


Cashless society trend: A bibliometric analysis and Islamic economic research opportunities

Faiq Shidqi Rabbani & Sebastian Herman 

Program Studi Ekonomi Syariah (S1), Institut Agama Islam Tazkia, Bogor, Indonesia

ABSTRACT

Introduction

The rapid advancement of technology, especially in the banking sector such as digital or non-cash payments, has driven society to transition from traditional cash transactions to non-cash transactions. This behavioral shift has become a societal trend known as the cashless society.

Objectives

This study aims to analyze the behavior of a cashless society based on publications indexed in the Scopus database.

Method

This study utilizes bibliometric analysis using R Biblioshiny to collect and analyze literature related to cashless society and Sharia principles.

Results

The research findings show a significant increase in the number of publications related to the Cashless society since 2015. Additionally, the majority of analyzed documents include articles, conference papers, and books. The most cited and influential author is Batiz Lazo B, with frequently used keywords including cashless society, economics, Malaysia, payment methods, technology adoption, digital payment, and others. In general, the shift towards non-cash transactions offers significant benefits, underscoring the need for further research and development in the future.

Implications

The study highlights the importance of developing Sharia-compliant financial tools to support the Muslim community in adopting cashless systems responsibly. Policymakers, researchers, and businesses should collaborate to create inclusive and ethically grounded digital payment ecosystems.

Originality/Novelty

This study contributes to the literature by bridging cashless payment systems and Islamic economics. It offers novel insights into designing digital financial systems that adhere to Islamic values, providing a foundation for future innovation in ethical and inclusive finance.

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Contact: Faiq Shidqi Rabbani ✉ faiq.shidqi2000@gmail.com

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INTRODUCTION

Rapid technological developments, especially in the banking sector such as digital or non-cash payments, have become one of the main drivers of the shift in people's behavior from traditional cash transactions to non-cash transactions (Maharani et al., 2024; Tarantang et al., 2019; Yadav et al., 2024; Yousoof et al., 2024). This phenomenon not only reflects adaptation to technological advances, but also marks a fundamental change in the way individuals and society interact with the financial system. These changes are collectively known as *the cashless society*, a concept that goes beyond the mere use of cash in everyday transactions. The cashless society marks a broader shift towards a more efficient, practical, and integrated digital payment ecosystem (Deep, 2022; Utami, 2023; Worthington, 1995).

Although the shift of society towards cashless transactions provides significant benefits, there are complexities and challenges that need to be overcome. However, it is important to consider in examining this phenomenon. The Indonesian government is quite serious about seeing the phenomenon of a cashless society called less cash society (Marits & Zaerofi, 2023). So with that, a movement called National Non-Cash Movement (*Gerakan Nasional Non-Tunai* abbreviated GNNT in Bahasa Indonesia) was formed, which was inaugurated on August 14, 2014. Encouraged by the issuance of electronic money (e-money), this movement aims to minimize the use of cash and then switch to non-cash which provides convenience and security in daily transactions so that the currency does not fall. Over time, this movement has become increasingly popular. In 2023, Bank Indonesia recorded the value of shopping transactions using digital banking, reaching IDR 58,478.24 trillion, which shows an increase of 13.48% (YoY). However, non-cash transactions using e-money and other types of digital payments are considered to encourage people to become impulsive buyers (Jati, 2015; Minarni & Asnawi, 2022).

Based on above background, this study aims to investigate further the behavior of cashless society and research opportunities for Islamic economics. The R Biblioshiny package will be used as a bibliographic data analysis tool to collect and analyze literature related to cashless society. In order to achieve this goal, this study will broaden the insight into how Islamic values can guide and shape the way individuals and society interact with digital payment technology (Abbas, 2017).

By using the biblioshiny method, this study aims to present a deeper understanding of the behavior of cashless society. Through this study, it is expected to achieve a better understanding of how cashless society can be directed to be in line with Islamic values. Thus, this study has the potential to make a significant contribution to the development of a responsible and sustainable society.

LITERATURE REVIEW

Non-cash payment systems or digital payments have influenced people's lives around the world in a more innovative way. In digital payments, money is stored, processed, and received in the form of digital information, and the transfer process is

initialized through electronic payment instruments. The presence of digital payments in the form of cards, cellular, mobile banking, digital wallets has shifted the role of cash (currency) as cash payments. Digital payments, all of which are adapted from innovations in the banking sector, because they see the behavior of people who want practicality, fast processes in transactions, and have an effect on minimizing inflation due to the reduction in the amount of money in circulation (Tarantang et al., 2019).

Implementation in society in cash transactions to non-cash (cashless society) takes a long time, but the steps for several countries in the evolution of money are policies in creating central bank digital currencies (Hendrawan et al., 2023). Among the benefits of a *cashless society* are decreasing crime rates and money laundering, safe and comfortable, supporting technological developments, personal security, and lower transaction costs. However, there are also disadvantages, including cybercrime, threats to privacy, the existence of parties who will be harmed such as the elderly who are technologically illiterate and uneducated people, and the low level of public literacy regarding digital payments (Fabris, 2019).

According to several studies that have been conducted, cashless society has a significant impact on the economy in Indonesia. However, to best of our knowledge, discussions on how Islamic economics views this phenomenon are still limited. Likewise, the social and economic impacts of adopting cashless technology on Muslim society, including aspects such as financial inclusion, accessibility for the poor, and data privacy. Therefore, it is interesting to conduct research on this matter, especially in the context of know how Islamic economic principles can be applied in the context of a cashless payment system. By approaching this issue through the lens of Islamic economics, researchers can make valuable contributions to the development of theory and practical implementation of a cashless society that is more in line with Islamic moral values and economic principles. For the Muslim community, it is very important to have an e-wallet that has features that allow for sharia-compliant transactions. Currently, LinkAja Syariah is the only electronic money or e-wallet in Indonesia that has successfully obtained a license from the Financial Services Authority (*Otoritas Jasa Keuangan* abbreviated OJK in Bahasa Indonesia). It offers several features, such as the automatic zakat and alms payment feature. This will help the Muslim community avoid uncontrolled consumer behavior. In addition, a sharia-friendly e-wallet can also provide a sense of security and comfort for its users in conducting daily financial transactions without violating sharia principles. This will certainly have a positive impact on the growth of the sharia economy in Indonesia. In addition, the presence of LinkAja Syariah can also be an example for other companies to develop financial services that are in accordance with sharia principles.

METHOD

The author conducted research related to *cashless society* using bibliometric methods, namely mapping related leading research. Bibliometric mapping is a quantitative analysis technique used to map and analyze scientific literature. R

Biblioshiny is an open-source software package used to perform bibliometric mapping on data generated by R Biblioshiny. Bibliometric mapping using R Biblioshiny can help in identifying research trends, mapping collaborations between authors, and measuring the impact of a journal's scientific publications.

This study uses publication data in the form of documents sourced from various scientific journals and other sources with the theme of cashless society research. From the search results, research publications related to cashless society have existed since 2015 until now, there are 25 publication documents, 134 citations and other information. This study took Scopus indexed data source before processing the data using R Biblioshiny.

Table 1

Documents by Type for Search Results on Cashless Society

Document Types	Number of Articles
Article	35
Book	1
Book Chapter	6
Conference Paper	9
Editorial	1
Note	1
Reviews	4
Total	57

Source: Scopus (2024).

Previous on cashless society behavior found that non-cash transactions are proven to be effective, more efficient, and safe. However, there are challenges such as people who are still technologically illiterate, lack of information, low human resources, lack of facilities and fears related to the security of using digital or non-cash transactions. From these findings, discoveries are needed from other studies with bibliometric mapping related to cashless society ([Aslinawati et al., 2016](#)).

RESULTS

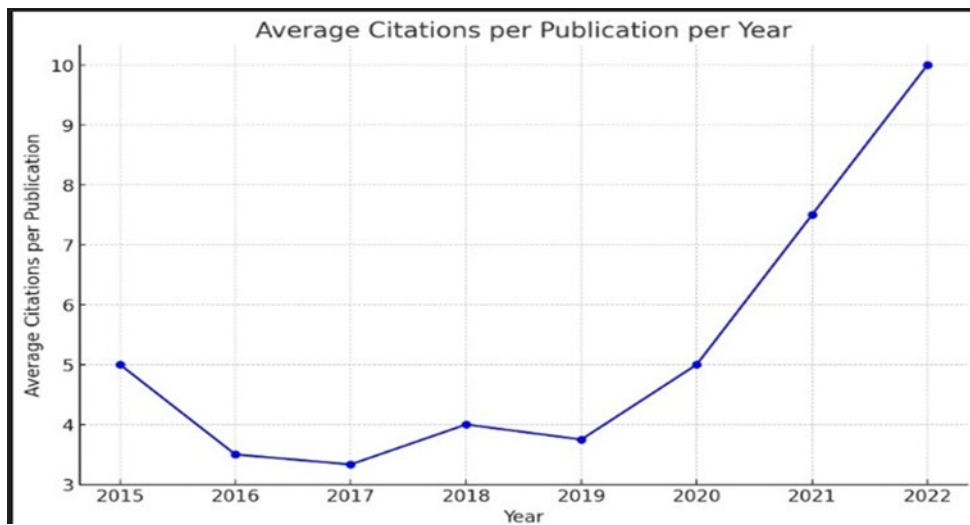
Average Citations per Publication per Year

Research on cashless society behavior shows an increase in the average citations per publication from 2015 to 2022. Bibliometric analysis using R Biblioshiny reveals that the number of publications on this topic increased, reaching a peak in 2020 with five publications. Although the number of publications decreased slightly in 2021 and 2022, the average citations per publication increased sharply, as seen in [Figure 1](#). In 2022, the average citations per publication reached 10.0 per article, indicating that articles published this year received significant attention and were widely recognized by the academic community. This increase indicates that recent research has a significant impact and is more widely recognized.

Overall, the increasing trend in average citations per publication reflects the increasing quality and relevance of research on this topic. There was a significant jump in average citations in 2021 and 2022 compared to previous years, indicating that publications in those years were highly influential. Research on *the* cashless society has become increasingly relevant and important in scientific discussions, indicating that this topic has a high impact and continues to grow in relevance in the academic community and the wider society. Recently published articles have received more citations, reflecting the significant quality and influence of the research.

Figure 1

Average Citations per Publication per Year



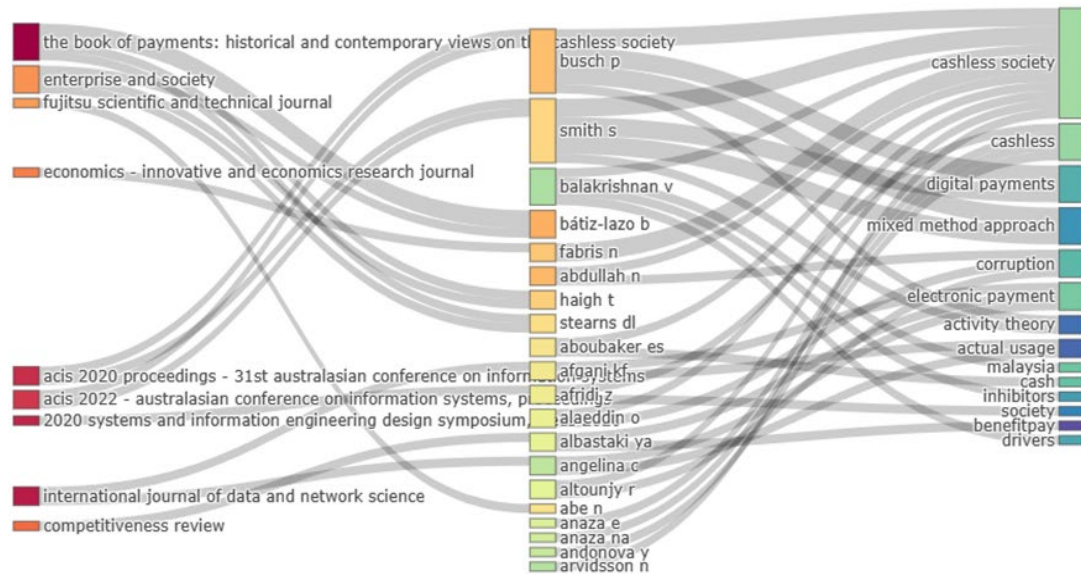
Source: Scopus (2023).

Three Fields Plot

The Three Fields Plot in [Figure 2](#) illustrates the relationship between authors, journals, and topics in the context of cashless society studies. The authors, journals, and topics are interrelated through the gray plots connecting them to each other. The diagram displays 20 prominent researchers involved in the study, with the size of the circles representing the number of publications associated with each author. The three main authors who often initiate research on the topic of Cashless Society, namely Bhatnagar D, Yu J, and Linz JE, are marked with green, blue, and light blue circles respectively.

Figure 2

Three Fields Plot



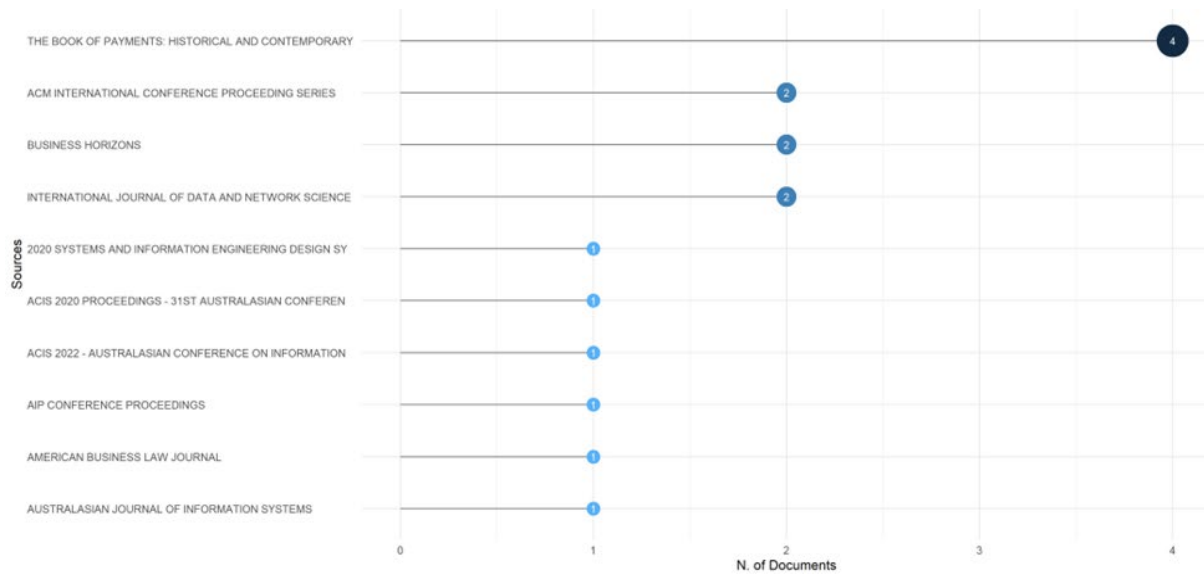
Source: Scopus (2023), authors' estimation.

In the center of the plot are the names of journals related to the study. The nine journals are mapped by the main themes they publish, with one of them, Groopman JD, being the author who publishes the most papers on the theme of cashless society. The relationship between journals and authors is shown by the pink circles connecting Groopman JD with several other authors such as Yu J, Haianut P, and Pitt JI.

The third element of the diagram describes the research topics related to the theme. There are 20 key topics associated with authors who have done a lot of research on the topic. Of all the topics that appear, cashless society, cashless, and digital payment are the most frequent, marked with light green and dark green circles. This reflects that these topics are closely related to research on cashless society.

Most Relevant Sources

The data presented in Figure 3 shows the number of publications related to each journal in the context of cashless society. From the bar graph presented, it can be seen that The Book of Payment: Historical and Contemporary Views (Batiz-Lazo & Efthymiou, 2016) on the cashless society dominates with four publications, indicating its high relevance to the topic. On the other hand, other journals show a lower level of publication, some even only publishing one document. This indicates that although the topic of cashless society is starting to get attention, it is still not evenly distributed across all published journals. The total number of publications identified in the figure is sixteen documents. Thus, although there is increasing interest in this research, more publications are still needed to provide a broader and deeper coverage in the discussion of cashless society.

Figure 3*Most Relevant Sources*

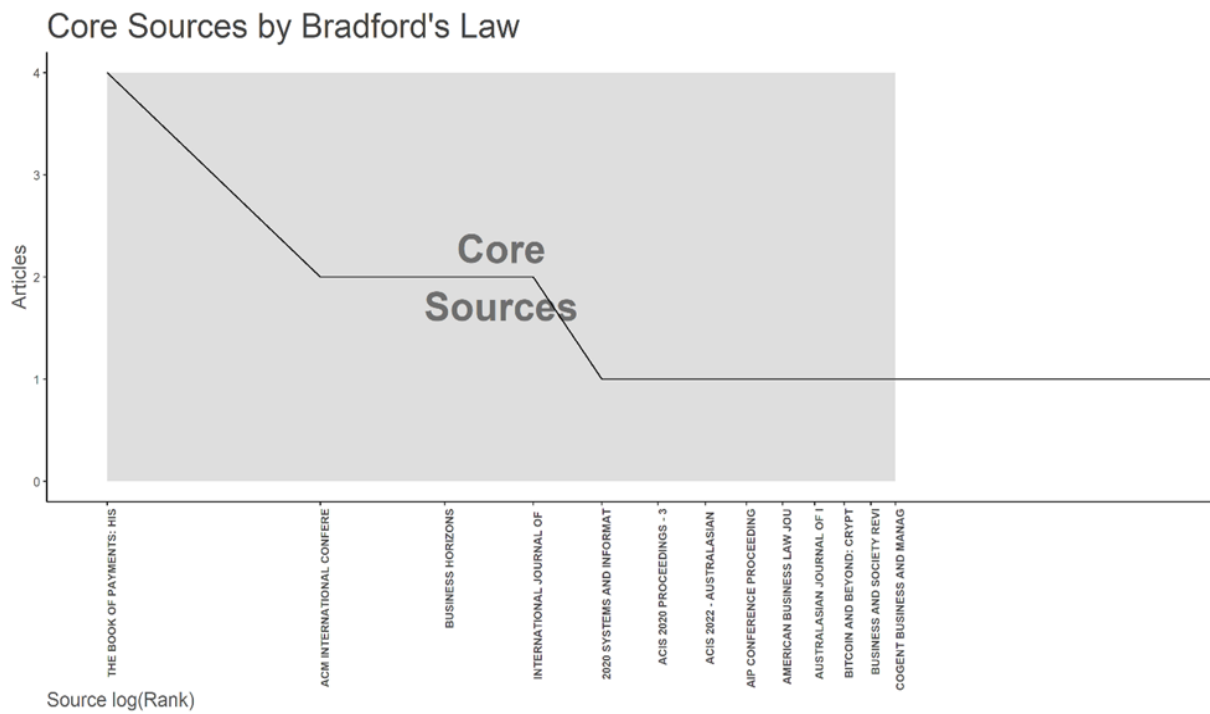
Source: Scopus (2023), authors' estimation.

Core Sources

Figure 4 illustrates the application of Bradford's Law in the analysis of literature on cashless society. Bradford's Law divides the journals into three zones based on their productivity: core zone, intermediate zone, and broad zone. The core zone marks the journals with the highest productivity on the topic, as seen in the figure, where "The Book of Payments: Historical and Contemporary Views on the Cashless Society" is the core journal with the most publications, reaching four research papers. This journal plays a major role in contributing to the understanding of cashless society, while the other journals have more limited contributions.

Figure 4

Core Sources by Bradford's Law



Source: Scopus (2023), authors' estimation.

Source Impact

Figure 5 shows the source impact of documents in Scopus related to a cashless society. The Book of Payments appears to dominate with a significant number of publications, followed by the ACM International Conference Proceeding Series, which is in second place with a smaller number of publications. The other journals only have one publication in the core category of cashless society. This visual presentation confirms that the work is a major source in understanding the topic, while the contributions of other journals tend to be more limited. This analysis reinforces the importance of in-depth and continuous research into the challenges and opportunities societies face in adopting a cashless system.

Figure 5*Source Impact*

Source: Scopus (2023), authors' estimation.

Sources of cashless society behavior are measured by the number of articles produced and their relevance in the literature. Still, they are also evaluated based on their impact on knowledge development in this field. This study involves an analysis of the h-index of journals that publish articles on the theme of cashless society, intending to gain a more comprehensive understanding of the impact and relevance of these scientific works.

In the overview of the journals that have been analyzed, three color categories describe each journal's level of impact. The blue color in the diagram indicates the h-Index value obtained by each journal and reflects the level of impact generated by the scientific work. The darker the blue color in the diagram, the more significant the impact generated by the journal on the development of knowledge about cashless society.

The collected data shows that the Book of Payments is ranked first with an h-Index of 3, which is marked in dark blue in the diagram. In comparison, the second source on the list is *ACM International Conference Proceeding Series* with an h-Index value of 2. Furthermore, eight other sources have an h-Index value of 1, which is marked in bright blue. Although the number of sources involved in this study is quite large, the finding shows that the impact of research on the cashless society has not yet reached the expected level.

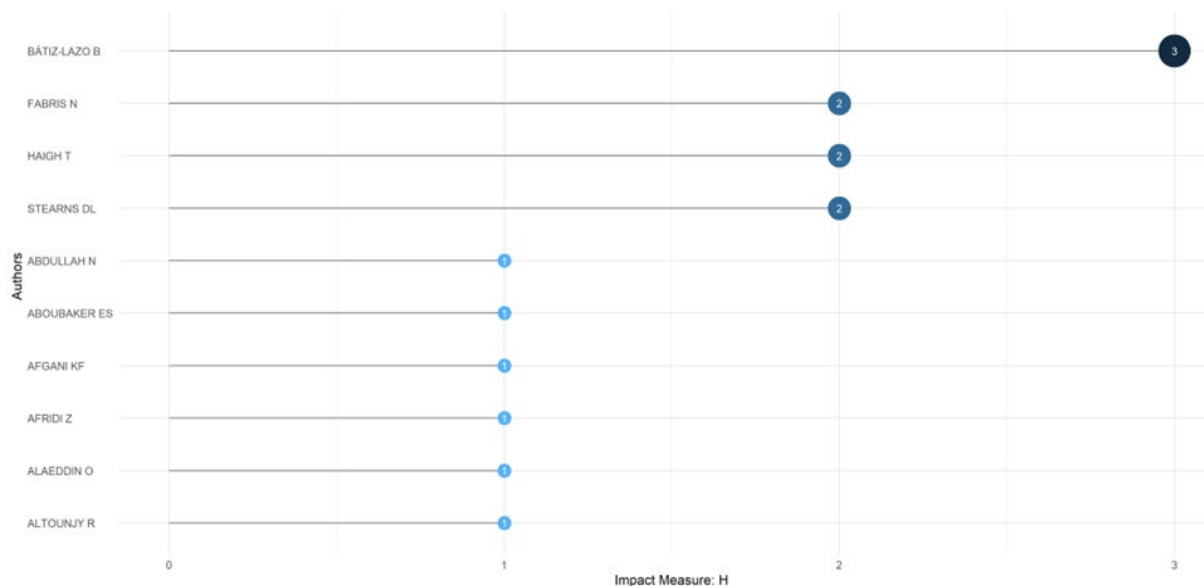
From the analysis, it can be concluded that although research on cashless society has been the main focus in the literature, further efforts are still needed to increase the impact and relevance of scientific works published in this context. This is important considering the importance of a deep and relevant understanding in facing the challenges and opportunities offered by the development of this cashless society in the context of values and principles.

Author Impact

The illustration above shows sources of cashless society behavior, highlighting the global financial transformation that affects the economic interactions of society. One of the works that is the main focus of the research is compiled by Batiz Lazo B, an author who has a significant impact by achieving an H index of 3. The work explores the social, economic, and cultural implications of adopting a cashless system. Meanwhile, research conducted by Fabris N, Hight T, and Stearns DL also made an essential contribution by achieving an H index of 2, exploring different aspects of this phenomenon, such as its impact on transaction habits and financial security. Figure 6 explains the author's impact on articles on cashless society in the Scopus database.

Figure 6

Author Impact

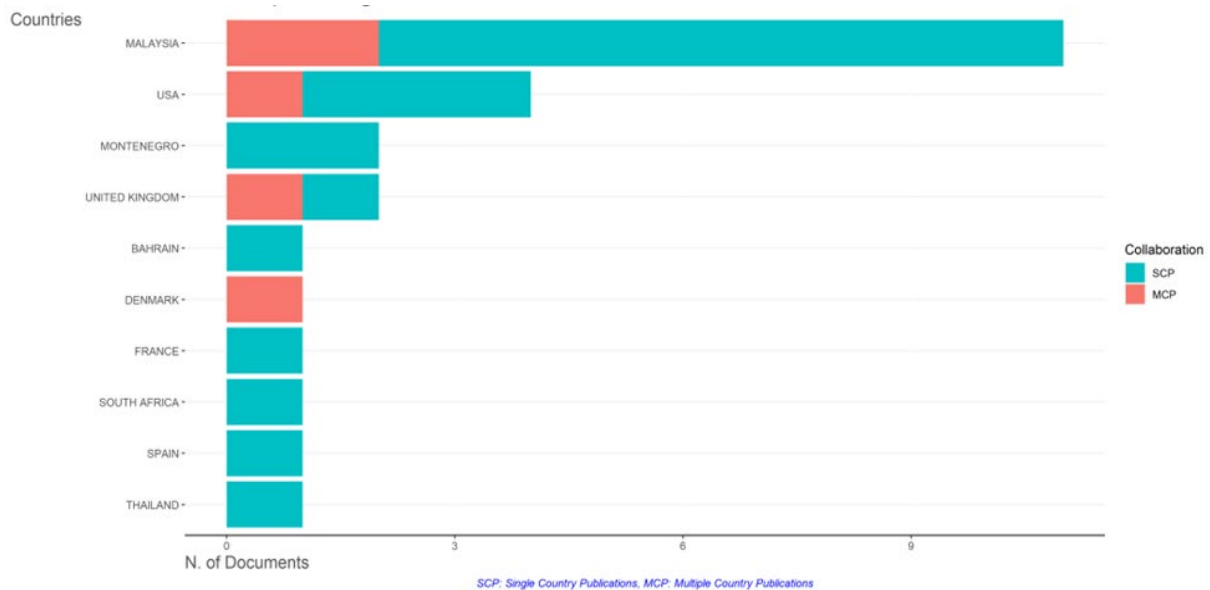


Source: Scopus (2023), authors' estimation.

In addition, there are six other authors who also play a role in developing the understanding of cashless society, although with a more limited impact, achieving an H index of 1. These authors are Abdullah N, Aboubaker ES, Afgani KF, Afridi Z, Alaeddin O, and Altounjy R. Despite their lower impact, their works still provide valuable insights into various aspects related to the implementation and adaptation of cashless systems in the context of value.

Corresponding Author's Country

Figure 7 provides an overview of the distribution of author correspondence from various countries in journal articles discussing cashless society. In this analysis, the focus is given to collaboration between authors from one country with another (SCP - Single Country Collaboration), not cross-country collaboration (MCP - Multiple Country Collaboration).

Figure 7*Corresponding Author's Country*

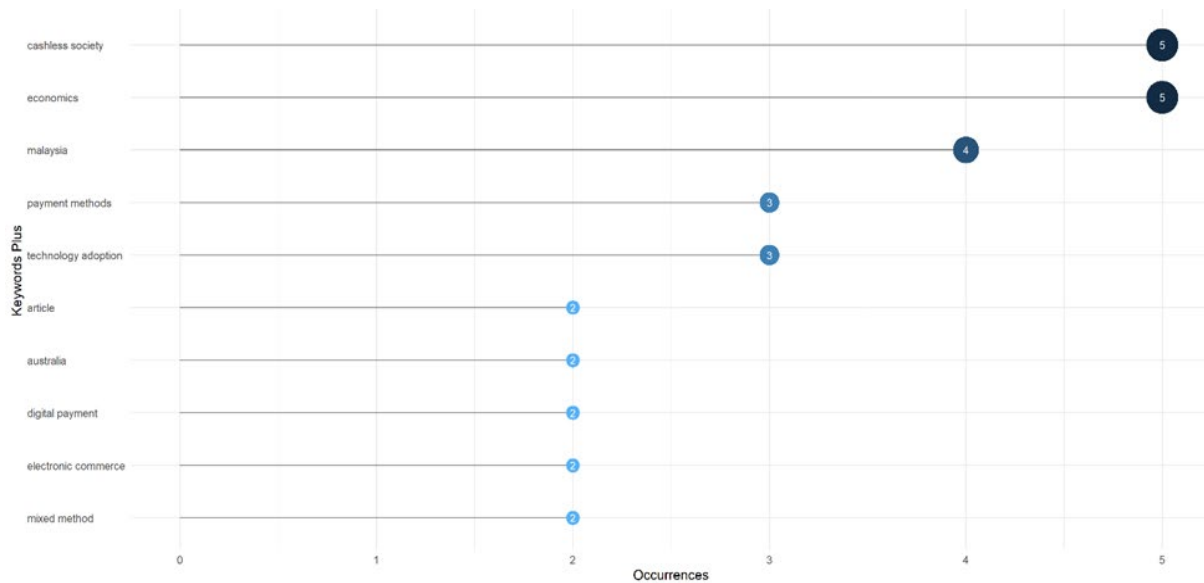
Source: Scopus (2023), authors' estimation.

The results of the analysis show that five countries stand out in their contribution to the literature on cashless society, with a significant number of research articles. In particular, Malaysia ranks first with the highest number of corresponding authors, with more than 11 articles published. The United States (USA) is in second place with four articles, and Montenegro and the United Kingdom are in third and fourth positions, each with two articles. The following ranking includes Bahrain, Denmark, France, South Africa, Spain, and Thailand, each with one published article. However, it is essential to note that some countries with great potential for cashless technology adoption, such as Indonesia, are not yet represented in this data.

This data encourages increased scientific publications that raise the topic of cashless society in countries that have not contributed much, especially Indonesia. By involving more research and collaboration at the international level, innovative ideas are expected to support the development of a cashless society in each country. This step is expected to significantly improve people's welfare through convenience and efficiency in digital transactions.

Most Relevant Words

The study on cashless society behavior describes an attempt to understand how cashless financial technology develops in a society. A critical aspect of this study was counting relevant words used in the collection of documents that were the focus of the study. This process showed that several words appeared repeatedly in the literature studied, indicating the importance of certain aspects in the discussion of cashless society in the context of Islam. Figure 8 explains the most relevant words in publications on cashless society based on the Scopus database.

Figure 8*Most Relevant Words*

Source: Scopus (2023), authors' estimation.

In this study, several words have varying frequencies of occurrence, ranging from not appearing at all to appearing more than five times. The analysis highlights the top ten words relevant to the Cashless Society theme, shown in the figure with blue markers. A comparison of the number of occurrences of each word highlights the relationship between the use of certain words and their relevance to the research theme. For example, the words "cashless society" and "economics" appear five times in the analyzed literature, and both have high relevance to the research theme, which is reflected in the dark blue circle marking. This confirms that the understanding of a cashless society in Islam cannot be separated from discussions on economic aspects, indicated by the words "cashless society" and "economics" in the literature studied.

Thus, the analysis of relevant words provides valuable insights into how the cashless society theme is understood and defined. This study provides a solid foundation for understanding the complexity of the cashless society phenomenon from various perspectives, which can be the basis for developing financial policies and practices.

Word Cloud and Word Tree Map

Word Cloud and Word Tree Map provide an overview of the frequency of words appearing in the research paper, focusing on various aspects of the cashless society theme. By analyzing the text, the most frequently appearing words are significantly related to the cashless society phenomenon. In this context, visual tools such as Word Cloud (Figure 9) and Word Tree Map (Figure 10) help present the information quickly.

On the other hand, a Word Tree Map presents frequently occurring words in boxes that resemble areas on a map. The more frequently the words appear, the larger the area given to represent them in the visualization. By grouping words in colored clusters, Word Tree Map also considers the relationship between one word and another, providing a deeper understanding of the context and interrelationships between the concepts presented.

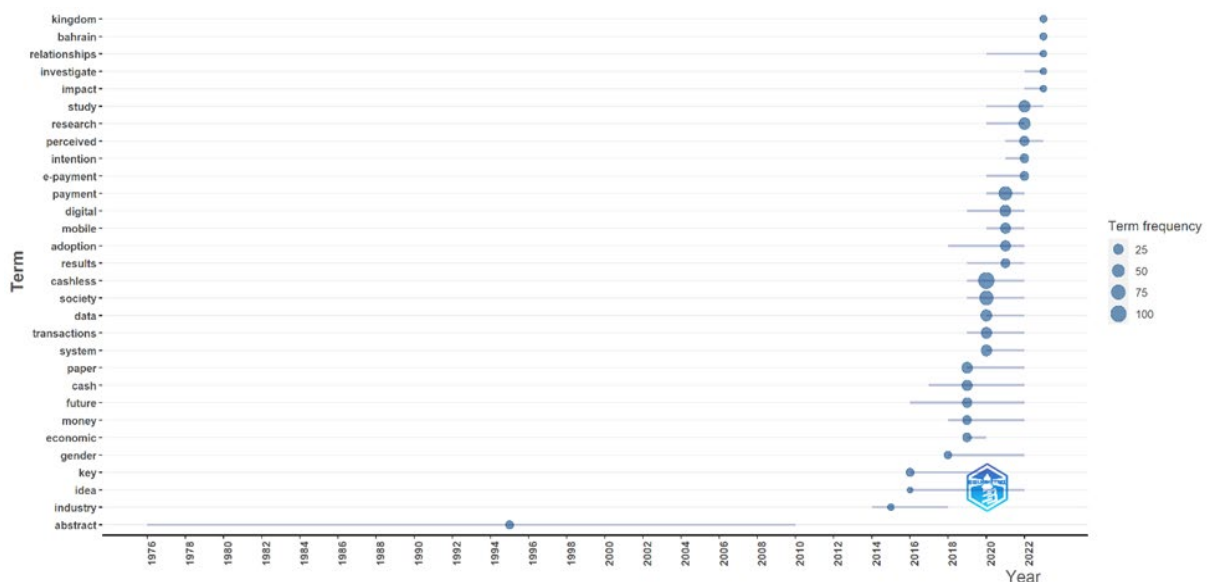
In the context of research on cashless society behavior, visual tools such as Word Cloud and Word Tree Map become important for visualizing data and identifying patterns that may be hidden in large data sets. By deepening the understanding of words that often appear in this context, researchers can better understand the dynamics, challenges, and opportunities associated with society's acceptance and adaptation of cashless payment systems and their implications in the context of values and principles.

Trend Topics

Topic trends are also the focus of this study. Analysis of topic developments over time shows an interesting picture. Based on this picture, it can be seen how the topics discussed in the context of a cashless society have shifted from year to year. The data in Figure 11 shows that since 2015, there has been a significant increase in discussions on the topic.

Figure 11

Trend Topics



Source: Scopus (2023), authors' estimation.

The study also highlights changes in the topics of interest. Since 2015, there have been new developments in topics such as industry, ideas, keys, gender, economy, and money. However, from the data presented, five main topics show a significant increase in the frequency of use of related words, namely cashless society, society,

payment, study, and research. This phenomenon shows a shift in interest and focus on research related to cashless society, with increasing attention to aspects such as payment systems, society, and in-depth studies and research.

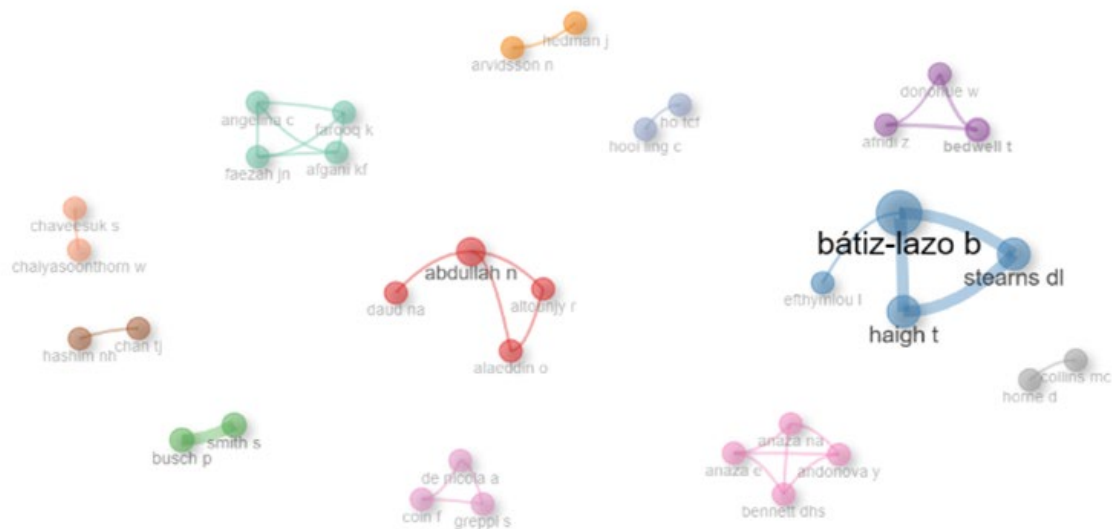
This study is important not only in an academic context but also in understanding the impact and implications of the cashless payment trend. Deepening the understanding of a cashless society is expected to provide a more holistic and sustainable view of developing a modern payment system that is following religious principles.

Collaboration Network

Articles on a cashless society can illustrate a collaborative framework that is important in developing knowledge in this field. One of the collaborative aspects revealed is the collaboration between authors who contribute to papers focusing on the theme of a cashless society. In the visualization provided, this collaboration is manifested through connections between the authors involved, identifying relationships marked through clusters of colors and lines connecting one name to another. Furthermore, the size of each entity (circle) indicates the contribution level, or the number of papers published on this theme. Figure 12 explains collaboration network of authors of articles on cashless society in this study.

Figure 12

Collaboration Network



Source: Scopus (2023), authors' estimation.

The data presented illustrates the extensive collaboration between the 12 author clusters, with one cluster standing out as the largest in this study. For example, the first cluster in red shows the collaboration between Abdullah N, Daud Na, Altounjy R, and Alaeddin O. In addition, other clusters also show significant collaboration, such as the second cluster in blue involving Batiz Lazo B, Stearns DI, Haigh T, and Efthymiou I.

Likewise, the other clusters, such as the green, purple, and orange clusters, each show collaboration between different authors. Such collaboration enriches the perspectives presented in this study because these authors can present a more holistic and in-depth view of the cashless society phenomenon through a combination of diverse backgrounds and expertise.

DISCUSSION

Findings of the Study

Bibliometric analysis using R Biblioshiny with the keyword cashless society indexed in the Scopus database revealed that interest in Cashless society has increased along with the increasingly widespread adoption of digital payments by the public. This phenomenon has spurred researchers to produce scientific studies, especially on innovation and strategy in the digital payment domain. The development of literature around cashless society has become a significant topic of discussion in recent years, especially related to developments in Malaysia, payment methods, technology adaptation, and digital payments.

Research on cashless society has been widely distributed through various publications, including journals, articles, and other documents, as reflected by the diverse sources and varying citations. Through the Three Fields Plot, the relationship between journals, authors, and topics can be identified, showing the volume of each of these elements. One of the most productive journals in the context of a cashless society is *The Book of Payment: Historical and Contemporary Views on the Cashless Society*, which has a significant number of articles and a high impact according to Bradford's Law and h-Index. The most influential authors are Batiz Lazo B, Fabris N, Hight T, and Stearns DL.

While the transition to cashless offers significant benefits, such as convenience and efficiency, the paper highlights the challenges and complexities that must be addressed. The importance of considering in analyzing this phenomenon is emphasized, especially in terms of ethics and morality in the use of digital payment technology, as well as its impact on society, especially for Muslim communities.

There is still a need for more in-depth research on the issue of a cashless society, mainly because of the unique perspective that Islamic economics has on the concept of money and transactions. Islamic economic researchers can explore how the concept of justice in the distribution of wealth can influence the design of a cashless payment system. In addition, they can also investigate how the prohibition of usury can be implemented in non-cash transactions, as well as how Islamic business ethics can shape business practices in this cashless ecosystem.

Global Trend of Cashless Society

This unit is even more important internationally than ever before, as innovation alongside changes in consumer behavior reshapes our cashless cultures. A cashless society—also referred to as a cashless sodality—is an economic system where financial transactions are carried out via electronic media to the point where the

individual is no longer required to physically possess coins and banknotes. This concept has attracted much attention in several nations, including Indonesia (Abdullah et al., 2020; Thaker et al., 2023). Digital payments are becoming relatively common via e-wallets or other payment applications.

One of the elements driving society closer to a cashless world is advancements in technology in and around finance, better known as fintech. Several researchers have proven that the spread of digital systems has been linearly analyzed with developing technology as financial technology (Kozyr, 2023; Teker et al., 2022). This includes the building blocks of infrastructure, like better internet access and more sophisticated mobile devices. This infrastructure will allow people to perform transactions safely and quickly (Cnaan et al., 2023). COVID-19 has sped up this shift to a cashless society (Rauf & Thoha, 2022; Yusoff et al., 2022). This drives a lot of people to start using digital payment systems to prevent virus spread.

Also included in cashless societies research is a study of the social drivers behind the public's adoption of digital methods for payment. As per the results of various research, adoption of cashless payment isn't only driven by ease of use, perceived advantage, and system effective security (Balakrishnan & Lay Gan, 2023; Balakrishnan & Shuib, 2021; Rahman et al., 2020; Raj L. et al., 2024). Having knowledge about technology alone will not help to improve public acceptance of cashless payment methods, but general knowledge about finance is also needed (Abdullah et al., 2020; Zainuddin et al., 2024).

Although a cashless society brings many benefits, it also presents some challenges that must be addressed. Privacy and safety are two very big issues. Previous studies prove that data security risks and fraud potential might be barriers to the wide use of digital payment systems (Dimitrova et al., 2022; Vijay K., 2024). This means that service providers must secure their systems and teach clients how to protect them appropriately (Vijay K., 2024).

The other side is also the social implications of a cashless society. Most studies point to hitting existing inequalities harder due to a change in society that does not rely on cash. For example, geographically dispersed groups or those with limited access to computer technology (Horne & Collins, 2023; Jung & Jeong, 2021). Therefore, it becomes increasingly valuable to ensure that all of society has equal access to not just digital financial services but technology (Vaidya & Vishwakarma, 2023; Wanof, 2023).

In addition, recent studies carried out on cashless societies also focus on the economic effect of this changeover. Several studies found that a cashless society could increase transaction efficiency, reduce currency management costs, and grow the economy (Hidayah et al., 2023; Permatasari et al., 2023; Sharma, 2023). Nevertheless, others worry that restrictions on cash use may adversely affect specific sectors, particularly small businesses reliant on transactions (Chairunnisa et al., 2020).

In Indonesia, there is a relationship between government policies that push economic digitalization and the stages of cashless society development in an area. For example, the government of Indonesia has launched several programs such as

education and incentives for users to use digital payment methods (Puspitasari & Salehudin, 2022; Rahadi et al., 2023; Riza & Wijayanti, 2022). Also, there is a need for both public and commercial sector cooperation to create an ecosystem for cashless society development (Kamis et al., 2022).

When viewed collectively, the cashless society research available suggests a massive change in how the public will conduct all their financial transactions. An evolution of technology and a change in consumer behavior will lead to a cashless society that is good for the economy and society. But for it to address the challenges being faced today, inclusive policies and proper education programs are needed. This will enable everyone, across all levels of society, to participate in this transformation.

LinkAja Syariah and Cashless Society in Indonesia

A good example of the trends that have emerged in the growing sharia finance industry is LinkAja Syariah, launched under LinkAja Indonesia. This Islamic digital wallet application caters to the needs of individuals who prefer financial transactions aligned with sharia principles. One of the major attractions for users is the *wakalah* contract, ensuring halalness with a legal guarantee (Shodiqin & Nur, 2023). This contract is established during transactions conducted via LinkAja Syariah. It is expected that this service will significantly contribute to the development of the sharia financial sector and the Indonesian economy (Rizaldi, 2021).

LinkAja Syariah draws user interest for reasons such as simplicity and safety. Research indicates strong interest among Jabodetabek residents, particularly due to its convenience and accessibility (Rizaldi, 2021). Findings by Irawati & Muslihah (2023) in Solo Raya show that consumers perceive great benefits from LinkAja Syariah and report high satisfaction levels. This demonstrates that LinkAja Syariah not only provides sharia-compliant products but also meets contemporary societal needs.

During the COVID-19 pandemic, the use of cashless payment systems like LinkAja Syariah surged. This shift was driven by the need to reduce physical contact and limit virus spread. According to Turjaman & Budi (2022), LinkAja Syariah aims to strengthen its position in an already competitive market. To increase its user base, it offers various features that simplify transactions, particularly appealing to younger, tech-savvy generations.

Several factors influence the adoption of LinkAja Syariah, including religiosity and ease of use. Convenience, usability, and religiosity play key roles in whether individuals choose this service (Hasyim et al., 2023). This reveals how consumers consider both ethical and practical principles in selecting financial services. Additionally, customer citizenship behavior (CCB) is crucial to LinkAja Syariah's success, as satisfied users are likely to recommend the service to others (Safira & Rahmanto, 2022).

The marketing strategy of LinkAja Syariah is critical. Firdausi & Ardyansyah (2023) found that creating a sharia branding experience and employing the right marketing strategies enhance customer loyalty. By leveraging digital marketing channels and attractive promotions, LinkAja Syariah aims to boost visibility and market appeal. Educating younger generations about sharia finance is also vital, as they show high

interest in using these services (Ananda & Nuriyah, 2023). LinkAja Syariah supports the sharia financial ecosystem in Indonesia by providing services for social purposes such as shodaqoh, zakat, and infaq, contributing to the establishment of a sustainable sharia economy (Lusiana et al., 2021).

LinkAja Syariah has been certified by the National Sharia Council (DSN) of the Indonesian Ulema Council (MUI), affirming compliance with sharia principles (Asriani & Kurniawan, 2023). This accreditation reassures consumers and presents opportunities to attract users across Indonesia. External factors such as shifts in consumer behavior and technological advancements also influence LinkAja Syariah's performance. As Panerang & Utami (2023) note, the widespread adoption of digital technology and changing consumer preferences toward electronic transactions offer growth opportunities for LinkAja Syariah's market share.

Challenges remain, especially when competing with other digital wallets offering similar services (Turjaman & Budi, 2022). To maintain its edge, LinkAja Syariah must enhance both its services and innovative capabilities. Firdausi & Ardyansyah (2023) emphasize that effective marketing strategies grounded in understanding customer needs are essential for sustaining and growing market share. LinkAja Syariah's expansion in Indonesia reflects substantial potential for the sharia financial industry. By implementing sound marketing strategies, introducing new services, and adhering to sharia principles, LinkAja Syariah has the potential to become a leading player in Indonesia's digital financial ecosystem.

CONCLUSION

This study explores the issue of a cashless society in Indonesia, focusing on how cashless payment systems have developed in society. The approach used in this study involves bibliometric methods to trace the literature related to a cashless society, and the results show that interest in this topic has increased in recent years. In addition, this journal also highlights Malaysia's role as one of the leading pioneers in promoting the adoption of cashless technology, where the number of journals and articles originating from the country is quite significant.

In addition, the lack of financial inclusion in Indonesia based on Sharia has caused the Muslim community to have no other choice but to use existing digital wallets. Only the LinkAja Syariah digital wallet already has a sharia concept in its system. Close collaboration is needed between researchers, entrepreneurs, and policymakers in the field of digital payments, especially Sharia-based ones, to create a safe and comfortable environment for the Muslim community in Indonesia to carry out transactions without violating the established Sharia.

This study examines the development of Cashless society research over a long period, from 1967 to 2023, and analyzes the growth trend year by year. Using 57 documents indexed in Scopus as study materials, this study shows that interest in the Cashless Society theme continues to increase. Authors who are consistent in conducting research related to this theme, such as Batiz Lazo B, have made significant contributions during the research period. Meanwhile, the keywords used in this study

provide a comprehensive picture of the scope and focus of research in the domain of cashless society.

Limitation of the Study

However, bibliometric analysis is the foundation of this work, which has a vast scope. It focuses primarily on the patterns that are currently occurring in the literature rather than giving any fresh actual evidence. As a result, the quantity and quality of the papers that were examined are the factors that restrict the findings. As a result, this may ignore new ideas or advances in cashless systems that have not yet been published.

The literature that focuses on geographical locations is another disadvantage that is associated with this study. In terms of the implementation of cashless technology, Malaysia is in the forefront of the pack; however, other nations, particularly Indonesia, may require additional research. Because of these disparities, the conclusions cannot be extended to countries that have diverse cultures, economics, and technologies thanks to the differences.

In addition, the majority of this research concentrates on the possibility of Sharia-compliant technology, but it does not offer any empirical validation for the effectiveness of these systems or the user experience they give. Those disparities can be addressed in further study by means of performing field studies or case studies to investigate the impact that Islamic digital payment systems have on outcomes that occur in the real world.

Recommendations for Future Research

It is recommended that future research take into consideration broadening the area of analysis to include emerging markets that are seeing the emergence of cashless systems. Across different locations, comparative studies can be carried out in order to gain a knowledge of the various socio-economic and cultural factors that influence the acceptance and success of digital payment systems.

Verification of the theoretical framework that is proposed in this paper ought to be accomplished by empirical investigation. This can be accomplished through the use of experiments, interviews, or surveys to observe user behavior, levels of satisfaction, and problems associated with Sharia-compliant digital payment instruments. As a result, the system will be improved to better accommodate the requirements of the Muslim population.

In conclusion, the fields of finance, technology, and Islamic studies may work together to make substantial advancements in the area of ethical digital finance. The creation of a standard framework for the incorporation of Islamic values into cashless systems can be the subject of future study. This framework should ensure inclusion while also retaining technological and ethical resilience throughout the process. There is the potential for this strategy to provide answers that are applicable across a variety of cultural and financial environments.

Author Contributions

Conceptualization	F.S.R. & S.H.	Resources	F.S.R. & S.H.
Data curation	F.S.R. & S.H.	Software	F.S.R. & S.H.
Formal analysis	F.S.R. & S.H.	Supervision	F.S.R. & S.H.
Funding acquisition	F.S.R. & S.H.	Validation	F.S.R. & S.H.
Investigation	F.S.R. & S.H.	Visualization	F.S.R. & S.H.
Methodology	F.S.R. & S.H.	Writing – original draft	F.S.R. & S.H.
Project administration	F.S.R. & S.H.	Writing – review & editing	F.S.R. & S.H.

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Informed consent was not required for this study.

Data Availability Statement

The data presented in this study are available upon request from the corresponding author.

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Conflicts of Interest

The author declares no conflicts of interest.

Declaration of Generative AI and AI-Assisted Technologies in the Writing Process

During the preparation of this work, the authors used ChatGPT and PaperPal to improve the clarity of the language and readability of the article. After using these tools, the authors reviewed and edited the content as needed and took full responsibility for the content of the published article.

REFERENCES

- Abbas, A. E. (2017). Literature review of a cashless society in Indonesia: Evaluating the progress. *International Journal of Innovation, Management and Technology*, 8(3), 193–196. <https://doi.org/10.18178/ijimt.2017.8.3.727>
- Abdullah, N., Redzuan, F., & Aziah Daud, N. (2020). E-wallet: Factors influencing user acceptance towards cashless society in Malaysia among public universities. *Indonesian Journal of Electrical Engineering and Computer Science*, 20(1), 67–74. <https://doi.org/10.11591/ijeecs.v20.i1.pp67-74>
- Ananda, P., & Nuriyah, A. (2023). Determinan minat generasi milenial pada penggunaan sistem pembayaran e-wallet layanan syariah LinkAja [Determinants of millennial generation interest in using the LinkAja sharia service e-wallet payment system]. *Journal of Sharia Economics*, 4(1), 53–66. <https://doi.org/10.22373/jose.v4i1.2642>



- Aslinawati, E. N., Wulandari, D., & Soseco, T. (2016). Public perception of the effectiveness of less cash society. *International Review of Social Sciences (IRSS)*, 4(1), 7–12. https://irss.academyirmbr.com/paper_details.php?title=Public_Perception_of_the_Effectiveness_of_Less_Cash_Society
- Asriani, & Kurniawan, A. (2023). The role of Indonesian Islamic banks in improving economic growth in Indonesia (Analysis of opportunities and obstacles of Islamic banks post merger). *KnE Social Sciences*, 283–298. <https://doi.org/10.18502/kss.v8i16.14049>
- Balakrishnan, V., & Lay Gan, C. (2023). Going cashless? Elucidating predictors for mobile payment users' readiness and intention to adopt. *Sage Open*, 13(4), 21582440231215111. <https://doi.org/10.1177/21582440231215111>
- Balakrishnan, V., & Shuib, N. L. M. (2021). Drivers and inhibitors for digital payment adoption using the Cashless Society Readiness-Adoption model in Malaysia. *Technology in Society*, 65, 101554. <https://doi.org/10.1016/j.techsoc.2021.101554>
- Batiz-Lazo, B., & Efthymiou, L. (Eds.). (2016). *The book of payments: Historical and contemporary views on the cashless society*. Palgrave Macmillan.
- Chairunnisa, S. M., Alfina, A., & Yasmin, A. (2020). Observing micro, small, and medium enterprises (MSMEs) readiness to support cashless society. *The Winners*, 21(2), 101–106. <https://doi.org/10.21512/tw.v21i2.6722>
- Cnaan, R. A., Scott, M. L., Heist, H. D., & Moodithaya, M. S. (2023). Financial inclusion in the digital banking age: Lessons from rural India. *Journal of Social Policy*, 52(3), 520–541. <https://doi.org/10.1017/S0047279421000738>
- Deep, N. (2022). Socio economic impact and analytics of cashless economy. *ACADEMICIA: An International Multidisciplinary Research Journal*, 12(7), 82–88. <https://doi.org/10.5958/2249-7137.2022.00694.2>
- Dimitrova, I., Öhman, P., & Yazdanfar, D. (2022). Barriers to bank customers' intention to fully adopt digital payment methods. *International Journal of Quality and Service Sciences*, 14(5), 16–36. <https://doi.org/10.1108/IJQSS-03-2021-0045>
- Fabris, N. (2019). Cashless society – The future of money or a utopia? *Journal of Central Banking Theory and Practice*, 8(1), 53–66. <https://doi.org/10.2478/jcbtp-2019-0003>
- Firdausi, F. N., & Ardyansyah, F. (2023). Implementation of sharia marketing strategy as a solution to increase LinkAja Syariah consumer loyalty. *JESI (Jurnal Ekonomi Syariah Indonesia)*, 13(1), 74–82. [https://doi.org/10.21927/jesi.2023.13\(1\).74-81](https://doi.org/10.21927/jesi.2023.13(1).74-81)
- Hasyim, F., Addela, R., & Rahmawati, N. G. (2023). Pendekatan TAM dalam menilai keputusan penggunaan LinkAja Syariah pada masyarakat Surakarta [The technology acceptance model approach in assessing the decision to use LinkAja Syariah in the Surakarta community]. *Velocity: Journal of Sharia Finance and Banking*, 3(1), 88–100. <https://doi.org/10.28918/velocity.v3i1.7059>
- Hendrawan, M. R. N. A., Marits, S. A., & Herman, S. (2023). Development of digital payment systems in Indonesia. *Jurnal Ilmiah Manajemen Kesatuan*, 11(3), 1335–1344. <https://jurnal.ibik.ac.id/index.php/jimkes/article/view/2328>
- Hidayah, N., Waspada, I., & Sari, M. (2023). The dynamics of cashless society: A systematic review. *Advanced International Journal of Business, Entrepreneurship and SMEs*, 5(15), 7–16. <https://doi.org/10.35631/AIJBES.515002>

- Horne, D., & Collins, M. C. (2023). No card, no service: Challenges faced by vulnerable populations of a cashless society. *Business and Society Review*, 128(3), 532–548. <https://doi.org/10.1111/basr.12324>
- Irawati, P., & Muslihah, T. (2023). Pengaruh kegunaan, kemudahan, dan kepercayaan terhadap keputusan penggunaan LinkAja Syariah bagi masyarakat Solo Raya [The influence of usability, convenience and trust on the decision to use LinkAja Syariah for the people of Solo Raya]. *Jurnal Ekonomi Sakti (JES)*, 12(1), 47–56. <https://doi.org/10.36272/jes.v12i1A.247>
- Jati, W. R. (2015). Less cash society: Menakar mode konsumerisme baru kelas menengah Indonesia [Less cash society: Measuring the new consumerism mode of the Indonesian middle class]. *Jurnal Sosioteknologi*, 14(2), 102–112. <https://doi.org/10.5614/sostek.itbj.2015.14.2.1>
- Jung, H., & Jeong, D. (2021). Blockchain implementation method for interoperability between CBDCs. *Future Internet*, 13(5), 133. <https://doi.org/10.3390/fii13050133>
- Kamis, R., Ismail, S., & Abd Rahman, N. H. (2022). Go cashless: A proposed conceptual framework for e-wallet acceptance. *International Journal of Academic Research in Business and Social Sciences*, 12(11), 1797–1808. <https://doi.org/10.6007/IJARBS/v12-i11/15264>
- Kozyr, Y. R. (2023). Transformation of payment systems in the digital economy. *Business Inform*, 3(542), 103–107. <https://doi.org/10.32983/2222-4459-2023-3-103-107>
- Lusiana, N., Muamar, A., Wasman, W., & Sukardi, D. (2021). Praktik transaksi non tunai melalui layanan syariah LinkAja pada ekosistem keislaman di Kota Cirebon [The practice of non-cash transactions through LinkAja sharia services in the Islamic ecosystem in Cirebon City]. *Bilancia: Jurnal Studi Ilmu Syariah Dan Hukum*, 15(1), 85–102. <https://doi.org/10.24239/blc.v15i1.684>
- Maharani, S., Nurbaiti, N., & Dharma, B. (2024). Contribution of Sharia fintech to micro, small, and medium enterprises' inclusivity in Kisanan City. *Journal of Islamic Economics Lariba*, 10(1), 117–130. <https://doi.org/10.20885/jielariba.vol10.iss1.art7>
- Marits, S. A., & Zaerofi, A. (2023). Trust and purchase intention model of Muslim Z-generation consumers on e-commerces (B2C) in Indonesia. *Jurnal Manajemen*, 14(1), 180–190. <https://doi.org/10.32832/jm-uika.v14i1.9784>
- Minarni, & Asnawi, N. (2022). An analysis of Islamic business ethics in e-wallet in Indonesia with a case study of Go-Pay. *Journal of Islamic Economics Lariba*, 8(2), 341–356. <https://doi.org/10.20885/jielariba.vol8.iss2.art13>
- Permatasari, S. D., Fatica, D., & Maharani, K. (2023). Variabel anteseden perkembangan cashless society dan dampaknya terhadap pemulihan ekonomi pasca pandemi [Antecedent variables of cashless society development and its impact on post-pandemic economic recovery]. *Prosiding Seminar Pendidikan Matematika Dan Matematika*, 8, Article 9. <https://doi.org/10.21831/pspmm.v8i2.282>
- Puspitasari, A. A., & Salehudin, I. (2022). Quick response Indonesian standard (QRIS): Does government support contribute to cashless payment system long-term adoption? *Journal of Marketing Innovation (JMI)*, 2(1), 27–42. <https://doi.org/10.35313/jmi.v2i1.29>
- Rahadi, R. A., Putri, G. N., Nugraha, B. A., Faturohman, T., Boediman, A., Afgani, K. F., & Saputra, J. (2023). Does parental socialization affect financial literacy in Indonesia? *International Journal of Advanced and Applied Sciences*, 10(5), 60–71. <https://doi.org/10.21833/ijaas.2023.05.008>
- Rahman, M., Ismail, I., & Bahri, S. (2020). Analysing consumer adoption of cashless payment in Malaysia. *Digital Business*, 1(1), 100004. <https://doi.org/10.1016/j.digbus.2021.100004>



- Raj L, V., Amilan, S., & Aparna, K. (2024). Factors influencing the adoption of cashless transactions: Toward a unified view. *South Asian Journal of Marketing*, 5(1), 74–90. <https://doi.org/10.1108/SAJM-11-2022-0071>
- Rauf, S. A. A., & Thoha, A. M. (2022). Online digital transactions as a solution for national economic recovery during the Covid-19 pandemic. *Jurnal Multidisipliner Bharasa*, 1(1), 10–19. <https://doi.org/10.56691/jurnalmultidisiplinerbharasa.v1i1.3>
- Riza, A. F., & Wijayanti, D. M. (2022). Kartini in the pandemic: Women's economic empowerment through synergy of digital banking, fintech, and e-commerce. *Journal of Islamic Economy and Community Engagement*, 2(1), 114–129. <https://doi.org/10.14421/jiecem.2021.2.1.1477>
- Rizaldi, M. A. (2021). Faktor determinasi minat penggunaan layanan Linkaja Syariah pada masyarakat Jabodetabek [Determining factors of interest in using Linkaja Syariah services among the Jabodetabek community]. *Journal of Sharia Economics*, 2(2), 120–140. <https://doi.org/10.22373/jose.v2i2.1307>
- Safira, R. E., & Rahmanto, D. N. A. (2022). Islamic branding experience dan customer citizenship behaviour terhadap keputusan menggunakan layanan LinkAja Syariah [Islamic branding experience and customer citizenship behavior towards the decision to use LinkAja Syariah services]. *Etihad: Journal of Islamic Banking and Finance*, 2(1), 1–19. <https://doi.org/10.21154/etihad.v2i1.3953>
- Sharma, A. (2023). A study of cashless transactions in Indian economy: A systematic literature review. *International Journal of Science and Research (IJSR)*, 12(7), 1023–1026. <https://doi.org/10.21275/SR23712131445>
- Shodiqin, D. H., & Nur, K. (2023). Penerapan akad wakalah pada transaksi financial teknologi dengan menggunakan produk dompet digital (LinkAja Syariah) [Implementation of the wakalah contract in financial technology transactions using digital wallet products (LinkAja Syariah)]. *At-Tasharruf "Jurnal Kajian Ekonomi Dan Bisnis Syariah,"* 5(1), 62–70. <https://doi.org/10.32528/at.v5i1.839>
- Tarantang, J., Awwaliyah, A., Astuti, M., & Munawaroh, M. (2019). Perkembangan sistem pembayaran digital pada Era Revolusi Industri 4.0 di Indonesia [The development of digital payment systems in the Industrial Revolution 4.0 Era in Indonesia]. *Jurnal Al-Qardh*, 4(1), 60–75. <https://doi.org/10.23971/jaq.v4i1.1442>
- Teker, S., Teker, D., & Orman, I. (2022). Evolution of digital payment systems and a breakthrough. *Journal of Economics, Management and Trade*, 100–108. <https://doi.org/10.9734/jemt/2022/v28i1030452>
- Thaker, H. M. T., Subramaniam, N. R., Qoyum, A., & Iqbal Hussain, H. (2023). Cashless society, e-wallets and continuous adoption. *International Journal of Finance & Economics*, 28(3), 3349–3369. <https://doi.org/10.1002/ijfe.2596>
- Turjaman, R. M., & Budi, I. (2022). Analisis sentimen berbasis aspek marketing mix terhadap ulasan aplikasi dompet digital (Studi kasus: Aplikasi LinkAja pada Twitter) [Sentiment analysis based on marketing mix aspects of digital wallet application reviews (Case study: LinkAja application on Twitter)]. *Jurnal Darma Agung*, 30(2), 266–275. <https://doi.org/10.46930/ojsuda.v30i2.1672>
- Utami, F. H. (2023). Blockchain based scheme cashless society. *Jurnal Media Infotama*, 19(1), 211–216. <https://doi.org/10.37676/jmi.v19i1.3813>
- Vaidya, S. N., & Vishwakarma, K. (2023). A study of digital financial inclusion in developing countries and emerging economies. *International Journal For Multidisciplinary Research*, 5(6), 10804. <https://doi.org/10.36948/ijfmr.2023.v05i06.10804>

- Vijay K. (2024). Cashless society managing privacy and security in technological age. *International Journal of Scientific Research in Engineering and Management*, 8(5), 1–5. <https://doi.org/10.55041/IJSREM34634>
- Wanof, M. I. (2023). Digital technology innovation in improving financial access for low-income communities. *Technology and Society Perspectives (TACIT)*, 1(1), 26–34. <https://doi.org/10.61100/tacit.v1i1.35>
- Worthington, S. (1995). The cashless society. *International Journal of Retail & Distribution Management*, 23(7), 31–40. <https://doi.org/10.1108/09590559510095260>
- Yadav, P., Lohani, V. J., Sharma, S., & Choudhary, S. (2024). Transforming transactions: The evolution of fintech in Indian banking sector. *International Research Journal on Advanced Engineering and Management (IRJAEM)*, 6(7), 2179–2194. <https://doi.org/10.47392/IRJAEM.2024.0319>
- Yusoof, F. B. M., Nazar, S. A., Jun, W. D., & Akbar, M. A. (2024). E-wallets and financial behavior: Understanding user preferences in digital transactions. *International Journal of Business and Technology Management*, 6(1), 94–107. <https://doi.org/10.55057/ijbtm.2024.6.1.9>
- Yusoff, N. H., Sarifin, M. R., & Zainal Abidin, A. (2022). Factors influencing practice of cashless purchase during Covid-19 movement control order (MCO) in Malaysian society. *International Journal of Academic Research in Business and Social Sciences*, 12(1), 702–714. <https://doi.org/10.6007/IJARBSS/v12-i1/11613>
- Zainuddin, N. F., Osman, I., Kassim, S., Othman, M. Z., Mastor, S. H., & Mat Zain, N. H. (2024). Acceptance of cashless society among indigenous youth: A qualitative analysis. *International Journal of Academic Research in Business and Social Sciences*, 14(1), 2195–2212. <https://doi.org/10.6007/IJARBSS/v14-i1/18452>



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