



Blockchain Technology Utilization in the Waqf Sector: Research Trends and Future Directions

Muhammad Dzikri Abadi*, Roudlotul Badi'ah, Dadang Wiratama, Ika Purwanti, Siti Musarofah, M Adhitya Nugraha Pratama, Imtinan Widhah Kumala

Faculty of Economics and Business, Institut Teknologi dan Bisnis Ahmad Dahlan Lamongan, Lamongan, 62218, Indonesia

[*dzikriabadi@ahmaddahlan.ac.id](mailto:dzikriabadi@ahmaddahlan.ac.id)

Abstract

This study maps the development, collaboration patterns, citation structure, and thematic evolution of research on blockchain technology in the waqf sector. A bibliometric analysis of 417 Scopus-indexed publications published from 2006 to 12 July 2024 was performed using Bibliometrix in RStudio and VOSviewer. The analysis covered publication trends, influential sources and contributors, country productivity, citation impact, collaboration networks, and keyword co-occurrence. The results show increasing scholarly attention to the intersection of blockchain, Islamic finance, fintech, and waqf management. Malaysia and Indonesia emerged as the most productive and most cited countries, while an international co-authorship rate of 29.74% indicated moderate cross-border collaboration. Keyword analysis revealed that the field is anchored in Islamic finance, fintech, blockchain, and waqf, with growing attention to cash waqf, crowdfunding, financial inclusion, digital transformation, smart contracts, cybersecurity, and technology adoption. However, these patterns demonstrate scholarly attention and thematic associations rather than empirical proof of blockchain's operational benefits in waqf institutions. This study identifies priority gaps in empirical implementation, Shariah governance, stakeholder adoption, technical feasibility, and socioeconomic impact evaluation of blockchain-enabled waqf systems.

Keywords: Bibliometric Analysis, Blockchain Technology, Islamic Endowment, Waqf, Waqf Management.

Abstrak

Penelitian ini memetakan perkembangan, pola kolaborasi, struktur sitasi, dan evolusi tematik riset mengenai pemanfaatan teknologi blockchain pada sektor wakaf. Analisis bibliometrik dilakukan terhadap 417 publikasi terindeks Scopus yang diterbitkan pada periode 2006 hingga 12 Juli 2024 dengan menggunakan Bibliometrix pada RStudio dan VOSviewer. Analisis mencakup tren publikasi, sumber dan kontributor berpengaruh, produktivitas negara, dampak sitasi, jaringan kolaborasi, serta kemunculan bersama kata kunci. Hasil menunjukkan meningkatnya perhatian akademik pada irisan antara blockchain, keuangan Islam, teknologi finansial, dan manajemen wakaf. Malaysia dan Indonesia muncul sebagai negara paling produktif dan paling banyak disitasi, sedangkan tingkat kolaborasi internasional sebesar 29,74% menunjukkan adanya kolaborasi lintas negara pada tingkat moderat. Analisis kata kunci memperlihatkan bahwa bidang ini berlandaskan tema keuangan Islam, fintech, blockchain, dan wakaf, dengan perhatian yang berkembang pada wakaf uang, crowdfunding, inklusi keuangan, transformasi digital, kontrak pintar, keamanan siber, dan penerimaan teknologi. Namun, pola tersebut menunjukkan perhatian ilmiah dan keterkaitan tema, bukan bukti empiris atas manfaat operasional blockchain pada lembaga wakaf. Penelitian ini mengidentifikasi kesenjangan pada implementasi empiris, tata kelola syariah, penerimaan pemangku kepentingan, kelayakan teknis, serta evaluasi dampak sosial ekonomi sistem wakaf berbasis blockchain.

Kata Kunci: Analisis Bibliometrik, Manajemen Wakaf, Teknologi Blockchain, Wakaf, Wakaf Islam

Introduction

Waqf is an important instrument of Islamic social finance with the potential to support long-term social and economic development. It offers long-term contributions across various sectors, including religious services, education, healthcare, poverty reduction, community empowerment, and cultural preservation (Herlambang & Muhammad Muhaimin Nasrowi, 2022; Kholifah & Suryaningsih, 2023; Rahim, 2019; Tamimah, 2021; Tiswarni et al., 2023). In Indonesia, the potential of waqf is widely recognized, particularly through cash waqf and productive waqf assets (Fahmi & Fuadi, 2018). However, any estimate of its annual economic potential should be supported by an authoritative and recent national source, such as the Indonesian Waqf Board or an official government publication.

Despite this immense socio-economic potential, the management of waqf assets remains suboptimal and faces prominent governance risks. Waqf institutions frequently encounter significant challenges regarding transparency, which directly affects public trust, and accountability, which dictates the proper allocation of funds (Aldeen et al., 2022; Quddus et al., 2022). Furthermore, a lack of professionalism among nadzir (waqf managers) acts as a major obstacle, hindering the effectiveness of management, operational efficiency, and the growth of waqf assets (Munandar & Nopianti, 2022; Nurhidayat et al., 2022). These challenges indicate the need for governance mechanisms that can strengthen recordkeeping, traceability, monitoring, and stakeholder confidence.

Blockchain technology has increasingly been discussed as a potential digital infrastructure for addressing these issues. As a decentralized and cryptographically secured ledger, blockchain can support immutable transaction records, traceability, data integrity, and auditable information sharing (Guo & Yu, 2022; Huynh-The et al., 2023). In the context of waqf management, the literature frequently associates blockchain with potential applications such as digital registration of waqf assets, transparent recording of cash waqf transactions, smart-contract-based fund disbursement, and improved reporting to wakif and other stakeholders (Salsabila et al., 2023; Suryaningsih et al., 2020). Nevertheless, these proposed benefits should be interpreted cautiously because much of the existing literature remains conceptual, while empirical evidence regarding institutional adoption and operational impact is still limited.

Although scholarship on blockchain and waqf has expanded, the field remains fragmented. Previous bibliometric studies, including Santoso & Kusuma (2023), have provided an initial overview of blockchain-related research in Islamic social finance. However, several substantive issues remain insufficiently mapped. First, there is limited evidence regarding the intellectual structure of blockchain-waqf research, including the foundational studies and conceptual clusters that shape the field. Second, the patterns of collaboration among authors, institutions, and countries have not been adequately examined. Third, the thematic evolution from broad discussions of Islamic fintech toward more specific blockchain applications in waqf management requires further investigation. Finally, existing literature has not sufficiently clarified gaps related to empirical implementation, Shariah governance, institutional readiness, stakeholder adoption, and the social and economic effects of blockchain-based waqf systems. This study addresses these gaps through a bibliometric analysis of 417 Scopus-indexed documents/publications published between 2006 and 2024. Scopus was selected because of its broad multidisciplinary coverage and availability of bibliographic metadata suitable for

network analysis. However, the use of a single database remains a limitation, as relevant publications indexed exclusively in databases such as Web of Science, Dimensions, or Google Scholar may not be captured. The analysis therefore provides a structured representation of the Scopus-indexed literature rather than a complete representation of all global scholarship on blockchain and waqf. This study aims to address this precise gap by answering the following research questions:

1. RQ1: How has research on blockchain technology in the waqf sector evolved over time?
2. RQ2: Who are the most influential authors, sources, countries, and collaboration networks in this field?
3. RQ3: What intellectual and thematic structures characterize blockchain-waqf research?
4. RQ4: What research gaps and future directions emerge from the bibliometric evidence?

By answering these questions, this research is expected to contribute significantly to waqf management science and provide policymakers and practitioners with insights into the development, thematic structure, and research gaps of blockchain-waqf scholarship.

Literature Review

Blockchain technology, characterized by its decentralized, encrypted, and distributed ledger system, has transformed governance paradigms across various sectors by minimizing fraud risks and eliminating intermediaries (Agbo et al., 2019; Andoni et al., 2019; Antonopoulos & Wood, 2018; Bhutta et al., 2021; Bringas et al., 2020; Huynh-The et al., 2023; Tapscott & Tapscott, 2016). Despite its transformative benefits, such as enhanced data security, operational efficiency, traceability, and the automation of smart contracts—blockchain adoption faces persistent barriers, including scalability issues, regulatory inconsistencies, high energy consumption, and structural complexity (Belchior et al., 2020; Casino et al., 2019; Choi & Siqin, 2022; Conti et al., 2018; de Vries, 2018; Sayeed & Marco-Gisbert, 2019; Zheng et al., 2017).

In Islamic jurisprudence, waqf constitutes a permanent dedication of assets for public welfare, shifting progressively from traditional physical developments (e.g., mosques) to modern, productive investments such as cash waqf (Abidin, 2023; Az-Zuhaili et al., 2011; Mohsin et al., 2016; Mu'is et al., 2022; Rahmah, 2021; Ridwan, 2017; Undang-Undang Republik Indonesia Nomor 41 Tahun 2004 Tentang Wakaf, 2004). The intersection of blockchain technology and waqf governance has thus emerged as a focal point for resolving enduring administrative inefficiencies. Established findings highlight that blockchain facilitates transparent transaction recording, immutable auditing, and secure fund accumulation without third-party intervention (Maisyarah & Hadi, 2024; Mutmainah et al., 2021).

However, unresolved issues remain regarding practical implementation, regulatory frameworks, and stakeholder adoption. While previous studies articulate the theoretical benefits of blockchain for waqf, there is a lack of synthesized bibliometric mapping that connects these fragmented findings into a cohesive intellectual structure. This study addresses this gap by mapping how the discourse on blockchain-waqf governance has matured and identifying underdeveloped thematic areas requiring empirical investigation.

Method

This study employed bibliometric analysis to map the development, intellectual structure, collaboration patterns, and thematic evolution of research on blockchain technology in the waqf sector. Bibliometric analysis is appropriate for examining publication growth, influential contributors, citation relationships, collaborative networks, and the evolution of research themes in a defined body of literature (Aria & Cuccurullo, 2017; Donthu et al., 2021; Zupic & Čater, 2014). The data were retrieved from the Scopus database on 12 July 2024. Scopus was selected because it provides multidisciplinary bibliographic metadata, including author affiliations, references, citations, keywords, and source information, which are required for bibliometric and network analysis. (Martín-Martín et al., 2021). Nevertheless, the use of a single database constitutes a limitation because relevant publications indexed exclusively in Web of Science, Dimensions, or Google Scholar may not have been captured. The findings should therefore be interpreted as representing the Scopus-indexed literature on blockchain and waqf.

To ensure that the dataset reflected the substantive intersection between blockchain technology and waqf, the search was conducted in the TITLE-ABS-KEY fields using the following query: (("Blockchain" OR "Financial Technology" OR "Digital" OR "Technology" OR "Innovative") AND ("Waqf" OR "Islamic Finance" OR "Waqf Management" OR "Endowment Management" OR "Islamic Endowment" OR "Waqf Administration" OR "Waqf Assets Management")). The inclusion and exclusion criteria applied were as follows:

- a. Publication period: 2006 to 12 July 2024.
- b. Document types included: Articles, conference papers, reviews, and book chapters. Errata and non-peer-reviewed notes were excluded.
- c. Language criteria: Restricted to documents published in English to maintain linguistic consistency during text analysis.
- d. Screening process: Initial records were screened based on title and abstract relevance to the specific intersection of blockchain/fintech and waqf/Islamic finance.
- e. Duplicate removal: Automated and manual checks were conducted to remove duplicate entries.
- f. Final dataset size: 417 valid publications.

The final dataset was exported from Scopus in CSV and BibTeX formats. The exported metadata included document titles, abstracts, author keywords, indexed keywords, author names, author affiliations, countries, source titles, publication years, document types, citation counts, reference lists, Digital Object Identifiers (DOIs), Scopus EIDs, and corresponding-author information. Descriptive and performance analyses were conducted using the Bibliometrix package in RStudio. These analyses included annual scientific production, most relevant sources, influential authors, productive countries, citation patterns, and collaboration indicators. Science mapping was performed using VOSviewer version 1.6.19 to construct and visualize co-authorship, citation, co-citation, bibliographic-coupling, and keyword co-occurrence networks.

Fractional counting was applied in all VOSviewer analyses. Under this approach, the contribution of a publication is distributed proportionally among its authors, countries, institutions, cited references, or keywords. Fractional counting was selected to reduce the

disproportionate influence of highly co-authored documents and to provide a more balanced representation of network relationships (Perianes-Rodríguez et al., 2016; Tsilika, 2023).

Result and Discussion

Publication Development and Citation Impact

Table 1 presents the descriptive characteristics of the final dataset, comprising 417 Scopus-indexed documents published between 2006 and 2024. These publications were distributed across 220 sources and involved 899 authors. The average number of co-authors per document was 2.7, while international co-authorship accounted for 29.74% of the publications. Overall, these indicators suggest that blockchain-waqf research is dispersed across a broad range of publication outlets and demonstrates a moderate level of international scholarly collaboration.

Table 1. Descriptive characteristics of the final blockchain-waqf dataset

Description	Results
Timespan	2006-2024
Sources	220
Documents	417
References	18556
Authors	899
Authors of single-authored documents	76
Single-authored documents	83
Co-Authors per document	2,7
International co-authorships	29,74%

Figure 1 illustrates the annual scientific production of blockchain-waqf research. Publication output remained limited during the early years but increased more substantially from 2017 onwards, indicating growing academic attention to the intersection of blockchain, digital innovation, Islamic finance, and waqf management. The overall annual growth rate of 24.68% further reflects the expanding visibility of this research area. Nevertheless, publication growth should be interpreted as evidence of scholarly attention rather than direct evidence of the maturity, effectiveness, or institutional adoption of blockchain applications in waqf management.

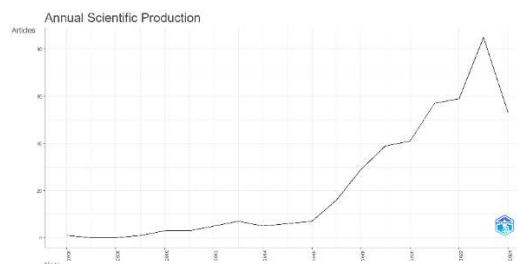


Figure 1 Annual scientific production in blockchain-waqf research, based on the final screened Scopus dataset, 2006-2024

Table 2 reports the 15 most globally cited documents in the final dataset. The leading publications are predominantly situated within the broader intellectual context of Islamic banking, Islamic fintech, financial digitalization, and post-pandemic economic recovery. For example, Abedifar et al. (2015), Hassan et al. (2020), and Rabbani, Bashar, et al. (2021) received the highest total citation counts or citations per year. Their prominence indicates that blockchain-waqf research has developed in close connection with wider debates on digital transformation and innovation in Islamic finance.

However, citation prominence should not be interpreted as direct empirical evidence that blockchain has improved waqf management outcomes. Several highly cited documents provide broader conceptual or contextual insights into Islamic fintech and digital finance rather than examining blockchain-enabled waqf implementation specifically. Therefore, the citation structure suggests that the field is still drawing substantially on adjacent Islamic finance literature. This condition reinforces the need for more focused empirical studies examining blockchain-based waqf asset registration, transaction traceability, smart-contract applications, institutional readiness, Shariah governance, and the measurable social and economic outcomes of implementation.

Table 2. Top 15 most globally cited documents in the final blockchain-waqf dataset

Rank	Title/Source	Author/s	Year	TC	TC/Y	NTC ¹
1	Islamic Banking and Finance: Recent Empirical Literature and Directions for Future Research, <i>Journal of Economic Surveys</i>	(Abedifar et al., 2015)	2015	115	11,50	5,04
2	Challenges for Islamic Finance and Banking in the Post-COVID Era and the Role of Fintech, <i>Journal of Economic Cooperation and Development</i>	(Hassan et al., 2020)	2020	104	20,80	8,67
3	Exploring the Role of Islamic Fintech in Combating the Aftershocks of COVID-19: The Open Social Innovation of the Islamic Financial System, <i>Journal of Open Innovation: Technology, Market, and Complexity</i>	(Rabbani, Bashar, et al., 2021)	2021	80	20,00	8,48
4	FinTech, Blockchain and Islamic Finance: An Extensive Literature Review, <i>International Journal of Economics and Business Administration</i>	(Rabbani et al., 2020b)	2020	79	15,80	6,58
5	Fintech and Islamic Finance Digitalization, Development, and Disruption, <i>Palgrave Macmillan, Cham</i>	(Alam et al., 2019)	2019	73	12,17	8,32
6	Determinants of Online Waqf Acceptance: An Empirical Investigation, <i>The Electronic Journal on Information Systems in Developing Countries</i>	(Amin et al., 2014)	2014	60	5,45	4,92

7	How does Islamic Fintech Promote the SDGs? Qualitative Evidence from Indonesia, <i>Qualitative Research in Financial Markets</i>	(Hudaefi, 2020)	2020	55	11,00	4,58
8	Modeling Crowdfunders' Behavioral Intention to Adopt the Crowdfunding-Waqf Model (CWM) in Malaysia: The Theory of the Technology, <i>International Journal of Islamic and Middle Eastern Finance and Management</i>	(Thaker et al., 2018a)	2018	53	7,57	5,07
9	The Response of Islamic Financial Service to the COVID-19 Pandemic: The Open Social Innovation of the Financial System, <i>Journal of Open Innovation: Technology, Market, and Complexity</i>	(Rabbani, Ali, et al., 2021)	2021	50	12,50	5,30
10	What is Core and What Future Holds for Blockchain Technologies and Cryptocurrencies: A Bibliometric Analysis, <i>IEEE Access</i>	(Nasir et al., 2021)	2021	48	12,00	5,09
11	Enhancing Trust Through Digital Islamic Finance and Blockchain Technology, <i>Qualitative Research in Financial Markets</i>	(Chong, 2021)	2021	45	11,25	4,77
12	Fintech in Islamic Finance Literature: A Review ☆, <i>Heliyon</i>	(Alshater et al., 2022)	2022	44	14,67	7,09
13	How Socially Responsible Investing Can Help Bridge the Gap Between Islamic and Conventional Financial Markets, <i>International Journal of Islamic and Middle Eastern Finance and Management</i>	(Bennett & Iqbal, 2013)	2013	43	3,58	3,17
14	Blockchain, Fintech, and Islamic Finance: Building the Future in the New Islamic Digital Economy, Walter de Gruyter Inc.	(Mohamed & Ali, 2019)	2019	41	5,86	3,92
15	The Role of Islamic Social Finance During Covid-19 Pandemic in Indonesia's Economic Recovery, <i>International Journal of Islamic and Middle Eastern Finance and Management</i>	(Ascarya, 2022)	2022	39	13,00	6,29

Note. TC = total citations; TC/Y = total citations per year; NTC = normalized total citations, calculated as the article's total citations divided by the mean total citations of articles published in the same year.

Country Contribution, Collaboration, and Citation Impact

Table 3 presents the productivity and international collaboration patterns of corresponding authors' countries in blockchain-waqf research. Malaysia is the leading contributor, with 72 documents (17.3%), followed by Indonesia with 51 documents (12.2%). Together, the two countries account for almost one-third of the retrieved publications, indicating that Southeast Asia is a major scholarly centre for this field. This pattern is consistent with the prominent role of both countries in the development of Islamic social finance, waqf institutions, and digital financial innovation (Thaker et al., 2018b; Wakaf dan Ekonomi Islam et al., 2021).

Table 3. Top 15 most productive corresponding authors' countries and international collaboration in blockchain-waqf research

Rank	Country	Articles	Frequency	SCP ¹	MCP ²	MCP_Ratio
1	Malaysia	72	0,173	51	21	0,292
2	Indonesia	51	0,122	41	10	0,196
3	Bahrain	11	0,026	7	4	0,364
4	Jordan	9	0,022	4	5	0,556
5	Turkey	8	0,019	6	2	0,25
6	Pakistan	7	0,017	4	3	0,429
7	Usa	7	0,017	5	2	0,286
8	United Kingdom	6	0,014	4	2	0,333
9	Qatar	5	0,012	2	3	0,6
10	Italy	3	0,007	1	2	0,667
11	Morocco	3	0,007	3	0	0
12	Nigeria	3	0,007	1	2	0,667
13	Brunei	2	0,005	2	0	0
14	China	2	0,005	1	1	0,5
15	Egypt	2	0,005	1	1	0,5

¹SCP: single-country publications. ²MCP: multiple-country publications

The collaboration indicators show that Malaysia and Indonesia produced most of their publications through single-country collaboration, as reflected in their MCP ratios of 0.292 and 0.196, respectively. In contrast, Jordan (0.556), Qatar (0.600), Italy (0.667), and Nigeria (0.667) recorded higher MCP ratios despite having fewer publications. This finding suggests that countries with lower publication volumes may rely more strongly on international partnerships to contribute to the blockchain-waqf discourse. Overall, the international co-authorship rate of 29.74% indicates a moderate level of cross-border collaboration within the field.

Table 4 reports citation impact by corresponding authors' country. Malaysia records the highest total citation count (580), followed by Indonesia (310) and Bahrain (166). These results indicate that Malaysia and Indonesia are not only productive contributors but also important sources of cited scholarship within the dataset. Nevertheless, total citations should be interpreted together with publication volume and average citations per article. For example, Australia records the highest average citation score (48.00), but this result is based on a very small number of publications and may therefore be disproportionately influenced by one highly cited document. Accordingly, citation indicators reflect the academic visibility of publications

associated with a country, not the technological success or practical effectiveness of blockchain-enabled waqf initiatives in that country.

Table 4. Top 15 most cited countries on blockchain utilization in waqf.

Rank	Country	Total Citations	Average Article Citations
1	Malaysia	580	8,10
2	Indonesia	310	6,10
3	Bahrain	166	15,10
4	United Kingdom	144	24,00
5	Jordan	100	11,10
6	USA	71	10,10
7	Turkey	66	8,20
8	Pakistan	55	7,90
9	Australia	48	48,00
10	Qatar	33	6,60
11	India	31	15,50
12	Luxembourg	24	24,00
13	Nigeria	21	7,00
14	Brunei	17	8,50
15	Egypt	14	7,00

Thematic Evolution: From Conceptualization to Implementation

Keyword co-occurrence analysis was conducted to examine the intellectual structure and thematic evolution of blockchain-waqf research. The analysis was based on the final dataset of 417 Scopus-indexed publications. Table 5 presents the 15 most frequent author keywords and indexed keywords, whereas Figure 2 visualises the co-occurrence structure and temporal distribution of author keywords.

Table 5. Most frequent author keywords and indexed keywords in blockchain-waqf research

Rank	Author Keywords ¹	Occurrences	Indexed Keywords ²	Occurrences
1	Islamic Finance	114	Islamic Finances	24
2	Fintech	66	Finance	13
3	Blockchain	38	Blockchain	10
4	Waqf	36	Investments	9
5	Islamic Banking	20	Block-Chain	7
6	Malaysia	17	Commerce	7
7	Islamic Banks	16	Financial System	6
8	Islamic Fintech	16	Competition	5
9	Cryptocurrency	15	Digital Transformation	5
10	Cash Waqf	14	Information Management	5
11	Crowdfunding	13	Sustainable Development	5
12	Covid-19	12	Financial Institution	4
13	Bitcoin	11	Financial Service	4
14	Finance	11	Fintech	4
15	Financial Inclusion	11	Islamism	4

The frequency distribution indicates that the field is primarily situated at the intersection of Islamic finance, financial technology, blockchain, and waqf. *Islamic finance* was the most frequently used author keyword (114 occurrences), followed by *fintech* (66), *blockchain* (38), and *waqf* (36). This pattern suggests that research on blockchain-enabled waqf has developed largely within the broader discourse on Islamic financial innovation, rather than as a fully independent and application-oriented research domain.

Other frequently occurring author keywords, including *Islamic banking*, *Islamic fintech*, *cash waqf*, *crowdfunding*, *cryptocurrency*, *bitcoin*, and *financial inclusion*, reveal several related areas of scholarly attention. In particular, the prominence of *cash waqf* and *crowdfunding* reflects interest in digitally enabled fundraising, donor participation, and waqf mobilisation mechanisms. Meanwhile, *cryptocurrency* and *bitcoin* indicate that blockchain-waqf discussions are often positioned within wider debates on digital assets and emerging financial technologies. Their presence, however, should not be interpreted as evidence that cryptocurrency-based waqf systems have been widely implemented.

The indexed-keyword results reinforce this interpretation. Frequently occurring terms such as *Islamic finance*, *finance*, *blockchain*, *investments*, *financial system*, *digital transformation*, and *sustainable development* demonstrate that the literature links waqf-related digital innovation with broader financial-system development, investment, governance, and social-finance objectives.

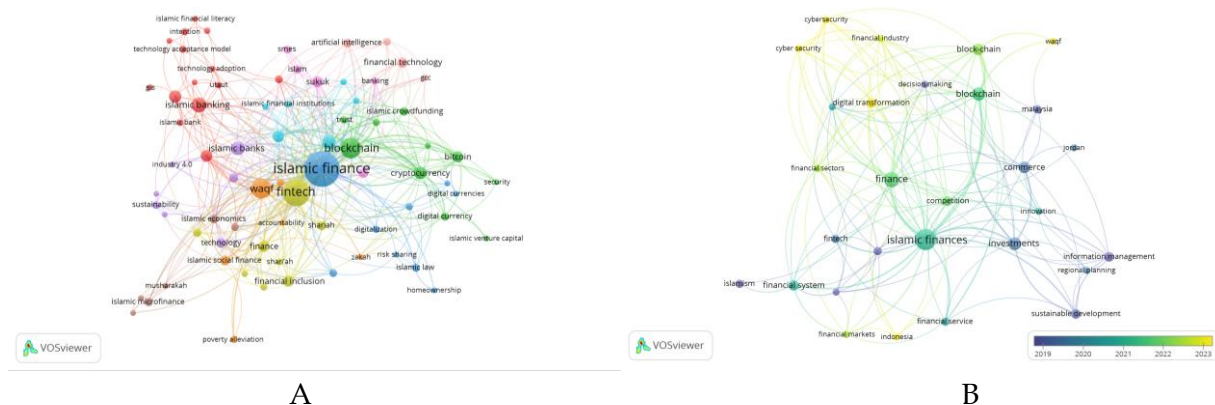


Figure 2. Author keyword co-occurrence network and overlay visualisation in blockchain-waqf research

Figure 2A presents the co-occurrence network of author keywords. Of the 978 identified author keywords, 85 met the minimum threshold of three occurrences and were grouped into ten thematic clusters. The network shows that the literature is anchored by interconnected themes related to Islamic finance, fintech, blockchain, waqf, Islamic banking, crowdfunding, and financial inclusion. These themes represent the principal conceptual foundations of the field.

Figure 2B provides an overlay visualisation based on the average publication year of each keyword. Keywords shown in lighter colours represent topics that have received relatively greater attention in more recent publications. Where confirmed by the overlay results, themes such as *digital transformation*, *smart contracts*, *cybersecurity*, *technology acceptance*, and *sustainable development* may indicate a gradual movement from broad conceptual discussions towards questions of adoption, governance, security, automation, and potential implementation.

Overall, the thematic structure shows that blockchain-waqf research remains strongly embedded in the wider Islamic finance and fintech literature. Future research should therefore move beyond conceptual advocacy by undertaking empirical studies of operational waqf settings, particularly regarding blockchain-based asset registration, transaction traceability, smart-contract governance, user acceptance, cybersecurity, regulatory compliance, Shariah oversight, institutional readiness, and measurable outcomes for waqf beneficiaries.

Conclusions and Recommendations

This bibliometric study mapped the development, collaboration patterns, citation structure, and thematic evolution of blockchain-waqf research based on a final dataset of 417 Scopus-indexed publications published between 2006 and 12 July 2024. The findings show growing scholarly attention to the intersection of blockchain technology, Islamic finance, fintech, and waqf management, with Malaysia and Indonesia emerging as the most productive and most cited countries. The international co-authorship rate of 29.74% indicates a moderate level of cross-border collaboration, alongside strong nationally concentrated research communities. Keyword analysis further shows that the field remains primarily grounded in Islamic finance, fintech, blockchain, and waqf, while themes such as cash waqf, crowdfunding, financial inclusion, digital transformation, smart contracts, cybersecurity, and technology adoption indicate a gradual shift toward implementation-related concerns. Nevertheless, these bibliometric patterns reflect scholarly attention and thematic association; they do not constitute direct empirical evidence that blockchain implementation has improved transparency, efficiency, trust, governance, or socioeconomic outcomes in waqf institutions. Crucially, the literature frequently discusses and proposes blockchain as a transformative mechanism for enhancing transparency, security, and efficiency in waqf management. However, it must be noted that bibliometric evidence reflects the frequency of these claims in academic discourse rather than acting as direct empirical proof of these operational outcomes. The thematic transition from broad Islamic finance concepts to specific technological frameworks (e.g., smart contracts, digital transformation) signals an impending shift toward practical application studies.

The study acknowledges limitations, primarily its reliance solely on the Scopus database and the descriptive nature of bibliometric methodology, which cannot assess the contextual or cultural nuances of blockchain implementation across different regulatory regimes. To bridge the gap between theoretical propositions and practical realities, future research recommendations must become highly specific. Scholars are urged to prioritize: (1) empirical case studies evaluating active blockchain-enabled waqf platforms; (2) comparative regulatory studies analyzing cross-border legal frameworks; (3) the development of standardized Shariah governance models for digital assets; (4) stakeholder adoption research utilizing technology acceptance frameworks; (5) technical evaluations of smart-contract design for conditional waqf distribution; and (6) robust impact evaluations measuring the socioeconomic outcomes of blockchain implementation in waqf institutions.

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