needing further investigation.

Practical Implications

This study has various practical implications for the industry players, politicians, and scholars. These implications provide valuable information that may impact decision-making and policy formulation as well as future research projects. Knowledge of the current status of research on the possible application of blockchain to cryptocurrencies is essential to the industry practitioners interested in fully realizing the potential uses and benefits of the technology. Results from this study can help organizations and firms operating in related industries like banking and technology make informed decisions, formulate plans and identify other opportunities within the Bitcoin industry.

The policy implications that the study's findings have, especially the aspect relating to governance, trust, and the digital economy, can be applied by policymakers and regulatory authorities in order to come up with policies and regulatory measures to promote innovation

adoption, safeguard consumer interests, and promote the responsible utilization of blockchain technology in cryptocurrency transactions. Such knowledge can be used to develop friendly and progressive regulations, thus encouraging the expansion and implementation of blockchain technology within the financial industry.

Lastly, the direction of the study, as determined through a study of the gaps in research and the future directions of the research, provides informative details that can be used in subsequent studies of the problem. Sealing the gaps and exploring unfamiliar subjects and ideas will eventually develop new applications, methods, and theories. This not only enhances the awareness of the blockchain technology among the cryptocurrency industry but also its use in practice, which will lead to a further advance of this rapidly developed business.

The theoretical contributions of this research widen our understanding of the applicability of blockchain technology to cryptocurrencies by pointing out the landscape, repeating themes, and conceptual framework. The practical ramifications extend to industry professionals, politicians, and academics, enabling them to make informed choices, influence legislation, and drive further research in this fast-growing subject.

Limitations and Future Directions

When interpreting the results of the investigation, it should be noted that there are a number of limitations. Initially, only the Scopus database was used in the study; other pertinent databases such as PubMed or Web of Science were not included. In this regard, a biased sample of articles might have been produced by using a single database. Additionally, the current study may have overlooked significant research published in other languages because it concentrated on English-language publications, which is another source of language bias. The inclusion/exclusion criteria's nature, which concentrated on articles from the "Business Management and Accounting" subject category and thus overlooked all other pertinent research produced within other subject categories, was another significant limitation. This subject category limitation restricts the study area and might not capture all research areas in the study field. The publication period ranged from 2016 to 2023; therefore, the current study may not capture recent developments in the reviewed literature, possibly missing key findings. The selection of keywords used in the literature search is another restriction. It's possible that different studies used different terminologies or sets of keywords, and that the ones selected unintentionally left out important papers. This may have an impact on how thorough the study's conclusions are. Furthermore, because the analysis is limited to particular nations, institutions, and journals, the results of this study may not be applicable to all situations or areas. Thus, generalizing the findings to other settings may not be advisable. Based on some limitations, this study may fail to give a true picture of the research landscape because, in its bibliometric nature, in terms of a quantitative approach, it may overrepresent certain journals, institutions, and authors when it comes to publication and citation counts.It also lacks qualitative analysis of diverse studies, which limits the understanding of the content and quality of publication, hindering comprehensive analysis of the research field.

Exploring the use of blockchain for cryptocurrencies in the context of AI is an emerging and potential area for future research. AI has a broad scope in numerous domains in the sphere of cryptocurrencies to improve their acceptance, innovation, usefulness, and performance. Some recommended future areas are AI-based fraud detection in cryptocurrency transactions, AI-powered trading algorithms in cryptocurrencies, and AI-driven prediction models in prices for cryptocurrency. The objectives behind these areas can be enhancing security, optimizing trading strategies, and better price prediction accuracy within the cryptocurrency market.

Another future research direction in blockchain and cryptocurrencies is the integration of social networking concepts and technologies to create a social networking platform for revolutionized communication and information sharing. This means bringing together the concepts and technologies of social networking with cryptocurrencies for new innovative applications and

user experiences. Possible research areas within this theme include sentiment analysis of cryptocurrencies based on social media, social lending through peer-to-peer mechanisms using cryptocurrencies, and social networking platforms for decentralized exchange. These directions of research are related to understanding the public perceptions of cryptocurrencies, finding new models of lending, and enhancing the security and user experience in decentralized exchanges.

Cryptocurrencies can leverage crowdsourcing for fostering innovation, security enhancement, and community participation. Specific research areas in this context may be crowdsourced blockchain consensus, crowdsourced security auditing for cryptocurrencies, and crowdsourcing for decentralized governance of cryptocurrencies. These research directions are targeted at enhancing the scalability, efficiency, and decentralization of blockchain networks; at enhancing the security of cryptocurrency systems by community involvement; and at exploring new mechanisms for decentralized decision-making and novel structures for governance.

In a nutshell, blockchain research in cryptocurrencies in the future will be directed toward the integration of AI and social networking with crowdsourcing for improved security, trading strategies, price prediction, perception of the public, lending models, decentralized exchange, consensus mechanisms, community security, and decentralized governance. Limitations include database selection, language bias, subject restriction, timeframe restriction, keyword selection, limited generalizability, overrepresentation, and qualitative analysis not conducted, thereby impacting the results of the study and implications.

Conclusion

Blockchain technology is widely used for cryptocurrency transactions, ensuring high security and transparency. However, more research is needed in the future to examine a range of topics outside of finance.Weanalyze the body of research on blockchain use for cryptocurrencies by using the Scopus database to select 558 pertinent articles published between 2016 and 2023. This bibliometric review identifies important publications, influential authors, and important research themes. This makes it evident that there is growing interest in this field of study, as evidenced by the notable rise in publications between 2018 and 2022.

The United States, United Kingdom, and India were among the top countries in terms of publications. Also, the City University of New York contributed most in terms of publications amongst institutions. This analysis also provides insights regarding the field's most referenced papers and significant writers. Prolonging the scope, the results provide a comprehensive overview of the research environment in the context and realm of cryptocurrency utilizing blockchain technology to academics, practitioners, and policymakers, thus opening paths for future research in this evolving subject.

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