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Islamic Ethics in the Digital Era: A Bibliometric Analysis

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ABSTRACT

The rapid advancement of digital technologies has introduced complex ethical challenges that require critical examination through religious and moral perspectives, including Islamic ethics. This study aims to systematically map the intellectual structure, research development, collaborative networks, and emerging thematic trends in scholarly literature concerning Islamic ethics in the digital era. Employing a bibliometric approach, the study utilizes VOSviewer to conduct citation analysis, co-authorship analysis, institutional and country collaboration mapping, keyword co-occurrence analysis, overlay visualization, and density visualization. The findings reveal that Islamic digital ethics constitutes an increasingly interdisciplinary research domain encompassing artificial intelligence, digital communication, Islamic finance, blockchain, and sustainable digital transformation. Citation analysis identifies blockchain, financial technology, and Islamic finance as influential areas of scholarly contribution. The collaboration analysis demonstrates the prominent roles of Indonesia and Malaysia in international research networks, although institutional collaboration remains relatively concentrated. Keyword co-occurrence analysis identifies artificial intelligence, Islamic ethics, digital ethics, social media, and ethical principles as dominant themes. Furthermore, overlay visualization indicates a thematic transition from digital financial applications and communication technologies toward machine learning, digital transformation, and sustainable development. Density visualization confirms the concentration of scholarly attention around artificial intelligence and ethical frameworks while revealing comparatively less developed thematic areas. The study highlights the importance of integrating Islamic ethical principles, particularly trustworthiness, justice, accountability, and public welfare, into contemporary technological governance. These findings contribute to the literature by providing a systematic understanding of the field's intellectual landscape and identifying potential directions for future interdisciplinary research on responsible artificial intelligence, data privacy, algorithmic accountability, and sustainable digital innovation.

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1. INTRODUCTION

The tremendous development of the digital technology has radically impacted modern society and changed the ways of communicating, knowledge creation, financial processes, engagement with religion and social interaction. The emergence of the artificial intelligence (AI), social media, big data, blockchain and algorithmic digital worlds created new possibilities of innovation, access and interconnectivity. At the same time, the described trends have raised serious ethical issues related to the problems of data privacy, algorithmic bias, digital surveillance, disinformation, intellectual autonomy and accountability of technologies. It goes far beyond technical aspects and raises questions about moral principles which should guide human actions and technological progress in the era of interconnected digital world. In such a case, the role of religions in terms of their ethical norms and practices is very important to understand the link between technological progress, human dignity and moral responsibility. Islamic ethics, in particular, gives us a holistic normative system by means of which the process of digital transformation could be evaluated in the context of justice, accountability and collective wellbeing. [1] emphasizes the significance of incorporating Islamic ethical perspectives into contemporary debates on artificial intelligence, particularly in addressing the limitations of ethical approaches that inadequately represent diverse religious and philosophical traditions.

Islamic ethics are based on the Quran, Sunnah, and an elaborate tradition of intellectual discourse in the areas of fiqh, akhlāq, and maqāṣid al-sharīʿah. The above-mentioned principles include such values as ʿadl (justice), amānah (trustworthiness), masʾūliyyah (responsibility), maṣlaḥah (public welfare), and ḍarar (prevention of harm). Though the principles above have been developed in the historical circumstances quite different from those of the modern technological era, they constitute a normative background in the context of digital and technological ethics evaluation. For instance, the concept of amānah may be used to analyze ethical issues related to personal data management, digital communication, and information control, while the value of ʿadl can serve as the basis for the moral judgment of discrimination by algorithms and inequalities in access to technologies. Maṣlaḥah, on its part, implies the assessment of technological innovations regarding their contribution to human welfare and avoidance of harm. There is a number of scholarly studies dedicated to the problem of application of these principles to new technological challenges. [1] proposes a pluralistic approach to AI ethics that incorporates Islamic moral reasoning, while [2] examine the potential of Islamic trusteeship ethics for evaluating existing approaches to artificial intelligence governance. These contributions demonstrate how Islamic ethical concepts can inform contemporary technological debates while highlighting the need for further investigation into their theoretical development and practical application.

Interactions between the ethics of Islam and the developments in digital technologies have motivated the academic interest of scholars from various fields such as Islamic studies, philosophy, information systems, communication, education, economics, and technology governance. With respect to religious communication, there is a development in the ways of transmitting knowledge in Islam using digital media which have created new ways of participating in religion and changed the dynamics between religious figures and their followers. Within Islamic finance and digital trade, new issues of ethics related to transparency, fair contracts, consumer rights, and conformity to the law have been raised. Additionally, the use of artificial intelligence in education, public governance, and decision-making has raised concerns on the issue of moral accountability and legitimacy of automation. [3] through bibliometric analysis of Islam and digital technologies shows the increasing scholarly interest in this field. However, the growing diversification of the research

contexts suggests that the ethics of Islam in the digital age involves more than just one academic issue. On the contrary, it can be viewed as an interdisciplinary field where traditional Islamic ethical systems meet new technologies.

Nevertheless, the intellectual structuring of research on ethics in digital space in terms of Islam still lacks sufficient understanding. The current body of literature has brought considerable insights into several specific fields, such as the ethics of artificial intelligence, Islamic digital practices, religion and communication, and the governance of technology. Yet, research is scattered over different disciplines and has a diverse approach to theory, methodology, and ethical responsibility, respectively. For example, while [1] addresses the normative principles of AI ethics from the Islamic perspective, [2] propose an evaluation of AI governance based on the idea of trusteeship. More broadly speaking, [3] presents an overview of research about Islam and digital technologies, providing information about the progress of digital Islamic scholarship and main research themes in this field. Yet, these insights do not imply a comprehensive examination of Islam and technology, which would account for the representation and structuring of Islamic ethical ideas. Consequently, several questions warrant systematic investigation, particularly regarding the evolution of scholarly production, the distribution of intellectual influence, the configuration of collaborative research networks, and the emergence of thematic relationships between Islamic moral principles and digital technologies.

It is important to consider this restriction because the development of intellect of any research area cannot be fully assessed merely by looking at the separate contributions and traditional narrative reviews. Though qualitative literature reviews may allow for an in-depth analysis of specific ethical theories, they do not allow for understanding the wider picture of scientific production, relations between influential publications, and changing research priorities. The bibliometric analysis is another method of studying a research area that involves systematic study of metadata of the publications, citation, authorship, and concept networks of a certain body of scholarly literature. According to [4], the use of bibliometric analysis makes it possible to analyze both the performance and intellectual structure of a research area using citation analysis, co-citation analysis, bibliographic coupling, co-authorship analysis, and keyword co-occurrence analysis. It is especially relevant for interdisciplinary studies since it allows uncovering the most influential intellectual contributions, thematic concentrations, and emergent areas that can be hidden in fragmented discipline-related discussions. Applied to Islamic ethics in the digital era, bibliometric analysis can provide a systematic representation of how ethical concepts have entered technological debates, which research communities have shaped their development, and how the field's thematic priorities have evolved.

The academic significance of this study is further supported by the increasing use of bibliometric methods in other fields of study within the domain of Islamic studies. [3] uses the method of bibliometrics to explore the relation between Islam and digital technology, thus giving a general overview of developments in the field and the networks of scholars. Other more specific studies have also analyzed Islamic business ethics and moral scholarship from an Islamic perspective, emphasizing the significance of science mapping in determining the trends and gaps in research [5], [6]. However, these studies differ from each other by the nature of their main analysis, moving from the use of digital technology in religion to moral business practices and, more broadly, Islamic morality. Unlike the traditional view where technology is viewed as a mere context of the practice of Islam, this study focuses on ethics rather than Islamic practices in terms of ethical thinking, which is mainly about the scholarly debate of morality, digital justice, privacy, responsibility of technology, and human well-being. It is important to differentiate this for the purpose of distinguishing the relationship between traditional Islamic ethics and technology

governance from that of the general Islamic digital studies.

In light of the aforementioned considerations, the current study is geared towards mapping systematically the evolution, intellectual structure and themes of Islamic ethics research in the digital age through bibliometric analysis of scholarly articles from the Scopus database. In particular, the study will attempt to investigate the scientific production trend, identify the most influential authors, institutions, countries, publications and sources, analyze the scholarly collaboration trend, as well as the conceptual structure of the field using keywords and thematic mapping. Besides, this study will attempt to find out the existing research focuses, the emerging research areas, and possible gaps that need further investigation by scholars. Through the combination of bibliometric performance analysis and science mapping, this study offers an evidence-based analysis of the academic arena of Islamic ethics in the digital age.

The importance of this study is twofold. Firstly, it provides a specific bibliometric approach towards Islamic ethics in the context of digitization which distinguishes this field of study from the more general field of research regarding Islam and technology. Secondly, it provides a framework for the development of a knowledge-based interdisciplinary scientific research field through the determination of the connections between its key scientific publications, collaboration networks, and dominant research themes. Thirdly, it creates a starting point for further research through the identification of ways of enhancing the theoretical and practical relevance of Islamic ethics in various technological fields including digital governance, artificial intelligence, online interaction, and others.

2. METHODS

In the present study, a quantitative bibliometric methodology was used to systematically analyze the development process, intellectual structure, and topic distribution within the scientific literature related to Islamic ethics in the digital age. This method was chosen since the main advantages of bibliometrics are systematicity and reproducibility in assessing scientific literature, determining significant scientific contributions, and studying intellectual structures of research [4]. The Scopus database was used as the main bibliographic source of the study due to its wide coverage of peer-reviewed scientific literature in the areas of Islamic studies, ethics, social sciences, humanities, and information technology. Two analytical approaches were used during the research, namely performance analysis, which assesses scientific productivity and impact of research, and science mapping, which examines intellectual relations, collaboration, and thematic links. It allowed the researcher to conduct a thorough analysis of the ways in which the Islamic ethics discourse has evolved in the era of digital revolution and technological challenges.

The bibliographic details of the articles to be used in the research will be collected from Scopus through a systematic search approach by using relevant keywords for Islamic ethics and digital technologies. The aim of the search is to find articles that relate to Islamic moral teachings and ethical theories within the context of the digital world. The systematic search string to be used in the search process will incorporate such keywords as “Islamic ethics,” “Islamic ethical principles,” “Islamic morality,” and “Islamic values” alongside “digital technology,” “digital era,” “digital transformation,” “artificial intelligence,” “social media,” “digital platforms,” and “cyberspace.” The documents that were not pertinent to the research objectives, duplicates, and documents that did not have sufficient bibliographic information were all eliminated from the analysis. The results collected in the search process were exported in CSV format, comprising data regarding the authors, publication title, year, source title, affiliation, country, abstracts, keywords, and citations. The collected dataset was arranged and checked for consistency in bibliographic information.

Bibliometric analysis was done through VOSviewer, which is a software application specifically designed for building and visualizing bibliometric networks [7]. VOSviewer was then used in creating scientific maps through co-authorship analysis, keyword co-occurrence analysis, and citation-based analysis when appropriate from the extracted data. Co-authorship analysis was used in analyzing the collaboration of researchers, organizations, and countries in their studies, while keyword co-occurrence analysis was performed in order to determine the dominant themes and relationships in the study of Islamic digital ethics. Citation and co-citation analysis were utilized in order to understand the intellectual impact and connections in literature. Visualization of density was used to detect clusters of research focus. In order to make the results more interpretable, bibliographic variations and synonyms were standardized based on the properties of the data set. This combination of analytical methods gave an overall picture of the performance of the research field, its intellectual base, collaboration patterns, and new themes emerging.

3. RESULTS AND DISCUSSION

3.1 Co-Author Analysis

3.1.1 Author-level Visualization

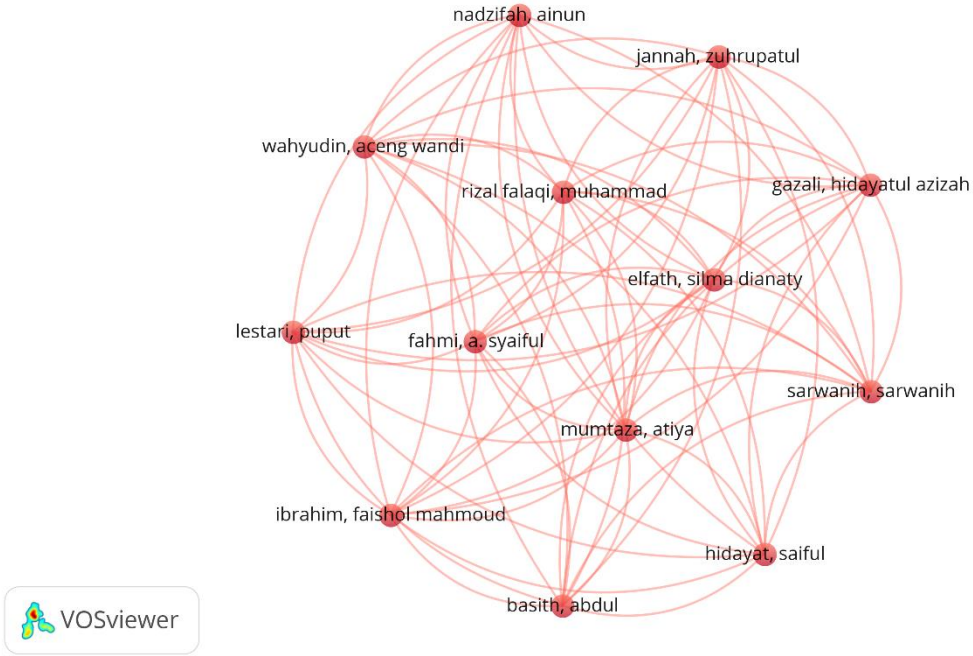


Figure 1. Author-level Visualization
Source: Data Analysis

Figure 1 shows the collaboration patterns among the scholars who have made contributions to the body of knowledge in the field of Islamic Ethics in the Digital Era. The figure shows a network with high connectivity in the form of one cluster shown in red, which means that the authors who were identified make up one collaborative group. Some of the well-known authors include Nadzifah Ainun, Jannah Zuhurpatul, Wahyudin Aceng Wandi, Rizal Falaqi Muhammad, Gazali Hidayatul Azizah, and Elfath Silma Dianaty, among others. There are many connection lines showing a wide range of co-authorship relations between the authors, and this indicates that scientific contributions in the network are collaborative and not individual works. It is clear from the relatively equal size of nodes that the authors are equally significant in the network.

The high connectivity among authors indicates the existence of a cohesive and collaborative research group with extensive research interlinkages within itself. Researchers located in different areas of the network, such as Lestari Puput, Ibrahim Faishol Mahmoud, Hidayat Saiful, and Basith Abdul, stay connected to the overall collaboration network, indicating the interconnectedness of research outputs produced by the scholars. However, the existence of a single cluster does not necessarily mean that the whole research area is dominated by one collaborative research community, as the map illustrates just the authors who fall into the selected bibliometric filters. In addition, the network does not indicate the thematic specialization, the geographic location, or affiliation of these scholars. In terms of the role of Islamic ethics in the digital age, the results obtained above show the existence of an identifiable co-authorship network and the necessity to analyze wider collaborative networks for identifying how the knowledge about Islamic ethical values and digital transformations is constructed by scholars.

3.1.2 Institution-level Visualization

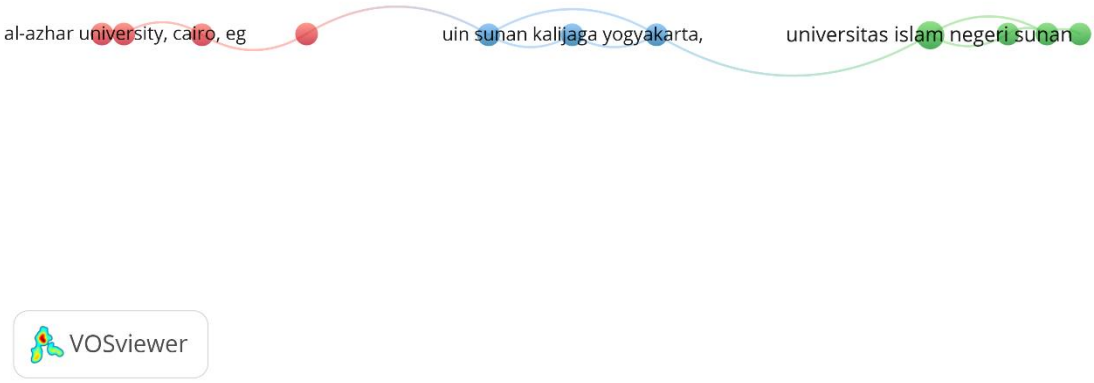


Figure 2. Institution-level Visualization
Source: Data Analysis

Figure 2 below represents a relatively small and linear collaboration model, which means that the studies conducted in Islamic Ethics in the Digital Era are being done by a limited number of institutions. Three major clusters can be identified from this figure: first, the Al-Azhar University, Cairo, Egypt on the left (the red cluster), second, UIN Sunan Kalijaga Yogyakarta in the center (the blue cluster), and lastly, Universitas Islam Negeri Sunan … on the right (the green cluster). These three colors distinguish between various institutional clusters, whereas the connecting lines show the collaboration between these institutions. It can be seen that the collaboration between institutions in this field is at its initial stage.

Structure-wise, it is obvious that UIN Sunan Kalijaga Yogyakarta is the most strategically placed, since it is located between the other universities and connects the left and right clusters. In other words, there might be some collaboration through this institution. As for Al-Azhar University and the institution

within the green cluster, they can be considered as peripheral institutions.

3.1.3 Country-level Visualization

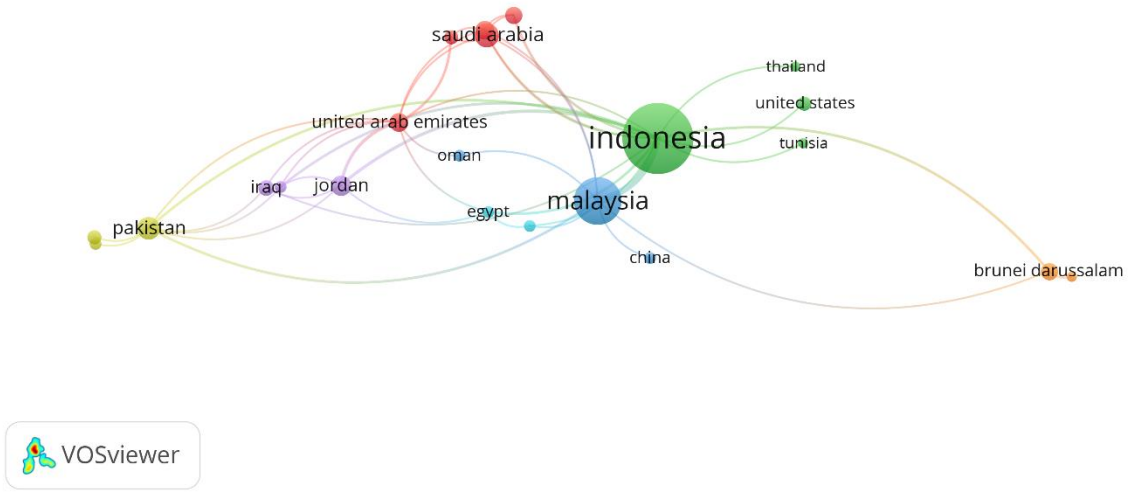


Figure 3. Country-level Visualization
Source: Data Analysis

The figure below shows the geographical distribution and collaborative research among researchers in the field of Islamic Ethics in the Digital Era. As can be seen from the figure above, there are several inter-connected clusters, in which Indonesia is identified as the most important country due to its relatively larger node size and connection with other countries. There is also the presence of Malaysia, which is the second largest country in the cluster, while Saudi Arabia, Pakistan, United Arab Emirates, and Brunei Darussalam are also the countries with the third, fourth, fifth, and sixth largest nodes in the cluster respectively. The important positions held by Indonesia and Malaysia show that countries from Southeast Asia have an important role to play in academic contributions to Islamic ethics in digital environment. The participation of Middle Eastern countries, including Saudi Arabia, United Arab Emirates, Oman, Jordan, and Iraq, proves the geographical diversity of the research collaboration in the field.

Structurally, Indonesia and Malaysia serve as central collaboration centers that link scientists located in various geographic locations. The fact that Indonesia is linked to several countries, such as Malaysia, Saudi Arabia, Thailand, Tunisia, and the United States proves its significant role within the global research collaboration network. Similarly, Malaysia serves as a source of collaboration links with other countries such as China, Egypt, and Oman. Pakistan and the United Arab Emirates represent relatively intermediate countries facilitating collaboration between South Asian and Middle Eastern research communities. Countries like Brunei Darussalam, Thailand, Tunisia, and China serve as smaller nodes, thus making their contribution to the publication process lower than that of other countries under discussion.

3.2 Citation Analysis

Table 1. The Most Impactful Literatures

Citations	Authors and year	Title
54	[8]	Blockchain, fintech, and Islamic finance: Building the future in the new Islamic digital economy
25	[9]	An empirical investigation of Islamic marketing ethics and convergence marketing as key factors in the improvement of Islamic banks performance
24	[10]	Sustainable strategic planning and management influence on sustainable performance: findings from halal culinary MSMEs in Southeast Asia
21	[11]	Contesting Sharia and Human Rights in the Digital Sphere: Media Representations of the Caning Controversy under the Qanun Jinayat in Aceh
18	[12]	DIGITAL ETHICS OF ARTIFICIAL INTELLIGENCE (AI) IN SAUDI ARABIA AND UNITED ARAB EMIRATES
18	[13]	Sharia and Politics in the Context of Globalization and Society 5.0
16	[14]	Ethical marketing: a review and research agenda
16	[15]	Islamic microfinance branchless banking model in Indonesia
15	[16]	Halal B2B marketing in the metaverse: crafting a conceptual framework to pinpoint opportunities and challenges, outlining the agenda for future research
15	[17]	Initial Considerations for Islamic Digital Ethics

Source: Scopus, 2026

Table 1 presents the ten most highly cited publications in the field of Islamic Ethics in the Digital Era, highlighting the influential scholarly contributions that have shaped the development of this research domain. The most cited publication is (Mohamed & Ali, 2022), entitled Blockchain, Fintech, and Islamic Finance: Building the Future in the New Islamic Digital Economy, with 54 citations, indicating the substantial scholarly attention given to the integration of emerging financial technologies and Islamic economic principles. This is followed by [9], with 25 citations, examining Islamic marketing ethics and convergence marketing in improving Islamic banking performance, and [10], with 24 citations, addressing sustainable strategic management among halal culinary enterprises in Southeast Asia. [11], receiving 21 citations, extends the discussion into digital media representations, Sharia, and human rights, while [12], with 18 citations, explores ethical considerations surrounding artificial intelligence in Saudi Arabia and the United Arab Emirates. Other influential contributions address Sharia and globalization in Society 5.0 [13], ethical marketing [14], Islamic microfinance and branchless banking [15], halal marketing in the metaverse [16], and the conceptual foundations of Islamic digital ethics [17]. These publications reflect the interdisciplinary nature of the area of study, including Islamic finance, digital marketing, artificial intelligence, human rights, and new technologies. The pattern of citations also indicates that financial technology and Islamic economic practices have been gaining much attention from scholars, whereas more recent publications focus on ethical issues arising out of digital transformation. Citation counts must be understood with care, however, since older publications have had more time to gain citations.

3.3 Keyword Co-Occurrence Analysis

3.3.1 Network Visualization

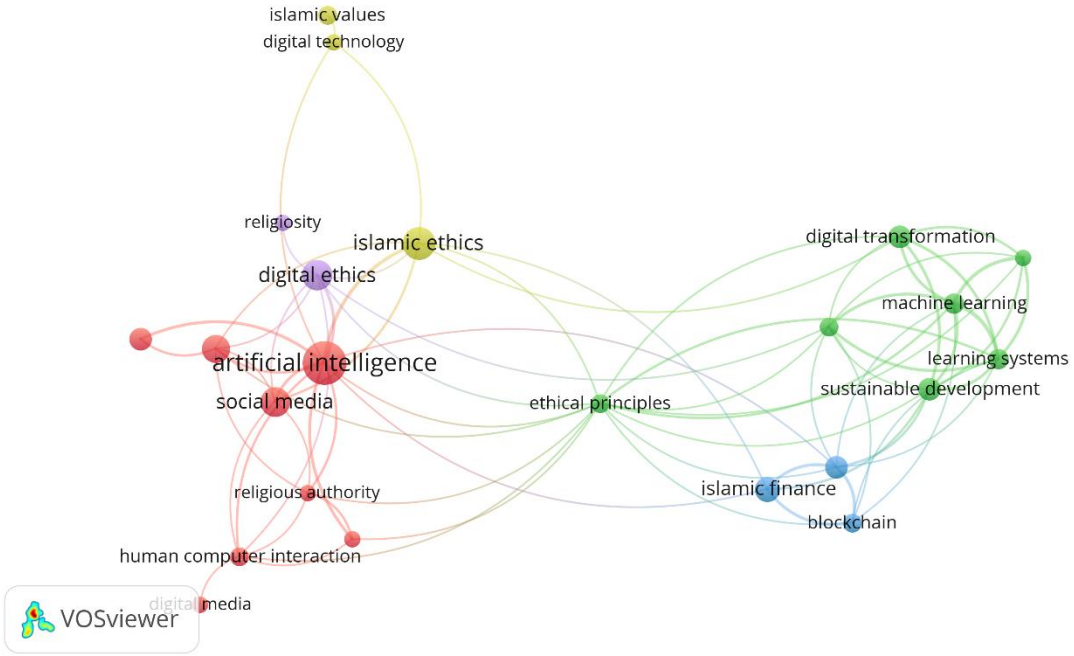


Figure 4. Network Visualization
Source: Data Analysis

The conceptual structure and major research topics related to the literature review on Islamic Ethics in the Digital Era are presented in Figure 4 below. As can be seen from the visualization, there are several thematic clusters, which proves the multidisciplinary nature of the research area in question as well as the increasing intersection of the issues of Islamic ethics with the modern-day digital technologies. Some of the key terms that appear in the reviewed literature include Islamic ethics, artificial intelligence, digital ethics, social media, ethical principles, digital transformation, sustainable development, and Islamic finance. As for the nodes in the diagram, Islamic ethics and artificial intelligence can be recognized as relatively big and thus important for the discussed literature. The lines, which connect these and other nodes, help identify relationships between research topics.

Red cluster of themes, mainly concentrated in the left part of the visualization, addresses the connection between artificial intelligence, social media, religious authority, human-computer interaction, and digital media. In this cluster, artificial intelligence is one of the most frequent keywords, demonstrating its significance in the context of modern debate on the ethical issues of emerging technologies. Artificial intelligence's connection to social media and religious authority implies that researchers consider the influence of digital technologies on religious communication, Islamic knowledge diffusion, and new dynamics of authority in the digital space. Human-computer interaction shows an interest of scholars in the connection between the technological system and human behavior. Thus, such thematic connection points out the significance of the Islamic ethical tradition in solving problems of digital communication and technological mediation. Nevertheless, visualization describes keyword connections but not the arguments and findings of particular research. Thus, the discussed cluster of themes can be seen as an indication of the research orientation related to ethical and social implications of artificial intelligence and digital communication in Islamic environment.

The yellow and purple clusters in the upper-left and central-left parts of the map indicate the focus on the concepts and religious roots of digital ethics in Islam. The

yellow cluster comprises such concepts as Islamic ethics, Islamic values, and digital technology, implying thematic focus on the use of moral values from Islam in current technological advances. This set of key terms shows the necessity of integrating religious values into the consideration of innovation and ethics in digital environment. At the same time, the purple cluster, which features such key concepts as digital ethics and religiosity, emphasizes the connection between religious orientation and ethics of technology-mediated actions. Such proximity of the two clusters proves that there is conceptual link between Islamic ethical principles and digital ethics in general. Both of these groups of concepts are linked to artificial intelligence and other technologies.

Clusters that can be seen in green and blue, located in the center and on the right side of the graph, reflect the convergence of ethical governance, technological transition, sustainable development, and Islamic financial innovations. Green clusters include such keywords as ethics, digital transition, machine learning, learning systems, and sustainable development, which shows the research focus on the ethical aspect of technological transition and its connection with the general goals of development. The location of the key word ethics in the center and the presence of links to other clusters prove that the keyword acts as the conceptual mediator between the discussions related to ethics from the religious perspective and the topics related to technology. From the relationship between Islamic finance, blockchain, and the themes surrounding the technologies, it is clear that innovation in finances is one of the key areas of application within the larger body of literature. Collectively, the clusters show how the topic of ethics in Islam in the digital age is concerned with not only normative ethics but also technology-based applications.

From the results of the keyword co-occurrence analysis, we can say that the studies of Islamic Ethics in the Digital Era can be seen as a set of interrelated but separate thematic directions from the field of basic Islamic values and digital ethics to artificial intelligence, digital communication, sustainable development, and financial innovation in the form of blockchain technology. The significance of artificial intelligence and Islamic ethics makes us assume that the interaction between the development of technology and morality based on religion becomes one of the most important spheres of scientific interests. On the other hand, the interconnections between ethical issues, digitalization, and Islamic finance show the possibility of combining normative frameworks of Islamic ethics with contemporary technological problems.

3.3.2 Overlay Visualization

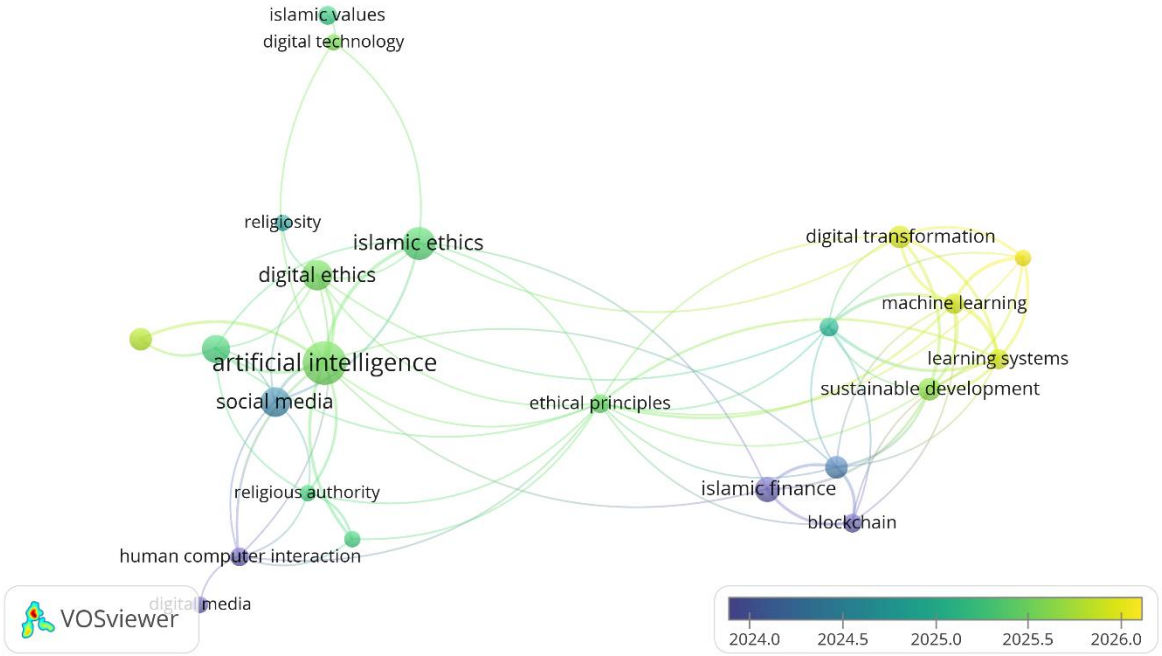


Figure 5. Overlay Visualization
Source: Data Analysis

As shown in Figure 5, the temporal dynamics of research topics of the Islamic Ethics in the Digital Era literature is presented below, and it demonstrates changes in scholarly interest in research topics from 2024 to 2026. In this figure, the color scale shows the average publication year of keywords, varying from purple and blue, signifying rather old research topics, to green and yellow, indicating newer research topics. Thus, according to the chart, the old research topics include Islamic finance, blockchain, human-computer interaction, digital media, and social media that mainly have purple and blue colors. Consequently, the research topics mentioned above can be considered indicators of the initial development of the discipline in the digital era because these topics imply a strong connection between the development of the field and digital innovations in finances, communication, and human interactions with digital systems. The existence of Islamic finance and blockchain among the old research topics means that researchers were interested in studying applications of technology in the context of Islamic economy. Moreover, social media and digital media demonstrate the importance of digital communication systems for the discussion of religious practices and ethics.

In the middle of the research environment, which is mainly characterized by green-colored nodes around the year 2025, there is a noticeable focus on topics such as Islamic ethics, digital ethics, Islamic values, artificial intelligence, and ethical principles. It becomes obvious that the keywords mentioned above form a trend related to the exploration of the basis of ethical behavior in technology-enabled settings. The presence of artificial intelligence implies that scholars begin to pay more attention to the ethics of intelligent technologies. Meanwhile, the significance of Islamic ethics and Islamic values shows that religious moral perspectives are highly relevant for the assessment of technologies. Finally, ethical principles occupy a central position in the network and serve as an important link between earlier and recent themes. Such interlinked network structure signifies that in this context, the research has tried to incorporate Islamic ethical viewpoints in the study on technological responsibility and accountability. The connection between such keywords highlights the multidisciplinary

nature of this research domain, where the study includes religious ethics, information technology, and social aspects related to digitalization.

The latest trends, illustrated by the nodes with yellow colors tending towards 2026, cluster around the topics of digital transformation, machine learning, learning systems, and sustainable development. Such a trend implies rather recent attention to the issue of the interaction between new technologies, ethical aspects, and general goals of development. The tight correlation between the chosen keywords demonstrates that modern studies pay attention to the ethical aspect of technological transformation, especially intelligent systems and sustainability-oriented technologies. The relationship between the mentioned emerging themes and the already existing concepts like Islamic ethics, artificial intelligence, and ethical aspects opens ways for interdisciplinary studies of Islamic morality and technology governance.

3.3.3 Density Visualization

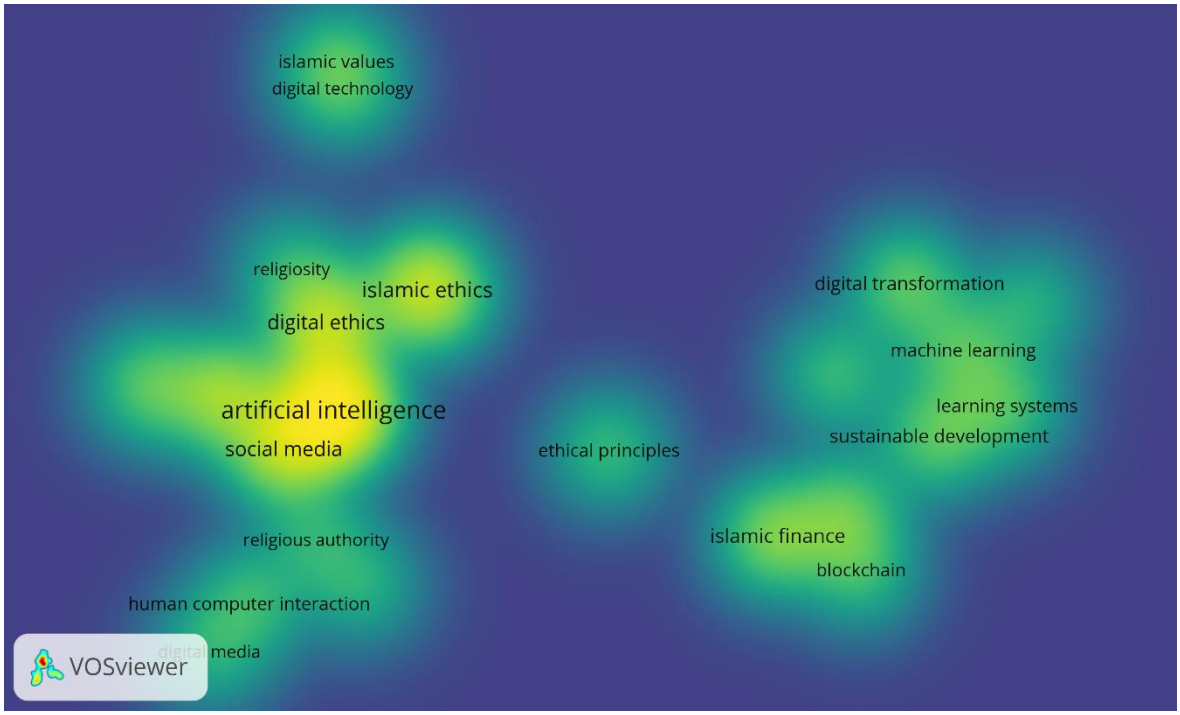


Figure 6. Density Visualization
Source: Data Analysis

The Figure 6 below provides an indication of the concentration and prominence of research topics in the literature on Islamic Ethics in the Digital Age. The colors used in the visualization range from dark blue to green and bright yellow with the latter being indicative of higher concentration whereas the former is indicative of lower concentration in the density of keywords used in the field of study. The keywords which indicate the presence of prominent research topics in this field include artificial intelligence, Islamic ethics, digital ethics, and social media and this occurs especially in the left-center area of the visualization where relatively dense areas exist. Of these keywords, artificial intelligence shows strong density concentration, implying that there is substantial amount of research on the interplay of intelligent technologies and ethical issues. At the same time, words such as "Islamic values," "digital technologies," "religious authority," "human-computer interaction," and "digital media" occur in regions with somewhat low or medium density. In general, the chart emphasizes the relevance of such concepts as artificial intelligence and ethical frameworks for the

formation of the conceptual framework of the study of Islamic digital ethics.

Other than the prevailing thematic foci, the density map uncovers a number of research fields which can be seen in relation to Islamic finance, blockchain technology, digital transformation, machine learning, learning systems, and sustainable development. Islamic finance and blockchain constitute an area of relatively high thematic concentration in the lower right corner of the density map. This is indicative of the significance of digital applications of finance in general research. On the other hand, digital transformation, machine learning, learning systems, and sustainable development also make up another thematic cluster of topics, albeit one whose density is usually lower than the density of themes clustered around artificial intelligence and digital ethics. The term ethical principles, which is located at the center of the density map, has moderate density and is in a spatial vicinity of the two major thematic clusters. Lower-density zones can be used as possible grounds for conducting additional research, especially relating to the incorporation of Islamic ethical values into machine learning policy-making, sustainable digital transformation, blockchain technology applications, and religion-related technology use. However, lower density alone cannot serve as evidence of a research gap, since density is affected by keyword frequency and strength of connections as well as visualization parameters.

Discussion

The findings of this bibliometric study provide important insights into the development, intellectual structure, and evolving research priorities of Islamic ethics in the digital era. Collectively, the results demonstrate that Islamic ethics has emerged as an interdisciplinary area of scholarly inquiry, connecting traditional Islamic moral principles with contemporary technological, economic, and social transformations. The citation analysis reveals that influential publications have predominantly addressed Islamic finance, financial technology, digital marketing, and the ethical implications of technological innovation. The prominence of [2], whose publication on blockchain, fintech, and Islamic finance received the highest number of citations, suggests that digital financial innovation constitutes an important foundation of the field's scholarly development. Similarly, contributions by [9] and [10] highlight the relevance of Islamic ethical principles to organizational performance, sustainable business practices, and responsible economic activities. However, the inclusion of studies addressing artificial intelligence, digital religious communication, and human rights indicates that the scope of Islamic digital ethics extends beyond economic applications. This thematic diversity reflects an expanding scholarly interest in understanding how established Islamic ethical principles can be interpreted and applied within contemporary digital environments. The findings therefore suggest that Islamic digital ethics should not be understood merely as the application of religious rules to technological practices, but rather as an evolving intellectual domain concerned with the interaction between moral responsibility, technological advancement, and societal transformation.

The collaboration analysis highlights the geographical and institutional characteristics of knowledge production within this research field. The country-level visualization identifies Indonesia and Malaysia as prominent contributors to international research collaboration, while Saudi Arabia, Pakistan, the United Arab Emirates, and several other countries participate in the broader network. The prominent positions of Indonesia and Malaysia suggest that Southeast Asian academic communities contribute substantially to scholarly discussions concerning Islamic ethics and digital transformation. This prominence may be interpreted in relation to the established Islamic educational institutions, expanding digital economies, and Islamic financial ecosystems within the region, although the bibliometric findings alone cannot establish these factors as direct explanations. At the institutional level, the relatively limited

collaboration network, involving institutions such as Al-Azhar University and UIN Sunan Kalijaga Yogyakarta, suggests that visible institutional partnerships remain concentrated among a comparatively small number of academic organizations. Furthermore, the author collaboration network demonstrates strong connections within an identifiable research community, indicating the importance of collaborative scholarly activities in developing this field. Nevertheless, the contrast between the interconnected author network and the relatively restricted institutional network suggests that international and cross-institutional cooperation may not yet be equally developed across all levels of research collaboration. These findings highlight opportunities to strengthen interdisciplinary and transnational research partnerships, particularly between scholars specializing in Islamic studies, computer science, digital governance, business ethics, and information systems. Such cooperation could facilitate comparative investigations into the interpretation and application of Islamic ethical principles across different technological systems, institutional environments, and cultural contexts.

The keyword co-occurrence analysis further demonstrates that the conceptual structure of Islamic digital ethics consists of several interconnected research orientations. The prominence of artificial intelligence, Islamic ethics, digital ethics, social media, and ethical principles indicates that scholarly attention increasingly encompasses both the normative foundations and practical consequences of technological advancement. The thematic concentration surrounding artificial intelligence, social media, religious authority, and human–computer interaction suggests that digital technologies are becoming important contexts for examining religious communication, ethical decision-making, and the relationship between technology and human behavior. These developments raise significant questions concerning the credibility of digitally disseminated religious information, the accountability of automated decision-making, and the implications of technological mediation for religious authority. From an Islamic ethical perspective, principles such as amanah (trustworthiness), 'adl (justice), maslahah (public welfare), and mas'uliyyah (responsibility) provide potential conceptual foundations for evaluating these issues. For example, the principle of amanah may inform discussions of responsible data management and information integrity, while 'adl offers a normative basis for examining algorithmic discrimination and unequal access to digital services. Similarly, maslahah provides a framework for evaluating whether technological innovations promote collective welfare while minimizing potential harm. Although these principles are not directly represented as prominent keywords in the visualization, their conceptual relevance suggests an opportunity to strengthen connections between classical Islamic ethical scholarship and contemporary research on digital governance. Consequently, the findings support the need for a more systematic theoretical articulation of how Islamic moral philosophy can contribute to contemporary debates concerning responsible innovation, technological accountability, and human-centered digital development.

The overlay and density visualizations provide additional insights into the temporal development and relative concentration of research themes. The overlay analysis suggests that comparatively earlier scholarly attention was associated with Islamic finance, blockchain, digital media, and human–computer interaction, while themes such as Islamic ethics, artificial intelligence, and ethical principles became more prominent around the middle of the observed publication period. More recent keywords, including digital transformation, machine learning, learning systems, and sustainable development, indicate an expanding interest in the ethical implications of increasingly sophisticated technological applications. This thematic pattern suggests a possible movement from technology-specific applications toward broader questions of ethical governance, intelligent systems, and sustainable technological development.

However, the chronological interpretation should remain cautious because overlay visualization represents average keyword publication years rather than a definitive sequence of intellectual development. The density visualization reinforces these observations by identifying artificial intelligence, Islamic ethics, digital ethics, and social media as particularly concentrated areas of scholarly attention. In contrast, ethical principles, religious authority, machine learning, and sustainable development exhibit comparatively lower thematic concentrations. These differences suggest that certain research topics have developed stronger conceptual visibility within the analyzed literature, while others remain less densely represented. Importantly, the relatively lower density of emerging technological themes should not automatically be interpreted as evidence of insufficient scholarly investigation. Instead, it provides an initial indication of areas that warrant further examination through systematic literature reviews, longitudinal bibliometric analysis, and qualitative content analysis. Taken together, the overlay and density findings suggest that Islamic digital ethics is undergoing thematic diversification as technological developments introduce new questions regarding moral agency, institutional responsibility, and the social consequences of digital innovation.

The findings offer several theoretical, methodological, and practical implications for advancing Islamic ethics research in the digital era. Theoretically, this study highlights the potential value of integrating Islamic ethical principles with contemporary frameworks of artificial intelligence ethics, digital citizenship, information governance, and sustainable technological development. Rather than treating Islamic ethics as a separate normative tradition, future scholarship could investigate how Islamic concepts of justice, trustworthiness, accountability, human dignity, and public welfare complement, challenge, or extend prevailing approaches to technology ethics. Methodologically, the observed distribution of research themes indicates the importance of moving beyond descriptive and conceptual discussions toward comparative empirical investigations, interdisciplinary theoretical development, and context-sensitive evaluations of digital technologies. Future studies could examine how Islamic ethical frameworks are operationalized in artificial intelligence governance, algorithmic decision-making, digital financial platforms, online religious communication, and educational technologies. From a practical perspective, the findings suggest opportunities for policymakers, Islamic financial institutions, technology developers, religious authorities, and educational organizations to incorporate ethically grounded principles into digital transformation initiatives. Particular attention could be directed toward algorithmic transparency, data privacy, digital inclusion, accountability mechanisms, and the prevention of technology-related harms. Nevertheless, the interpretation of these findings is subject to the limitations inherent in bibliometric research, including dependence on the selected database, search strategy, publication coverage, citation accumulation, and keyword standardization. Furthermore, bibliometric relationships identify patterns of scholarly activity but do not independently demonstrate theoretical consensus, causal relationships, or the effectiveness of particular ethical frameworks. Despite these limitations, this study contributes to the literature by systematically mapping the collaborative, intellectual, conceptual, and temporal characteristics of Islamic digital ethics research. It establishes a foundation for future investigations that seek to develop more comprehensive, empirically informed, and contextually relevant Islamic ethical approaches to navigating the opportunities and challenges of digital transformation.

4. CONCLUSION

This study provides a comprehensive bibliometric overview of the development, intellectual structure, collaborative networks, and emerging research trends in Islamic Ethics in the Digital Era. The findings

demonstrate that this research field has evolved into an increasingly interdisciplinary domain, integrating Islamic moral principles with contemporary developments in artificial intelligence, digital communication, financial technology, and sustainable digital transformation. The citation analysis identifies Islamic finance, blockchain, and ethical business practices as influential areas of scholarly contribution, while the co-authorship and institutional collaboration networks reveal concentrated patterns of academic cooperation. At the country level, Indonesia and Malaysia emerge as prominent contributors, highlighting the significant role of Southeast Asian scholarship in advancing discussions on Islamic digital ethics. Furthermore, the keyword co-occurrence analysis identifies artificial intelligence, Islamic ethics, digital ethics, social media, and ethical principles as central research themes, reflecting growing scholarly attention to the ethical implications of technological innovation. The overlay visualization suggests a thematic shift from digital financial applications and communication technologies toward artificial intelligence, machine learning, digital transformation, and sustainable development, while the density analysis reveals differences in the concentration of scholarly attention across these topics. These findings underscore the importance of strengthening the theoretical integration of Islamic ethical principles, particularly amanah (trustworthiness), 'adl (justice), maslahah (public welfare), and mas'uliyyah (responsibility), into contemporary frameworks for responsible technological development. However, there are limitations in terms of the attributes of the bibliometric database, its database coverage, its citation practices, and its procedure of choosing keywords that can impact the depiction of the research domain. It is important for future studies to focus on interdisciplinary and cross-national collaboration, theoretical development, and empirical study of algorithmic accountability, data privacy, artificial intelligence governance, digital religious authority, and sustainable technology practices. Overall, this study makes a contribution to the existing literature in terms of identifying the structure of knowledge, the directions of future research, and laying the groundwork for the construction of the Islamic ethical perspective.

REFERENCES

[1] E. Elmahjub, "Artificial Intelligence (AI) in Islamic Ethics: Towards Pluralist Ethical Benchmarking for AI: E. Elmahjub," *Philos. Technol.*, vol. 36, no. 4, p. 73, 2023.

[2] F. Ali, K. Bouzoubaa, F. Gelli, B. Hamzi, and S. Khan, "Islamic ethics and ai: An evaluation of existing approaches to ai using trusteeship ethics: Fatima ali," *Philos. Technol.*, vol. 38, no. 3, p. 120, 2025.

[3] S. H. Wahid, "Exploring the intersection of Islam and digital technology: A bibliometric analysis," *Soc. Sci. Humanit. Open*, vol. 10, p. 101085, 2024.

[4] N. Donthu, S. Kumar, D. Mukherjee, N. Pandey, and W. M. Lim, "How to conduct a bibliometric analysis: An overview and guidelines," *J. Bus. Res.*, vol. 133, pp. 285–296, 2021.

[5] A. S. Sofyan, E. Rusanti, N. Nurmiati, S. Sofyan, R. Kurniawan, and R. E. Caraka, "Islam in business ethics research: a bibliometric analysis and future research agenda," *Int. J. Ethics Syst.*, 2024.

[6] M. K. Al Faiz, A. K. Hasan, M. Z. Azani, and A. N. AN, "Bibliometric Trends in Research on Islam and Morality: Contextualizing Findings Within Qur'anic Thought," *Iseedu J. Islam. Educ. Thoughts Pract.*, vol. 9, no. 2, pp. 168–184, 2025.

[7] N. J. van Eck and L. Waltman, "Software survey: VOSviewer, a computer program for bibliometric mapping," *Scientometrics*, vol. 84, no. 2, pp. 523–538, 2010, doi: 10.1007/s11192-009-0146-3.

[8] H. Mohamed and H. Ali, "Blockchain, Fintech, and Islamic finance: Building the future in the new Islamic digital economy," in *Blockchain, fintech, and Islamic finance*, de Gruyter, 2022.

[9] E. Suandi, H. Herri, Y. Yulihasri, and S. Syafrizal, "An empirical investigation of Islamic marketing ethics and convergence marketing as key factors in the improvement of Islamic banks performance," *J. Islam. Mark.*, vol. 14, no. 6, pp. 1438–1462, 2023.

[10] R. K. Sari, M. Alfarizi, and M. S. Ab Talib, "Sustainable strategic planning and management influence on sustainable performance: findings from halal culinary MSMEs in Southeast Asia," *J. Model. Manag.*, vol. 19, no. 6, pp. 2034–2060, 2024.

[11] P. Rahmah Nur Hakim, A. S. Razick, I. Abdullah, M. R. Musfiroh, and S. Sintang, "Contesting sharia and human rights in the digital sphere: media representations of the caning controversy under the qanun jinayat in aceh," *J. Islam. L.*, vol. 6, p. 206, 2025.
[12] E. Gorian and N. D. Osman, "Digital ethics of artificial intelligence (AI) in Saudi Arabia and United Arab Emirates," *Malaysian J. Syariah Law*, vol. 12, no. 3, pp. 583–597, 2024.
[13] M. Abdillah, "Sharia and Politics in the Context of Globalization and Society 5.0," *Ahkam J. Ilmu Syariah*, vol. 22, no. 2, 2022.
[14] O. Dastane, E. C.-X. Aw, J. C. Fandos-Roig, and J. Sánchez-García, "Ethical marketing: a review and research agenda," *Mark. Intell. Plan.*, vol. 44, no. 1, pp. 121–142, 2026.
[15] B. Santoso, "Islamic microfinance branchless banking model in Indonesia," *Intellect. Discourse*, 2016.
[16] A. Hindolia, J. Arya, R. Pathak, and A. Kazmi, "Halal B2B marketing in the metaverse: crafting a conceptual framework to pinpoint opportunities and challenges, outlining the agenda for future research," *J. Islam. Mark.*, vol. 17, no. 2, pp. 610–630, 2026.
[17] M. Y. Chaudhary, "Initial Considerations for Islamic Digital Ethics: MY Chaudhary," *Philos. Technol.*, vol. 33, no. 4, pp. 639–657, 2020.