

Clustering Research on Islamic Fintech Studies

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The emergence of financial technology (fintech) is a gamechanger for financial and banking industry. Fintech is a changing innovation in the banking and finance industry, due to providing the same but more innovative services at lower costs and high margins. Islamic finance views this as a prospective tool to enhance the practice and development of Islamic finance itself. Therefore, the development of fintech became a trigger for Islamic finance to generate Islamic fintech which promotes the shariah principle in its operation. With many advantages of Islamic Fintech such as being transparent, easy to access, easy to use, etc., it is believed to be a formal financial alternative. In line with the trend of Islamic fintech, the current existing research on this field is also growing. Therefore, this is a good moment to synthesize and analyze the research on this field. This study aims to determine the development of Islamic Fintech research trends published by leading journals on Islamic financial economics. The data analyzed consisted of 56 indexed research publications. The data is then processed and analyzed using the VoS viewer application to find out the bibliometric map of Islamic Fintech research development. This research provides the co-authorship analysis, co-occurrence keyword analysis, and most cited article. This research is limited to the Scopus database. The result shows that, there are at least 4 research clusters related to Islamic fintech.

Keywords: Islamic Fintech; Financial Technology; Bibliometrics; VoS

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1.1.

INTRODUCTION

In the current era of the digital revolution 4.0, the internet and mobile devices have become the core of today's lifestyle and have brought high changes to every field of business. A paradigm shift in the industry in the financial sector can occur due to the phenomenon of disruptive innovation. Disruptive Innovation is an innovation that can transform the existing system or market, by introducing practicality, ease of access, convenience, and economical costs (Christensen C.M., & Bower J., 1995). Starting from its industrial structure, intermediation technology, to its marketing model to consumers. Financial Technology or commonly called 'Fintech' is a gamechanger that disrupt the financial industry. Fintech is a changing innovation in the banking and finance industry, due to providing the same but more innovative services at lower costs and high margins. (Ali et al., 2019).

Amid the development of Fintech along with the development of technology so that Islamic-based Fintech emerged. Islamic FinTech (Financial Technology) is a Fintech that serves the needs of Muslim financial institutions and fulfills the principles set by sharia. Islamic FinTech is based on Shariah's ethos and values. The biggest advantage of Sharia Fintech is that it is transparent, accessible, and easy to use (Laldin, 2018; Wintermeyer, 2017). The global financial crisis did not affect the financial performance of Islamic banks because of the nature of Islamic finance, it has emerged as an alternative to conventional finance. The emergence of Islamic Fintech provides opportunities for Islamic banks to make the financial industry better, as a financial alternative which promotes transparency and ethical values (Satyawati et al., 2017).

The development of Islamic fintech is currently experiencing a significant growth. As stated in Global Islamic Fintech Report 2021, Islamic fintech transaction reached \$49 billion in 2020 and expected to grow to 128 billion by 2025. Globally, among several countries in the world, Saudi Arabia, Iran, Uni Arab Emirates (UAE), Malaysia, and Indonesia are the leading countries in Islamic fintech transaction with the highest volume. On the other hand, Malaysia, Saudi Arabia, UAE, Indonesia, and United Kingdom classified as the top 5 strongest ecosystems in Islamic fintech industry according to the GIFT Index of 64 countries. In 2020, there are 225 Islamic fintech industries which cover 9 types of Islamic fintech services, including social finance (waqf, zakat, sadaqah), insurance (InsurTech and TakaTech), wealth

management (robo-advisory, PFM, pensions, and asset management), deposit and lending, raising funds (peer-to-peer and crowdfunding), payments, capital markets (investment, trading, and sukuk), digital assets, and alternative finance.

In Indonesia, fintech is currently growing. There are approximately 307 fintech start-ups and 24 financial institutions that are members of the Indonesian Fintech Association (AFTECH, 2020). Fintech has many products that include such as e-wallet, cryptocurrency, Peer-to-Peer (P2P) financing, crowd-funding, and Insurtech has become a major financial alternative for consumers and businesses (Capgemini, LinkedIn, & Efma, 2018; Jin, Seong, & Khin, 2019). Of the four financial sectors that are likely to be most disrupted by Fintech over the next five years are consumer banking, funds payments, and transfers, investment and wealth management, as well as small and medium enterprise (SME) financing. (Md Husin et al., 2019). Regulations that regulate and supervise fintech actors are in Bank Indonesia Regulation (PBI) Number 19/12/PBI/2017 concerning the Implementation of Financial Technology, Financial Services Authority Regulation (POJK) Number 77/POJK.01/2016 concerning Money-Based Lending and Borrowing Services. Information Technology, POJK Number 37/POJK.04/2018 concerning Crowdfunding Services through Information Technology-Based Shares Offering (Equity Crowdfunding), and POJK Number 13/POJK.02/2018 concerning Digital Financial Innovation in the Financial Services Sector. In addition to Bank Indonesia and OJK, the Commodity Futures Trading Supervisory Agency of the Ministry of Trade (CoFTRA) also has the authority to regulate and supervise fintech operators in Indonesia that focus on commodities such as gold and crypto-assets.

Current Islamic fintech research has discussed various topics from different dimensions. For example, research by Nor et al (2021) discusses the use of blockchain technology in the implementation of zakat management in Malaysia. using the Technology Acceptance Model (TAM) method, the results of his research show that the use of blockchain technology can improve zakat management governance. Research on the potential of blockchain in Islamic finance has also been carried out by Kunhibava et al., (2021) with sukuk as the main of discussion. The results of his research show that blockchain can create innovative changes in the development of sukuk. This is because the entire process of issuance, verification, rating,

payment, sharia compliance and ownership is done digitally. In addition, [Kunhibava et al., \(2021\)](#) describe some of the challenges that may be faced in that the challenge implementing blockchain sukuk, including legal, regulatory and sharia challenges. This is in line with [Chong, \(2021\)](#) which explained that blockchain is aligned with Shari'ah rules due to the benefit of transparency transaction process. [Chong \(2021\)](#) also added of implementing blockchain in Islamic finance is the Shari'ah principle challenge which require human understanding. [Radwan et al., \(2020\)](#) analyzed the potential of blockchain technology in Takaful industry. They revealed that the use of blockchain technology have a positive impact in takaful operation, including the transparency and efficiency aspect. [Azganin et al., \(2021\)](#) proposed a model of waqf crowdfunding for small farmers and the result show that the integration of crowdfunding technology and waqf potentially can bring immense benefit for agricultural sector and farmers. Similarly, [Saiti et al., \(2019\)](#) proposed two models of Islamic peer-to-peer financing, including mudharabah (equity-based) and murabaha (sale-based) through crowdfunding system. Furthermore. [Bella, \(2020\)](#) and [Umar & Zusryn, \(2019\)](#) proposed an idea of financing for micros business through sharia peer-to-peer lending system. This existing research is an evidence that Islamic fintech will continue to grow, both in practice and academic aspect. Therefore, this research is aims to capture the trend of Islamic fintech research through a systematic review using bibliometric approach.

LITERATURE REVIEW

Fintech has now entered the third phase which has been classified over the years. [\(Arner et al, 2015\)](#). The first phase, Fintech 1.0 (1866-1967) was the beginning of the relationship between the financial services industry and technology, namely the use of telegrams, but the technology at that time was not advanced and expensive. Then entered the second phase, Fintech 2.0 (1967-2008). In this phase, financial services have realized the importance of using technology for service quality to consumers. The third phase, FinTech 3.0 (2008-present) begins with the increase in digitization including the improvement of smartphones, smart homes, 3D printers, and others. And, the emergence of startups and the number of technology companies. According to [Mansilla-Fernández \(2017\)](#), the financial crisis in 2008-2009 pushed for the current Fintech 3.0, as well as helping Fintech in increasing its acceptance in society. Fintech

3.0 emerged as a reaction to the financial crisis in 2008 in Western countries, but in Asia and Africa, Fintech 3.0 emerged due to increased technological progress driven by the pursuit of economic development. In this era, there is a shift in customers from banking or formal finance to informal finance companies.

[Leong and Sung \(2018\)](#), define FinTech as an innovative idea that improves financial service operations by providing solutions with the help of appropriate technology according to business scenarios. Fintech is a subject that combines finance, management technology, and management innovation. FinTech has also come up with new ideas and business models that can transform the entire ecosystem of operations. [Fenwick et al., \(2017\)](#), define FinTech as the use of new technologies and innovations to compete in the market of financial institutions and intermediaries.

According to [Laldin \(2018\)](#) and [Wintermeyer \(2017\)](#), Islamic Fintech is based on Shariah's ethos and values and is believed to have the ability to lead the financial world around the world. The biggest advantage of Islamic Fintech is that it is transparent, accessible, and easy to use. The global financial crisis does not affect the financial performance of Islamic banks because of the nature of Islamic finance in itself, it can be an alternative to conventional finance. The emergence of Islamic FinTech allows Islamic banks to make the financial world better and emerges as a financial alternative that is more transparent and with ethical values [\(Satyawati et al., 2017\)](#).

Malaysia, United Kingdom, and Indonesia are the countries holding the 3 highest positions in Islamic Fintech startups [\(Cooper, 2018\)](#). According to [Rusydiana, \(2018\)](#), the biggest obstacle to developing Islamic FinTech is the lack of trained human resources and clear policies from the government. Further research states that to develop the right ecosystem for the development of Islamic FinTech in Indonesia, the government must address regulations, educational intuition, and providing individual training.

METHOD

This study uses data from paper publications sourced from various journals from 2017-2021 with research themed Islamic Fintech. Data collection was carried out by searching for articles indexed by the Scopus database, the search was carried out by typing the keyword 'Islamic Fintech', then selected papers relevant to the Islamic Fintech research theme. . From the search results, there are 56 articles published from

2017-2021. Data in the form of topics used in the publication of Islamic Fintech-themed papers and analyzed using Microsoft Excel 2010. The trend of publication developments on the Islamic Fintech theme was analyzed using VOSViewer software tools.

The computer program that was introduced was called VOSviewer. VOSviewer is a program developed for creating and viewing bibliometric maps. This program is available free of charge to the bibliometric research community (see www.vosviewer.com). VOSviewer can create author maps or journals based on co-citation data or create keyword maps based on shared incident data. The program offers a viewer that allows bibliometric maps to be examined in detail.

To build the map, VOSviewer uses the VOS mapping technique, where VOS stands for visualization similarity. For previous studies where the VOS mapping technique was used. VOSviewer can display

maps constructed using appropriate mapping techniques. Therefore, this program can be used to display maps built using the VOS mapping technique and display maps built using multidimensional scaling techniques. VOSviewer runs on many hardware and operating system platforms and can be started directly from the internet.

RESULT AND DISCUSSION

The following table shows a collection of documents used in research with the theme of Islamic Fintech in Islamic economic research. Of the total 56 documents used, they are divided into 5 types of documents, including journal articles (33 documents), anthology/book chapters (9 documents), Conference Papers (7 documents), Books (6 documents), and Editorials (1 document).

Table 1. Document Types

No.	Document Types	Number of Articles
1.	Journal article	33
2.	Book chapter	9
3.	Conference Paper	7
4.	Book	6
5.	Editorial	1
	TOTAL	56

Based on the results of the grouping of document types above, the most widely used document type as research subjects with the theme of Islamic Fintech is documents in the form of book chapters with a percentage of 58.9% or as many as 33 documents. Meanwhile, the least used documents are in the editorial form of 1.7% or 1 document. This shows that the references used are quite valid because most of them come from documents in the form of scientific journals.

Bibliometric Graph Analysis

Bibliometrics is based on the calculation and statistical analysis of scientific outputs in the form of articles, publications, citations, patents, and other more complex indicators. It is an important tool in evaluating research, laboratory, and scientist activities, as well as scientific specialization and country performance. The report, after establishing the background for bibliometric development, presents the database from

which the bibliometric was created, as well as the main indicators used.

To explore the results of the meta-analysis, this section will present a visual mapping chart from 56 journals published by Islamic Fintech. The results of the keyword mapping analysis become the basis for mapping together important or unique terms contained in certain articles. Mapping is a process that enables one to recognize elements of knowledge and their configuration, dynamics, interdependencies, and interactions.

Related to bibliometrics, science mapping is a method of visualizing the field of science. This visualization is done by making a landscape map that can display topics from science (Royani, et al., 2013). The results of network visualization from 125-word map journals with the Islamic Fintech theme can be seen:

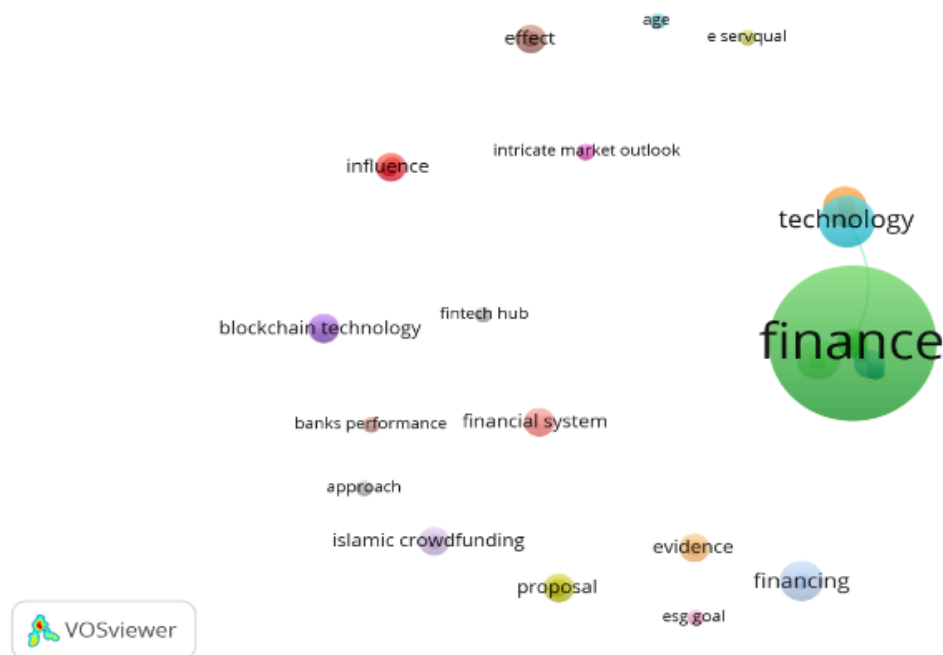


Figure 2. Co-occurrence All Key Word

This data can be used to find out the trend of keywords in recent times. The bibliometric analysis shows several keywords that are widely used in the paper that are the object of research. The more keywords that appear, the wider the circle indication is at most. While the line relationship between keywords shows how much they are related to other keywords.

Based on the results of the analysis using VOSviewer on Islamic Fintech-themed keywords, there are many clusters and are interrelated with other keywords. Keywords that have the same color indicate a very close relationship. The most widely used keyword in Islamic Fintech-themed journals is Finance Technology.

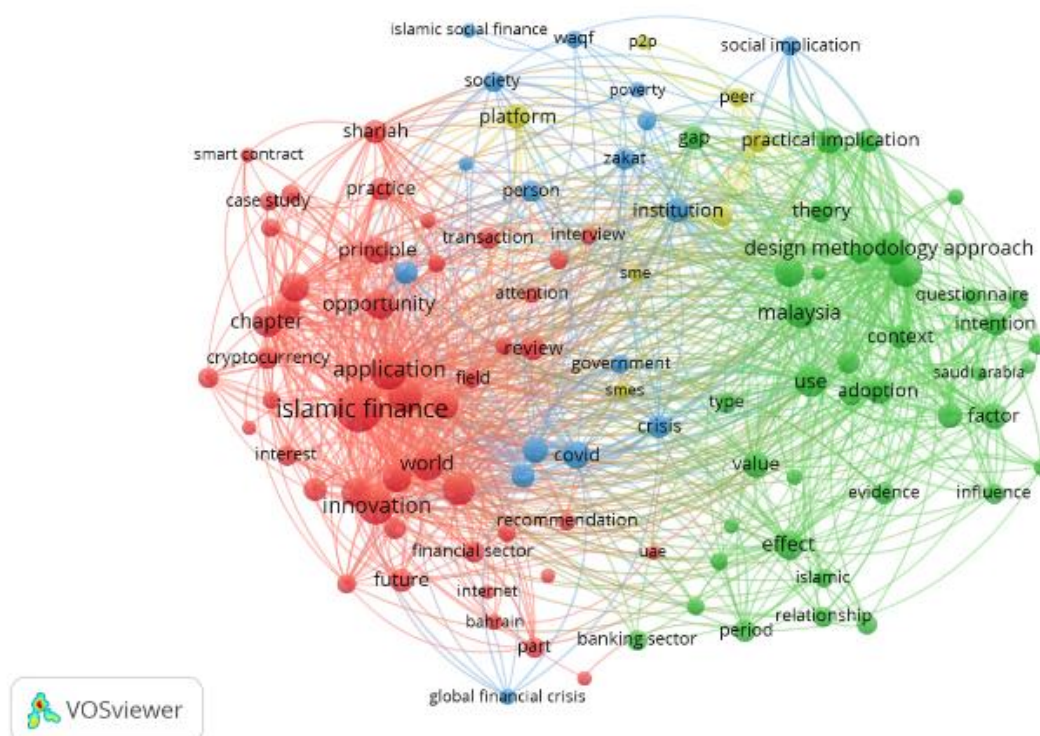


Figure 3. Research Cluster

The image above describes the trend of keywords that appear in research on the theme "Islamic Fintech" and the larger form is the word most frequently used in journal publications. Based on VosViewer mapping results related to keywords, there are at least 4 research clusters related to Islamic fintech.

The four clusters are red, green, blue and yellow (1)The application of Islamic fintech (red); (2)Islamic fintech and banking industry (green); (3)Fintech, social finance and covid-19 pandemic (blue); (4)Islamic fintech and peer to peer lending (yellow).

Most Cited Articles

Table 2. Most cited articles in 2017-2021

Rank	Title	Author	Year	Journal	Total
1.	An artificial intelligence and NLP based <i>Islamic Fintech</i> model combining zakat and Qardh-Al-Hasan for countering the adverse impact of COVID 19 on SMEs and individuals	Syed, M.H., Khan, S., Rabbani, M.R., Thalassinis, Y.E.	2020	International Journal of Economics and Business Administration 8(2), pp. 351-364	15
2.	FinTech, blockchain and Islamic finance: An extensive literature review	Rabbani, M.R., Khan, S., Thalassinis, E.I.	2020	International Journal of Economics and Business Administration 8(2), pp. 65-86	15
3.	Challenges for the Islamic finance and banking in post COVID era and the role of Fintech	Hassan, M.K., Rabbani, M.R., Mohd. Ali, M.A.	2020	Journal of Economic Cooperation and Development 41(3), pp. 93-116	8
4.	Intellectual capital efficiency and bank's performance: A comparative study after the global financial crisis	Buallay, A., Cummings, R., Hamdan, A.	2019	Pacific Accounting Review 31(4), pp. 672-694	7
5.	Fintech and Islamic finance: Digitalization, development and disruption	Alam, N., Gupta, L., Zameni, A.	2019	Fintech and Islamic Finance: Digitalization, Development and Disruption pp. 1-178	6
6.	Islamic finance: A practical perspective	Alam, N., Gupta, L., Shanmugam, B.	2017	Islamic Finance: A Practical Perspective pp. 1-481	6
7.	How does <i>Islamic Fintech</i> promote the SDGs? Qualitative evidence from Indonesia	Hudaefi, F.A.	2020	Qualitative Research in Financial Markets 12(4), pp. 353-366	5
8.	Blockchain, fintech, and Islamic finance: Building the future in the new Islamic digital economy	Mohamed, H., Ali, H.	2018	Blockchain, Fintech, and Islamic Finance: Building the Future in the New Islamic Digital Economy pp. 1-214	5
9.	FinTech, Crowdfunding and Customer Retention in Islamic Banks	Baber, H.	2020	Vision 24(3), pp. 260-268	4
10.	Acceptance of Islamic financial technology (FinTech) banking services by Malaysian users: an extension of technology acceptance model	Shaikh, I.M., Qureshi, M.A., Noordin, K., (...), Khan, A., Shahbaz, M.S.	2020	Foresight 22(3), pp. 367-383	4

Table 2 lists the most influential publications in IJRTP which were cited at least 4 times between 2017 and 2021. The articles cited at the top concern 'Islamic Fintech'. The most cited 'Islamic Fintech' article in the

first order is by (Syed et al., 2020). This article is about the Fintech model that combines zakat with Qardh Al-Hasan which can help the economy of each individual and SMEs to minimize the impact of Covid-19. This

article provides solutions and proposes artificial intelligence and Islamic Fintech-based NLP that combines Zakat and Qardh Al-Hasan, and it is found that joining has great potential to deal with the current pandemic.

The second most cited 'Islamic Fintech' article is by (Rabbani et al., 2020). This article identifies and highlights the opportunities and challenges that Islamic Financial Institutions can learn from conventional Fintech organizations around the world. By collecting 133 research studies in the field of Islamic Fintech, and classified into three major categories, namely the opportunities and challenges of Islamic Fintech, Sharia Cryptocurrency/Blockchain compliance, and related laws/regulations. This article is believed to be able to contribute positively to understanding Fintech-based technology from a Sharia perspective.

The third most cited 'Islamic Fintech' article is by (Hassan et al., 2020). This article examines the analysis of the challenges posed by COVID-19 to Islamic finance and how a disruptive technological innovation called Fintech can be used to address those challenges. This article also presents a critical analysis of Islamic finance and the role of Islamic finance in creating a more sustainable financial system after COVID.

The fourth most cited 'Islamic Fintech' article is by (Bualay, et al., 2019). This article is about testing the efficiency of IC in Islamic and conventional banks to explain the impact of IC, in aggregate and decomposed into its components, on the operational, financial, and market performance of Islamic banks compared to conventional banks. Data were obtained from 59 banks from 2012-2016 and processed using regression analysis. The results found indicate that there is a positive relationship between IC efficiency and financial performance (ROE) and market performance (TQ) in Islamic banks. In conventional banks, however, there is a positive relationship between IC and operational performance (ROE) and financial performance (ROE).

The fifth most cited 'Islamic Fintech' article is by (Alam, et al., 2019). This book is about how Fintech is shaping the Islamic finance industry through three main aspects: Digitalization, Development, and Disruption. And its application in the Islamic finance industry. The book also provides an overview of the evolution of Blockchain and Fintech and gains a detailed understanding of the Islamic point of view on cryptocurrencies and the application of smart contracts in various Islamic financial services.

The sixth most cited article 'Islamic Fintech' is by (Alam, et al., 2017). This book is about Islamic banking, capital markets, Takaful, wealth management, Fintech in Islamic finance, compliance, and governance issues. Several case studies are also presented based on the author's own experience in consulting with Islamic financial institutions.

The seventh most cited 'Islamic Fintech' article is by (Hudaefi, F.A., 2020). This article is about further exploration of Islamic Fintech Lending in Indonesia, in supporting the SDGs movement in Indonesia. This article is researched using a qualitative method.

The eighth most cited 'Islamic Fintech' article is by (Mohamed, H. & Ali, H., 2018). This book is about important innovations, structural and institutional developments for financial technology (fintech) in Islamic finance, as well as improving actual Islamic behavior dictated in modern economic transactions, such as with the emergence of global online/mobile markets, shorter attention spans, and trade exchange impersonal.

The ninth most cited article 'Islamic Fintech' is by (Baber, H., 2020). This article is about the influence of FinTech applications and crowdfunding on customer retention in Islamic banks in Malaysia and the United Arab Emirates. The data was obtained by a structured questionnaire consisting of 535 bank customers selected through the Sampling Technique, tested by various statistical tests through the SPSS 25.0 application.

The tenth most cited 'Islamic Fintech' article is by (Shaikh, et al., 2020). This article examines the determinants that influence bank user acceptance of Islamic financial technology (FinTech) services by extending the technology acceptance model (TAM) in the Malaysian context. Data were obtained through a survey with convenience sampling and 205 responses from users of Islamic banks. The results reveal that acceptance of Islamic Fintech services is determined by perceived ease of use, perceived benefits, and also by another variable, namely consumer innovation (CI)

CONCLUSION

The focus of this research is to try to find out the extent of the development of Islamic finance to find out how many journals are written with the theme of Islamic Fintech. The results of the study show that there has been an increase in the number of published articles with the theme of Islamic Fintech since 2017. Islamic Fintech research has been carried out in various countries. An increase in the Islamic Fintech score in a

country will be positively related to economic growth in that country which makes economists do a lot of research related to Islamic Fintech. Based on research using the bibliometric method, it was found that Rabbani, M.R wrote the most about Islamic Fintech. Based on VosViewer mapping results related to keywords, there are at least 4 research clusters related to Islamic fintech: (1)The application of Islamic fintech (red); (2)Islamic fintech and banking industry (green); (3)Fintech, social finance and covid-19 pandemic (blue); (4)Islamic fintech and peer to peer lending (yellow).

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