

A Review on Application Blockchain Technology for Copyrights

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Abstract

Block chain technology had well-diversified applications including copyrights. This review paper is the consolidation of research trends related to the usage of block chain technology for copyrights, visualized through Review analysis. The active authors, organizations, journals, and countries involved in the research “usage of block chain technology for copyrights” were highlighted in this review. The leading Journals were Computer Law and Security Review and Multimedia Tools and Applications. The most active country was China. The leading organization engaged in research regarding the usage of block chain technology for copyright was the Xidian University of China. The most active author who had made valuable contributions related to the usage of block chain technology for copyright was Li.K.C

Keywords: Blockchain, Copyrights, Reviews, Review analysis, Meta Analysis

1. Introduction

Blockchain system facilitates the distribution of data across the chain with high-level security. In the blockchain, technology data are stored and distributed as blocks. Blockchain technology is highly multi-disciplinary and follows a Distributed Ledger Technology. Blockchain technology is used for diversified purposes including, the computerized industrial sector for handling the health care sector during pandemics; multimedia sources; smart city management; healthcare management; smart grid system finance and accounting.

Blockchain technology is ideal for the digitalization of copyrights. Speed is an important issue for the usage of blockchain for copyrights and can be improved by using the Dual-Channel Parallel Broadcast model (DCPB). Digital copyright management with digital watermarking is also possible by blockchain technology; digital rights management of multimedia resources of the education sector is possible through blockchain technology. One of the important usages of blockchain technology in the music industry is the usage for governance and management of musical rights. Blockchain technology facilitates the protection of music copyrights, receipt of royalties, and piracy issues. A blockchain model for music distribution reduces failures, data theft, and piracy. Blockchain technology offers digital copyrights and a decentralized music sharing model; music wallets for music copyrights.

This review paper contains four sections. The first section deals with a general introduction of blockchain technology and its application for copyrights, followed by a discussion of the research methodology used in this paper. The results and discussions related to the application of block technology for copyrights were included in the third section of this paper. The fourth section deals with the conclusion. The following research objectives and research questions were framed for conducting Review analysis systematically.

1.1 Research Objectives

- a) To consolidate the articles on the research regarding the use of blockchain technology for copyrights
- b) To find out the trends related to research in the usage of blockchain technology for copyrights

1.2 Research Questions

- Who are the active researchers working on the usage of blockchain technology for copyrights?
- Which are the main research organizations and countries working on the usage of blockchain technology for copyrights?
- Which are the leading journals publishing scientific papers on the usage of blockchain technology for copyrights?

2. Research Methodology

Scopus files had been used for this article. For the article selection, the Boolean used was (Blockchain Copyright). All the tables in this paper were created by using Microsoft Excel and Meta Analysis. Grammarly was used for spelling and grammar checks. Mendeley was used for article review and citation. This paper had been inspired by Review analysis in its presentation style, analysis, and methodology from the works.

3. Results and discussion

3.1 Results

The first search on Scopus had obtained 150 documents, in three languages, where 146 articles were in English. The document categories were classified and shown in Table 1. This review had selected only the peer-reviewed articles and all other documents had not been considered. Thus after using filters “Article” and “English” the second round search produced an outcome of 45 English articles (both open access and others) and had been used to conduct Review analysis and visualization using Meta Analysis. The English research articles in this domain had been shown in Table 2. Co-authorship analysis of top authors had been shown in Table 3. For a better presentation of the analysis, the parameters used were the minimum number of documents of an author as two and the minimum number of citations of authors as one. This combination plotted the map of eight authors, in seven clusters. The overlay visualization map of co-authorship analysis plotted in Table 3, points out the major researchers with their strong co-authorship linkages and clusters involved.

The citation analysis of top authors had been shown in table 1. For the citation analysis, the parameters used were the minimum number of documents of an author as two and the minimum citations of an author as one.

Table 1: Highlights of most active authors

Description	Authors	Documents	Citations	Average citations per documents
Authors with the highest publication, links, and citations	Li.K.C	3	32	10.7

In Co-occurrence analysis, we had used all keyword analyses, by keeping the minimum number of occurrences of a keyword as 2. This combination plotted the map of 14 thresholds, in four clusters. The overlay visualization of co-occurrence analysis of keywords has been shown in Table 2. The leading

organizations engaged in research on “usage of blockchain technology for copyrights” had been found out by the volume of publications and citation analysis, the parameters used are the minimum number of documents of an organization as one and the minimum number of citations of organizations as one. The leading organization in the research regarding “usage of blockchain technology for copyrights”, with the highest number of publications and citations, was the Xidian University, China(Refer to table 2).

Table 2: Highlights of the most active organization

Organizations	Country	Documents	Citations	Average Citations per document
Xidian University	China	3	2	1

Co-authorship analysis of the countries engaged in the research on “usage of blockchain technology for copyrights” had been shown in Table3. The overlay visualization map of co-authorship analysis plotted in Table3, points out the main countries with their strong co-authorship linkages and clusters involved. The citation analysis of top countries had been shown in table 3, along with co-authorship links. For the citation analysis, the parameters used were the minimum number of documents of a country as one and the minimum citations of the country as one.

Table 3: Highlights of Active Countries

Description	Country	Documents	Citations	Average citation
The country with the leading publication and citations,	China	22	75	16

The most active country in this research domain was China, with the leading position in publications and citations.

The most active journals engaged in the research were identified through analyzing co-authorship links and citation analysis. Highlights of the most active and relevant journals related to “usage of blockchain technology for copyright” are shown in table 4. Table 4 shows the journal activity of this research domain through parameters of publication volume and citations.

Table 4: Analysis of journal activity

Description	Journal details	Documents	Citations	Average citations per documents	Links
Journal with the highest links, and citations	Computer Law and Security Review	2	86	43	2
Journal with the highest publications	Multimedia Tools and Applications	4	6	1.5	0

4. Conclusion

Blockchain technology had been used for copyright protection. From the above discussion on results from visualization regarding the Review patterns in the research regarding usage of blockchain technology for copyrights, this research had observed a progressive growth in research interest regarding usage of blockchain technology for copyrights since 2016, and positive momentum. This highlights the importance and potential of this conducting research on the usage of blockchain technology for copyrights (Refer to Table 2).

This research had identified the most leading authors who were engaged in research regarding the usage of blockchain technology for copyrights. Li.K.C was the most active author of this research domain with the highest publication, citations, and links (Refer to table 1). Several keywords were actively used and the most frequently used keywords were “blockchain”, “copyright protection” and “copyrights”. However, the latest researches were concentrated on “multimedia”, “data privacy” and “data security” (Refer to Table 4). The overlay analysis of top countries researching the usage of blockchain technology in copyrights indicates that China was the leading country relating to the highest number of citations and publications (Refer to Table 5). There are several organizations engaged in research on the usage of blockchain technology for copyrights and the most leading organization, producing the highest number of scientific papers and citations was the Xidian University of China. The top journal of this research domain was identified as Computer Law and Security Review and Multimedia Tools and Applications. This journal is in a leading position from the others in the volume of publications, citations, and links.

From these wide sources of information, researchers can focus on top journals where they can identify the most relevant and highly cited articles regarding the usage of blockchain technology for copyrights. The usage of blockchain technology for copyrights had great scope for future research and this research domain offers a new avenue for researchers and future research can be on innovations in copyrights using blockchain technology.

References

1. Amato, L. E. *et al.* (2005) 'Electrochemical characterization of sol-gel hybrid coatings in cobalt-based alloys for orthopaedic implants', *Materials Letters*, 59(16), pp. 2026–2031. doi: 10.1016/j.matlet.2005.02.010.
2. Aminatun *et al.* (2014) 'Synthesis of cobalt alloy through smelting method and its characterization as prosthesis bone implant', in Djamel M. Mufti N., D. M. (ed.) *AIP Conference Proceedings*. American Institute of Physics Inc., pp. 137–143. doi: 10.1063/1.4897123.
3. Farhat, T. *et al.* (2013) 'Research in congenital heart disease: A comparative review analysis between developing and developed countries', *Pediatric Cardiology*, 34(2), pp. 375–382. doi: 10.1007/s00246-012-0466-6.
4. Harris, R. and Lossin, C. (1971) 'The use of cobalt chromium alloy and titanium endosseous dental implants', *Australian Dental Journal*, 16(2), pp. 94–108. doi: 10.1111/j.1834-7819.1971.tb02312.x.
5. Klawitter, J. J., Weinstein, A. M. and Peterson, L. J. (1977) 'Fabrication and Characterization of Porous-Rooted Cobalt-Chromium-Molybdenum (Co-Cr-Mo) Alloy Dental Implants', *Journal of Dental Research*, 56(5), pp. 474–480. doi: 10.1177/00220345770560050501.
6. Minouei, H. *et al.* (2012) 'Heat treatment of cobalt-base alloy surgical implants with Hydroxyapatite-Bioglass for surface bioactivation', *Iranian Journal of Materials Science and Engineering*, 9(3), pp. 33–39.
7. Peterson, L. J., McKinney, R. V and Pennel, B. M. (1978) 'Two year evaluation of perous rooted cobalt-chromium dental implants', *Journal of Dental Research*, 57(spec. A), p. No. 734.
8. Spriano, S. *et al.* (2005) 'Surface treatment on an implant cobalt alloy for high biocompatibility and wear resistance', *Wear*, 259(7–12), pp. 919–925. doi: 10.1016/j.wear.2005.02.011.

