

A Closer Look at Zakat Collection Technology Research: A Bibliometric Analysis

WURYANINGSIH DWI LESTARI, MUHAMMAD SHOLAHUDDIN, MUJIYATI, FATAH
YASIN AL IRSYADI

Department of Economics and Business,
Universitas Muhammadiyah Surakarta,
Sukoharjo, Jawa Tengah,
INDONESIA

Abstract: - Zakat technology is a significant innovation in the optimization of zakat collection and distribution, leveraging digital platforms to enhance efficiency and transparency. This research aims to identify gaps and trends in zakat technology research through a bibliometric analysis of publications from 2019 to 2024 using Scopus data. The study employs a quantitative approach, utilizing tools like VOSviewer and biblioshiny for data visualization. The research process involves four steps: defining keywords, initializing search results, refining results, and analyzing data. Key findings include a consistent increase in publications, with the Journal of Islamic Accounting and Business Research being the most prolific publisher and Widiastuti T. the leading author. Frequently used keywords such as "zakat" and "zakat institution" indicate strong research interest. Indonesia and Malaysia are the top contributors to this field. The study highlights potential future research areas, including the integration of blockchain technology in zakat management. The most influential article is titled "An Artificial Intelligence and NLP based Islamic FinTech Model Combining Zakat and Qardh-Al-Hasan for Countering the Adverse Impact of COVID-19 on SMEs and Individuals." This research provides valuable insights for researchers, policymakers, and practitioners, emphasizing the need for further studies to validate existing findings and explore new areas within zakat technology. Overall, the study contributes to filling gaps in the literature and enhancing understanding of zakat technology's development and application.

Key-Words: - e-zakat, zakat technology, zakat digital, e-zakat adoption

Received: May 11, 2024. Revised: November 26, 2024. Accepted: February 4, 2025. Published: May 6, 2025.

1 Introduction

Zakat is one of the pillars of Islam that plays a crucial role in supporting the social and economic well-being of the Muslim community [1]. With the advancement of information technology, there is a growing need to optimize the collection and distribution of zakat using technology [2]. Zakat technology encompasses various digital applications and platforms designed to enhance efficiency, transparency, and accessibility in the zakat process [3]. Research related to zakat technology has shown various innovations and applications that contribute to improving the efficiency of zakat collection and distribution [4]. Recent studies highlight the importance of using blockchain technology, mobile applications, and digital platforms to facilitate the zakat process [5]. Additionally, there have been significant developments in the adoption of

technology by zakat institutions to optimize zakat management and reporting.

Although there has been much research examining various aspects of zakat technology, there is still a lack of analysis of current research trends in this field. Some earlier studies tend to focus on technical aspects or specific implementations without providing a comprehensive overview of the overall direction and trends of the research [6]. Therefore, there is an urgent need to conduct a comprehensive bibliometric analysis to identify patterns, trends, and future directions of zakat technology research [7].

2 Hypothesis

This research is expected to provide significant contributions to understanding the evolution and trends of research related to zakat technology. By

identifying underexplored areas and potential research directions, this study can help researchers and practitioners direct their efforts towards areas that require more attention [8]. Furthermore, this analysis can also offer valuable insights for policymakers in developing strategies to promote the broader adoption of zakat technology.

The aim of this research is to highlight the topic of zakat technology derived from scientific literature based on Scopus data and to identify gaps and recommendations for future research. Specifically, the objectives of this research are to answer the following questions related to the topic of "Zakat Technology":

RQ1: What are the research trends in zakat technology based on the number of publications per year?

RQ2: Which journals publish the most papers in the field of zakat technology?

RQ3: Which authors contribute the most to the publication of research on zakat technology?

RQ4: Which fields of study or disciplines contribute to research on zakat technology?

RQ5: From which countries do authors contribute the most to the publication of research on zakat technology and their collaborations?

RQ6: Which articles are the most influential based on citations in Vos Viewer?

3. Methodology

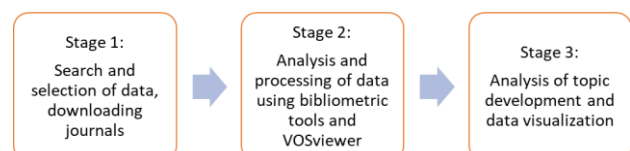
This research is a descriptive bibliometric study that utilizes a literature database with a descriptive-analytical qualitative approach [9]. This approach emphasizes the search and review of written sources and other reading materials relevant to the discussed theme for further study and in-depth analysis [10]. The analytical technique used is content analysis, including induction, deduction, and comparison methods. In the field of bibliometrics, bibliometric mapping is the main focus of this study [11]. Creating bibliometric maps and their graphical representations are two distinctive features of bibliometrics. The greatest challenge in bibliometric literature is creating bibliometric maps, where the influence of differences in similarity measures is studied and tested using various mapping techniques

[12]. Bibliometric graphical representation requires careful attention. Although some researchers seriously address graphical representation issues, most literature articles rely on simple graphical representations provided by computer programs. This study uses published data from papers sourced from various scientific journals and other sources related to the research topic of zakat technology trends[13].

The first step is to establish the keywords to be used in this research. To cover all aspects of zakat technology, this study uses a series of separate keywords such as "e-zakat," "technology AND zakat," "zakat AND digital," and "e-zakat adoption." After determining the appropriate keywords, the next step is to search for articles in the Scopus database. This search is limited to journal articles and conference papers written by authors from Indonesia. The initial search resulted in 757 documents.

The third step involves refining the initial search results by removing duplicate documents, thus identifying relevant documents within the last five years[14]. Finally, the data is analyzed using bibliometric software such as Bibliometrix (bibliophily R) and VOSviewer. In summary, the research methodology can be illustrated in the following scheme:

Table 1. Research Methodology for Analyzing Zakat Technology Research Trends



((TITLE-ABS-KEY(zakat) OR TITLE-ABS-KEY(e-zakat) OR TITLE-ABS-KEY(technology AND zakat) OR TITLE-ABS-KEY(zakat AND digital) OR TITLE-ABS-KEY(e-zakat adoption)) AND PUBYEAR > 2018 AND PUBYEAR < 2025 AND (LIMIT-TO (SUBJAREA,"SOCI") OR LIMIT-TO (SUBJAREA,"BUSI") OR LIMIT-TO (SUBJAREA,"ECON") OR LIMIT-TO (SUBJAREA,"ARTS") OR LIMIT-TO (SUBJAREA,"COMP")) AND (LIMIT-TO (DOCTYPE,"ar") OR LIMIT-TO (DOCTYPE,"cp")) AND (LIMIT-TO (SRCTYPE,"j") OR LIMIT-TO (SRCTYPE,"p")) AND (LIMIT-TO (LANGUAGE,"English")))

4. Bibliometric Analysis Results

Based on the bibliometric analysis related to the theme of "Zakat Technology," it is evident that publication trends in recent years have shown a significant increase [15]. In 2019, there were 77 publications, which increased to 91 publications in 2020. This trend continued with 86 publications in 2021, and a slight decrease to 82 publications in 2022. However, 2023 saw a sharp rise with 106 publications, and although the data for 2024 only covers part of the year, there are already 43 publications.

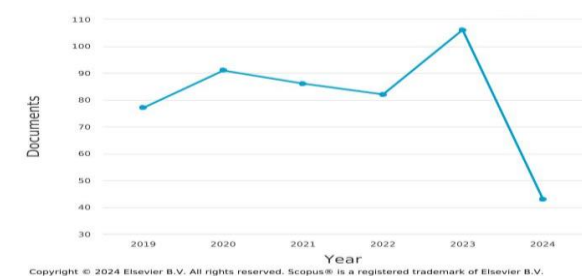


Figure 1. Document by Year
Source: Scopus

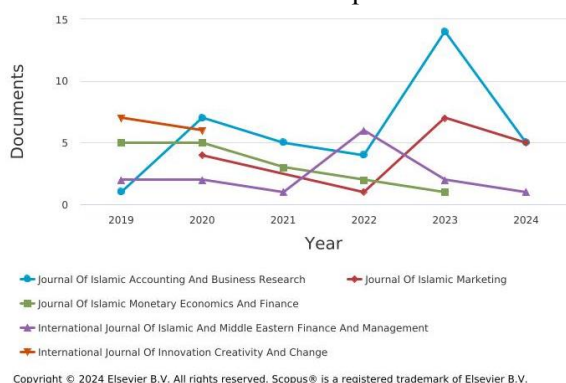


Figure 2. Document Per Year by Source
Source: Scopus

According to the bibliometric analysis, five journals have published the most articles on the theme of "Zakat Technology." These journals are the Journal of Islamic Accounting and Business Research (36 articles), Journal of Islamic Marketing (17 articles), Journal of Islamic Monetary Economics and Finance (16 articles), International Journal of Islamic and Middle Eastern Finance and Management (14 articles), and International Journal of Innovation Creativity and Change (13 articles). These journals play a crucial role in disseminating research related to zakat technology, demonstrating significant attention to this topic and reflecting the growing academic interest[16].

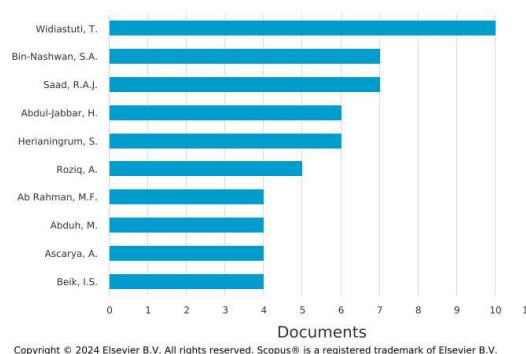


Figure 3. Document by author
Source: Scopus

Based on the bibliometric analysis, the most productive authors in the topic of "Zakat Technology" are Widiastuti, T., with 10 publications, followed by Bin-Nashwan, S.A., and Saad, R.A.J., each with 7 publications. Abdul-Jabbar, H., and Herianingrum, S. each contributed 6 publications. Additionally, Roziq, A. has 5 publications, while Ab Rahman, M.F., Abduh, M., Ascarya, A., Beik, I.S., Hudaefi, F.A., Munandar, A., Nurzaman, M.S., Ratnasari, R.T., Ryandono, M.N.H., Sawandi, N., and Siswantoro, D. each have 4 publications. These authors have significantly contributed to the development of research in the field of zakat technology, demonstrating their dedication and focus on exploring technological aspects in zakat management[17].

4.1. Data Analysis

In this section, bibliometric analysis was conducted using the VOS Viewer application to visualize results based on frequently occurring keywords. This is highly beneficial as it can highlight the topics that have been researched over a five-year period (2019 - 2024). VOS Viewer also provides cluster analysis, which shows the relationships between different topics. Specifically in the field of zakat technology research, this study has mapped the bibliometric analysis into three different visualizations: (1) network data visualization, as shown in Figure 4; (2) overlay visualization, shown in Figure 5; and (3) density visualization, shown in Figure 6.

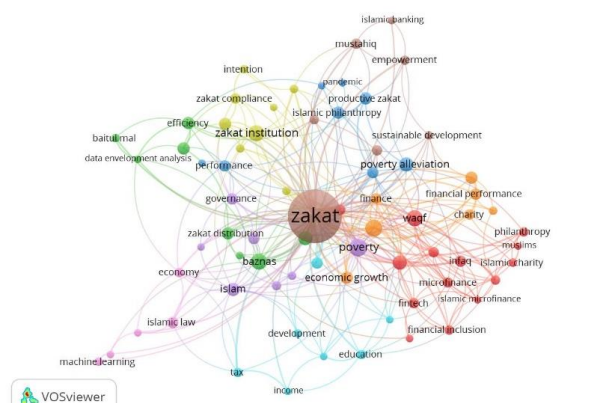


Figure 4.

In Figure 4, the visualization of items (keywords) related to the research topic of Zakat Technology is labeled and represented as circles by default in VOS Viewer. Items or keywords that play a significant role appear with larger circles as they occur more frequently. To analyze the research points from previous studies, the authors examine the co-occurrence of keywords in publications related to Zakat Technology. The frequency of occurrence determines the size of the circles[18]. The keywords "Zakat" and "Zakat Institution" are the top research topics due to their highest frequency of occurrence. When a color is assigned to an item, each circle is colored differently based on its respective cluster.

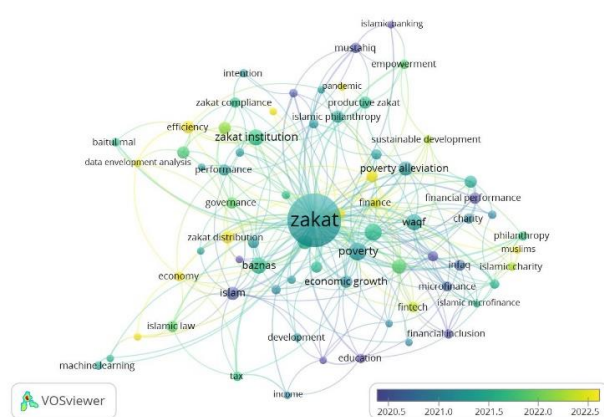


Figure 5.

In Figure 5 above, the visualization from the Scopus database shows that there are nine main clusters representing the trending research topics and their interconnections in the area of Zakat technology[19]. The color in the image represents the publication year of each article, where a more yellowish color indicates that the research was conducted around the year 2022, while a more bluish color (2020) indicates that the research has

been conducted for a longer time. This visualization allows us to understand the distribution of research topics over time and identify the emerging and established areas of study in the field of Zakat technology. Each cluster on the map consists of many interconnected terms. The keywords relevant to the previous research subject with high frequency appear for each cluster. For example, in the first cluster, there are 14 items with the main keyword "Waqf" (25), the second cluster has 8 items with the main keyword "Baznas" (21), the third cluster has 8 items with the main keyword "Welfare" (19), the fourth cluster has 8 items with the main keyword "Zakat Institution" (16), the fifth cluster has 7 items with the main keyword "Poverty" (36), the sixth cluster has 7 items with the main keyword "Education" (12), the seventh cluster has 7 items with the main keyword "Islamic Social Finance" (32), the eighth cluster has 7 items with the main keyword "Zakat" (202), and the ninth cluster has 5 items with the main keyword "Economy" (12).

Each cluster utilizes the main topic as a guide for zakat technology research based on the keywords within the cluster, where these keywords represent the research flow[20]. To enhance the accessibility of this research, we limited it to only four keywords with the highest frequency of occurrence, namely: Waqf (25), Poverty (36), Islamic Social Finance (32), and Zakat (202). Based on this analysis, zakat technology is identified as a significant research issue and will likely evolve into a sub-field in future zakat technology research.

Table 2 – Cluster Analysis Result

No	Cluster	The most frequently used keyword	Key word
1.	Cluster 1- 14 items	Waqf (25), Blockchain (16), Infq (20), Islamic Finance (21)	Economic Empowerment (14), Financial Inclusion (10), Fintech (12), Islamic Charity (8), Islamic Fintech (4), Islamic Microfinance (10), Microfinance (11), Muslim (7), Philanthropy (9), Sadaqah (15)
2.	Cluster 2- 8 items	Baznas (21), Efficiency (15), Zakat Distribution (11), Zakat Management (12)	Baitul Mal (7), Data Envelopment Analysis (9), Zakat Collection (4), Zakat Institutions (9)
3.	Cluster 3- 8 items	Welfare (19), Poverty Alleviation (18), Productive Zakat (11)	Distribution (7), Islamic Philanthropy (8), Pandemic (3), Performance (8), Zakat Management Organization (2)
4.	Cluster 4- 8 items	Zakat Institution (16), Muzzaki (10), Trust (10), Zakat Compliance (10)	Compliance (6), Intention (4), Islamic Economics (8), Knowledge (3)
5.	Cluster 5- 7 items	Poverty (36), Governance (13), Islam (21)	Accountability (7), Poverty Reduction (6), Sustainable Development Goals (7), Taxation (4)
6.	Cluster 6- 7 items	Education (12), Shariah (11), Tax (12)	Development (4), Employment (8), Income (6), Sosial Welfare (9)
7.	Cluster 7- 7 items	Islamic Social Finance (32), Economic Growth (15), Finance (20), Islamic Banks (14)	Charity (11), Financial Performance (11), Zakāt (5)
8.	Cluster 8- 7 items	Zakat (202), Management (12)	Asnaf (10), Empowerment (11), Islamic Banking (11), Mustahiq (10), Sustainable Development (8)
9.	Cluster 9- 5 items	Economy (12), Islamic Law (9)	Learning Algorithms (5), Machine Learning (3), Nisab (6)

The table presents the results of the cluster analysis, including the main keywords, the number of items, and the frequency of occurrences for each cluster. These clusters are determined based on interrelated keywords and represent the main topics guiding supply chain financing research. The four keywords with the highest frequency of occurrence are Waqf (25), Poverty (36), Islamic Social Finance (32), and Zakat (202). These results underscore that zakat technology is a significant research area and is poised to remain a prominent subfield in future research.

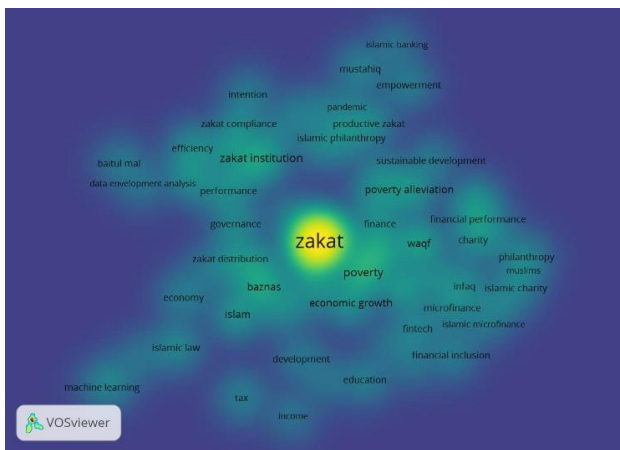


Figure 6.

Figure 6 shows potential topics in the field of Zakat Technology that require further investigation in the future. Therefore, the image above (Figure 6) provides an opportunity for other researchers to identify potential topics as new contributions to research in the field of Zakat Technology. In terms of related research, we can also see that, for example, the keyword "blockchain" has not been studied with "baznas" at the same time because they are in different clusters. This topic is a relatively new trend for researchers to conduct research that combines Zakat Technology with the broader concept of financial inclusion.

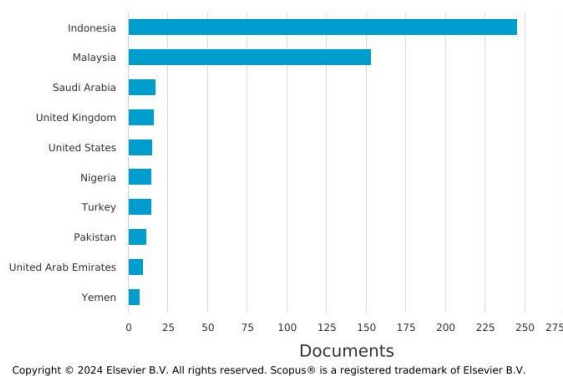


Figure 7. Document by country or territory
Source: Scopus

Based on the bibliometric analysis, the ten countries that have published the most articles on the theme of "Zakat Technology" are Indonesia with 245 publications, followed by Malaysia with 153 publications. Other significantly contributing countries are Saudi Arabia with 17 publications, the United Kingdom with 16 publications, the United States with 15 publications, Nigeria and Turkey with 14 publications each, Pakistan with 11 publications, the United Arab Emirates with 9 publications, and Yemen with 7 publications. The dominance of publications from Indonesia and Malaysia reflects the great attention and high commitment of the academic communities in both countries towards research in the field of zakat technology.

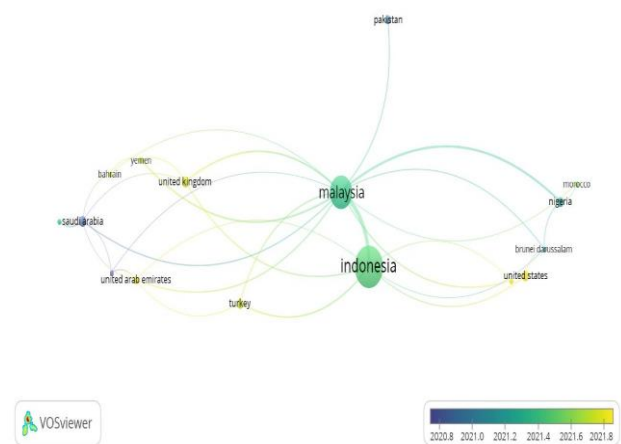


Figure 8. Country Collaboration from Author
Visualization
Source: Vos Viewer

Vos Viewer can be used to map the collaboration network between countries, as shown in Figure 6. This figure displays the widest connections in 16 countries, with the size of the nodes representing the number of publications. The interconnected countries indicate the existence of cooperative relationships, while nodes with different colors indicate various collaboration clusters. The largest circles belong to Indonesia and Malaysia, indicating their dominance in this research field. Indonesia and Malaysia act as the hubs of zakat technology research, with other countries conducting research in this area collaborating with them. These parameters and collaboration networks aim to identify and group countries based on the intensity and closeness of their cooperative relationships in zakat technology research.

Table 3 - the most cited article

No	Title	Year	Source	Citation
1.	An Artificial Intelligence and NLP based Islamic FinTech Model Combining Zakat and Qardh-Al-Hasan for Countering the Adverse Impact of COVID 19 on SMEs and Individuals	2020	International Journal of Economics and Business Administration	74
2.	Dual board governance structure and multi-bank performance: a comparative analysis between Islamic banks in Southeast Asia and GCC countries	2019	Corporate Governance	38
3.	Zakat management: The crisis of confidence in zakat agencies and the legality of giving zakat directly to the poor	2020	Journal of Islamic Accounting and Business Research	36

This study reveals that Scopus-indexed journals have a substantial impact on citation-related metrics. Table 3 showcases the most cited articles in the field of zakat technology, with results limited to the top three articles having the highest citation counts. The total number of citations is employed to identify the most influential articles. The article titled "An Artificial Intelligence and NLP based Islamic FinTech Model Combining Zakat and Qardh-Al-Hasan for Countering the Adverse Impact of COVID 19 on SMEs and Individuals" has been cited 74 times, making it the most cited article overall in this field. Following this, the article titled "Dual board governance structure and multi-bank performance: a comparative analysis between Islamic banks in Southeast Asia and GCC countries" has been cited 38 times, ranking as the second most cited article in this domain. Lastly, the article titled "Zakat management: The crisis of confidence in zakat agencies and the legality of giving zakat directly to the poor" has also been cited 36 times, placing it as the third most cited article in this field.

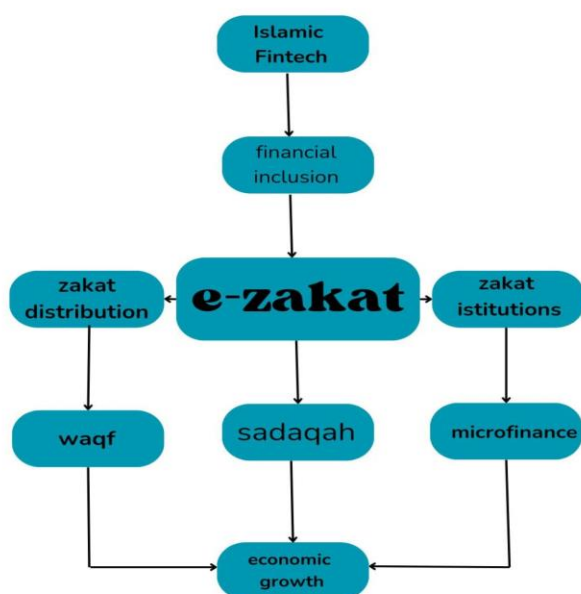


Figure 9. framework model

4 Conclusion

The research conducted to analyze trends in the development of zakat technology from 2019 to 2024 can be summarized as follows: The study utilized keywords such as e-zakat, zakat technology, zakat digital, and e-zakat adoption. The findings indicate a consistent growth trend in zakat technology research, with an increasing number of publications each year. The Journal of Islamic Accounting and Business Research emerged as the leading publisher in this domain, with 36 published articles, while Widiastuti T. was identified as the most prolific author, contributing 10 publications. The keywords "zakat" and "zakat institution" were frequently used, reflecting significant research interest in these areas. Zakat technology and zakat institutions are pivotal terms in this research field. Future research could focus on integrating blockchain technology into zakat management and examining its impact on financial inclusion, which could enhance the efficiency and transparency of zakat management. Indonesia leads in the number of articles published on zakat technology, followed by Malaysia. The primary research focus remains on zakat, with "zakat management" and "zakat technology" being the most common keywords. The most cited article, from the International Journal of Economics and Business Administration, is titled "An Artificial Intelligence and NLP based Islamic FinTech Model Combining Zakat and Qardh-Al-Hasan for Countering the Adverse Impact of COVID-19 on SMEs and Individuals," with 74 citations. This research provides valuable insights for researchers, policymakers, and practitioners, emphasizing the need for further studies to validate existing findings. Overall, this research contributes to filling gaps in the literature and enhancing our understanding of zakat technology.

Acknowledgement:

The author gratefully acknowledges the editor and referees for their valuable comments and suggestions which greatly improve this paper. This research was funded by Ministry of Education, Culture, Research and Technology, Indonesia, Contract No. 108/E5/PG.02.00.PL/2024 and Derivative Contract No. 007 /LL6/PB/AL.04/2024, 196.65/A.3-III/LRI/VI/2024.

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Contribution of Individual Authors to the Creation of a Scientific Article (Ghostwriting Policy)

Conceptualization: Wuryaningsih Dwi Lestari.

Data curation: Wuryaningsih Dwi Lestari.

Formal analysis: Wuryaningsih Dwi Lestari.

Funding acquisition: Wuryaningsih Dwi Lestari.

Investigation: Fatah Yasin Al Irsyadi.

Methodology: Fatah Yasin Al Irsyadi.

Software: Fatah Yasin Al Irsyadi.

Writing – original draft: Mujiyati.

Writing – review and editing: Mujiyati.

Sources of Funding for Research Presented in a Scientific Article or Scientific Article Itself

The author gratefully acknowledges the editor and referees for their valuable comments and suggestions which greatly improve this paper. This research was funded by Ministry of Education, Culture, Research and Technology, Indonesia, Contract No. 108/E5/PG.02.00.PL/2024 and Derivative Contract No. 007 /LL6/PB/AL.04/2024, 196.65/A.3-III/LRI/VI/2024.

Conflict of Interest

The authors have no conflict of interest to declare.

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