A systematic review and bibliometric analysis of mobile payment services in fintech and business

Anisyah Vella | Wihandaru Sotya Pamungkas | Arni Surwanti

Abstract
Research on mobile payment services (fintech) and business is a very relevant issue when technological developments in the financial sector are increasingly advanced, especially in the era of technology 4.0. Mobile payment service is one of the financial technologies that are developing in the world of technology. The purpose of this study is a bibliographic review of scientific publications devoted to the relationship between mobile payment service (fintech) and business and an exploration of research on mobile payment service (fintech) and business that has been done by previous researchers. The research was conducted based on documents indexed by the Scopus database. The research used the RSRstudio application, Biblioshiny program, and VOSviewer to analyze the literature review. The method uses qualitative development to analyze the results of mobile payment services (fintech) and businesses. The results obtained from this study are in the period 1998-2023 there is an increase and decrease in research on mobile payment services (fintech) and business. With the results of VOSViewer, there are 5 clusters and with the results of the RSRstudio application, the Biblioshiny program has countries and publication references that can be cited to reflect the proportion of research topics in each country and the novelty of an article. Keyword business is one of the least researched items because it is in the blue zone with only 8 related items.

Keywords: fintech, business, mobile payments

1. Introduction

At present, by the Industrial Technology Model 4.0, technological development at the global level is increasing from time to time, and all companies are trying to adapt their activities to the current technological development. Therefore, technology and the continuous development of technology have become the basis for corporate competitiveness (Shao, 2022). Large companies are still the clear leaders in the transition from old technology to new technology. However, in the future, small businesses must immediately adapt to the process of moving to technology 4.0 (Gao, 2022). Therefore, the innovation of advanced technology adoption systems and the improvement of technology facilities in Industrial Revolution 4.0 are very important for adoption by the business industry (Pylaeva et al., 2022).

With the development of technology, Industry 4.0 has affected all aspects of human life because it brings additional changes, especially in the economy (Le, 2021). One of the technological changes that have occurred in this economy is the development of financial sector technology, commonly known as financial technology. The development of financial technology (fintech) is an innovation that helps people make financial transactions more easily and quickly (Renduchintala et al., 2022). Fintech refers to financial services catering to a wide and rapidly growing user base worldwide (Setiawan et al., 2021). One type of fintech category is the mobile payment service, where the mobile payment service is a noncash payment facility using smartphone devices using various wireless technology media such as QR codes, NFC, and OTP (Kang, 2018). With the development of technology today, mobile payment services are very related and important in the business world as a means of paying for business transactions (Najib et al., 2021).

Research on mobile payment services holds significant relevance, particularly in the context of advancing technological developments within the financial sector, particularly in the era of Technology 4.0. Mobile payment services represent a segment of financial technology that is currently under development in the realm of technology, and they have direct ties to the world of business. Given the ongoing evolution of technology, especially in the financial technology sphere, researchers are compelled to investigate whether there is an extensive body of research on mobile payment services (fintech) and business exploration conducted by their peers.

This research delves into a comprehensive bibliographic review of scientific publications dedicated to the interplay between mobile payment services (fintech) and business.
2. Literature Review

2.1. Fintech (mobile payment services)

Financial technology (fintech) is an innovation in finance that is partly influenced by the Industry 4.0 era (Le, 2021). Fintech denotes how technological innovation drives finance, which refers to digital financial services provided by financial and nonfinancial institutions such as fintech companies (Chen & Chang, 2021). One of the fintech classifications, namely, mobile payment services, is mobile payment services, where mobile payment services are noncash payment facilities using smartphone devices using various wireless technology media such as QR codes, NFC, and OTP (Kang, 2018).

2.3. Mobile payment services and business

Today’s technological developments have an impact on many sectors, especially in business (Nugraha et al., 2022). The use of fintech (mobile payment services) in business is a complementary strategic tool that combines elements of marketing, sales, and customer service (Kilay et al., 2022). Playing an important role in enabling consumers and merchants to access financial services through technology such as making payments and providing payment information (Junarsin et al., 2023).

3. Materials and Methods

This research is a qualitative literature review study to determine the trend of mobile payment services (fintech) and businesses. The research data used are international journal searches in the Scopus database. The keywords used in Scopus searches are mobile payment service and business.

Data were collected in July 2023 to avoid bias that could be caused by an increase in the database. The following stages were carried out to obtain the results. Data analysis was performed using the Scopus application, RStudio, Biblioshiny program, and VOSviewer:

<table>
<thead>
<tr>
<th>No</th>
<th>Stages</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Scopus</td>
<td>(TITLE-ABS-KEY (mobile AND payment AND service) AND TITLE-ABS KEY (business)) AND (LIMIT TO (DOCTYPE, &quot;ar&quot;) ) AND (LIMIT-TO (SRCTYPE, &quot;J&quot;) ) AND (LIMIT-TO (LANGUAGE, &quot;English&quot;) ) AND (LIMIT-TO (PUBSTAGE, &quot;final&quot;) )</td>
</tr>
<tr>
<td>2</td>
<td>RStudio</td>
<td>1. library(bibliometrix), Biblioshiny ()</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. web to Biblioshiny program</td>
</tr>
<tr>
<td>3</td>
<td>Biblioshiny program</td>
<td>1. Export all documents search Scopus BibTex</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. load data to the Biblioshiny program</td>
</tr>
<tr>
<td>4</td>
<td>VOSviewer</td>
<td>1. Export all documents and search Scopus RIS</td>
</tr>
<tr>
<td></td>
<td></td>
<td>2. create a map based on bibliographic data for VOSviewer</td>
</tr>
</tbody>
</table>

4. Results

Figure 1 provides the main information regarding the data sources used in the bibliometric analysis of this article. Confirmed presence of timespan 1998-2023, source 168, documents 223, annual growth rate 10.07%, authors 615, authors of single-authored docs 31, international co-authorship 25.56%, co-authors per doc 2.89, author keywords 846, references 1, document average age 5.85, and average citations per doc 23.5.

![Figure 1 Main Information of Scopus data.](https://www.malque.pub/ojs/index.php/mr)
4.1. Publication based on year

The research analysis conducted in this article contains 223 documents from 1998-2023. In Figure 2, the data diagram of publication document search results by year illustrates trends related to mobile payment services (fintech) and business. The development of article production with the theme of mobile payment service (fintech) and business has an increasing trend from year to year; the largest number of articles is in 2021, with 32 article documents. In the period of 25 years from 1998 to 2023, there is an increasing trend, especially from 2017 to 2021. The first research on mobile payment services (fintech) and business was published in 1998, and now, in 2023, there are 223 documents.

4.2. Publications based on country

Figure 3 reveals the top 10 countries among the 62 nations actively publishing the most articles concerning mobile payment services (fintech) and business, based on data obtained from the Scopus database. In Figure 4, the collaboration map illustrates countries engaged in publishing articles, with darker coloration denoting a higher frequency of article publications. The highest number of authors and publications related to mobile payment services (fintech) and business originates from the United States, accounting for 33 articles. In addition to the United States, several other countries holding prominent positions in terms of authors and publications include China with 32 articles, India with 27 articles, South Korea with 18 articles, Malaysia with 13 articles, Taiwan with 13 articles, Spain with 12 articles, Finland with 11 articles, the United Kingdom with 9 articles, and Germany with 8 articles.
4.3. Processing data RStudio & Biblioshiny software

4.3.1. Three-Field Plot

Figure 5 characterizes a three-pole graph (Sankey diagram) based on the countries (AU_CO) that published the articles on the left, the keywords (DE) listed in the articles in the middle, and the sources (SO) that published the articles on the right. It was created to reflect the proportion of research topics on mobile payment services (fintech) and business for each country and the novelty of the cited article.

4.3.2. Most Relevant Sources

Figure 6 shows the top 10 sources with the most published research on mobile payment services (fintech) and business. The journal Electronic Commerce Research and Applications published 9 articles related to mobile payment services (fintech) and business, one of which was the last article published entitled Can we classify cashless payment solutions implementations at the country level? (Ng et al., 2021).
4.3.3. Trend Topics

Figure 7 presents a depiction of trending topics related to keywords within the context of mobile payment services (fintech) and business over time. In the initial years leading up to 2015, articles primarily centered on data security. However, from 2023 onwards, the focus transitioned towards keywords such as consumer behavior, data mining, and female-centric themes.

4.3.4. Factorial Analysis topic dendrogram

Figure 8 illustrates the analysis based on the topic dendrogram with the keyword field in the article and presents various research categories that can be raised related to mobile payment services (fintech) and business.

4.3.5. TreeMap and Most Frequent Words

Figure 9, the TreeMap, and Figure 10, Most Frequent Words, depict the frequency of keyword usage. The word "electronic money" is the most frequently employed, occurring 28 times, followed by "mobile telecommunication systems" at 25 occurrences, and "the global system for mobile communication" at 23 instances.
From 223 documents retrieved from the Scopus database search, the documents were exported to RIS format. Then, input and bibliometric analysis were carried out using VOSviewer to find bibliometric networks between the data downloaded in the Scopus database. In the VOSviewer image system (Figure 11), the darker the results in the image, the longer the topic is discussed in the research. The size of the circle in the VOSviewer network visualization image shows the number of publications related to the word in article titles, article abstracts, and keywords; the larger the circle is, the greater the number of articles related to the term. The figure 11 shows that for the mobile payment service (fintech) and business, there are 5 clusters.

**Figure 9** TreeMap.

**Figure 10** Most Frequent Words.

**4.4. VOSviewer data processing**

From 223 documents retrieved from the Scopus database search, the documents were exported to RIS format. Then, input and bibliometric analysis were carried out using VOSviewer to find bibliometric networks between the data downloaded in the Scopus database. In the VOSviewer image system (Figure 11), the darker the results in the image, the longer the topic is discussed in the research. The size of the circle in the VOSviewer network visualization image shows the number of publications related to the word in article titles, article abstracts, and keywords; the larger the circle is, the greater the number of articles related to the term. The figure 11 shows that for the mobile payment service (fintech) and business, there are 5 clusters.

**Figure 11** VOSviewer’s network visualization.
Table 2 Clusters from VOSviewer network visualization.

<table>
<thead>
<tr>
<th>Clusters</th>
<th>Items</th>
<th>Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>24</td>
<td>Banking, business service, consumer behavior, covid-19, digital payment, e-payment, electronic money, finance, financial inclusion, financial service, financial system, fintech, internet, investments, mobile money, payment services, perceived risk, perceives value, QR code, security, security of data, SMEs, technology adoption, trust.</td>
</tr>
<tr>
<td>2</td>
<td>29</td>
<td>Authentication, cellular telephone systems, communication systems, ecology, ecosystems, global system for mobile communication, mobile communication, mobile devices, mobile network operators, mobile payment system, mobile phones, mobile security, mobile telecommunication systems, near field communication, smartphones, surveys, telephone sets, the near field communication (NFC), wireless telecommunication systems.</td>
</tr>
<tr>
<td>3</td>
<td>16</td>
<td>Business, business model, commerce, consumption behavior, customer satisfaction, developing countries, e-commerce, electronic commerce, innovation, e-commerce, marketing, mobile phone, privacy, sales, service provider, service quality.</td>
</tr>
<tr>
<td>4</td>
<td>11</td>
<td>Continuance intention, ease of use, emerging markets, mathematical models, mobile commerce, mobile wallet, payment systems, perceived ease of use, perceived usefulness, personal innovativeness, satisfaction.</td>
</tr>
<tr>
<td>5</td>
<td>11</td>
<td>Adoption, big data, competition, data mining, human, human-computer interaction, information technology, mobile applications, mobile banking, mobile payment, and social media.</td>
</tr>
</tbody>
</table>

4.5. Occurrence of keywords

4.5.1. Mobile payment service

The Figure 12 show the network on the occurrence of the keyword “mobile payment service” produce several relationships with several items, namely, financial system, human-computer interaction, ecosystems, electronic money, mobile payment, electronic commerce, perceived risk, continuance intention, payment systems, mobile telecommunication system, mobile communication, smartphones, authentication, mobile devices, and near field communication.

![Figure 12 Keyword mobile payment service.](image)

4.5.2. Business

The results from VOSviewer visualization of the network on keyword occurrence “business” produce several relationships with several items, namely, service quality, developing countries, customer satisfaction, mobile phone, security, consumption behavior, payment systems, and electronic commerce (Figure 13).
4.5.3. Fintech

The results from VOSviewer visualization of the network on keyword occurrence “fintech” produce several relationships with several items, namely, mobile payment, electronic money, satisfaction, mobile wallet, QR code, SMEs, big data, business service, financial service, human-computer interaction, consumer behavior, consumption behavior, mobile communication, financial system, banking, digital payment, ecosystem, and ecology (Figure 14).

5. Discussion and Final Considerations

This study aimed to conduct a bibliographic review of scientific publications devoted to the relationship between mobile payment services (fintech) and business and to explore the research on mobile payment services (fintech) and business that has been done by previous researchers. Bibliometric analysis is used because this study also describes the development of research on mobile payment services (fintech) and business. Analysis of Scopus data is used to see research trends and build models of mobile payment services (fintech) and businesses. Bibliometric analysis using Scopus, RStudio, bbllioshiny program, and VOSviewer. Based on the results of bibliometric analysis, research interest in mobile payment services (fintech) and business has continued to increase since 1998 and continues with an upward trend in 2021, with 32 article publications. The descriptive bibliometrics and visualizations in this study reveal that countries such as the United States, China, and India are the leading countries in publishing research on mobile payment services (fintech) and business.
Based on the picture of trend topics in 2023, it is led by the most consumer behavior, data mining, and female keywords. The journal that publishes the most about mobile payment services (fintech) and business is the Electronic Commerce Research and Applications journal. It can also be seen from the visualization of the three-field plot that the Electronic Commerce Research and Applications journal is leading in trends. TreeMap and Most Frequent Words show the results of the most frequently used keyword, electronic money 28 frequency. The results of the VOSviewer bibliometric visualization of trend mapping images show the relationship between topics in increasing red and green, indicating that the topic has been widely used, while if the trend visualization is purple, blue, and yellow, then the topic is still rarely used in research. The keyword business is blue, which indicates that there are still few studies related to business, and there are only 8 related items.

6. Limitations and research suggestions

A limitation of this research is the exclusive utilization of the Scopus study database. Consequently, it is acknowledged by the author that numerous keywords have not been addressed, thus necessitating further refinement of research related to mobile payment services (fintech) and business. Subsequent investigations are anticipated to delve deeper into the realm of mobile payment services (fintech) and business. It is recommended that future research encompasses comparative analysis with other databases and extends its scope to a larger scale, facilitating a more comprehensive comprehension of the mobile payment service (fintech) and business phenomenon.

Ethical Considerations

Not Applicable.

Conflict of Interest

The authors declare no conflict of interest.

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References


