ECOBIZTECH: Journal of Economics, Business, and Technology
ISSN 3124-4742 (online)
Vol. 1 Iss. 2 Pg. 288-306
https://ejournal.scmdigi.id/index.php/ecobiztech

Digital payment systems in MSMEs: a systematic literature review of the digital business ecosystem

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DOI: https://doi.org/10.65881/ecobiztech.v1i2.122

ARTICLE INFO

History:
Received: 06-29-2026
Revised: 07-05-2026
Accepted: 07-06-2026
Published: 07-15-2026

Keywords:
digital payment;
digital business ecosystem;
msmes;
digital transformation;
systematic literature review.

ABSTRACT

Purpose: to systematically review the role of digital payment systems in supporting the digital business ecosystem of MSMEs by identifying research trends, types of digital payment technologies, and their impacts on MSME development and performance.
Method: this study employed a systematic literature review (SLR) to analyze prior research on the role of digital payments in the digital business ecosystem for MSMEs. Data were collected from Google Scholar using Publish or Perish and analyzed through thematic and bibliometric analysis with VOSviewer.
Findings: digital payment systems play a strategic role in supporting the digital business ecosystem of MSMEs by improving transaction efficiency, expanding market access, enhancing operational performance, and accelerating digital transformation. E-wallets, QRIS, and mobile banking are the most widely adopted digital payment methods, while digital literacy, financial literacy, and technological readiness remain key factors in successful adoption.
Implications: to a broader understanding of digital payments as strategic enablers of the MSME digital business ecosystem. The findings provide insights for MSMEs, policymakers, financial institutions, and technology providers to develop strategies that strengthen digital payment adoption and support sustainable digital transformation.
Originality: this study highlights digital payments as strategic drivers of the MSME digital business ecosystem by integrating perspectives on digital transformation and business development through an SLR approach.

Introduction

The rapid advancement of digital technology has fundamentally transformed business activities, particularly in the way financial transactions are conducted (Bisht et al., 2022). Digital transformation has encouraged organizations and business actors to adopt technology to improve operational efficiency, effectiveness, and innovation

(Plekhanov et al., 2023; Verhoef et al., 2021). One of the most significant manifestations of this transformation is the emergence of digital payment systems, which have shifted transaction methods from conventional cash-based payments to technology-enabled electronic payments. Digital payment systems, including mobile banking, electronic wallets (e-wallets), quick response code Indonesian standard (QRIS), and financial technology (fintech) services, enable transactions to be completed more efficiently, securely, and flexibly. As a result, these systems have become a fundamental component of the digital business ecosystem by facilitating seamless interactions among consumers, businesses, digital platforms, and financial service providers (Ayyappan & Theres, 2025). For micro, small, and medium enterprises (MSMEs), digital payment systems are not only an alternative payment method but also a strategic instrument for strengthening competitiveness and supporting sustainable business growth through digital transformation (Ramashar & Khairunnisa, 2025; Ummasyroh et al., 2024).

The importance of digital payment systems is reflected in their rapid adoption across many countries, particularly in Indonesia. The value of electronic money transactions increased from approximately IDR 399.6 trillion in 2022 to around IDR 495 trillion in 2023, while digital banking transactions exceeded 13 billion transactions within the same period (Ramayanti et al., 2024). This phenomenon demonstrates the accelerating transition toward a cashless society and highlights the increasing reliance of MSMEs on digital financial services. Previous studies consistently report that digital payment systems improve transaction efficiency, reduce operational costs, accelerate service delivery, enhance customer satisfaction, and improve business performance (Go et al., 2025; Ummasyroh et al., 2024; Yudianto & Latte, 2026). Despite these benefits, many MSMEs continue to face challenges in fully integrating digital payment technologies into their business processes. These challenges include limited digital capability, technology readiness, financial literacy, trust, and integration with broader digital platforms (Hendrawan et al., 2024; Santika et al., 2024; Sutrisno & Nainggolan, 2025). Consequently, understanding the strategic role of digital payment systems within the broader digital business ecosystem has become increasingly important.

Existing literature has extensively examined digital payment systems from various perspectives, including technology adoption (Atmaji & Tjhin, 2022), user intention and acceptance (Ramayanti et al., 2024), trust and blockchain implementation (Norbu et al., 2024), financial inclusion (Ayyappan & Theres, 2025; Shahen & Sharaf, 2025), QRIS implementation (Cahyaning & Puspawati, 2024; Pangestika et al., 2025; Sundari et al., 2024), technological development (Khando et al., 2022), and digital transformation of MSMEs (Purnomo et al., 2024; Rita & Nastiti, 2024). Several systematic literature reviews have also synthesized knowledge regarding digital payment adoption (Hermawan & Septiani, 2025; Jain & Jain, 2024; Karsen et al., 2019; Ramayanti et al., 2024). However, most previous studies primarily focus on specific aspects such as technology acceptance, behavioral intention, financial inclusion, or payment technology itself. Only limited attention has been paid to understanding digital payment systems as an integral component of the digital business ecosystem that connects MSMEs, fintech providers, digital platforms, consumers, and other stakeholders. This fragmented perspective indicates a significant research gap regarding how digital payment systems contribute to the development and sustainability of the digital business ecosystem. Therefore, a comprehensive synthesis of previous findings is necessary to provide a holistic understanding of this relationship. The novelty of this study lies in integrating these fragmented perspectives through a systematic literature review that positions digital payment systems as a central enabler in the MSME digital business ecosystem, rather than merely as payment technology.

Based on this gap, the present study aims to systematically review the existing literature on the role of digital payment systems in the digital business ecosystem, particularly in the context of MSMEs. By employing the systematic literature review (SLR) approach (Mariana et al., 2025), this study identifies, evaluates, and synthesizes findings from previous research to examine the relationships among digital payment systems, digital transformation, MSME development, and the digital business ecosystem. The SLR approach provides a rigorous and transparent methodology for consolidating evidence, identifying dominant research themes, revealing emerging trends, and highlighting future research opportunities in this field.

This study is expected to provide both theoretical and practical contributions. Theoretically, it enriches the literature by offering a comprehensive synthesis of digital payment systems within the broader perspective of the digital business ecosystem and proposing a more integrated understanding of the interrelationships among technological innovation, digital transformation, and MSME development. In practice, the findings are expected to serve as valuable references for policymakers, financial institutions, fintech providers, digital platform developers, and MSME practitioners in designing strategies to promote wider adoption and effective integration of digital payment systems. Ultimately, this study contributes to strengthening the digital business ecosystem, improving MSME competitiveness, and supporting sustainable economic growth in the era of digital transformation.

Literature review

Digital payment

A digital payment system refers to a technology-enabled method of conducting financial transactions through digital devices and internet-based networks to facilitate the exchange of economic value (Hopalı et al., 2022). It encompasses various forms of electronic payment instruments, including digital wallets (e-wallets), mobile banking, quick response code Indonesian standard (QRIS), and financial technology (fintech) services, all of which enable transactions to be completed more efficiently, securely, and conveniently. As an essential component of the digital business ecosystem, digital payment systems simplify transaction processes while enhancing accessibility and flexibility for both businesses and consumers (Putrevu & Mertzanis, 2024). In the context of micro, small, and medium enterprises (MSMEs), the adoption of digital payment systems provides substantial benefits by accelerating transaction processing, improving the accuracy and transparency of financial record-keeping, and reducing operational inefficiencies. Furthermore, the convenience and speed of digital payment methods enhance customer experience and satisfaction, thereby improving service quality, business competitiveness, and long-term performance (Ummasyroh et al., 2024).

Digital business ecosystem

A digital business ecosystem refers to an interconnected network of stakeholders, including business organizations, consumers, digital platforms, financial institutions, technology providers, and other supporting actors that collaborate to create, exchange, and deliver economic value through digital technologies (Kornyshova et al., 2023). Within this ecosystem, interactions among these stakeholders are facilitated by digital infrastructures that enable real-time communication, seamless transactions, information sharing, and business collaboration, thereby enhancing overall operational efficiency and innovation. For micro, small, and medium enterprises (MSMEs), participation in the digital business ecosystem provides significant opportunities to strengthen competitiveness by expanding market access, optimizing business processes, improving customer engagement, and integrating with digital platforms and financial services. Consequently, the digital business ecosystem serves as a critical foundation for sustainable business growth and digital transformation, enabling MSMEs to adapt more effectively to the evolving digital economy (Go et al., 2025).

Digital transformation

Digital transformation is the strategic integration of digital technologies into business activities to enhance operational efficiency, organizational effectiveness, and innovation in value creation (Vărzaru & Bocean, 2024). Beyond adopting digital tools, digital transformation entails fundamental changes in business models, organizational processes, managerial strategies, and customer engagement to respond to the rapidly evolving digital environment. By leveraging digital technologies, organizations can optimize resource utilization, improve decision-making, and develop more agile and competitive business operations (Jaafar et al., 2026). For micro, small, and medium enterprises (MSMEs), digital transformation is a critical strategy to strengthen business competitiveness by streamlining operations, expanding market reach through digital channels, enhancing customer experiences, and fostering sustainable growth in the increasingly digital economy.

MSMEs in the digital economy

MSMEs constitute a vital component of the global economy due to their significant contributions to employment generation, income creation, and sustainable economic development (Vasani & Abdulkareem, 2024). In the era of the digital economy, MSMEs are increasingly required to adapt to rapid technological advancements to maintain competitiveness and ensure long-term business sustainability. The adoption of digital technologies, particularly digital payment systems and other digital business solutions, provides substantial opportunities for MSMEs to improve operational efficiency, streamline financial management, expand market reach, and enhance customer engagement (Kilay et al., 2022). Despite these potential benefits, the digital transformation of MSMEs continues to face several challenges, including limited digital literacy, inadequate technological infrastructure, financial constraints, and unequal access to digital technologies, all of which influence the level and effectiveness of digital technology adoption among MSMEs.

Systematic literature review (SLR)

SLR is a rigorous research methodology that involves the systematic identification, selection, critical evaluation, and synthesis of findings from existing studies to provide a comprehensive understanding of a particular research topic (Mariana et al., 2025). Unlike conventional narrative reviews, the SLR approach follows transparent and structured procedures that minimize bias and improve the reliability of research findings. In the context of MSMEs, this method is particularly valuable for synthesizing evidence related to digital transformation, digital payment systems, and their influence on business performance and competitiveness. By integrating findings from multiple studies, an SLR enables researchers to identify recurring themes, examine relationships among key variables, recognize emerging research trends, and highlight gaps that require further investigation (Ramayanti et al., 2024). Previous studies have demonstrated that the SLR approach produces more comprehensive and evidence-based conclusions than traditional literature reviews, thereby providing a stronger theoretical foundation for future research and supporting the development of more robust research agendas (Mariana et al., 2025).

Method

This study employed a qualitative research design using a systematic literature review (SLR) approach to identify, evaluate, synthesize, and interpret existing literature on the role of digital payment systems in the digital business ecosystem, particularly in the context of MSMEs. The SLR method was selected because it provides a transparent, rigorous, and evidence-based procedure for integrating findings from previous studies, minimizing researcher bias, and producing comprehensive conclusions regarding a particular research topic (Mariana et al., 2025; Ramayanti et al., 2024). In addition to summarizing existing knowledge, this approach enables the identification of research trends, theoretical developments, research gaps, and future research opportunities related to digital payment systems and digital business ecosystems.

The review process commenced with the formulation of research questions (RQs), which served as the primary framework for defining the scope of the study, guiding the literature search strategy, determining article selection criteria, and directing the subsequent analysis and synthesis. The research questions were developed based on the objectives of this study to examine the role of digital payment systems in supporting the digital business ecosystem for MSMEs, identify the most widely adopted forms of digital payment technologies, and analyze their impact on MSME performance. Accordingly, the research questions presented in Table 1 provide the analytical foundation for the entire review process and ensure that each stage of the study remains aligned with the research objectives.

Table 1 research question

RQ code	Research question
RQ1	What is the role of digital payments in supporting the digital business ecosystem for MSMEs? Focus: analyze the contribution of digital payments in improving transaction efficiency, strengthening payment system integration, and supporting digital business activities in MSMEs.
RQ2	What are the most widely used types of digital payments in the digital business ecosystem? Focus: identify the different types of digital payments, such as e-wallets, mobile banking, and financial technology (fintech), that are most widely used in digital business activities.
RQ3	What is the impact of using digital payments on the performance of MSMEs? Focus: analyze the impact of the use of digital payments on improving operational efficiency, customer satisfaction, and MSME performance and productivity.

The object of this research comprised scientific publications discussing digital payment systems within the digital business ecosystem, with particular emphasis on MSMEs. The selected studies explored various forms of digital payment technologies, including electronic wallets (e-wallets), mobile banking, quick response code Indonesian standard (QRIS), and financial technology (fintech), as well as their contribution to improving transaction efficiency, financial management, customer engagement, operational performance, and digital business development. Furthermore, the review examined the interactions between digital payment systems and other components of the digital business ecosystem, including business actors, consumers, financial institutions, digital platforms, and technology providers.

The literature search was conducted using Publish or Perish software connected to the Google Scholar database, with Google Scholar serving as the primary source of secondary data. Google Scholar was selected because it indexes a broad range of peer-reviewed journal articles, conference proceedings, and other scholarly publications relevant to digital payment and digital transformation research. The search strategy employed a combination of keywords, including digital payment, digital business ecosystem, financial technology (fintech), digital MSMEs, and digital transformation. These keywords were used individually and in various combinations to maximize the retrieval of relevant studies. To ensure that the reviewed literature reflected recent developments in digital payment research, the search was limited to publications from 2022 to 2026. All retrieved records were subsequently documented and organized to facilitate screening and selection.

Following the literature search, the retrieved publications underwent systematic screening and eligibility assessment against predefined inclusion and exclusion criteria. The inclusion criteria consisted of (1) scientific articles published between 2022 and 2026, (2) studies discussing digital payment systems within the context of the digital business ecosystem, and (3) research specifically addressing the implementation or utilization of digital payment technologies in MSMEs. Conversely, studies were excluded if they were unrelated to the research objectives, unavailable in full-text format, or published outside the specified publication period. The implementation of these criteria ensured that only relevant, high-quality, and scientifically credible studies were included in the review, thereby strengthening the validity and reliability of the research findings.

The selected articles were then subjected to a systematic data extraction process. The extracted information included the authors, publication year, research objectives, research methodology, study context, types of digital payment technologies examined, and principal findings. The collected data were subsequently classified according to thematic similarities to facilitate comparative analysis and evidence synthesis. This systematic organization of information enabled the identification of recurring concepts, dominant research themes, methodological approaches, and emerging patterns across previous studies, while ensuring that the extracted evidence adequately addressed the formulated research questions (Ramayanti et al., 2024).

Data analysis was conducted using descriptive thematic analysis complemented by bibliometric analysis. The descriptive analysis synthesized evidence from previous studies to identify the roles, benefits, challenges, and impacts of digital payment systems within the digital business ecosystem. In parallel, bibliometric analysis was performed using VOSviewer to visualize the relationships among keywords, identify research clusters, map collaboration patterns, and examine the evolution of research topics over time. The integration of thematic and bibliometric analyses provided a comprehensive understanding of the intellectual structure of digital payment research and facilitated the identification of emerging research directions (Mariana et al., 2025).

Finally, the synthesized findings were presented through a structured narrative that directly addressed each research question and integrated evidence from the selected studies into coherent thematic discussions. The reporting process emphasized the role of digital payment systems in supporting MSME development within the digital business ecosystem, highlighted the current state of knowledge, identified existing research gaps, and proposed directions for future research. By combining a rigorous SLR methodology with bibliometric visualization, this study provides a comprehensive, evidence-based synthesis that contributes to both academic knowledge and practical understanding of digital payment systems within digital business ecosystems.

Results and discussion

Search process

The literature search was conducted using Publish or Perish software, which integrates with the Google Scholar database, to identify scholarly publications relevant to the research topic. The search strategy employed a combination of the keywords *digital payment, digital business ecosystem, financial technology (fintech), digital MSMEs*, and *digital transformation*, with the publication period restricted to 2022–2026 to ensure the inclusion of recent and relevant studies. This search yielded 200 potentially relevant articles for further evaluation. To maintain the quality and relevance of the reviewed literature, all retrieved publications were systematically screened using their titles, abstracts, and full texts. This multi-stage evaluation process ensured that only studies directly related to the role of digital payment systems in the digital business ecosystem, particularly for MSMEs, were included in the subsequent analysis.

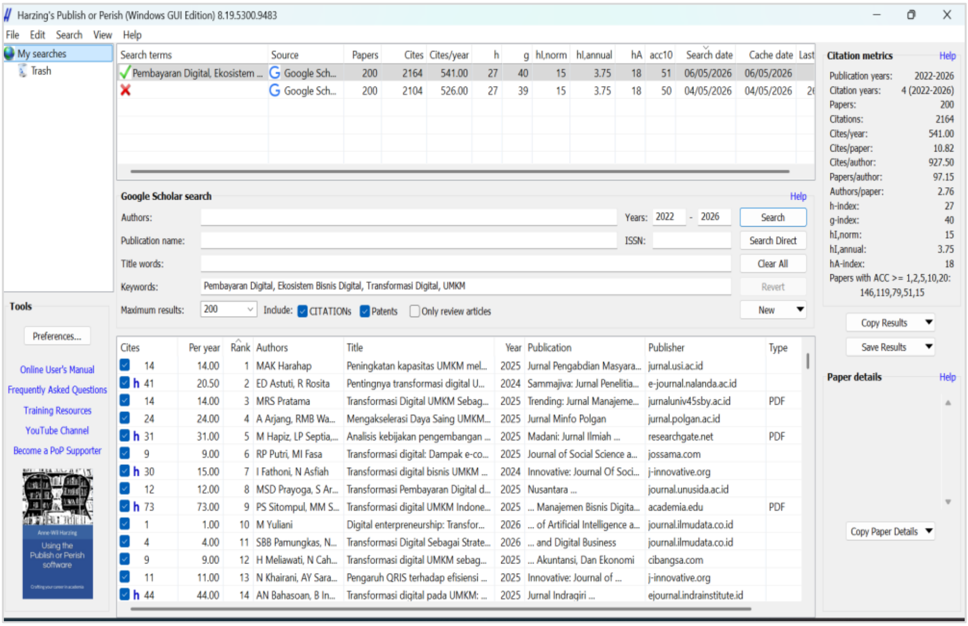

Figure 1 search process using Publish or Perish
Source: secondary data, processed (2026)

Figure 1 illustrates the results of the literature search conducted using the Publish or Perish software. The retrieved records include bibliometric information such as article titles, authors, publication years, publication sources, citation counts, h-index, and g-index, which served as the primary basis for screening and selecting relevant studies. Following the initial screening process, the bibliographic data were exported from Publish or Perish and subsequently imported into VOSviewer for bibliometric analysis. This procedure enabled visualization of relationships among keywords, identification of thematic research clusters, and analysis of research trends and intellectual development related to digital payment systems within the digital business ecosystem, thereby providing a comprehensive overview of the existing literature.

After completing the literature search process, all retrieved articles were systematically evaluated based on the predefined inclusion and exclusion criteria established in the research methodology. The selection process was conducted through several stages to ensure that only relevant and high-quality studies were included in the analysis. From the initial 200 articles identified through Publish or Perish, 128 articles satisfied the inclusion criteria and were selected for further analysis. These articles were considered relevant because they addressed digital payment systems, digital transformation, MSMEs, financial technology (fintech), and digital business ecosystems. Meanwhile, 72 articles were excluded because they did not align with the research focus, were not available in full text, or fell outside the predetermined research scope. The results of the screening process indicate that the majority of retrieved publications met the established criteria, providing a sufficient and reliable foundation for subsequent descriptive analysis and bibliometric mapping using VOSviewer.

Network visualization analysis

The network visualization analysis using VOSviewer provides an overview of keyword relationships and research patterns identified from the selected publications. As shown in Figure 2, the visualization reveals the main clusters and linkages among keywords related to digital payment systems, digital transformation, fintech, and MSMEs, reflecting the development of research themes within the digital business ecosystem.

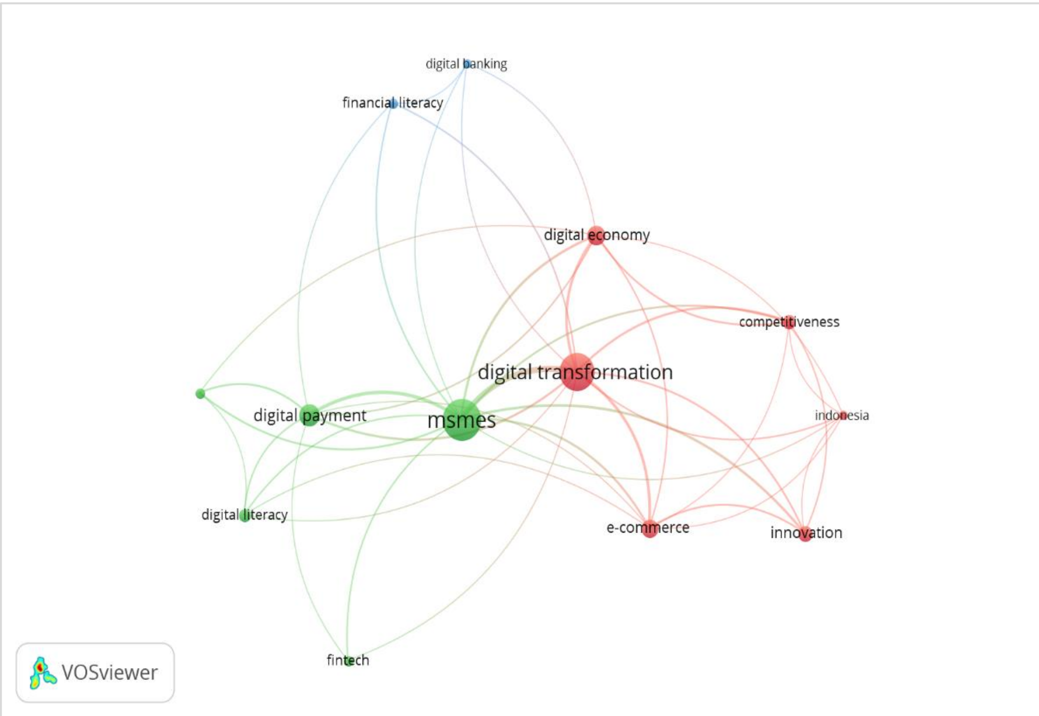

Figure 2 network visualization (VOSviewer output)
Source: secondary data, processed (2026)

The network visualization results in Figure 2 indicate that research on the role of digital payment systems in the digital business ecosystem is organized into several interconnected clusters. Each cluster represents a group of keywords that demonstrate strong relationships based on their co-occurrence frequency within the analyzed publications. These connections reflect the dominant research themes and conceptual relationships that have emerged in the field of digital payment studies. The first cluster, shown in red, comprises keywords such as digital transformation, digital economy, e-commerce, innovation, competitiveness, and Indonesia. This cluster highlights the strong association between digital transformation and advances in the digital economy, business innovation, and competitiveness in an increasingly technology-driven business environment. The prominence of these interconnected keywords indicates that digital transformation plays a fundamental role in advancing the digital business ecosystem by enabling organizations, particularly MSMEs, to adopt innovative practices, expand digital capabilities, and improve competitiveness (Hendrawan et al., 2024).

In the network visualization, the keyword digital transformation appears as a central node with strong connections to other keywords. This indicates that digital transformation has become a prominent research focus in studies of digital payment systems and serves as a bridge connecting technological innovation, business processes, and the development of the digital economy. The second cluster, shown in green, comprises keywords such as MSMEs, digital payment, digital literacy, and fintech. This cluster demonstrates a strong relationship between the adoption of digital payment systems and MSME development within the digital business ecosystem. The connection between digital payments and MSMEs suggests that implementing digital payment technologies can improve transaction efficiency, expand market access, enhance financial management, and strengthen service quality among MSME actors (Ummasyroh et al., 2024). Furthermore, the presence of keywords such as digital literacy and fintech highlights that the effectiveness of digital payment adoption is determined not solely by technological availability but also by the capability and readiness of business actors to understand, use, and integrate digital technologies into their operations.

Meanwhile, the third cluster, represented in blue, consists of the keywords digital banking and financial literacy. This cluster highlights that digital banking services and financial literacy are important factors that support the adoption and effective use of digital payment systems. The relationship between these keywords indicates that the implementation of digital financial services is determined not only by technological availability but also by users' knowledge, awareness, and ability to understand and manage digital financial transactions effectively. In addition to the relationships among keywords, the size of each node in the visualization represents the frequency of keyword occurrences within the analyzed publications. The keywords MSMEs and digital transformation appear with larger node sizes than other keywords, indicating that these topics are dominant research themes in studies of digital payment systems. Furthermore, the connecting lines between nodes illustrate the strength of relationships among research topics, where keywords with more connections indicate broader relevance and stronger associations with other concepts within the digital payment research landscape.

Based on the network visualization analysis, digital payment systems occupy a strategic position within the digital business ecosystem, serving as an important integrative mechanism that connects various technological, financial, and business components. Digital payments function as a bridge linking digital transformation, MSME development, financial technology (fintech), digital banking services, and digital and financial literacy. These interconnected relationships demonstrate that the implementation of digital payment systems extends beyond improving transaction efficiency; they also accelerate business transformation, enhance MSME competitiveness, expand digital capabilities, and support sustainable growth in the digital economy.

Overlay visualization analysis

The overlay visualization analysis was conducted using VOSviewer to examine the development and evolution of research topics related to digital payment systems within the digital business ecosystem over time. As shown in Figure 3, the overlay visualization illustrates the temporal distribution of keywords by their average publication year, with different colors indicating the emergence and development of research themes in the analyzed literature. This visualization provides insights into recent research trends and highlights the shifting focus of studies on digital payments, digital transformation, fintech, and MSMEs.

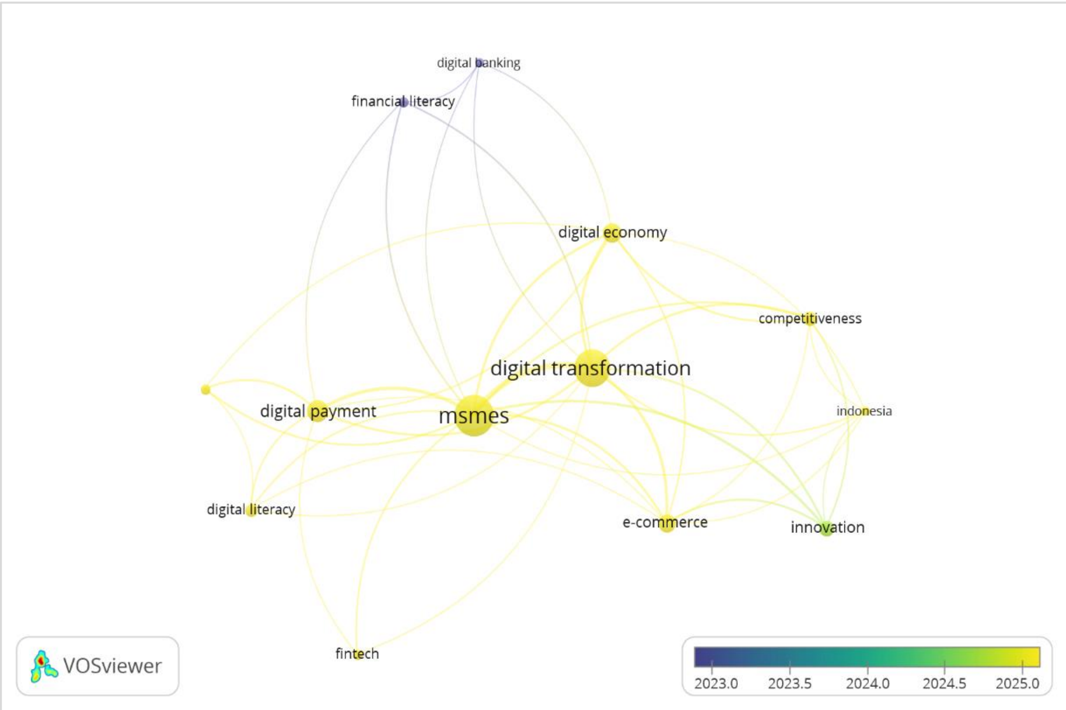

Figure 3 overlay visualization (VOSviewer output)
Source: secondary data, processed (2026)

The overlay visualization in Figure 3 illustrates the development and evolution of research topics, based on the average publication year of each keyword analyzed with VOSviewer. In this visualization, the color gradient represents the temporal progression of research themes, where dark blue indicates keywords associated with earlier research topics (approximately 2023.0), green represents themes that developed consistently during the period of 2024.0–2024.5, and yellow highlights emerging topics that received greater attention in the period of 2024.5–2025.0. Based on this mapping, digital transformation appears as one of the dominant and highly connected research themes, showing strong relationships with keywords such as digital economy, innovation, e-commerce, and competitiveness. These relationships indicate that digital transformation has become a fundamental driver of the digital business ecosystem, facilitating technological adoption, encouraging business innovation, supporting the growth of the digital economy, and enhancing organizational competitiveness in an increasingly digital marketplace (Hendrawan et al., 2024).

Furthermore, the keyword digital payment shows strong associations with MSMEs, fintech, and digital literacy, indicating its significant role in supporting digital transformation within the MSME sector (Purnomo et al., 2024). This connectivity suggests that digital payment systems are not merely transactional tools but have evolved into essential components of the digital business ecosystem, facilitating business modernization and technology adoption. The implementation of digital payment systems contributes to improving transaction efficiency, expanding market accessibility, enhancing financial management capabilities, and accelerating the digitalization process among MSMEs (Hermawan & Septiani, 2025). In addition, the keyword MSMEs appears as one of the central nodes with strong connections to various research themes, including digital payment, e-commerce, financial literacy, and digital transformation. This finding indicates that MSMEs are increasingly becoming active participants in digital technology adoption as a strategic effort to optimize operational processes, strengthen competitiveness, improve customer engagement, and expand business opportunities within the evolving digital economy.

On the other hand, the relationship between digital literacy and financial literacy highlights the important role of both capabilities in ensuring the effective adoption and utilization of digital payment systems. Digital literacy enables business actors to understand, access, and utilize digital technologies effectively, while financial literacy strengthens their ability to manage digital financial transactions, utilize financial services, and make informed financial decisions. Furthermore, the overlay visualization reveals several yellow-colored nodes representing emerging research themes, particularly those related to fintech, digital economy, and digital innovation. This finding indicates that recent research trends increasingly focus on integrating advanced digital technologies to support the development of modern business ecosystems, enhance business adaptability, and strengthen the sustainability of digital transformation processes.

Based on the results of the overlay visualization analysis, it can be concluded that research on digital payment systems continues to evolve in response to rapid advancements in digital technology and changes in the digital business environment. Digital transformation and digital payment emerge as central themes that connect various research domains, while fintech, digital literacy, financial literacy, and digital innovation represent emerging topics with significant potential for future investigation. These findings indicate that digital payment systems have evolved beyond their traditional role as transaction mechanisms to become strategic enablers that facilitate business transformation, strengthen technological integration, and support the long-term sustainability of the digital business ecosystem.

Density visualization analysis

The density visualization analysis was conducted using VOSviewer to identify the concentration and intensity of research topics based on keyword occurrence and relationships among concepts in the selected publications. As presented in Figure 4, the visualization illustrates the density distribution of keywords related to digital payment systems within the digital business ecosystem. The color intensity in the visualization indicates the level of research concentration: brighter colors represent keywords with higher frequency of occurrence and stronger relationships, while darker areas indicate topics with lower research density. This analysis provides insights into the dominant research themes and the most frequently discussed concepts in the existing literature.

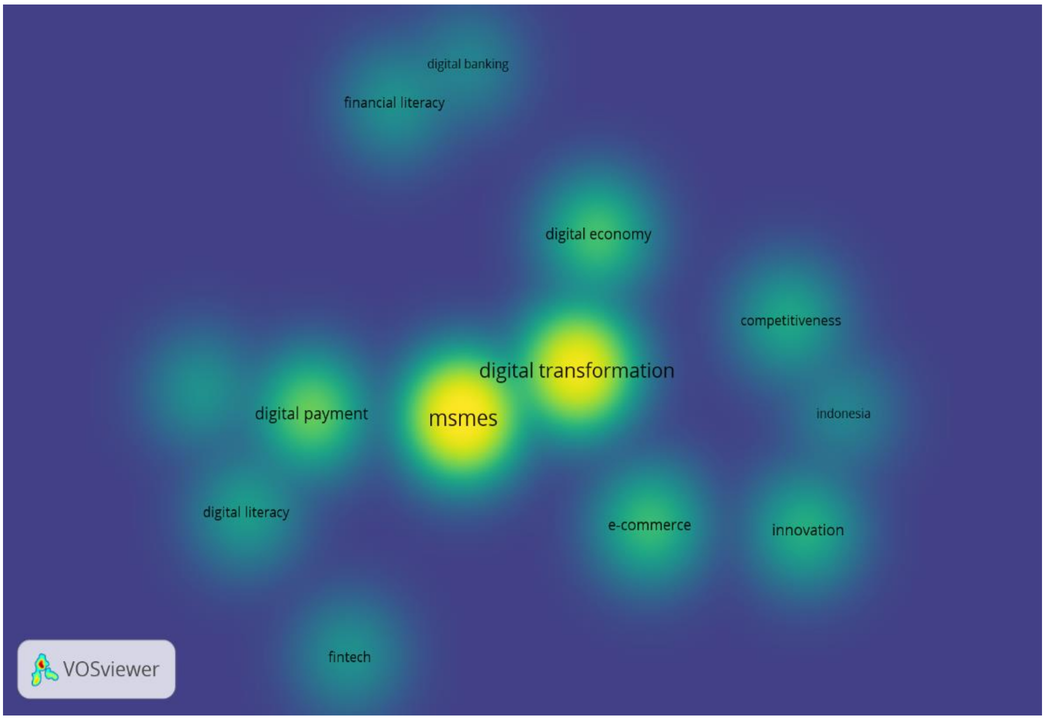

Figure 4 density visualization (VOSviewer output)
Source: secondary data, processed (2026)

The density visualization in Figure 4 illustrates the intensity and distribution of keyword occurrences in the analyzed publications using VOSviewer. This visualization reflects the level of research concentration for each topic, where yellow areas represent keywords with higher frequency of occurrence and stronger research attention, while green to blue areas indicate topics with relatively lower occurrence intensity. The brighter the color in a given area, the higher the density and prominence of the corresponding research theme in the literature. In this visualization, the keywords digital transformation and MSMEs appear in highly concentrated yellow areas, indicating that these topics are the dominant themes in studies of digital payment systems and digital business ecosystems. This dominance suggests that previous research has largely focused on examining how digital transformation contributes to MSME development, particularly through improving operational efficiency, strengthening business competitiveness, enhancing technological adaptability, and supporting sustainable growth in the digital economy era.

The keyword digital payment appears within the green-to-yellow density area, indicating a relatively high frequency of occurrence and strong associations with other key topics, including MSMEs, fintech, and e-commerce. This position demonstrates that digital payment systems have become a central component supporting digital business activities and facilitating interactions within the digital business ecosystem. The adoption of digital payment technologies improves transaction efficiency, accelerates payment processes, enhances financial management, and supports digital transformation among MSMEs. Furthermore, keywords such as digital economy, fintech, and e-commerce also appear in areas with relatively high density, reflecting their significant role in current research discussions. The strong interconnectedness among these topics indicates that the growth of the digital economy is closely associated with the utilization of financial technology and digital commerce platforms. This relationship further highlights how MSMEs increasingly leverage digital technologies to expand market access, optimize business operations, improve customer engagement, and strengthen competitiveness in an evolving digital marketplace.

Several keywords, including digital literacy, financial literacy, innovation, and digital banking, appear in areas with relatively lower density than the dominant research themes. Although these keywords have lower frequency of occurrence, their presence indicates the emergence of new research directions that have received increasing attention in recent years. These topics provide opportunities for further investigation, particularly in exploring MSMEs' digital readiness, strengthening technological and financial literacy, and developing more innovative and inclusive digital payment systems. Based on the density visualization analysis, it can be concluded that digital transformation and MSMEs represent the most dominant themes in research on digital payment systems within the digital business ecosystem. Meanwhile, digital payment functions as a strategic component that connects various dimensions of digital transformation, including fintech, e-commerce, and the digital economy. Furthermore, emerging themes such as digital literacy, financial literacy, digital banking, and technological innovation demonstrate significant potential for future research development. These findings indicate that current research trends are gradually shifting from the implementation of digital payment systems to a broader examination of the factors that support successful, inclusive, and sustainable digital business transformation.

RQ1: What is the role of digital payments in supporting the digital business ecosystem for MSMEs in 2022–2026 in Indonesia?

Based on the synthesis of the reviewed articles, digital payment systems play a strategic role in supporting the development of the digital business ecosystem for MSMEs. The majority of studies indicate that the adoption of digital payment systems improves transaction efficiency, accelerates payment processes, enhances operational effectiveness, and facilitates digital transformation in business activities (Hendrawan et al., 2024). The availability of various digital payment technologies, including e-wallets, mobile banking, and financial technology (fintech) services, enables business actors and consumers to conduct transactions more quickly, conveniently, and securely. Beyond their role as transactional mechanisms, digital payment systems also help expand market access by integrating with digital platforms and e-commerce ecosystems. This integration allows MSMEs to reach broader consumer segments beyond geographic limitations, strengthen customer interactions, enhance competitiveness, and support long-term sustainability in the digital economy.

The results of the study indicate that implementing digital payment systems significantly improves operational effectiveness, service quality, and transparency in transaction management. Digital payments are no longer perceived merely as transactional instruments; they have evolved into strategic components of digital business transformation, enabling more integrated, efficient, and technology-driven business operations (Shahen & Sharaf, 2025). Digital transformation is a broader organizational change that involves restructuring business strategies and operational models and leveraging digital technologies to create value and enhance competitiveness (Verhoef et al., 2021). Based on the synthesis of the analyzed articles, digital payment systems play a strategic role in strengthening the digital business ecosystem for MSMEs by improving transaction efficiency, accelerating payment processes, and facilitating digital transformation in business activities (Hendrawan et al., 2024). The availability of various digital payment solutions, including e-wallets, mobile banking, and financial technology (fintech) services, provides greater convenience for both business actors and consumers by enabling faster, more practical, and more secure transactions that align with the demands of the digital economy.

Beyond improving transaction efficiency, digital payment systems also expand market access through their integration with digital platforms and e-commerce ecosystems. This integration enables MSMEs to reach broader consumer segments without geographical limitations, thereby strengthening market penetration, increasing competitiveness, and supporting long-term business sustainability. The findings further indicate that the adoption of digital payments enhances operational effectiveness, improves service quality, and increases transparency in transaction management. Therefore, digital payments are no longer regarded merely as transactional tools but have evolved into essential elements of the digital business transformation process by enabling more efficient, integrated, and value-oriented business operations (Shahen & Sharaf, 2025). Digital transformation is a broader organizational change that involves adapting business strategies, operational models, and the use of digital technology to create value, improve efficiency, and enhance organizational competitiveness in response to evolving market demands (Verhoef et al., 2021).

RQ2: What type of digital payment is most widely used in the MSME digital business ecosystem?

The results of the literature synthesis indicate that MSMEs have widely adopted various digital payment systems to support digital business activities. Among these payment methods, e-wallets are among the most dominant digital payment solutions due to their ease of use, transaction speed, accessibility, and ability to integrate with various digital platforms (Sundari et al., 2024). Furthermore, the adoption of mobile payment systems is influenced by several key factors, including perceived ease of use, security, perceived usefulness, and user trust in digital payment technologies (Karsen et al., 2019). In addition to e-wallets and mobile payments, the implementation of the quick response code Indonesian standard (QRIS) has shown significant growth among MSMEs. The adoption of QRIS provides greater convenience in accepting non-cash transactions, improves payment efficiency, simplifies transaction processes, and accelerates business digitalization. Consequently, the utilization of QRIS contributes to strengthening MSME competitiveness and supporting business adaptation within the digital economy ecosystem (Pangestika et al., 2025; Santika et al., 2024).

Another widely adopted digital payment method among MSMEs is mobile banking, which provides convenience in conducting fund transfers, payments, and digital transaction management. The continued use of mobile payment services is influenced by several factors, including user trust, system security, perceived usefulness, and satisfaction with digital financial services (Atmaji & Tjhin, 2022). Along with technological advancements, digital payment systems have continued to evolve through innovations such as contactless payment, advanced digital wallets, and blockchain-based payment solutions. Despite offering greater efficiency, flexibility, and convenience, the implementation of these technologies still faces several challenges, including cybersecurity risks, data privacy concerns, regulatory issues, and limited user digital literacy (Khando et al., 2022). Furthermore, financial technology (fintech) services have emerged as an important component of the digital business ecosystem by not only supporting digital payment activities but also providing broader financial solutions, including digital financing, financial management services, and integration with e-commerce platforms. Based on the literature synthesis, it can be concluded that e-wallets, QRIS, and mobile banking are the most widely used digital payment methods among MSMEs, while fintech serves as a strategic enabler that drives innovation and strengthens the development of the digital business ecosystem.

RQ3: What is the impact of using digital payments on the performance of MSMEs?

Based on the literature synthesis, the adoption of digital payment systems has demonstrated a positive impact on improving MSME performance across various dimensions. From an operational perspective, digital payments enable faster transaction processing, reduce reliance on cash, improve the accuracy of financial records, and enhance the efficiency of business management. Furthermore, the utilization of financial technology (fintech) supports MSMEs in strengthening competitiveness, expanding access to financial services, and accelerating digital transformation in business operations (Plekhanov et al., 2023). The improvement of MSME performance is also influenced by several factors, including technological readiness, organizational innovation capability, and competitive pressures that encourage business actors to adopt digital payment systems more extensively (Aprisca & Aligarh, 2024; Cahyaning & Puspawati, 2024). However, the effectiveness and sustainability of digital payment adoption depend on the availability of reliable security mechanisms, as maintaining user trust is critical to the continued acceptance and use of digital payment services (Norbu et al., 2024).

From a marketing perspective, digital payment systems enable MSMEs to expand their market reach through integration with digital platforms and e-commerce ecosystems. The flexibility of conducting transactions anytime and anywhere provides greater opportunities for business actors to increase sales, improve customer accessibility, and enhance service convenience (Sutrisno & Nainggolan, 2025). In addition, digital payment systems support more effective financial management by enabling MSMEs to record transactions in a more organized, transparent, and structured manner, thereby improving the accuracy of financial information and facilitating better business decision-making (Rita & Nastiti, 2024). Despite these benefits, several studies highlight persistent challenges in the adoption of digital payment systems, including limited digital literacy, inadequate technological infrastructure, and insufficient understanding of digital transaction mechanisms among business actors and consumers (Sutrisno & Nainggolan, 2025). Therefore, strengthening digital literacy programs, improving technological infrastructure, and implementing supportive policies are essential strategies to accelerate the adoption of digital payment systems within the MSME sector. Overall, the synthesis results demonstrate that digital payments provide significant contributions to enhancing operational efficiency, service quality, competitiveness, and business sustainability among MSMEs. These findings confirm that digital payment systems have become a fundamental element in strengthening the digital business ecosystem and supporting the continued digital transformation of MSMEs in Indonesia (Rita & Nastiti, 2024).

Conclusions

Digital payment systems play a strategic role in supporting the development of the digital business ecosystem for MSMEs. Based on the systematic literature review and bibliometric analysis, digital payments have evolved beyond their traditional function as transaction tools and have become important enablers of digital transformation, business innovation, and ecosystem integration. The findings indicate that digital payment systems improve transaction efficiency, accelerate business processes, expand market access, enhance service quality, and strengthen MSME competitiveness. Furthermore, the analysis shows that digital transformation and MSMEs are dominant research themes, while digital payments act as a connecting element between various components of the digital business ecosystem, including fintech, digital platforms, e-commerce, digital banking, and digital literacy. Among digital payment methods, e-wallets, QRIS, and mobile banking are the most widely adopted by MSMEs due to their accessibility, convenience, and integration capabilities.

This study contributes theoretically and practically by providing a comprehensive understanding of the position of digital payment systems within the broader digital business ecosystem perspective. Theoretically, this research enriches the existing literature by integrating fragmented findings from previous studies that have mainly focused on technology adoption, user behavior, financial inclusion, or specific payment technologies. By positioning digital payments as a strategic component of digital transformation, this study offers a more holistic perspective on the interconnections among technological innovation, financial services, and MSME development. Practically, the findings provide valuable insights for MSME practitioners, policymakers, fintech providers, and digital platform developers in designing strategies to accelerate digital payment adoption, improve digital readiness, strengthen financial and digital literacy, and create a more inclusive and sustainable digital business ecosystem. However, this study also has several limitations, particularly its reliance on secondary data from the published literature and on Google Scholar as the primary database, which may limit the coverage of relevant studies. In addition, the analysis focuses primarily on the general context of MSMEs and does not examine in depth variations across industries, regions, or business characteristics.

Future research is recommended to overcome these limitations by incorporating broader academic databases and employing comparative approaches across countries, industries, or MSME sectors to gain a more comprehensive understanding of digital payment adoption. Further studies may also combine systematic literature review approaches with empirical methods, such as surveys, interviews, or case studies, to examine the practical experiences, challenges, and behavioral factors influencing digital payment implementation among MSMEs. In addition, future research can explore emerging topics identified from the bibliometric analysis, including digital literacy, financial literacy, cybersecurity, blockchain-based payment systems, and innovative fintech solutions, to further understand the factors that support the sustainability and effectiveness of digital transformation within the MSME digital business ecosystem.

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