SCIENTOMETRIC ANALYSIS OF DIGITAL BANKING: FUTURE ISLAMIC DIGITAL BANK IN INDONESIA

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Abstract: This study maps out research related to the development of research trends in digital banking themed papers published by leading journals that have been indexed by Scopus from 1976 to 2021. The analysis focuses on trends in keywords, authors and journals of 873 digital banking themed papers. publication. The results of the scientometric analysis mapping are then studied more deeply to review development strategies related to digital banking that can be adopted by Islamic banking in Indonesia. This study uses descriptive statistical methods and bibliometric analysis using biblioshiny R software to determine bibliometric maps. The flow of economic digitization requires banks to transform in order to maintain their role and position as the main intermediary institution in the financial system as well as the transmission axis of monetary policy. Digital transformation requires banks to be able to adapt the business innovation model used, organizational structure, work culture, and infrastructure they have. Islamic banking is required to be a solution by offering services and innovations through digital channels. The main thing is how to find the right balance between efforts to optimize opportunities and carry out various digital innovations in an effort to increase market share in the future.

Keywords: Digital banking, islamic bank, Indonesia, scientometrics.

INTRODUCTION

One of the driving factors for modern economic growth is the development of digital technology in financial markets (Galazova & Magomaeva, 2019). There is no denying that financial technology (FinTech) has ushered in a new era of digital financial services, revolutionizing various business services so that they can better serve consumers (Jugurnath et al., 2018). Various startup companies (Startups) are here to offer various financial solutions to meet the needs of digital consumers in this era. The presence of fintech lending is supported by OJK Regulation (POJK) Number 77/POJK.01/2016 concerning Information Technology-Based Borrowing-Lending Services for FinTech who are in the online lending business. OJK reports that within 4 years, fintech has distributed financing of Rp. 262.93 trillion to more than 71 million debtors.

According to McKinsey, the emergence of FinTech startups will result in the loss of 52% of banking revenues. All components of banking are now at risk, from payments and transactions to investments and trading, from lending to risk assessment, as well as banking services, funding and capital raising. So that in order to enter the market, banks must launch

new value-added services and innovations. To do so, banks can actually collaborate directly with FinTech which can help provide a digital fronting user experience (Hassan et al., 2020). As a result, the entire banking value chain will be digitized by this fintech.

Quality, Efficiency, and Digitalization are strategic factors that must be applied to anticipate the increasingly disrupted banking business climate. In this case, the aspect that must be emphasized is the internal business operation model, product and service development that are relevant to market needs. Digital banking strives to create digital products and services that can be customized to meet the needs of their digital customers (Alalwan et al., 2017). Technology has become vital to any sector, so anyone left behind will have serious consequences (Sardana & Singhania, 2018).

Currently, banking digitalization has become a strategic priority for the banking industry in the world. The driver of change in the banking sector is modern financial technology (Rupeika-Apoga et al., 2018). The digital transformation process involves the continuous introduction of innovative technologies, which will lead to a full digital transformation of the entire economy (Ablyazov and Asaul, 2018). Digital transformation involves an adaptation process towards digital in managing all business activities and banking services (Pirainen, 2016). Innovative developments are key opportunities for sustainable long-term growth in bank efficiency.

The Islamic banking industry has recorded significant growth in the last few decades. Islamic banking is believed to be a solution when the economy continues to fluctuate. Thus, the Islamic banking sector must immediately prepare a business strategy to be able to compete with other banks (Broby, 2021). Several researchers have discussed the development of digital banking (Omarini, 2018; Sardana and Singhania, 2018; Zamer, 2018; Rabbani and Khan, 2020; Thakor, 2020; Jana, Khedkar and Khedkar, 2021). However, research using the scientometric approach has not been widely carried out. This research will specifically examine the digital banking development strategy for the Islamic banking industry in Indonesia.

This digital transformation ultimately creates opportunities as well as challenges. Islamic banking is required to be a solution by offering services and innovations through digital channels. The main thing is how to find the right balance between efforts to optimize opportunities by carrying out various digital innovations in an effort to mitigate risks, especially in the scope of digitalization of Islamic banking.

Digital banking based on sharia principles is expected to be able to bring about changes that play a role in expanding the network of sharia business institutions to meet the public interest, sustainable equity and social justice (Afou, 2017). The rapid development of research with the theme of digital banking is interesting to study in scientomeric analysis using a bibliometric approach. So, this study aims to analyze the mapping of bibliometric characteristics of the development of keyword trends, authors and journals in papers with the theme of digital banking published from 1976 to 2021. Furthermore, this study will examine these findings to review development strategies that can be adopted by Islamic banking in Indonesia.

LITERATURE REVIEW

Digital banking refers to the virtual procedure in which financial services are offered over the internet by digital banks. The transformation of bank services from traditional to digital banking, from manual to automated activities, and from offline to online transactions (Aziz et al., 2021). Furthermore, the notion of digital banking can be defined as the process of digitizing all traditional banking services and products that were previously only available to consumers when they visited bank branches (Darryl Proctor, 2019). According to Yoonseock Son (2016), digital banking technology has had an impact on the core of the banking business and has changed the financial services operating system, which was previously dominated by offline employee-oriented services, has now shifted to an online-based system.

Digital banking has now enabled bank customers to access banking products and use banking services through online/electronic platforms. All banking operations are not limited by the physical presence of the bank, ultimately eliminating the need for customers to visit branches. Haralayya (2021) states that Digital Banking includes activities such as: cash deposits, withdrawals and transfers, bill payments, account management and services, submission of financial products, loan management, Portfolio management, investment in financial services.

Digital banking has an impact on cost effectiveness, time efficiency, and flexibility in providing banking services to customers. According to Ivo Jenik et al., (2017), digital banking has the potential to increase financial inclusion by providing affordable new products or services that meet the needs of underserved and excluded categories of consumers. In addition, digital banking is a distribution channel that can reach the unbanked in remote and rural areas quickly and easily. The adoption of digital banking can increase competition for financial institutions, causing banks to focus more on underserved and neglected areas to maintain a stable income distribution.

Furthermore, digital banking provides more product information through online platforms, enabling users to quickly learn about services and product characteristics. All this makes it easier for clients to communicate with the bank and receive better service. Digital banking provides users with the tools, protocols and levels of protection that make searching and transactions safe and secure. Aziz et al., (2021) emphasize that digital banking can increase transparency in services and transactions are made fully secure through the implementation of elaborate encryption measures to combat cybercrime.

Digital banking transformation requires an approach that focuses on creating and implementing strategies digitally. As the digital transformation of the banking industry covers all areas of financial and credit activity, including bank management mechanisms, it is necessary to coordinate with other development initiatives to build solutions that contribute to maximum efficiency. The adoption of digital technology, including the transformation of the service fee formation process, digitization of financial elements, and changes in organizational structure must be part of the digital strategy (Matt et al., 2015).

METHOD

This study uses publication data sourced from databases and journals on Digital Banking from several reputable papers indexed by Scopus published between 1976 and 2021. The methodology used in this study is a qualitative method approach with descriptive statistics, a literature study of 873 publications related to Digital Banking. Qualitative research method is a research method based on the philosophy of postpositivism which is used to examine the condition of natural objects, (as opposed to experimentation) where the researcher is the key instrument. The data collection technique is done by triangulation (combined), the data analysis is inductive/qualitative, and the results of qualitative research emphasize meaning rather than generalization (Sugiyono: 2008).

Then, this research was continued with bibliometric analysis. Bibliometric studies in information science are studies that can reveal patterns of document use, development of literature or sources of information in a subject area. Bibliometrics includes two types of studies, namely descriptive studies and evaluative studies. Descriptive studies analyze the productivity of articles, books, and other formats by looking at authorship patterns such as the gender of the author, the type of work of the author, the level of collaboration, the productivity of the author, the institution where the author works, and the subject of the article. Evaluative studies analyze the use of literature made by counting references or citations in research articles, books, or other formats (Pattah, 2013).

This study uses a purposive non-probability sampling method. A purposive sample is a sample that has the aim of understanding certain information. This sample can be grouped into a decision sample (judgment) which selects sample members according to certain criteria based on past records or research objectives to be achieved, and a quota sample, which is a sample selected based on a certain quota or category, which describes the dimensions- dimensions (proportions) of the population (Wijaya: 2013). The criteria referred to in this study are 873 publications related to the theme of Digital Banking in the period 1976-2021. Then this journal was analyzed using R.-based Biblioshiny software.
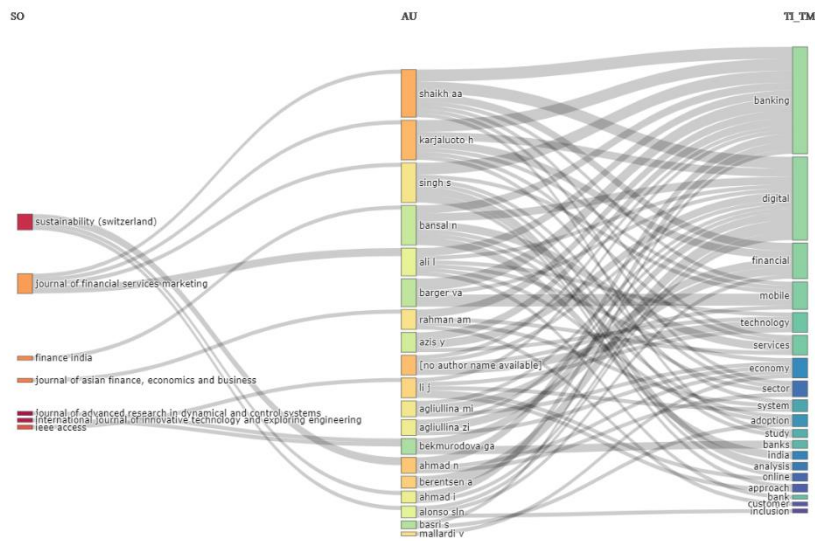
RESULT
Three Fields Plot

Figure 1. Three Fields Plot

Three Fields The plot above is an illustration of three elements, consisting of a list of journal names, authors, and topics. The three elements are plotted with gray lines that show their relationship to each other, starting with the name of the journal, then followed by the author, and each author is then associated with the topic of his publication. The size of each rectangle in each list indicates the amount of paper associated with that element. The first element, on the left, is the journal. The seven journals indexed in the three-area plot have published papers on the topic of Digital Banking, and the top journal that published the most papers on this topic is the Journal of Financial Service Marketing, which is depicted by an orange square and is linked to several authors, namely Shaykh AA, Karjaluoto H, Singh S, and Ali I.

The second element contains the author's name. Authors who publish articles in recognized journals related to the former element, such as Bekmurodova GA, which is associated with the IEEE Access Journal and the International Journal of Innovative Technology and Exploring Engineering as journal elements. However, several other authors are not associated with any of the journals listed, such as Banger V.A and Azis Y. Each author is also associated with frequently used keyword topics on the right. The top 19 authors are listed in this plot. The size of the rectangle indicates the number of papers written by each author. In this plot, Shaykh A.A, Karjaluoto H, Singh S, and Ali A have the largest rectangle.

The third element contains keywords related to the topics that appear most frequently. Each topic is associated with an author who published on that topic. Nineteen keyword topics are listed, and the most frequently occurring keyword is "Banking", as indicated by the size of the green rectangle, which dominates the other rectangles. Apart from banking, this plot also features several other widely used keywords, such as "digital" and "financial."

It seems that the topic of Banking is used by almost all the authors listed, which is in line with the focus of this research on scientific works related to Digital banking.
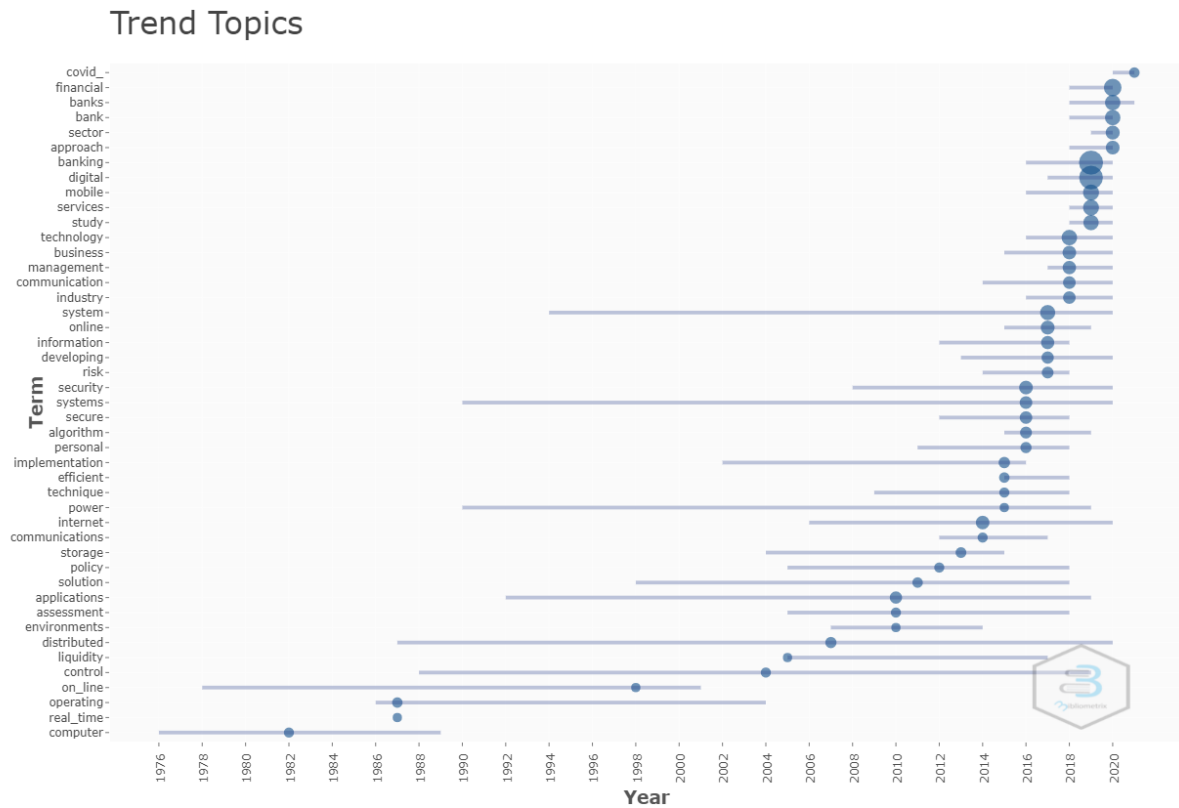
Trend Topic

Figure 2: Trend Topic

Based on the image of the analysis of the title of the document in the research with the theme of Digital Banking, the topic trend is also an important part of this research. Where the picture above shows an overview of the development of topics related to Digital Banking from time to time with the division per year, so it is known what topics have been used for a long time and what topics have been used recently. The trend of this topic also considers the frequency value of each word indicated by the log axis.

In addition to looking at annual trends, the emergence of topics is also adjusted to the frequency with which words appear in research themes related to Digital Banking. The higher indicates the more the word is used, and the further to the right, the more recently the word was used. The development of the theme of Islamic Financial Planning began to experience a significant increase since 1976.

Based on the description of the data above, the newest and most widely used topics are related to the Digital Banking theme, namely Distributed, Control, System, Power, Online and Application. The word distributed was most widely used in 1987-2020. However, the topic that will be the most discussed topic in 2021 is the topic of Banks and Covid. This is interesting because during the COVID-19 period, there was a shift in the digitalization process that was rife in various lines of life, starting from the work ecosystem that implemented the WFH (Work from Home) system using digital-based media, namely

via online meetings. Furthermore, the education industry is also undergoing a transition process towards digital which is increasingly developing, with the availability of various online learning platforms, online libraries and e-learning systems to facilitate the learning process. This includes the digitalization process in the business, banking, and payment systems, which are increasingly sophisticated. Now, various applications have been offered to facilitate this digital consumer. So, it is undeniable that from now on the direction is clear towards a process that is increasingly digital.
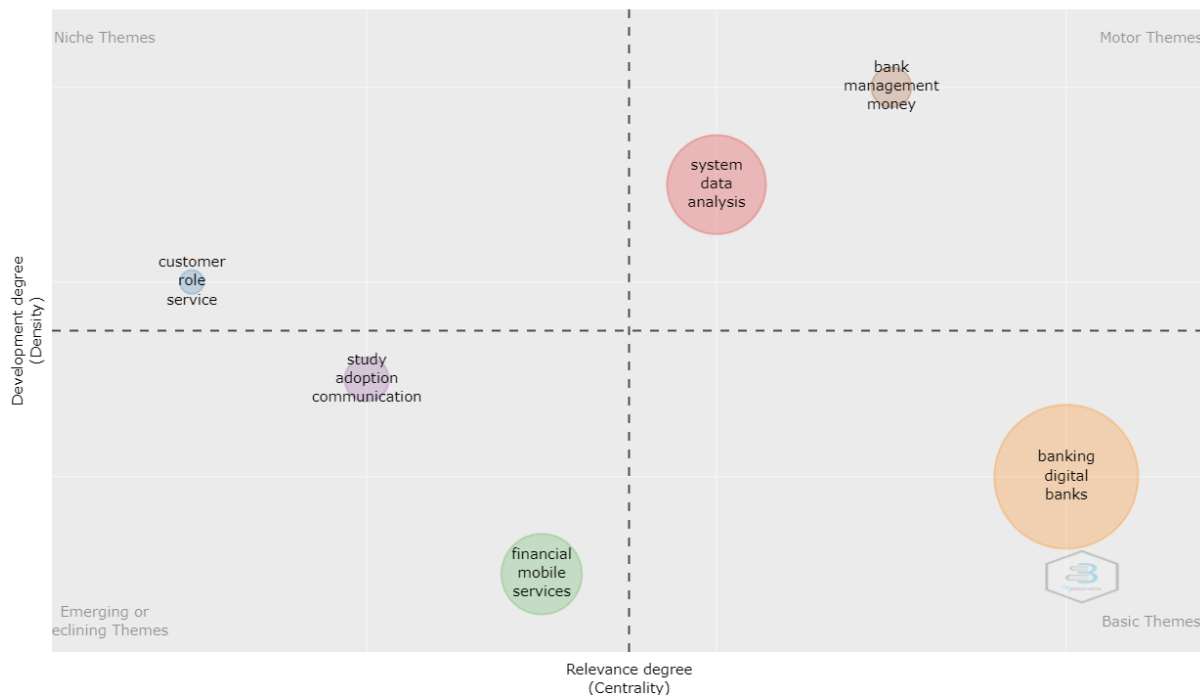
Thematic Map

Figure 3: Thematic Map

Thematic Maps are generated based on density and centrality, divided into four topological areas. These results are obtained from a semi-automatic algorithm by reviewing the titles of all the references analyzed in this study and additional relevant keywords (other than the author's keywords) to capture more in-depth variations. The upper right quadrant represents the "driving" topic, characterized by high density and centrality; these topics, which include "System, data, analysis" and "Bank, management, money". This topic should be developed further considering its importance to be investigated in future research. The upper left quadrant shows specific and underrepresented topics that are areas of rapid development, as indicated by high density but low centrality, including "customers, roles, services". The lower left quadrant contains topics that have been used but are experiencing a downward trend, indicated by low centrality and density; these areas include "study, adoption, communication" and, to some extent, "financial, mobile, service." Finally, the lower right quadrant contains the basic topics, which are indicated by high centrality but low density; this topic is important for research as a general topic, and includes "Banking, digital, banks".
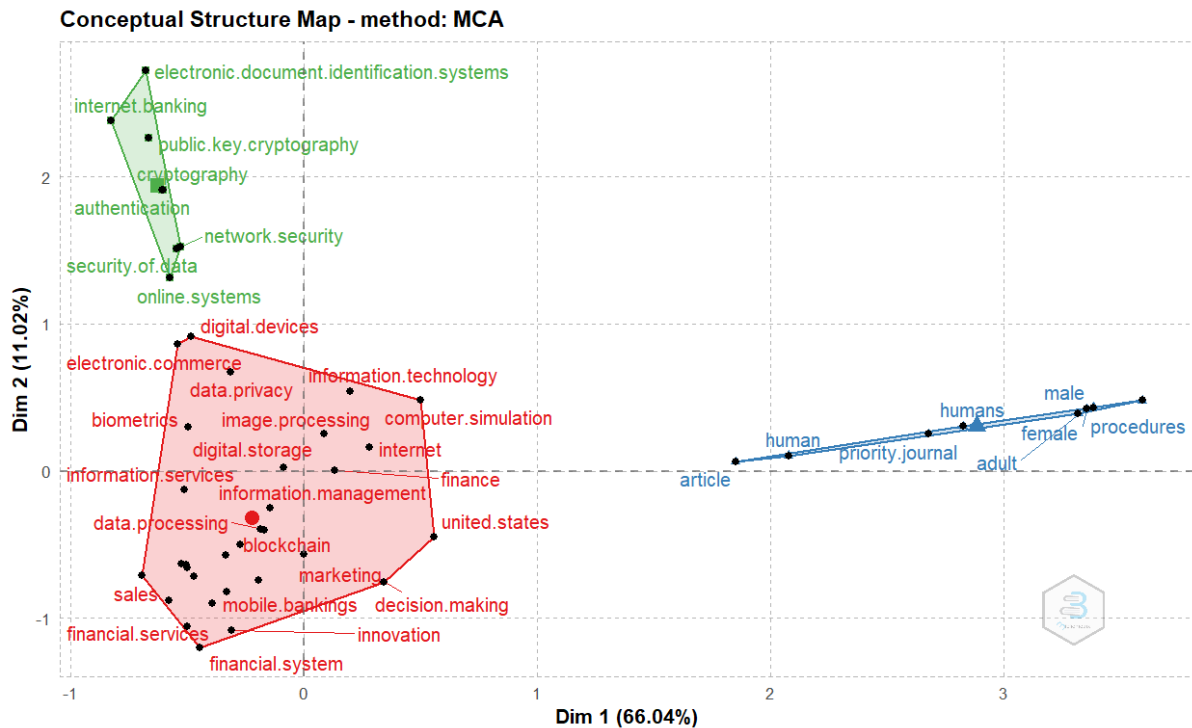
Conceptual Structure Map

Figure 1: Conceptual Structure map

A conceptual structure map is generated, which contains a visualization of the contextual structure of each word that often appears in research papers on the topic of digital banking by mapping the relationship between one word and another through regional mapping. Each word is placed according to the value of Dim 1 and Dim 2, Dim is a diminutive particle, which is a special term in bibliometrics, resulting in a mapping between words whose values are not much different. There are three divisions on this map: a red area, a green area, and a blue area, each of which contains words related to each other. As shown above, the red area contains a high number and variety of words, indicating that many research papers present the relationship between the words listed in this region, which contains the top three most frequently occurring words blockchain, information management and data processing.

Discussion

By 2022, the Islamic banking industry is estimated to be worth 3.8 trillion dollars (Rabbani & Khan, 2020). There are about 1,400 registered Islamic financial institutions spread across 80 countries. The existence of fintech brings Islamic banking to a level towards a more developed phase. Fintech in Islamic banking seeks to improve the client experience and make service delivery more convenient. This requires a new revenue and cost model with the aim of maximizing the use of technology to make it more efficient and futuristic. Fintech is not just about technology, but how banks engage with customers using technology to provide the best value and service (Thakor, 2020).

The flow of economic and financial digitalization requires banks to transform in order to maintain their role and position as the main intermediary institution in the financial system

as well as the transmission axis of monetary policy. Digital transformation requires banks to be able to adapt the business innovation model used, organizational structure, work culture, and infrastructure they have. In the Indonesian Payment System Blueprint (BSPI) 2025, there are several pillars of digital banking that must be met, namely omni-channel for consumers, good architecture and infrastructure, open relationships with third parties (open banking), and efficient use of resources that data-based (smart banking).

Islam welcomes every innovation and change. Digital Islamic banking must be designed not to violate the ethos and underlying sharia principles. Any fintech, for example, is allowed and accepted in Islamic finance if there is clear evidence that it does not violate or contradict sharia principles, so that every innovation is accepted in Islam (Hasan, 2020). The strategy in an effort to achieve the goals of digital Islamic banking will be described in the model concept map below:
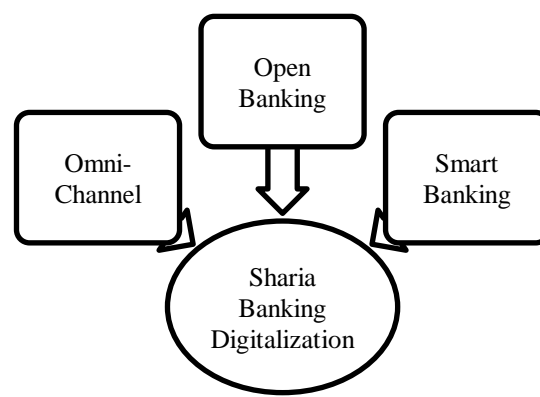

Figure 5: Concept Map of Digital Sharia Banking Development Strategy Model

Omni-Channel

Omni-Channel is closely related to efforts to provide the best facilities to consumers, in this case customers, by providing qualified architecture and infrastructure. Islamic banking in Indonesia can synergize with fintech to maintain its agility, on the other hand fintech can leverage bank customer data to strengthen the quality of its services to consumers.

Open Banking

Open Banking aims to build a digital transformation interlink between banking and fintech. This connection will be achieved if each party, namely banks and fintech, is willing to open their customer data using API (Application Programming Interface) technology. By building a banking system that is integrated with technology to provide services, the Bank will have a considerable advantage over other banking systems. The goal of digital banks is to become the foundation of a much larger financial ecosystem (Litvishko et al., 2020). These businesses will be greatly expanded to meet the financial demands of their clients by gaining access to a wider financial system through digital banks (Jana et al., 2021). At the same time, the Bank will benefit from receiving more information about the wishes and behavior of its clients, thereby closing the feedback loop. Thus, this becomes very crucial, especially for Islamic banks to be able to continue to adapt to the new digital ecosystem.

Smart Banking

Data is the most valuable asset for financial organizations in today's technology-driven environment. Fintech has made banking much easier for users (Litvishko et al., 2020). By introducing big data, it has changed the financial environment and solved complex financial problems. If data analysis is applied effectively, the data can be used to develop, and improve the banking sector, thereby making a greater contribution to the country's growth. Every completed transaction, call made, question asked, shopping made, every time an ATM card is used, application used, and so on all add up to an enormous amount of data, which has the potential to open more avenues for the bank and opportunities for economic growth.

Table 1. Digital Islamic Banking Development Strategy Model

Development Strategy	Alternative Strategy
Omni-Channel	
Banks have Branchless Banking services	Establish business and operational policies in branches in dealing with digital customers
The bank has a digital account opening service application	Marketing banking products by utilizing digital marketing models through popular media such as Instagram, Youtube and Tiktok.
Core Banking System switch to Open system	Make policy adjustments and application development to agile development
Application development is done in-house	Conducting FGD with existing customers to innovate financial products
Open Bank	
The bank is already connected real-time online	Collaborating with fintech or start-up in product development, marketing, and technology utilization
Banks have Fintech/Start-up incubation	Collaborating on product sales on a host-to-host bank basis with fintech/start-up who are members of the bank incubation program
Smart Banking	
The Bank has a strategy for using the Big Data platform	Implementation of Big Data platform to build engagement with customers
IT Bank has a chatbot facility to serve customers	Building a digital HR system, not limited to training, remuneration and retention for old employees

Innovation is a key aspect in the development of Islamic finance in the digital economy (Ali et al., 2019). Fintech has the potential to play a major role, especially to improve processes and cost effectiveness in the Islamic banking industry while maintaining Sharia compliance. The various strategies above can be carried out by Islamic banking, considering that the existence of fintech is very necessary for the development of the Islamic finance industry to increase its market share. This requires a significant pattern of organizational restructuring, as well as sufficient resources to support it. In the end, the true winners are those who can overcome those challenges with the right strategies, plans, and change management. The players in the Islamic banking industry must pay close attention to this atmosphere. Appropriate policies and strategies are the determining factors for the success of the Islamic banking industry in responding to the challenges of an ever-evolving era.

CONCLUSION

This research was conducted to find out the development map of research with the theme of Digital Banking during the period 1976-2021 from 873 reputable journal sources

indexed by Scopus. The top journal that publishes the most papers on this topic is the Journal of Financial Service Marketing. Then the most prolific writer on the topic of Digital banking is Shaykh A. Furthermore, the most frequently occurring keyword topics are banking, digital and financial.

Several popular topics and keywords are used in this theme and have the potential to be further developed, especially in certain domains in the banking industry facing challenges in this digital era. In addition, some of the most productive journals and authors can also be used as references for researchers working on topics regarding the development of Digital Banking. Therefore, it is necessary to encourage Islamic scholars to contribute to research on digital Islamic banking and integrate that knowledge into practice in the Islamic finance industry, especially the Islamic banking sector in Indonesia.

Digital transformation ultimately creates opportunities as well as challenges. Islamic banking is required to be a solution by offering services and innovations through digital channels. The main thing is how to find the right balance between efforts to optimize opportunities by carrying out various digital innovations in an effort to mitigate risks, especially in the scope of digitalization of Islamic banking.

The existence of the fintech industry is a serious threat to the Islamic banking market share if left without the right strategy. However, the existence of fintech for the development of Islamic banking is an opportunity that gives hope. This opportunity can be achieved if Islamic Banking carries out synergies or strategic collaborations with the fintech/startup industry as an integral and inseparable part. Sharia banking is required to continue to create product innovations and digitize services as a form of brand building that is in accordance with the needs of digital customers. Regulators in this case then play a role in ensuring the power of law by providing policies that oversee the successful implementation of digital Islamic banking, to increase the contribution of Islamic finance to the Indonesian economy.

Furthermore, academics or future researchers are expected to be able to research related topics using data sources and more in-depth and comprehensive explanations using more robust methods and approaches.

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