

# DIGITAL TRANSFORMATION IN ZAKAT MANAGEMENT: A BIBLIOMETRIC REVIEW ON THE APPLICATION OF BLOCKCHAIN TECHNOLOGY

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**Abstract:** This bibliometric review investigates the digital transformation of zakat management through blockchain technology, highlighting its potential to enhance efficiency, transparency, and accountability within zakat institutions. The methodology employed export processes using databases like Scopus, focusing on citation, co-citation, and keyword analyses to identify trends, gaps, and future research directions, which were sorted and analyzed using the R Biblioshiny program. The findings reveal a total of 371 documents, predominantly journal articles (85.8%), underscoring a strong scholarly foundation in this area, with minimal reliance on conference papers. Key themes include blockchain, zakat, and Islamic finance, showing consistent thematic evolution. Core journals such as *International Journal of Ethics and Systems* and *Journal of Islamic Accounting and Business Research* contribute significantly, aligning with Bradford's Law classification. The study also identifies key contributors like Muneeza A and Hassan MK, whose work shapes the discourse around blockchain in Islamic finance. Conceptual analysis reveals interconnected themes such as fintech, sustainability, and digital finance, emphasizing a multidimensional discourse in the field. The thematic evolution highlights increasing interest in trust and governance, which are crucial for blockchain integration. This study provides a comprehensive understanding of current research, setting the stage for future exploration in enhancing zakat management practices through blockchain while addressing challenges like governance frameworks and standardization.

**Keywords:** Digital Transformation, Zakat Management, Blockchain Technology, Bibliometric Review, Islamic Finance

## 1. Introduction

The digital transformation of zakat management, particularly through the application of blockchain technology, represents a significant advancement in the efficiency, transparency, and accountability of zakat institutions. This bibliometric review synthesizes various studies that explore the implications of digitalization and blockchain technology on zakat management, highlighting the potential benefits and challenges associated with these innovations.

Blockchain technology, characterized by its decentralized and immutable nature, has emerged as a promising solution for enhancing the management of zakat funds. The implementation of blockchain in zakat management systems can significantly improve

transparency and trust among muzakki (zakat payers) and zakat institutions. For instance, a study proposed a blockchain-based zakat management model that aims to enhance muzakki's trust in zakat agencies by ensuring that funds are tracked and utilized effectively (Zulfikri et al., 2021). This model emphasizes the importance of transparency in the management and distribution of zakat, which is crucial for building confidence among donors and ensuring compliance with zakat obligations.

Moreover, the integration of blockchain technology can streamline the collection and distribution processes of zakat. By utilizing smart contracts, zakat institutions can automate transactions and ensure that funds are allocated to the intended beneficiaries without delays or mismanagement (Ismail et al., 2023). This automation not only enhances operational efficiency but also reduces the administrative burden on zakat institutions, allowing them to focus more on outreach and community engagement. The potential for real-time tracking of zakat funds through blockchain can also provide valuable insights into the impact of zakat on poverty alleviation and community development, thereby reinforcing the social objectives of zakat.

Digital transformation in zakat management is not limited to blockchain technology; it encompasses a broader range of digital tools and platforms that facilitate zakat collection and distribution. The rise of fintech solutions has revolutionized the way zakat is collected, with many zakat institutions adopting mobile applications and online platforms to enhance accessibility for muzakki (Madia & Rachmad, 2023). Research indicates that the convenience and ease of use associated with digital platforms significantly influence individuals' decisions to pay zakat online (Adinda, 2022). This trend is particularly pronounced among younger generations, who are more inclined to engage with digital payment systems.

The COVID-19 pandemic has further accelerated the digital transformation of zakat institutions, as many organizations were compelled to adapt to remote operations and digital fundraising strategies (Hasan & Kamiluddin, 2021). Studies have shown that zakat institutions that embraced digital tools during the pandemic experienced increased contributions, highlighting the resilience and adaptability of zakat management in challenging times. This shift towards digitalization not only ensures continuity in zakat collection but also aligns with changing donor behaviors and preferences.

Zakat institutions require explicit instructions and assurances concerning the conformity of digital payment techniques with sharia compliance. Additionally, the digital divide remains a significant barrier, as not all potential muzakki have equal access to technology or digital literacy skills (Komala, 2023). Addressing these disparities is essential for ensuring that digital zakat initiatives are inclusive and equitable.

Furthermore, the role of governance and regulatory frameworks in facilitating the digital transformation of zakat management cannot be overlooked. Effective governance structures are crucial for ensuring that digital initiatives are implemented transparently and responsibly (Utami, 2023). Collaboration between zakat institutions, government agencies, and technology providers is essential for developing robust digital platforms that meet the needs of muzakki while adhering to Islamic principles.

This study offers a novel approach by conducting a bibliometric review to analyze zakat management through the lens of digital transformation, with a specific focus on blockchain. The bibliometric method effectively captures research trends and highlights gaps in the current scholarship regarding the role of digitalization in zakat. Additionally, this article introduces new analytical approaches and innovations in the integration of blockchain technology into zakat management. It lays a foundation for further exploration of how digital innovations can enhance zakat management, particularly in advancing social justice and poverty alleviation. The study's findings are especially relevant given the underutilization of technology at some

regional levels of BAZNAS and LAZ in Indonesia, emphasizing the need for optimized technological solutions to fully realize the potential of digital zakat management at both national and regional levels.

### **Research Questions**

- 1) How effective is bibliometric analysis in identifying key themes, trends, and influential works in blockchain applications for zakat management?
- 2) What insights can citation, co-citation, and keyword analysis provide regarding the development of research on blockchain in zakat management?
- 3) What are the key challenges and barriers faced by zakat institutions in adopting blockchain technology?

### **Research Objectives**

- 1) To evaluate the effectiveness of bibliometric analysis as a method for mapping the research landscape of blockchain technology in zakat management.
- 2) To uncover prevalent themes, influential works, and research gaps in blockchain-based zakat management through citation, co-citation, and keyword analyses.
- 3) To identify and categorize the challenges and barriers faced by zakat institutions in implementing blockchain technology.

## **2. Literature Review**

### **2.1 Digital Transformation of Zakat**

Digitalization has fundamentally altered the landscape of zakat by introducing innovative methods for collecting and distributing zakat funds. Studies indicate that digital platforms significantly enhance the efficiency of zakat transactions, allowing for real-time tracking and management of funds. For instance, Utami et al. (2021) emphasize that digital finance not only streamlines the collection process but also expands access to zakat services, particularly among younger demographics. This is corroborated by Zubaidah & Afifah (2020), who argue that the effective use of technology can lead to rapid advancements in zakat, thus improving both its effectiveness and efficiency.

Moreover, the convenience and trust associated with digital platforms are pivotal in encouraging zakat payments. Adinda (2022) highlights that consumer trust significantly influences decisions to utilize digital platforms for zakat payments, suggesting that enhancing trust can lead to increased zakat contributions. This aligns with findings from Ninglasari & Muhammad (2021), who note that digital platforms have proven particularly useful during the COVID-19 pandemic, as they provide a safe and convenient means for individuals to fulfill their zakat obligations.

The integration of financial technology (fintech) into zakat systems has also been identified as a key driver of this transformation. Rohmaniyah (2022) discusses how fintech enhances the governance and operational frameworks of zakat institutions, thereby optimizing both the collection and distribution processes. Furthermore, Kasri & Yuniar (2021) suggest that zakat institutions in Indonesia have become increasingly responsive to technological advancements, adopting crowdfunding models to improve collection efforts.

However, the transition to digital zakat is not without challenges. Mulyo (2023) notes that while digitalization offers numerous benefits, it also necessitates a synchronized approach

to ensure that the processes of collecting and distributing zakat are effectively aligned with technological advancements. Additionally, the need for robust regulatory frameworks to support digital zakat initiatives is critical, as highlighted by (Nazeri et al., 2023), who discusses the importance of addressing existing issues within zakat institutions to facilitate effective digitalization.

## **2.2 Zakat Management**

Zakat management is a critical aspect of Islamic finance and social welfare, aimed at redistributing wealth to alleviate poverty and support community development. Effective zakat management involves a systematic approach that encompasses planning, organization, implementation, and monitoring of zakat funds. In this context, various studies highlight the importance of governance, transparency, and the integration of technology in enhancing the efficiency and effectiveness of zakat management systems.

One of the primary challenges in zakat management is the lack of optimal governance structures, which can lead to misappropriation and inefficiencies in fund distribution. For instance, Isnaniati (2023) emphasizes that zakat management in Indonesia is hindered by instances of misuse, which undermine public trust in zakat institutions. This is echoed by Jalal et al. (2022) who note that inadequate human resource standards and a lack of regulatory frameworks contribute to suboptimal management practices in zakat institutions. Furthermore, the role of the state is crucial, as it can act as a regulator, facilitator, motivator, and distributor to enhance zakat management.

The integration of digital technologies into zakat management has emerged as a promising solution to address these challenges. Hadi discusses how digital platforms can facilitate zakat transactions and improve data management, thereby enhancing transparency and accountability in the distribution of zakat (Hadi et al., 2024). Similarly, the use of blockchain technology is advocated by Ismail et al. and Ahmed and Zakaria, who argue that it can significantly improve transparency and trust in zakat management by preventing fund misappropriation and ensuring that funds reach the intended beneficiaries (Ahmed & Zakaria, 2021; Ismail et al., 2023). Digital zakat management can be potentially increase public trust and improve service efficiency Santoso (2019).

Moreover, the performance of zakat institutions can be significantly enhanced through innovative programs and frameworks. Rozi points out that various amil zakat institutions in Indonesia have developed unique collection strategies, such as the Zakat Collection Unit (UPZ), which has improved the accessibility and efficiency of zakat collection (Rozi, 2024). This aligns with the findings of Mutamimah et al. (2021) who emphasize the positive impact of ICT on the governance of zakat management organizations. The establishment of a robust institutional framework is essential for managing zakat effectively, as demonstrated by the Malaysian zakat system, which has shown a steady increase in zakat collection through structured governance (Duasa, 2023; Migdad, 2019).

## **2.3 Blockchain Technology in Zakat**

The integration of blockchain technology into zakat management systems presents a transformative opportunity to enhance transparency, efficiency, and trust among stakeholders. Zakat, a fundamental pillar of Islam, has historically faced challenges related to management inefficiencies and a lack of transparency, which can undermine public trust in zakat institutions. The adoption of blockchain technology addresses these issues by providing a decentralized,

immutable ledger that allows for real-time tracking of zakat funds from collection to distribution.

Blockchain's inherent characteristics—transparency, security, and traceability—are particularly beneficial for zakat management. As noted by Sunarya & Al Qital (2022), blockchain facilitates transparent transactions, allowing stakeholders to trace the origins and flow of zakat funds, thereby reducing the potential for fraud and mismanagement. This is echoed by Mokodenseho et al. (2023), who emphasizes that blockchain can significantly enhance the accountability and efficiency of zakat transactions, providing stakeholders with real-time visibility into fund allocation. Furthermore, Ismail et al. argue that the implementation of blockchain can prevent the misuse of public funds and enhance donor confidence in zakat agencies (Ismail et al., 2023).

The role of government and good governance is also critical in facilitating the adoption of blockchain technology in zakat management. Utami (2023) highlights that strategic steps taken by institutions like BAZNAS, including digital campaigns and collaborations with e-commerce platforms, are essential for improving zakat collection and management. This is supported by NAZERI & SHIFA MOHD NOR (2023), who discusses the need for regulatory frameworks that accommodate blockchain applications in zakat management to ensure compliance and effectiveness. The establishment of such frameworks is crucial for addressing the existing gaps in zakat management, particularly in countries like Indonesia and Malaysia, where the potential for blockchain integration is significant (T. B. Santoso, 2023).

Moreover, the implementation of blockchain technology can enhance the trust of muzakki (zakat payers) in zakat institutions. Nor et al. point out that the ability to trace contributions through blockchain can alleviate concerns regarding the proper use of zakat funds, thereby improving governance and reducing financial misconduct (NOR PAIZIN & Abd Aziz, 2021). This sentiment is further reinforced by Zulfikri et al. (2021), who propose a blockchain-based zakat management model that enhances transparency and accountability, ultimately fostering greater trust among stakeholders.

## **2.4 Financial Technology in Zakat**

The integration of financial technology (fintech) into zakat management has emerged as a transformative force, enhancing the efficiency, transparency, and accessibility of zakat collection and distribution processes. The COVID-19 pandemic has intensified the adoption of digital solutions in this sector. Uula (2023) highlights that the pandemic significantly impacted the productivity of zakat institutions in Indonesia, necessitating a shift towards more efficient collection methods through technology. This transition is critical, as fintech can streamline operations, reduce costs, and improve outreach to unbanked populations, ultimately fostering financial inclusion (Ascarya & Sakti, 2022).

A systematic literature review conducted by Anurahman emphasizes that optimizing digital zakat distribution requires improved management systems. The implementation of online payment systems can enhance convenience for donors, particularly among millennials, while broadening the coverage of zakat collection efforts (Anurahman, 2023). Supporting this notion, Indarningsih et al. (2023) demonstrate that the presence of fintech positively influences muzakki satisfaction, thereby encouraging consistent zakat payments. Furthermore, the ease of access and transparency provided by fintech solutions plays a significant role in accelerating zakat collection. Komala (2023) argues that these technologies enhance accountability within zakat institutions.

Moreover, the digitization of zakat management is not limited to improving collection methods; it also encompasses innovative approaches to distribution. For instance, Mutamimah

et al. (2021) propose a collaborative framework that utilizes fintech to empower mustahiq (beneficiaries) economically, thereby enhancing their welfare. This perspective aligns with the findings of Rachman & Salam (2018) who contend that an integrated zakat management system utilizing fintech can lead to more effective financial services.

The potential of fintech in zakat management is further underscored by the role of blockchain technology in enhancing transparency and efficiency in fund distribution. As discussed by Omar & Khairi (2021) and Mohamed et al. (2023) the integration of blockchain can significantly improve the management practices surrounding zakat, ensuring that funds are utilized effectively while increasing accountability and trust among stakeholders.

### 3. Methodology

The methodology for conducting a bibliometric review on blockchain technology in zakat management follows systematic steps to analyze existing literature, identify trends, gaps, and future research directions. This is particularly significant as zakat institutions increasingly explore digital transformation to enhance transparency and efficiency.

Bibliometric analysis quantitatively evaluates academic literature in specific fields, utilizing databases like Scopus to gather relevant publications on blockchain and zakat management. Alshater et al. (2021) underscore the importance of bibliometric reviews in understanding zakat literature dynamics, while Luo et al. (2021) discuss the utility of such analyses in tracking the evolution of blockchain research.

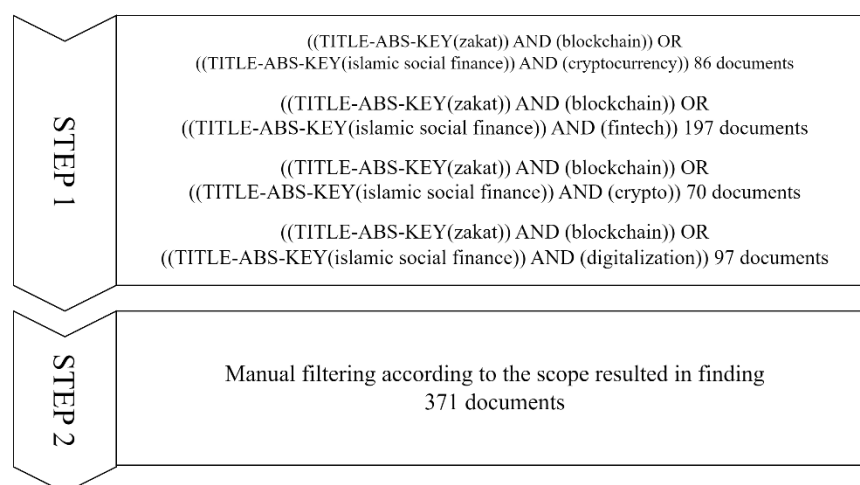


Figure 1. Data Screening Method

In this research, the R programming language, Mendeley Desktop Manager, and Excel were employed as bibliometric analysis tools. RStudio was utilized to generate the required bibliographic data efficiently and accurately in data sets. Mendeley Desktop Manager was used to export updated details and to provide data in .bib format, facilitating subsequent analysis using RStudio's Biblioshiny. Additionally, Excel serves as a complementary tool, offering flexible graph editing capabilities that enhance the presentation and visualization of bibliometric data according to analytical needs.

Key components of the bibliometric review include:

- a. Citation Analysis: Identifies influential papers and authors within the field.

- b. Co-Citation Analysis: Reveals connections between works, illustrating collaborative research trends (Rahmawati & Subardjo, 2022).
- c. Keyword Analysis: Discerns prevalent themes and emerging topics crucial to current research on blockchain applications in zakat management.

## 4. Analysis and Discussion

### 4.1 Sources Analysis

Table 1. Documents Type

No.	Documents Type	Number of Articles
1	Journal Article	318
2	Book	19
3	Book Chapter	14
4	Review	15
5	Conference Paper	5
	Total	371

The table above presents the different types of documents analyzed, showing a total of 371 articles categorized into five distinct types, with the following details: (1) Journal Articles consist of 318 articles, making up 85.8%, (2) Books include 19 articles, accounting for 5.1%, (3) Book Chapters consist of 14 articles, representing 3.8%, (4) Review Articles include 15 articles, which is 4.0%, and (5) Conference Papers comprise 5 articles, representing 1.4% of the total. Based on the table, it can be concluded that the predominant type of document used in this research is Journal Articles, with a significant majority of 85.8% (318 articles). Conversely, the least utilized type is Conference Papers, which only accounts for 1.4% (5 articles). This distribution indicates that the references in this analysis are primarily derived from scholarly sources, underscoring the validity and reliability of the research conducted.

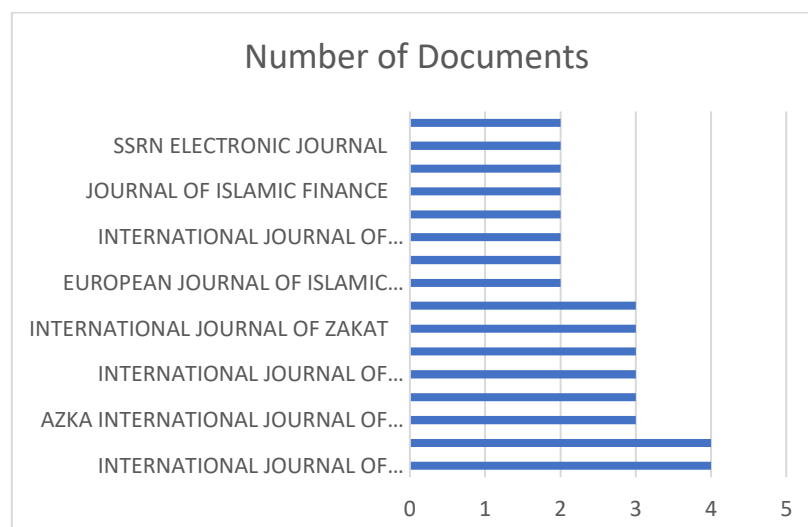


Figure 2. Most Relevant Source

The figure above illustrates the number of documents published by various journals, reflecting their relevance to the theme of this research, specifically on blockchain technology in zakat management. The data presents a list of the top journals along with the corresponding number of documents published, represented with a bar chart in varying shades of blue. The number of documents published by all journals ranging from 2 to 4.

Notably, two journals, INTERNATIONAL JOURNAL OF ETHICS AND SYSTEMS and JOURNAL OF ISLAMIC ACCOUNTING AND BUSINESS RESEARCH, are tied for the highest position, each publishing 4 documents. This is represented by the the highest in number of documents, highlighting their significant relevance to the discussed theme.

Conversely, several journals such as SSRN ELECTRONIC JOURNAL, and JOURNAL OF MUAMALAT AND ISLAMIC FINANCE RESEARCH others appear toward the lower end of the number of documents with only two. These journals has lower quantity of published papers and, consequently, less relevance to the theme of blockchain technology in zakat management. Overall, the representation in the table provides a clear picture of which sources are most pivotal within this research context.

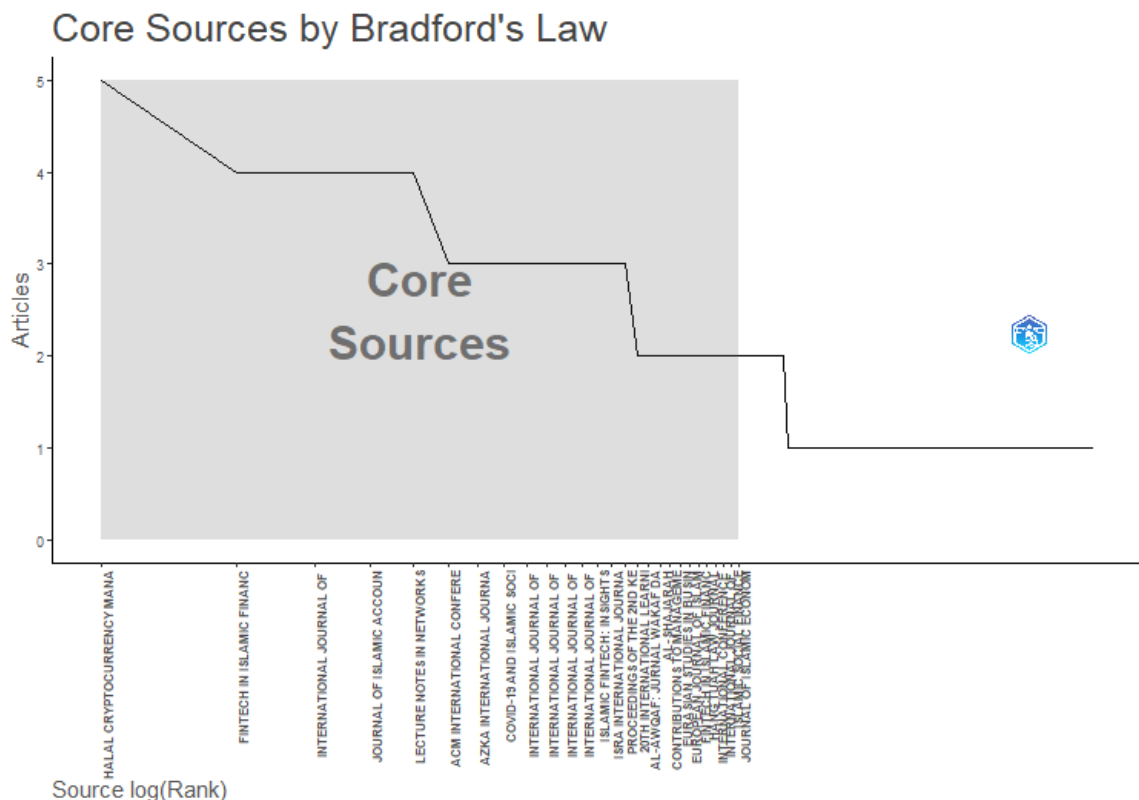


Figure 3. Bradfords' Law

The next discussion focuses on the classification of journals based on Bradford's Law. This classification is organized by productivity levels, divided into core, intermediate, and broad journal groups. Core journal groups are highlighted in shaded sections and labeled as



core sources. Journals in this category exhibit the highest productivity in the subject of blockchain technology in zakat management during the specified period.

The top journals include INTERNATIONAL JOURNAL OF ETHICS AND SYSTEMS and JOURNAL OF ISLAMIC ACCOUNTING AND BUSINESS RESEARCH, each publishing 4 documents related to the research theme. Additionally, in the core journal category, there are several other journals, each with 3 published documents. These include AZKA INTERNATIONAL JOURNAL OF ZAKAT & SOCIAL FINANCE, INTERNATIONAL JOURNAL OF ACADEMIC RESEARCH IN BUSINESS AND SOCIAL SCIENCES, INTERNATIONAL JOURNAL OF ECONOMICS AND BUSINESS ADMINISTRATION, INTERNATIONAL JOURNAL OF ISLAMIC ECONOMICS AND FINANCE RESEARCH, INTERNATIONAL JOURNAL OF ZAKAT, and ISRA INTERNATIONAL JOURNAL OF ISLAMIC FINANCE. These journals are pivotal in contributing to the research on blockchain technology in zakat management.

Furthermore, it identifies a category of core journals, which, while having published slightly fewer documents (three each), still plays a crucial role in advancing knowledge in the area. These include a range of journals that cover aspects of zakat and Islamic finance, signifying a broader academic interest and commitment to exploring the intersection of blockchain technology with these subjects.

Overall, the paragraph underscores these journals' pivotal role in shaping the discourse, contributing substantial research output, and facilitating further exploration and understanding of how blockchain technology can be applied within the framework of zakat management. This may be valuable for researchers seeking reliable sources and significant contributions in their own studies.

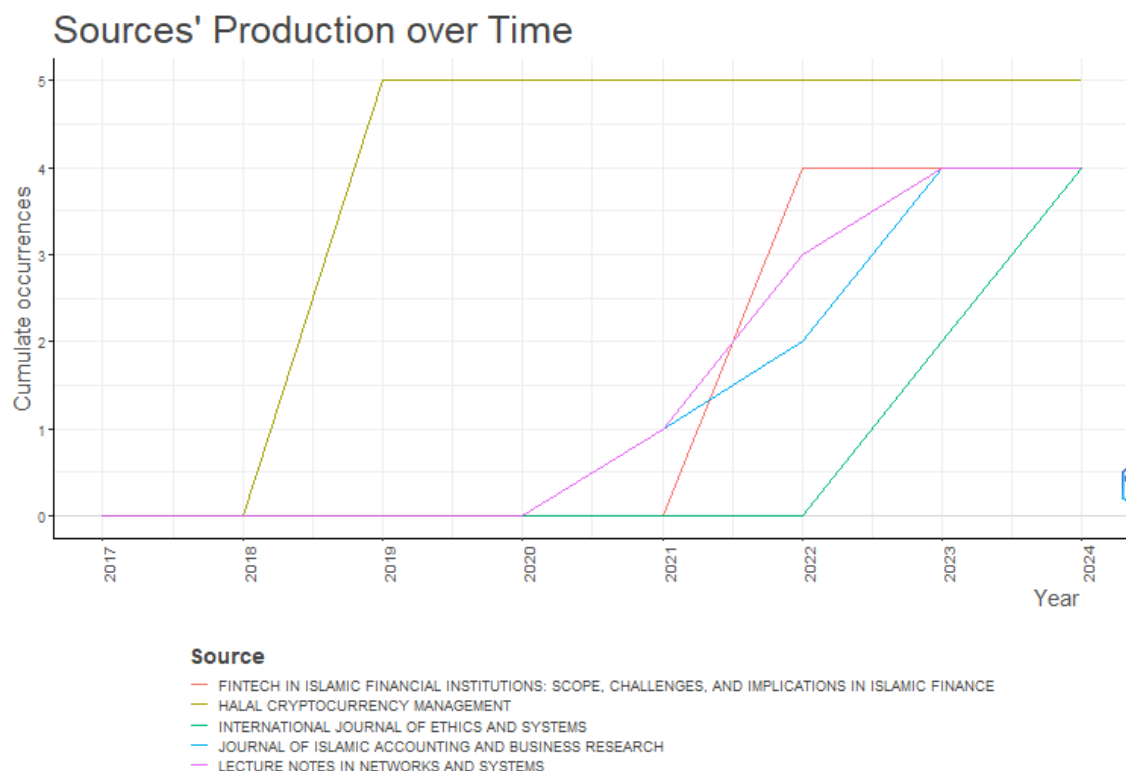


Figure 4. Source Production Over Time

Table 2 and Figure 4 also showcases the evolution of journal publications on blockchain technology in zakat management from 2017 to 2024 across four key journals: HALAL CRYPTOCURRENCY MANAGEMENT, JOURNAL OF ISLAMIC ACCOUNTING AND BUSINESS RESEARCH, FINTECH IN ISLAMIC FINANCIAL INSTITUTIONS, AND LECTURE NOTES IN NETWORKS AND SYSTEMS.

1. **Growth Patterns:** The publications in these journals began rising around 2019, signifying the increasing scholarly interest in blockchain applications within Islamic finance contexts. This upward trend continued, peaking around 2023 and 2024. For instance, the JOURNAL OF ISLAMIC ACCOUNTING AND BUSINESS RESEARCH has shown a steady annual increase since 2021, reaching its highest point in 2023. This pattern indicates that blockchain in zakat management is gaining traction, with researchers contributing significantly in recent years.
2. **Journal-Specific Trends:** Each journal exhibits a unique growth trajectory. The JOURNAL OF ISLAMIC ACCOUNTING AND BUSINESS RESEARCH experienced continuous growth, which highlights its role as a prominent platform for blockchain discussions within Islamic finance. In contrast, journals such as FINTECH IN ISLAMIC FINANCIAL INSTITUTIONS AND LECTURE NOTES IN NETWORKS AND SYSTEMS have displayed fluctuating publication rates, showing varying levels of engagement with the theme.
3. **Implications:** The variability in publication rates suggests a dynamic research landscape where blockchain's application in zakat management is still evolving. It also reflects the diverse scope of contributions across different academic outlets, revealing the potential for increased research on this subject. This upward trend signals a recognition of blockchain's potential to enhance transparency and efficiency in Islamic financial systems, particularly in managing zakat.

Overall, this trend analysis underlines blockchain's growing relevance in Islamic finance and the ongoing scholarly efforts to explore and understand its applications in managing religious financial obligations.

Table 2. Source Production Over Time

Year	HALAL CRYPTOCURRENCY MANAGEMENT	JOURNAL OF ISLAMIC ACCOUNTING AND BUSINESS RESEARCH	FINTECH IN ISLAMIC FINANCIAL INSTITUTIONS: SCOPE, CHALLENGES, AND IMPLICATIONS IN ISLAMIC FINANCE	LECTURE NOTES IN NETWORKS AND SYSTEMS
2017	0	0	0	0
2018	0	0	0	0
2019	5	0	0	0
2020	5	0	0	0
2021	5	1	0	1
2022	5	2	4	3
2023	5	5	4	4
2024	5	5	4	4

## 4.2 Author Analysis

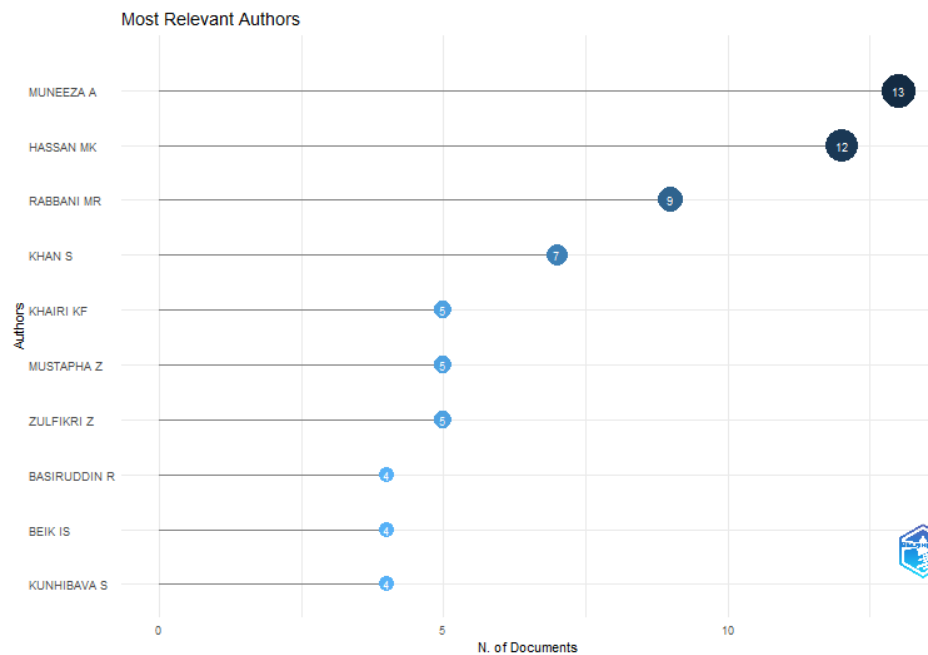


Figure 5. Most Relevant Authors

The image above displays a list of authors and the number of documents they have published, reflecting their relevance to the research theme of blockchain technology in zakat management. The data includes the names of the top authors, with a blue bar chart indicating the number of documents published. Darker blue bars represent a higher quantity and greater relevance to the research theme, with the number of documents ranging from 1 to 13.

In the chart, Muneeza A holds the top position with 13 published documents, as indicated by the darkest blue bar, signifying strong relevance to the theme. Following closely are Hassan MK and Rabbani MR, with 12 and 9 documents respectively. Other authors, such as Khan S and Khairi KF, have contributed significantly, with 7 and 5 documents each. The lighter blue bars represent authors with fewer publications, indicating a lesser degree of relevance to the research theme.

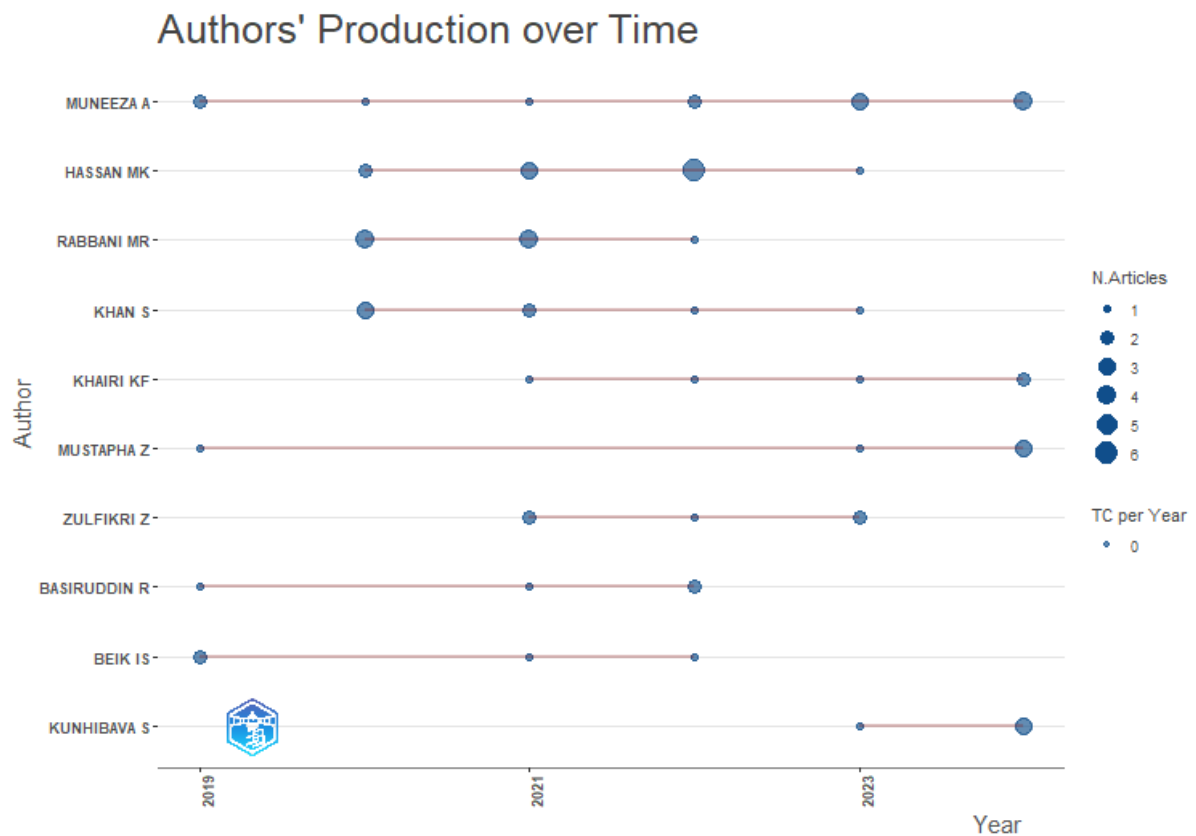


Figure 6. Top Author's Production over the Time

Productivity can be measured not only in journals but also among individual authors. Figure 6 above illustrates the production of some of the top authors during the research period from 2019 to 2023. The red line represents the span from the first to the last year an author published their work. Circles on the red line indicate the number of papers published each year.

In this study, as shown in the figure 6, some authors have been consistently publishing on blockchain technology in zakat management, while others have shorter publication spans. Muneeza A has the most extensive track record, publishing consistently from 2019 to 2023, as indicated by multiple circles along the line. The darkest blue circles represent the highest quantity of publications.

Other authors, such as Hassan MK and Rabbani MR, also show significant contributions over several years. In contrast, authors like Kunhibava S have fewer publications, indicated by fewer circles and shorter lines. This visualization highlights the varying levels of engagement and productivity among authors in this research area.

### 4.3 Document Analysis

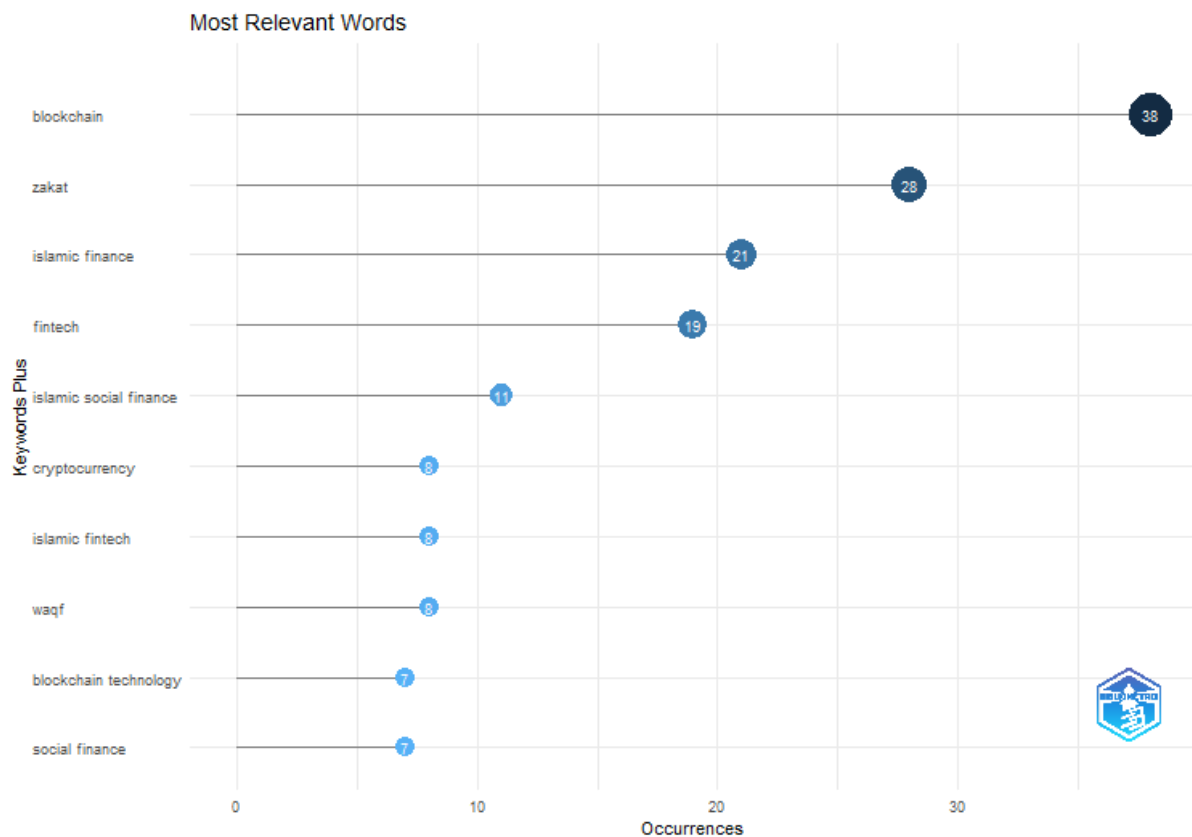


Figure 7. Most Relevant Words

This study also analyzes the relevant words used in the collection of documents that are the focus of the research. The image above displays several words with occurrences ranging from 0 to nearly 40, listing the top 10 words. The blue bar chart compares the frequency of each word's usage and its relevance to the theme of blockchain technology in zakat management.

The word with the highest number of occurrences and most relevance to the research theme is 'blockchain,' appearing 38 times, as indicated by the darkest blue circle. This word aligns closely with the research focus. Following 'blockchain,' the words 'zakat' and 'Islamic finance' appear 28 and 21 times, respectively. Other significant words include 'fintech' and 'Islamic social finance,' with 19 and 11 occurrences each. These words highlight the central themes and concepts explored in the research documents.



Figure 8. Word Cloud

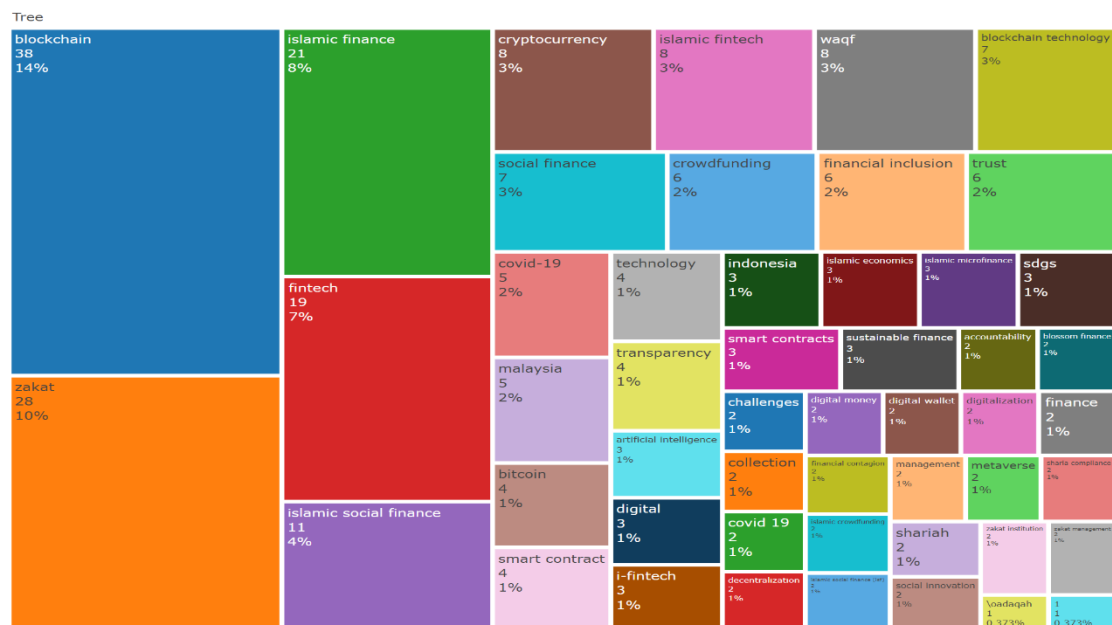


Figure 9. Word Tree Map

Based on the provided context, Figure 8 and Figure 9 in the research paper reveals a description of frequently appearing words in the collection of data papers studied under the theme of blockchain technology in zakat management. The Word Tree Map above displays words in boxes, similar to regions on a map, where the more frequently a word appears, the larger the square area. In this visualization, the word 'blockchain' appears most frequently, with 38 occurrences, occupying the largest area. Following this, 'zakat' and 'Islamic finance' appear 28 and 21 times, respectively, indicating their significance in the research theme. Other notable words include 'fintech' with 19 occurrences and 'cryptocurrency' with 8 occurrences. This map effectively highlights the dominant concepts and themes explored in the research documents.

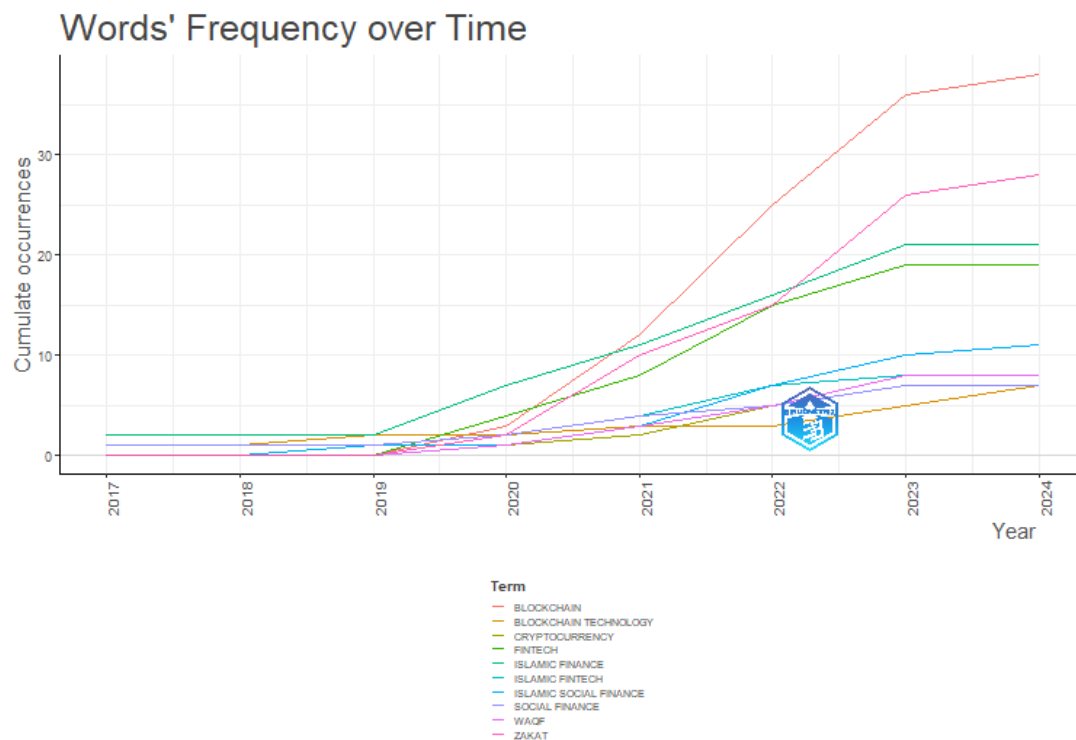


Figure 10. Word Growth

In this study, the frequently appearing words are depicted in a development curve over the years, showing the annual occurrence value. This value represents the average frequency of these words in the data collection under the theme of blockchain technology in zakat management per year. Figure 8 illustrates that most frequently used words have been gaining traction since 2017, with a steady increase each year.

The word 'blockchain' shows the highest growth, with a steep curve reaching a cumulative occurrence of over 30 by 2024. In second place is 'zakat,' with its annual occurrence value reaching around 20 by 2024. Following closely are 'Islamic finance' and 'fintech,' both showing significant increases but not as steep as the top two words. Additionally, the keyword 'cryptocurrency' has shown a more gradual increase, with a slight decline in growth rate after 2022. This visualization highlights the evolving focus and interest in these key terms over the study period.

It indicates the shifting emphasis and evolving interest in specific keywords related to blockchain technology in zakat management over the study period. It highlights that "blockchain" and "zakat" have garnered the most attention and have shown significant growth in their usage, while "Islamic finance" and "fintech" are also gaining relevance but at a slower pace. The mention of "cryptocurrency" demonstrates that, although it has experienced some growth, its popularity has not increased as sharply, particularly after 2022. Overall, this suggests that the discourse surrounding these topics is actively developing, with certain terms becoming increasingly central to the conversation in the field.

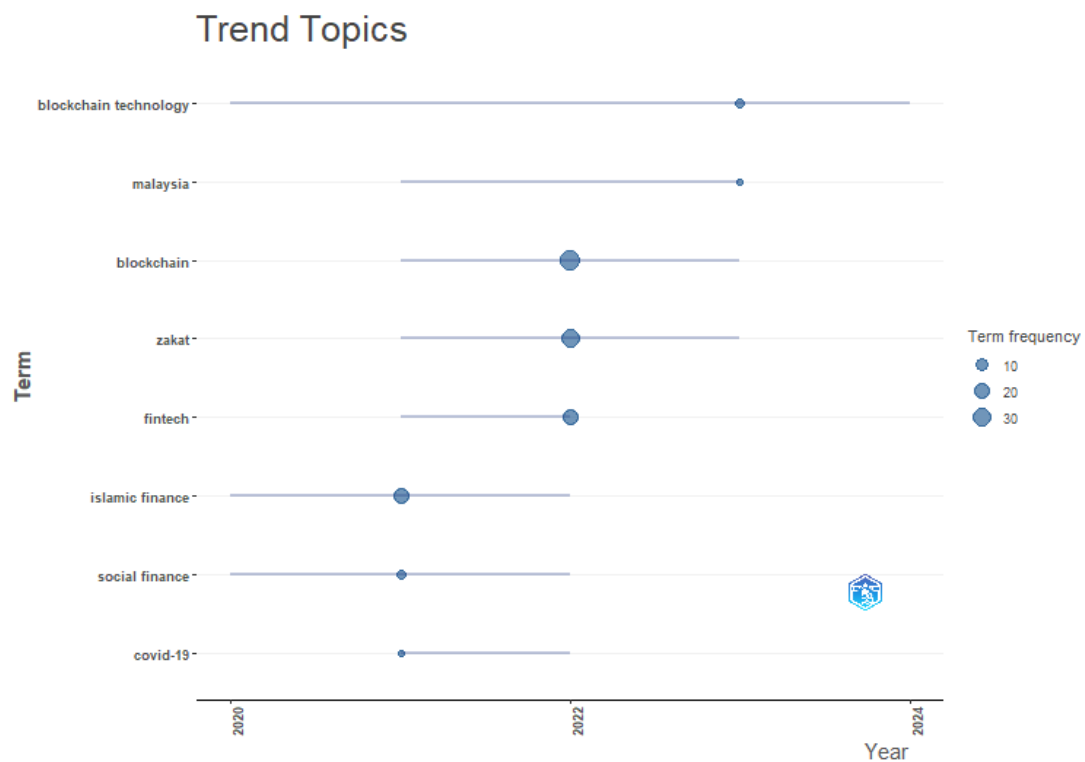


Figure 11. Trend Topics

Trend Topics are an integral part of this research. The image above provides an overview of the development of topics related to blockchain technology in zakat management over time, divided by year. This allows us to identify which topics have been longstanding and which have emerged more recently. The frequency of each topic's appearance is indicated by the size of the circle, with higher frequency shown by larger circles. The position further to the right indicates more recent usage. The development of these topics began to see a significant increase around 2020. Based on Figure 9, the topic 'blockchain technology' has been prominent since 2020, with a substantial frequency. In 2021, topics like 'zakat' and 'fintech' began to gain traction. The topic with the highest frequency in recent years is 'blockchain technology,' peaking in 2023. The latest topics gaining attention in 2024 include 'Malaysia' and 'covid-19,' with varying frequencies. 'Covid-19' is the least frequent, while 'blockchain technology' holds the top position in terms of frequency.



#### 4.4 Conceptual Structure Analysis

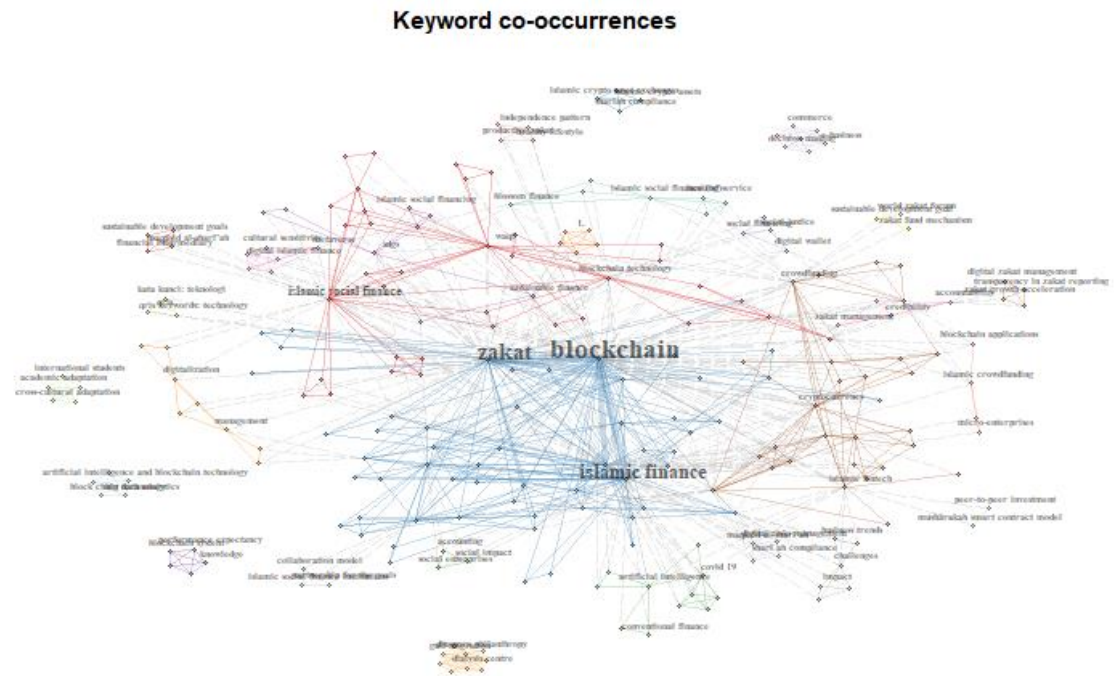


Figure 12. Network Visualization

The analysis of the conceptual structure in this study involves mapping the co-occurrence of important or unique terms in publications on the theme of blockchain technology in zakat management. The network visualization of the co-word map is shown in Figure 19. The development map is divided into three clusters as follows:

Blue Cluster 1 consists of topics dominated by 'zakat,' 'blockchain,' 'Islamic finance,' and 'Malaysia.' Other topics in this cluster include 'waqf,' 'Islamic social finance,' 'management,' 'digital,' 'collection,' 'covid-19,' 'Indonesia,' and 'Islamic economics.'

Red Cluster 2 includes topics dominated by 'blockchain,' 'Islamic finance,' 'fintech,' and 'social finance.' Additional topics are 'technology,' 'smart contracts,' 'cryptocurrency,' 'trust,' 'transparency,' 'sharia compliance,' 'digital money,' 'crowdfunding,' 'financial inclusion,' 'social innovation,' 'i-fintech,' 'bitcoin,' 'metaverse,' 'artificial intelligence,' 'financial contagion,' and 'shariah.'

Green Cluster 3 is not clearly shown in the image but would typically include topics related to 'Conventional finance,' 'artificial intelligence,' 'covid-19,' 'islamic cryptocurrencies'

It indicates that the visualization of the co-word map reveals the interconnectedness and significance of various topics within the research theme of blockchain technology in zakat management. It underscores how different terms and concepts are related to one another,

suggesting that these topics do not exist in isolation but rather are part of a broader discourse. This interconnectedness emphasizes the complexity of the research landscape, illustrating how themes like zakat, blockchain, fintech, and Islamic finance overlap and enhance each other, thereby providing insights into emerging trends and areas of interest within this field of study. Overall, it highlights the relevance of these clusters in understanding the multifaceted nature of blockchain's application in zakat management.

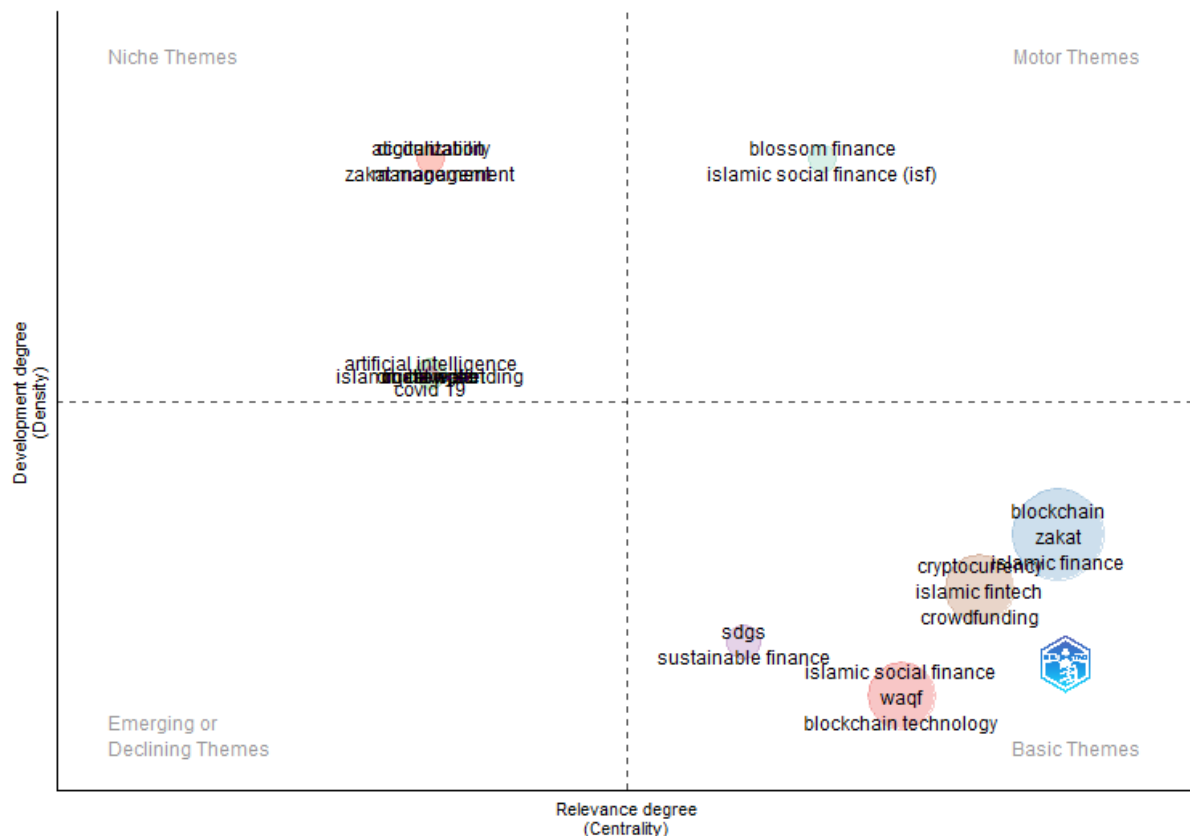


Figure 13. Thematic Map

The image above shows the most commonly used keywords in blockchain technology in zakat management publications. Some of these words are keywords provided by the original author at the time of publication. By applying a semi-automatic algorithm, reviewing the titles of all research references, and adding relevant keywords beyond the author's, the results capture deeper variations. It is possible to group various themes from a particular domain into four clusters. Each cluster, containing several themes, is represented on a strategic or thematic map. The division is based on centrality and density. Centrality indicates the subject's interest in the whole field of research, while density measures the subject's development. Based on the image above it can be specified as some categories:

The upper left cluster is characterized by high density but low centrality. The themes here have high development but are specific and rare, including 'accountability,' 'zakat management,' and 'sustainability.'

The upper right cluster features themes with high density and centrality, indicating they need further development and study. Themes in this quadrant include 'blossom finance' and 'Islamic social finance (ISF).'

The lower left cluster contains themes used for a long time but experiencing a downward trend with low centrality. Detected themes are 'artificial intelligence,' 'Islamic understanding,' and 'covid-19.'

The lower right cluster represents basic themes characterized by high centrality but low density. These themes are important for study as they are general topics commonly used and researched, including 'blockchain,' 'zakat,' 'Islamic finance,' and 'cryptocurrency'.

Overall, the paragraph highlights the varying stages of development and relevance of different research themes within the field, suggesting areas that are ripe for further exploration and those that may be becoming outdated. This analysis helps identify where research efforts might be concentrated to advance knowledge in the application of blockchain technology in zakat management.

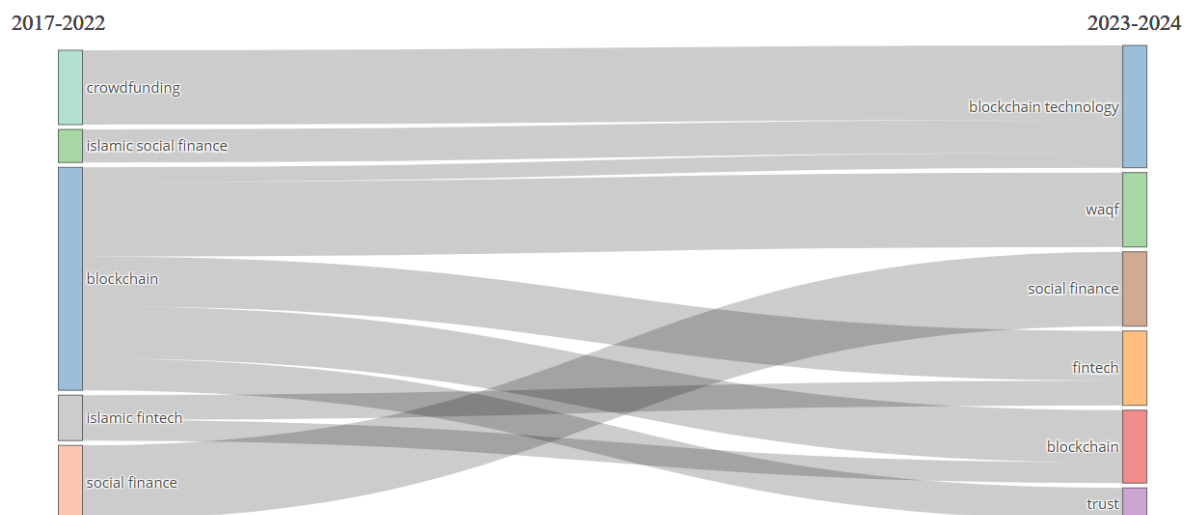


Figure 14. Thematic Evolution

The themes used in the research papers continue to evolve, especially when comparing recently published papers to older ones. The image above illustrates the thematic evolution related to blockchain technology in zakat management. Themes are depicted as rectangles, with larger sizes indicating more frequent use. Although the primary focus is on blockchain technology, the data reveals several widely used subthemes. The left section displays themes prevalent in the early period from 2017-2022. During this initial stage, themes like blockchain, Islamic fintech, and social finance were prominent. The middle section highlights themes that gained traction in 2023-2024. Some themes evolved from earlier ones, such as the transition from Islamic social finance to blockchain technology, indicating a thematic extension. In this section, themes like fintech and waqf emerged, with fintech being particularly prominent. The right section shows themes that became popular in 2023-2024, including blockchain technology and social finance. These themes evolved from previous periods, while new themes like trust and fintech also appeared. The most widely used theme in this period was blockchain technology, followed by social finance and fintech. Some themes, like crowdfunding, did not evolve further, remaining static in their thematic representation.

## 5. Conclusion

The bibliometric review presented in this study highlights the transformative potential of blockchain technology in the management of zakat, emphasizing its capacity to enhance efficiency, transparency, and accountability within zakat institutions. By systematically analyzing 371 documents from reputable databases such as Scopus, the research identifies key themes and trends in the literature, including the significant roles of blockchain, zakat, and Islamic finance. The findings reveal a robust scholarly interest in this intersection, with journal articles comprising the majority of the analyzed documents. This underscores the importance of academic discourse in shaping the future of zakat management through digital transformation, while also pointing to emerging themes such as fintech and social finance that warrant further exploration.

## 6. Implications and Limitations

The integration of blockchain technology and digital transformation into zakat management carries significant implications for policymakers and zakat institutions. Policymakers must create regulatory frameworks that ensure transparency, compliance with Islamic principles, and equitable access to digital platforms, especially for marginalized communities. Zakat institutions, on the other hand, should focus on governance reforms, emphasizing the importance of *amil* (zakat managers) in fostering transparency and community involvement. Strengthening digital literacy, particularly among underprivileged populations, is crucial for ensuring inclusive participation in zakat programs. Additionally, non-technical aspects such as trust, governance, and community engagement are critical to ensuring that digital tools contribute to broader social equity and poverty alleviation goals.

Digital tools, including blockchain, have the potential to enhance the efficiency, transparency, and accountability of zakat management. These technologies can streamline zakat fund management, building trust among *muzakki* (zakat payers) and making distribution more effective. The adoption of digital platforms also aligns with the preferences of younger generations, who seek convenient and accessible payment methods, thereby ensuring continued zakat collection. Furthermore, digital tools promote financial inclusion by reaching unbanked populations, reinforcing zakat's social welfare objectives. However, successful implementation depends on strong governance frameworks and community engagement to ensure that the technological advances meet zakat's ethical and social goals, such as poverty alleviation and promoting social justice.

Despite these advancements, this study faces several limitations. Bibliometric analysis, while helpful in mapping research trends, may not fully capture the dynamic and evolving nature of digital transformation in zakat management. The analysis depends heavily on selected databases such as Scopus, which may introduce bias by excluding relevant research from non-indexed or regional journals, resulting in an incomplete picture. Practical challenges also exist in adopting blockchain and digital tools, particularly due to technological disparities and varying levels of digital literacy. The digital divide, especially in rural areas or regions with unreliable internet access, could hinder equal participation in these new systems. Furthermore, without robust governance and regulatory measures, digital transformation might fail to address issues such as fraud or mismanagement in zakat distribution.

## 7. Recommendations for Future Research

- a. Regional Differences and Barriers: Research should explore how local governance, infrastructure, and community engagement affect digital zakat adoption, comparing urban and rural areas or countries. Understanding barriers like low digital literacy and cultural resistance is essential for inclusive solutions.
- b. Regulatory and Legal Influences: Studies should assess how legal frameworks and Islamic jurisprudence impact blockchain and fintech use in zakat, examining how regulations either support or hinder digitalization.
- c. Efficiency and Community Engagement: Research should evaluate whether digital tools improve zakat distribution efficiency and equity, and how institutions can foster trust and transparency through community engagement and feedback.

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