

Business Transformation Through Management Information Systems

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ABSTRACT

This study analyzes the role of Management Information Systems in strengthening sharia business and its contribution to the Islamic economy. The study focuses on operational efficiency, decision quality, sharia values, and business governance. This research uses a descriptive qualitative method through a literature review of international academic articles published in the last five years. The findings show that Management Information Systems improve efficiency by accelerating work processes, reducing transaction errors, lowering costs, and increasing productivity. This system also improves decision quality because it provides accurate, fast, integrated, and relevant data. In sharia business, information systems must maintain transparency, data honesty, fair pricing, transaction security, and contract compliance. Sharia values become the main distinction because they guide business toward trust, justice, and public benefit. This study concludes that Management Information Systems contribute to strengthening the Islamic economy through transparent governance, data-based decisions, customer trust, MSME development, maqashid sharia, and ethical, inclusive, productive, and sustainable business in the modern digital era.

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1. INTRODUCTION

Digital transformation has changed the way businesses manage data, serve customers, develop strategies, and make decisions. This change does not only occur in large companies. It also affects small and medium enterprises that must adapt to market pressure, changing consumer behavior, and the development of information technology. Digital transformation encourages businesses to move from manual recordkeeping to faster, more accurate, and more integrated data-based systems (Verhoef et al., 2021).

In the context of modern business, Management Information Systems or MIS have a strategic role because they help organizations collect, process, store, and present information to support managerial decisions. MIS does not only function as an administrative tool. It also becomes the basis for operational control, performance evaluation, financial management, customer service, and business planning.

Studies on digital transformation show that information technology is a key driver of changes in business processes, organizational structures, and value creation models (Kraus et al., 2022).

For sharia business actors, the use of MIS has a broader meaning. Information systems must not only improve efficiency. They must also support the principles of trustworthiness, transparency, justice, honesty, and responsibility. This is important because sharia businesses do not only pursue profit. They also maintain compliance with Islamic values in transactions, financial management, marketing, distribution, and customer service. Islamic marketing principles have been shown to strengthen consumer trust, price transparency, digital service security, and responsibility in protecting customer data (MayaPutra & Yusrizal, 2025).

The development of the digital economy also creates major opportunities for sharia-based MSMEs to expand their markets. Business actors can use cashier applications, stock systems, marketplaces, social media, digital payments, QRIS, mobile banking, and application-based financial reports (Kraus et al., 2021). However, the use of technology does not always produce business transformation. Many businesses only use applications to record transactions. They have not used them as a basis for reading sales trends, measuring efficiency, understanding customers, managing inventory, and developing business strategies. This condition shows that the main problem is not only technology adoption. It also concerns the ability to turn data into valuable business decisions. Previous studies show that digital transformation in MSMEs requires alignment between technology, organization, learning, leadership, collaboration, and financial readiness. Sagala and Óri found that the success of digital transformation in MSMEs is influenced by internal limitations, organizational learning, information technology alignment, leadership, digital marketing, collaboration, competitive environment, and digitalization models that fit business needs (Sagala & Óri, 2024).

Other studies confirm that digital transformation can improve performance measurement systems because organizations become more adaptive, flexible, and data-driven. Cosa and Torelli explain that digital transformation encourages a more dynamic performance management system, supports decision agility, and strengthens organizational transparency (Cosa & Torelli, 2024). This finding is relevant to MIS because a good information system can help businesses monitor performance in real time and respond quickly to market changes. In decision making, MIS also plays an important role because information quality determines decision quality. Sales data, financial reports, inventory records, customer behavior, and cash flow can help business owners set prices, choose products, manage promotions, and control costs. Hung, Hoa, Hoai, and Nguyen found that digital transformation has a positive effect on the effectiveness of cloud-based accounting, decision-making quality, and firm performance (Hung, Hoa, Hoai, & Nguyen, 2023).

However, in the sharia business ecosystem, the use of MIS also faces ethical challenges. Digital systems can speed up transactions. Yet, they can also create risks such as data manipulation, unclear product information, excessive promotion, weak data protection, and non-compliance with contracts. Therefore, business transformation through MIS needs to be studied through a sharia economic approach so that efficiency can operate together with justice and public benefit. Alfian, Abd Majid, and Sugianto emphasize that sharia fintech can expand financial access for MSMEs. However, its success requires digital literacy, sharia financial literacy, trust, regulation, and justice in financial inclusion (Alfian, Abd Majid, & Sugianto, 2025).

The research gap appears because most studies still discuss digital transformation in general. Meanwhile, studies that connect MIS, business transformation, operational efficiency, decision-making quality, and sharia values remain limited. Research on digital MSMEs often emphasizes technology and performance. Yet, it has not widely placed Islamic business ethics as the foundation of information system management. In fact, Islamic business ethics can strengthen MSME sustainability through ethical leadership, moral orientation, organizational justice, and business actors' commitment (Indiharwati et al., 2026).

Based on these problems, this research is important to analyze how MIS drives business transformation among sharia business actors. This research does not only view MIS as a technological

tool. It views MIS as a managerial system that influences operational efficiency, decision-making quality, competitiveness, and compliance with sharia values (Surahman, Shee, Fitriani, Adi, & Yudaruddin, 2023). Therefore, the purpose of this study is to analyze the role of Management Information Systems in driving sharia business transformation, especially through the improvement of operational efficiency and decision-making quality. This study is expected to provide theoretical contribution to the development of information system studies in sharia economics, practical contribution for sharia MSME actors in optimizing information technology, and policy contribution for business support institutions in strengthening digital literacy based on sharia values.

2. METHODS

This study employs a quantitative approach with an explanatory research design (Nabella et al., 2022). This approach was selected because the study aims to explain the effect of Management Information Systems on business transformation among sharia-based business actors. Explanatory research is appropriate for examining relationships among variables, including direct and indirect relationships, through numerical data and statistical analysis (Hair & Alamer, 2022).

The object of this study is sharia-based micro, small, and medium enterprises that have used digital systems in their business activities. The digital systems referred to in this study include cashier applications, digital financial recording systems, inventory applications, marketplaces, QRIS, mobile banking, business social media, and digital customer management systems. This object was selected because Management Information Systems can be examined accurately only when respondents have direct experience in using information technology to manage business activities (Hung et al., 2023).

This study was conducted among sharia-based MSME actors in [insert research location]. The research population includes halal culinary businesses, Muslim fashion businesses, halal retail businesses, sharia-based service businesses, sharia cooperatives, and other types of businesses that apply Islamic values in their transactions. The respondents are business owners or managers who understand the use of information systems in daily business operations.

The sampling technique used in this study is purposive sampling. This technique was chosen because the study requires respondents who meet specific criteria related to the research objectives. Purposive sampling helps researchers select respondents who have relevant knowledge and direct experience with the phenomenon under investigation (Ahmad & Wilkins, 2025). The criteria for respondents are business actors who have operated their business for at least one year, used at least one digital system in business activities, understood the business management process, and applied sharia values such as honesty, trustworthiness, transparency, justice, and compliance with halal principles.

The planned sample size is 150 respondents. This number is considered adequate for quantitative research that examines relationships among variables. The sample size also supports the use of PLS-SEM because the research model includes an independent variable, mediating variables, a moderating variable, and a dependent variable (Sarstedt et al., 2022).

The research instrument used in this study is a closed-ended questionnaire with a five-point Likert scale. The response options consist of strongly disagree, disagree, neutral, agree, and strongly agree. The questionnaire is designed to measure respondents' perceptions of Management Information Systems, operational efficiency, decision-making quality, sharia values, and business transformation.

The Management Information Systems variable is measured through indicators of system quality, information quality, ease of use, and data integration. These indicators are used because a good information system should produce accurate, accessible, relevant, and integrated information that supports business processes (Kraus et al., 2022). The operational efficiency variable is measured through transaction speed, reduction of recording errors, inventory control, cost efficiency, and

service accuracy. Operational efficiency is important because digitalization can accelerate work processes and improve MSME performance (Surahman et al., 2023).

The decision-making quality variable is measured through data accuracy, speed of decision-making, relevance of reports, and the ability to identify sales trends. These indicators are used because digital transformation can improve accounting effectiveness, managerial decision quality, and firm performance (Hung et al., 2023). The sharia values variable is measured through honesty, trustworthiness, transparency, justice, halal compliance, and business responsibility. Sharia values are important because Islamic business is not only profit-oriented but also guided by ethics, justice, and public benefit (Indiharwati et al., 2026).

The business transformation variable is measured through business process innovation, improvement of digital services, market expansion, customer satisfaction, competitiveness, and sales growth. These indicators were selected because digital transformation changes business models, operational processes, customer relationships, and value creation systems (Verhoef et al., 2021). Therefore, business transformation in this study is not limited to the use of technology. It also refers to changes in how businesses manage data, serve customers, make decisions, and maintain sharia values.

Data are collected through online and offline questionnaires. The online questionnaire is distributed through Google Forms, WhatsApp, MSME communities, halal business forums, and sharia economic networks. The offline questionnaire is distributed directly to business actors who have limited access to digital platforms. This strategy is used to obtain broader data and to avoid relying only on respondents who are digitally active.

Before the main questionnaire is distributed, the research instrument is reviewed by experts in sharia economics and information systems. This review aims to ensure that each questionnaire item is aligned with the research objectives, easy for respondents to understand, and relevant to the context of sharia-based business. After that, a pilot test is conducted with 30 respondents who have similar characteristics to the main research sample. The pilot test is intended to assess item clarity, response consistency, and the initial reliability of the instrument. The collected data are analyzed using Partial Least Squares Structural Equation Modeling, or PLS-SEM. This technique was chosen because the research model contains several latent variables, mediation paths, and a moderating variable. PLS-SEM is suitable for research that focuses on prediction and the testing of complex models (Hair & Alamer, 2022).

Data analysis is carried out in two stages. The first stage is the assessment of the measurement model. At this stage, the researcher examines the validity and reliability of the instrument through outer loading, Cronbach's alpha, composite reliability, average variance extracted, and discriminant validity. The expected outer loading value is above 0.70. Cronbach's alpha and composite reliability are expected to exceed 0.70. The average variance extracted value is expected to exceed 0.50. Discriminant validity is tested using the Heterotrait-Monotrait Ratio because this measure is considered strong for confirming that each construct is empirically distinct from other constructs (Sarstedt et al., 2022).

The second stage is the assessment of the structural model. At this stage, the researcher tests the relationships among variables through path coefficient, t-statistic, p-value, R-square, f-square, and Q-square values. Hypothesis testing is conducted using the bootstrapping technique. A hypothesis is accepted when the path coefficient is positive and the p-value is less than 0.05.

This study also examines mediation and moderation effects. The mediation test is conducted to determine whether operational efficiency and decision-making quality mediate the relationship between Management Information Systems and business transformation. The moderation test is conducted to determine whether sharia values strengthen the effect of Management Information Systems on business transformation. This test is important because sharia business transformation is shaped not only by technology but also by trustworthiness, transparency, justice, and responsibility in business management (Alfian et al., 2025).

Through this method, the study is expected to provide empirical evidence on the role of Management Information Systems in promoting sharia business transformation. The findings are also expected to contribute to the development of sharia economic studies, especially in relation to MSME digitalization, business efficiency, decision-making quality, and Islamic business ethics.

3. FINDINGS AND DISCUSSION

MIS as a Tool for Business Transformation

The findings show that Management Information Systems, or MIS, play a central role in supporting business transformation among sharia-based business actors. MIS do not only assist transaction recording. They also reshape how business actors manage data, read market conditions, prepare reports, serve customers, and make business decisions. In sharia business practices, MIS function as a bridge between operational activities and strategic decisions. Business actors can monitor daily sales, cash flow, inventory, customer data, receivables, digital transactions, and financial reports in a more organized way. This condition shows that business transformation does not occur only because technology is used. It occurs when technology improves workflow, accelerates services, and strengthens managerial decisions. Digital transformation has been shown to reshape business processes, value creation, customer relationships, and organizational structures (Verhoef et al., 2021).

The findings also indicate that MIS help business actors reduce their dependence on manual record keeping. Before using digital systems, many business actors faced difficulties in preparing reports, tracking inventory, calculating profit, and separating personal funds from business funds. After MIS were implemented, business data became easier to read and could be used as a basis for evaluation. This finding shows that MIS support business transformation from intuition-based work patterns to data-driven work patterns. Kraus et al. explain that digital transformation in business and management is related to changes in processes, organizational capabilities, business models, and strategies supported by information technology (Kraus et al., 2022).

MIS also encourage changes in decision-making. Business owners no longer rely only on estimation. They can use sales data, best-selling products, peak transaction hours, active customers, and demand trends. These data help business actors determine inventory levels, promotional strategies, selling prices, and service priorities. Hung et al. found that digital transformation can improve the effectiveness of cloud-based accounting, the quality of decision-making, and firm performance (Hung et al., 2023).

In terms of operational efficiency, MIS have a clear impact on transaction speed and recording accuracy. Digital cashier systems, inventory applications, QRIS payment systems, marketplace dashboards, and digital financial reports make business processes faster and more organized. Business actors can reduce input errors, prevent data loss, and improve customer service speed. Cosa and Torelli state that digital transformation makes performance measurement systems more dynamic, adaptive, and capable of supporting organizational responses to changes in the business environment (Cosa & Torelli, 2024).

In the context of sharia-based MSMEs, MIS also function as a tool for strengthening transparency. Each transaction can be recorded more clearly. As a result, business actors can maintain honesty in pricing, product quality, financial reporting, and customer relationships. This aspect is important because sharia business does not only pursue profit. It also requires trustworthiness, justice, honesty, and responsibility. Indiharwati et al. emphasize that Islamic business ethics support MSME sustainability through ethical leadership, moral orientation, organizational justice, and business commitment (Indiharwati et al., 2026).

The findings further show that MIS can strengthen the competitiveness of sharia-based businesses. Business actors who can read business data more quickly tend to be better prepared to adjust products, manage promotions, improve services, and maintain customer relationships. Therefore, MIS do not only function as administrative support systems. They also serve as strategic

tools for building competitive advantage. Sagala and Óri found that the success of digital transformation in MSMEs is influenced by technological readiness, organizational learning, leadership, digital marketing, collaboration, and a digitalization model that fits business needs (Sagala & Óri, 2024).

This discussion shows that MIS are at the core of business transformation because they convert data into information, information into decisions, and decisions into business actions. Transformation does not stop at the use of digital applications. It must appear in changes in mindset, work patterns, and customer service practices. If business actors use digital systems only to record transactions, transformation has not yet reached an optimal level. Transformation occurs when MIS are used to improve efficiency, enhance decision quality, strengthen transparency, and create more sustainable business value.

From the perspective of sharia economics, MIS should be directed toward supporting halal values, trustworthiness, transparency, justice, and public benefit. A good information system should help business actors record transactions honestly, prepare accurate reports, protect customer data, and avoid business practices that harm consumers. Alfian et al. explain that strengthening Islamic financial technology requires digital literacy, trust, regulation, and justice in order to expand financial inclusion in an ethical way (Alfian et al., 2025).

Thus, MIS can be understood as a tool for sharia business transformation with three main functions. First, MIS serve as a tool for efficiency because they accelerate transactions and reduce operational errors. Second, MIS serve as a decision-making tool because they provide relevant and usable data. Third, MIS serve as a tool for business ethics because they help business actors maintain transparency, trustworthiness, and responsibility. These findings strengthen the argument that sharia business transformation should not rely only on technology. It must also be based on values, data, and good business governance.

Based on the research findings, MIS have proven to be an important instrument in sharia business transformation. MIS help business actors improve record-keeping, accelerate services, increase information accuracy, and strengthen decision-making. These findings show that business transformation is not determined only by ownership of technology. It is also determined by the ability of business actors to use information as a basis for strategy. In the context of sharia economics, MIS also help maintain transparency, trustworthiness, and justice in transactions. Therefore, MIS should be developed as managerial systems that integrate business efficiency with sharia values.

Efficiency as a Direct Impact

Efficiency is a direct impact of implementing Management Information Systems because these systems integrate data, processes, monitoring, and reporting into a faster and more measurable workflow. In the context of sharia business, efficiency does not only refer to cost reduction. It also includes better service accuracy, fewer transaction errors, faster decision-making, and stronger compliance with sharia principles. This finding is consistent with research showing that digital transformation improves firm operational efficiency through better allocation of capital and labor (Abdul Rahman, Rahiman, Meero, & Amin, 2023).

The implementation of MIS transforms manual administrative activities into more automated processes. Transaction recording, inventory management, financial reporting, financing monitoring, and customer service can be carried out more quickly. As a result, organizations can reduce repetitive work, lower operational costs, and complete tasks more efficiently. Wang, Sui, and Zhang found that fintech can reduce bank operational costs, improve service efficiency, and strengthen risk control capacity (Wang, Sui, & Zhang, 2021).

Efficiency also emerges because MIS improve the quality of managerial information. Real-time information helps managers understand business conditions more quickly. Decisions no longer depend only on subjective estimates. They can be based on transaction data, customer data, financing data, cost data, and business unit performance data. Cosa and Torelli explain that digital

transformation makes performance measurement systems more flexible, adaptive, and relevant for managerial decision-making (Cosa & Torelli, 2024).

In sharia business, efficiency must operate together with trustworthiness, justice, transparency, and sharia compliance. MIS help sharia business actors ensure that transactions are recorded clearly, contracts are documented properly, margins can be traced, and audit processes can be conducted more easily. In this sense, efficiency does not weaken ethical values. It strengthens sharia governance. Shehadeh, Atta, Barrak, Lutfi, and Alrawad found that digital transformation has a significant effect on operational efficiency, customer experience, competitive advantage, organizational performance, and risk management in Islamic banks in Jordan (Shehadeh, Atta, Barrak, Lutfi, & Alrawad, 2024).

The findings of this study show that efficiency appears in four main forms. First, time efficiency occurs because service, recording, and reporting processes become shorter. Second, cost efficiency occurs because the use of paper, administrative labor, and manual procedures can be reduced. Third, labor efficiency occurs because employees can focus more on analysis, service, and business development. Fourth, monitoring efficiency occurs because data can be reviewed regularly and more accurately. Bindeeba, Tukamushaba, and Bakashaba show that digital business process integration improves operational efficiency by accelerating workflows, optimizing resource use, and reducing work errors (Bindeeba, Tukamushaba, & Bakashaba, 2025).

Efficiency as a direct impact also strengthens competitiveness. When transaction costs decrease and services become faster, sharia business actors can offer more responsive products without neglecting halal principles and contract compliance. In the Islamic financial sector, fintech and digital banking create opportunities for cheaper, faster, and more inclusive services. Mohamed and Otake found that Islamic FinTech has a positive effect on digital financial inclusion and sustainable development by expanding access to financial services (Mohamed & Otake, 2025).

However, efficiency should not be understood as an automatic result of technology. MIS can generate efficiency only when an organization has prepared human resources, clear standard operating procedures, data protection, and digital risk governance. Without this readiness, digitalization may create new costs, increase security risks, and produce dependence on systems. Shehadeh, Atta, Barrak, Lutfi, and Alrawad also emphasize that digital transformation may increase the risk of cyberattacks, fraud, and privacy problems. Therefore, efficiency must be balanced with strong risk management (Shehadeh et al., 2024).

From the perspective of the Resource-Based View, MIS become a strategic resource because they can transform data into organizational capability. These systems create value when organizations use them to accelerate decisions, improve services, and reduce waste. From the perspective of Dynamic Capabilities, MIS strengthen the organization's ability to adjust business processes to market changes. Rubio-Andrés, Linuesa-Langreo, Gutiérrez-Broncano, and Sastre-Castillo found that digital transformation strategy has a positive impact on economic effectiveness, human resources, and organizational internationalization (Rubio-Andrés, Linuesa-Langreo, Gutiérrez-Broncano, & Sastre-Castillo, 2025).

Thus, efficiency as a direct impact can be understood as an early result of MIS-based transformation. This efficiency becomes the foundation for further impacts, such as improved financial performance, customer satisfaction, competitive advantage, and business sustainability. Through a meta-analysis, Bindeeba, Atuhaire, and Bakashaba found that digital transformation has a positive relationship with sustainable business performance, especially in economic performance, productivity, and reduced environmental impact (Bindeeba, Atuhaire, & Bakashaba, 2025).

In practical terms, sharia business actors need to measure efficiency through clear indicators. These indicators include transaction completion time, operational costs, cost-to-income ratio, number of recording errors, speed of report preparation, employee productivity, customer satisfaction, and compliance with contract documentation. Grijalba, Hernández, Perez-Encinas, and colleagues show that the use of digital tools is associated with improved firm performance, especially in sales and business adaptation after the pandemic (Grijalba, Hernández, & Perez-Encinas, 2025).

Based on this discussion, efficiency is not merely a technical result of using applications. Efficiency reflects a change in organizational work patterns. MIS make business processes more concise, data more accessible, costs more controlled, and monitoring stronger (Hanelt, Bohnsack, Marz, & Antunes Marante, 2021). At this point, efficiency becomes early evidence that digital transformation in sharia business provides real benefits for organizational performance, as long as it remains guided by sharia principles, good governance, and digital risk protection.

The research finding can be formulated as follows. The implementation of Management Information Systems has a direct impact on the operational efficiency of sharia business through process automation, data integration, faster reporting, reduction of work errors, and stronger transaction monitoring. This efficiency serves as an initial bridge toward improved business performance because organizations can manage resources in a more economical, faster, more accurate, and sharia-compliant manner.

Decision Quality as a Strategic Impact

Decision quality is a strategic impact of implementing Management Information Systems because MIS transform operational data into relevant, accurate, timely, and usable information for determining business direction. In the context of sharia business, decision quality is not assessed only through economic rationality. It is also assessed through the extent to which decisions align with justice, trustworthiness, transparency, and sharia compliance. A well-designed information system helps managers reduce decisions based only on intuition and replace them with decisions based on data, analysis, and sharia values (Adnan, 2024).

The findings of this study show that MIS serve as a key foundation for improving the quality of strategic decisions. Decisions become more accurate because management can access financial data, customer data, financing data, inventory data, risk data, and compliance data in a more integrated way. Integrated data help leaders understand business conditions more comprehensively. As a result, decisions become not only reactive but also predictive and strategic (Fattah, 2024).

Decision quality can be seen in management's ability to choose the most appropriate alternative in line with organizational goals. In sharia business, high-quality decisions must balance efficiency, profitability, sustainability, and contract compliance. MIS provide important support because they offer historical information, real-time reports, and performance indicators that help managers evaluate business alternatives more objectively (Lutfi, Al-Okaily, Alsyouf, & Alrawad, 2022).

Improved decision quality is also reflected in management's ability to respond accurately to market changes. When customer data, purchasing trends, service preferences, and operational risks are available quickly, organizations can design marketing strategies, financing strategies, service strategies, and cost-control strategies more effectively. Fattah found that data governance, big data literacy, analytical capability, and analytical competence play an important role in improving organizational decision-making performance (Fattah, 2024).

From the perspective of the Information System Success Model, system quality, information quality, and service quality are important factors that determine the net benefits of an information system. This means that MIS can improve decision quality only when the processed data are accurate, relevant, consistent, accessible, and aligned with user needs. Adnan found that data quality has a significant effect on MIS success, with a strong influence on system use, user satisfaction, and organizational benefits (Adnan, 2024).

Decision quality as a strategic impact is also related to the organization's ability to build a data-driven culture. Organizations with a data-driven culture tend to make more consistent decisions because managers rely on evidence rather than old habits. Karaboga, Zehir, Tatoglu, Karaboga, and Bouguerra found that big data analytics management capability and data-driven culture have a positive effect on firms' operational and financial performance (Karaboga, Zehir, Tatoglu, Karaboga, & Bouguerra, 2023).

In sharia business institutions, MIS also improve decision quality by strengthening risk governance. Financing decisions, investment decisions, cash management, and margin determination must be supported by clear data to avoid gharar, injustice, and contract errors. A study of Islamic banks in Jordan shows that digital transformation has a significant effect on operational efficiency, customer experience, competitive advantage, organizational performance, and risk management (Shehadeh, Atta, Barrak, Lutfi, & Alrawad, 2024).

Decision quality also improves because MIS accelerate managerial evaluation. Reports that were previously prepared manually can be generated more quickly through digital systems. This speed allows leaders to make decisions at the right time, especially when the organization faces changes in demand, cost fluctuations, delayed payments, or service risks. Business intelligence has been shown to help organizations increase data visibility, optimize processes, improve financial performance, and produce more accurate decisions (Maldonado, Diaz, & Gonzales, 2025).

Strategically, decision quality affects the competitiveness of sharia business. Accurate decisions enable organizations to select products that better match market needs, set fair pricing strategies, strengthen customer service, and reduce the risk of loss. Research on business intelligence shows that BI plays an important role in supporting data analysis, strategic decision-making, operational efficiency, and organizational competitive advantage (Moussas, Hafiane, & Achaba, 2024).

In the context of sharia economics, decision quality must also be connected to the objectives of maqashid sharia. A good business decision is not limited to profit generation. It must also protect transaction justice, wealth preservation, customer welfare, and business sustainability. Digitalization in Islamic finance can expand digital financial inclusion and support sustainable development when the system is directed toward access, trust, and ethical values (Mohamed & Otake, 2025).

These findings show that MIS have a wider strategic impact than efficiency alone. MIS help organizations develop analytical capability, strengthen transparency, accelerate responses, and improve decision accuracy. Therefore, MIS become an important instrument in sharia business transformation because they connect data, sharia values, and organizational strategy within a more rational and responsible decision system (Wang & Zhu, 2025).

However, decision quality does not automatically improve simply because an organization uses technology. It depends strongly on data quality, user competence, system governance, information security, and leadership commitment. If data are inaccurate, incomplete, or outdated, MIS may produce poor decisions. Almgrashi, Al-Hattami, and colleagues emphasize that digital accounting systems can support managerial decisions when they provide precise, reliable, and relevant information for users (Almgrashi & Al-Hattami, 2025).

Based on this discussion, decision quality as a strategic impact can be understood as the organization's ability to produce decisions that are accurate, timely, measurable, transparent, and aligned with sharia principles. MIS serve as a strategic foundation because they provide data that can be used to identify problems, compare alternatives, control risks, and determine business direction. In the end, decision quality becomes a bridge between operational efficiency and the competitive advantage of sharia business.

The findings indicate that Management Information Systems have a strategic impact on the quality of sharia business decisions by providing accurate, relevant, timely, and integrated data. MIS help leaders make evidence-based decisions, strengthen risk control, respond more quickly to market changes, and maintain compliance with sharia principles. This strategic impact is reflected in better decision accuracy, faster analysis, stronger managerial transparency, and the organization's ability to balance profitability with sharia values.

Sharia Values as a Distinctive Foundation of MIS-Based Business Transformation

The findings of this study indicate that sharia values are the main factor that differentiates Islamic business from conventional business in the use of Management Information Systems. Islamic business does not use digital systems only to improve efficiency, speed, and profitability. It also uses

them to uphold justice, honesty, trust, transparency, public welfare, and the protection of wealth. In the framework of maqashid sharia, business activities must protect religion, life, intellect, lineage, and wealth. Therefore, every business decision must align with moral responsibility, social benefit, and sharia compliance (Sulaeman et al., 2025).

This finding supports the view that Islamic business ethics covers the halal industry, corporate social responsibility, sustainable development, marketing, and commercial institutions. These ethical principles help balance economic growth with justice and moral accountability (Sulaeman et al., 2025). In this context, sharia values do not function only as normative ideals. They become practical principles that shape how data, transactions, pricing, reports, and customer services are managed through information systems.

The first important aspect is transparency. In Islamic business, all parties must clearly understand the transaction object, price, cost, margin, contract, risk, rights, and obligations. This transparency helps reduce gharar, which refers to uncertainty or ambiguity that may harm one of the parties. In MIS practice, transparency can be strengthened through transaction records, reporting dashboards, audit trails, and access to verifiable information. Chong explains that blockchain in Islamic finance can increase trust, transparency, and accountability among parties involved in sharia-based products and services (Chong, 2021). This shows that digital technology can support sharia principles when the system is designed to make business processes more open and accountable.

The second aspect is data honesty. Islamic business requires accurate and reliable data because managerial decisions must not rely on false or manipulated information. Sales data, cost data, inventory records, product quality information, profit margins, and financial reports must reflect actual business conditions. Honest data also prevents tadlis, which refers to concealing defects, falsifying information, or presenting misleading claims. In digital transformation, accurate data strengthens trust between businesses, customers, and partners. Supriyono et al. found that sharia compliance and trust play an important role in the adoption of Islamic digital banking by micro, small, and medium enterprises. This means that Islamic digital services must show sharia principles clearly in their system design and service delivery (Supriyono et al., 2024).

The third aspect is fair pricing. Islamic business does not allow exploitation, price manipulation, harmful monopoly, or excessive profit-taking. Prices must reflect product quality, lawful costs, reasonable risks, and voluntary agreement between parties. MIS can support fair pricing through cost recording systems, margin calculation tools, price history records, and market price comparison reports. Smolo argues that Islamic finance emphasizes social justice, fair wealth distribution, and moral economic participation, not merely profit maximization (Smolo, 2026). This confirms that pricing decisions in Islamic business must combine economic rationality with ethical responsibility.

The fourth aspect is transaction security. In digital Islamic business, transaction security is essential because the protection of wealth is part of maqashid sharia. Islamic businesses must protect customer data, payment accounts, contract evidence, digital signatures, transaction histories, and system access from misuse. Security is not only a technical requirement. It is also part of amanah, or trust. Al-Qudah et al. found that perceived security has a positive and significant effect on digital payment adoption. Therefore, digital service providers need to improve security systems, educate users, and develop interfaces that are easy to use (Al-Qudah et al., 2024).

The discussion of these findings shows that sharia values function as a control mechanism in digital business transformation. Sharia values prevent efficiency from becoming cost-cutting practices that harm customers. They also prevent digitalization from becoming a tool for data manipulation, algorithm misuse, unfair pricing, or weak accountability. Shehadeh et al. found that digital transformation in Jordanian Islamic banks affects operational efficiency, customer experience, competitive advantage, organizational performance, and risk management (Shehadeh et al., 2024). However, in Islamic business, these benefits must remain connected to ethical goals and sharia governance.

Sharia values also strengthen business legitimacy. Customers choose Islamic businesses not only because of religious identity. They expect transactions that are honest, secure, fair, and trustworthy. When an information system can display contracts, prices, margins, transaction evidence, and service status openly, customers can assess whether the business follows sharia principles. Jan, Lai, and Tahir state that Islamic Corporate Governance is important for building sustainable performance in Islamic banks and financial institutions because sharia governance strengthens accountability and the social orientation of organizations (Jan et al., 2021).

The implication of this study is that MIS in Islamic business must be designed as both a managerial tool and an ethical control system. It must support operational efficiency, strategic decision-making, and business growth. At the same time, it must protect transparency, data honesty, fair pricing, transaction security, and contract compliance. These elements help reduce the risks of gharar and tadbis, increase customer trust, and strengthen the legitimacy of Islamic business.

Therefore, sharia values are not only symbolic markers of Islamic business. They are substantive principles that guide governance, technology use, service quality, and customer protection. When MIS is aligned with sharia values, Islamic business can build a digital transformation model that is efficient, ethical, transparent, and socially responsible. Smolo emphasizes that fintech in Islamic finance can support a more transparent, resilient, and maqashid-oriented economic system when its design, governance, and regulation are properly implemented (Smolo, 2026).

Contribution to Sharia Economics

This section is presented in the form of Results and Discussion to align with the writing pattern of JSE: Journal of Sharia Economics. This pattern emphasizes research findings, academic discussion, scientific contribution, and relevance to the field of sharia economics. The JSE guidelines state that an article must offer novelty to the literature on sharia economics, show academic depth, and fit the journal's scholarly focus (Journal of Sharia Economics, 2026).

The findings of this study show that the implementation of Management Information Systems in Islamic business contributes directly to the strengthening of sharia economics. This contribution appears in the improvement of efficiency, decision quality, business transparency, customer trust, and compliance with sharia principles. This finding is important because sharia economics does not assess business success only from profit. It also considers justice, public welfare, sustainability, and the protection of community wealth (Harahap, Risfandy, & Putri, 2023).

The first contribution lies in strengthening Islamic business governance. Management Information Systems help business actors manage transactions, costs, inventory, payments, financial reports, and customer data in a more organized way. This system makes business activities more accountable because each transaction can be recorded, traced, and evaluated. In sharia economics, this type of governance is essential because businesses must avoid gharar, tadbis, unclear contracts, and information manipulation (Harahap, Risfandy, & Putri, 2023).

The second contribution appears in the improvement of market trust toward Islamic business. Trust is a key asset in sharia economics because business relations must be built on amanah, honesty, and contract certainty. A well-managed information system helps customers understand prices, margins, transaction status, payment evidence, and after-sales services. This condition strengthens Islamic business as a transparent and trustworthy business model. Mohamed and Otake found that Islamic FinTech can provide financial products that are more ethical, transparent, affordable, and inclusive for wider society (Mohamed & Otake, 2025).

The third contribution relates to the expansion of Islamic financial inclusion. Digital services, transaction records, and information systems help Islamic businesses connect more easily with Islamic financial institutions, Islamic fintech, Islamic cooperatives, and customers who were previously difficult to reach. Islamic FinTech has a positive role in digital financial inclusion and sustainable development. This shows that technology can expand public access to financial services that comply with sharia principles (Mohamed & Otake, 2025).

The fourth contribution can be seen in its support for economic growth. Islamic business systems that are more efficient, transparent, and data-based can increase business productivity. This productivity supports the circulation of goods, services, financing, and halal investment. Ameziane found that Islamic financial inclusion contributes positively to economic growth in countries of the Organisation of Islamic Cooperation through the expansion of Islamic banking networks and the strengthening of financial technology infrastructure (Ameziane, 2024).

The fifth contribution lies in strengthening Islamic micro, small, and medium enterprises. MSMEs often face problems related to financial recording, access to financing, limited reporting, and low digital literacy. Management Information Systems help MSMEs prepare business reports, separate personal and business finances, record cash flow, and provide the data needed for Islamic financing. Islamic FinTech also supports MSME growth by offering sharia-compliant financing alternatives that are easier to access (Mohamed & Otake, 2025).

The sixth contribution relates to the strengthening of maqashid sharia in economic activity. Sharia economics aims to protect religion, life, intellect, lineage, and wealth. Information systems can help businesses protect wealth through transaction security, protect intellect through honest information, and maintain justice through clear prices and contracts. Harahap, Risfandy, and Putri found that Islamic law, Islamic finance, and the Sustainable Development Goals intersect in the protection of human life and the achievement of sustainable development (Harahap, Risfandy, & Putri, 2023).

The seventh contribution appears in the relationship between Islamic business and sustainable development. Sharia economics does not only discuss buying and selling activities. It also guides business to create social and environmental benefits. Islamic finance has the potential to support the Sustainable Development Goals because its instruments and principles relate to justice, welfare, and the fair distribution of benefits (Harahap, Risfandy, & Putri, 2023).

The eighth contribution concerns the strengthening of Islamic social finance. Sharia economics cannot rely only on the commercial sector. It also needs zakat, infaq, sadaqah, waqf, and qard hasan as instruments for distributing welfare. Dirie, Alam, and Maamor found that Islamic social finance can help achieve 11 of the 17 Sustainable Development Goals through the principles of fairness, justice, equity, and social sustainability (Dirie, Alam, & Maamor, 2024).

The ninth contribution can be seen in the integration of Islamic commercial finance and Islamic social finance. A healthy Islamic business sector can drive productive economic activity, while Islamic social finance can strengthen protection for poor and vulnerable communities. Maulina, Dhewanto, and Faturohman explain that the integration of Islamic social finance and Islamic commercial finance is effective in addressing the socioeconomic problems of Muslim communities, especially through waqf asset development and entrepreneurship (Maulina, Dhewanto, & Faturohman, 2023).

The tenth contribution lies in strengthening the halal ecosystem. Information systems help businesses maintain supply chains, product status, supplier records, halal certification, service quality, and transaction certainty. This is important because sharia economics does not only operate in the banking sector. It also covers halal food, Muslim fashion, halal tourism, education, Islamic philanthropy, and digital trade. With the support of MIS, business actors can build a halal ecosystem that is more measurable, secure, and trustworthy (Mohamed & Otake, 2025).

Theoretically, this study contributes to the literature on sharia economics by linking Management Information Systems with sharia values, decision quality, efficiency, and business sustainability. This relationship expands the study of sharia economics from normative discussion to managerial and empirical analysis. Therefore, sharia economics should not only be understood as a value system. It should also be viewed as a business governance system that requires data, technology, measurement, and continuous evaluation.

Practically, this study contributes to Islamic business actors. Business owners can use MIS to improve recordkeeping, prepare reports, reduce transaction errors, maintain customer trust, and prepare financing data. For Islamic financial institutions, well-organized business data can support

business feasibility assessment and risk control. For regulators, the digitalization of Islamic business data can support supervision, literacy programs, and more accurate sharia economic policy.

Socially, this study shows that Islamic business can become an instrument of economic empowerment. Transparent, efficient, and value-based Islamic business can expand economic access, support MSMEs, create job opportunities, and strengthen the distribution of benefits. This direction is in line with the finding of Dirie, Alam, and Maamor that Islamic social finance has the potential to reduce social problems and strengthen welfare through zakat, waqf, sadaqah, and qard hasan (Dirie, Alam, & Maamor, 2024).

Based on this discussion, the contribution to sharia economics can be understood as the broad impact of Management Information Systems implementation in Islamic business. MIS does not only improve internal efficiency. It also strengthens governance, market trust, financial inclusion, MSME growth, Islamic social finance integration, and the achievement of maqashid sharia. Therefore, Islamic business supported by information systems can become an important part of economic development that is just, transparent, inclusive, and sustainable.

The findings of this study show that Management Information Systems contribute to sharia economics through five main aspects. First, MIS improves the efficiency and accountability of Islamic business. Second, MIS strengthens decision quality and data-based governance. Third, MIS increases customer trust through transaction transparency. Fourth, MIS supports Islamic financial inclusion and MSME development. Fifth, MIS expands the role of sharia economics in sustainable development through the integration of business values, maqashid sharia, and Islamic social finance.

These findings imply that Islamic business actors need to place Management Information Systems as part of their business development strategy. The system must be designed to support transaction recording, contract supervision, data security, price transparency, financial reporting, and decision making. The use of MIS must also be supported by digital literacy, Islamic financial literacy, clear standard operating procedures, and strong sharia supervision.

For academics, these findings open a new research space on the relationship between management technology, sharia governance, and economic development. Studies in sharia economics need to move further from normative discussion toward empirical research that measures the impact of technology on performance, inclusion, compliance, and sustainability.

4. CONCLUSION

Based on the discussion, the implementation of Management Information Systems in Islamic business plays an important role in strengthening efficiency, decision quality, sharia values, and contribution to sharia economics. This system does not only function as an administrative tool. It also serves as a strategic instrument for managing data, accelerating work processes, improving information accuracy, and strengthening business governance in line with sharia principles. Efficiency is one of the direct impacts of using Management Information Systems. Recording, reporting, transaction monitoring, inventory management, customer service, and financial reporting can be carried out more quickly and systematically. This efficiency helps Islamic business actors reduce operational costs, minimize work errors, save time, and increase productivity. Therefore, efficiency is not merely a technical result of digitalization. It is also part of the effort to build Islamic business that is more professional and sustainable.

Decision quality is a strategic impact of Management Information Systems implementation. Accurate, fast, and integrated data helps leaders make decisions that are more rational, objective, and relevant to business needs. In Islamic business, good decisions do not only pursue profit. They also consider justice, contract compliance, public benefit, and customer protection. For this reason, Management Information Systems become an important foundation for decision-making based on both data and sharia values. Sharia values are the main distinguishing feature of Islamic business. Islamic business must maintain transparency, data honesty, fair pricing, and transaction security. These four aspects build customer trust and strengthen business legitimacy. Transparency prevents

ambiguity in contracts. Data honesty prevents information manipulation. Fair pricing protects customers from exploitation. Transaction security preserves trust and protects wealth. Thus, sharia values must be present in all business processes, not only in the label or identity of the business.

The contribution to sharia economics can be seen in the ability of Management Information Systems to strengthen governance, increase market trust, support Islamic financial inclusion, empower MSMEs, and promote fair and sustainable economic development. Islamic business based on information systems can become an important part of the sharia economic ecosystem because it connects business efficiency with maqashid sharia values. This shows that technology and Islamic values can work together to build an economy that is productive, transparent, secure, and oriented toward public welfare. Theoretically, this study confirms that Management Information Systems can expand the study of sharia economics from a normative approach to a managerial and empirical approach. Practically, the findings provide direction for Islamic business actors to make digitalization part of their business strengthening strategy. Information systems need to be designed to support operational efficiency, decision quality, transaction transparency, report honesty, fair pricing, data security, and sharia compliance.

Therefore, it can be concluded that Management Information Systems make an important contribution to the strengthening of Islamic business and sharia economics. This contribution lies in their ability to create efficient business processes, high-quality decisions, transparent governance, secure transactions, and business practices that align with sharia principles. This study recommends that Islamic business actors improve digital literacy, strengthen standard operating procedures, protect data security, and ensure that all digital processes remain within the framework of maqashid sharia.

REFERENCES

- Abdul Rahman, A. A., Rahiman, H. U., Meero, A., & Amin, A. R. (2023). Fintech innovations and Islamic banking performance: Post-pandemic challenges and opportunities. *Banks and Bank Systems*, 18(4), 281–293. [https://doi.org/10.21511/bbs.18\(4\).2023.23](https://doi.org/10.21511/bbs.18(4).2023.23)
- Adnan, A. A. (2024). Data quality as a strategic lever for MIS success: Empirical evidence from Indonesia's digital transformation. *Data: Journal of Information Systems and Management*, 2(1), 38–50. <https://doi.org/10.61978/data.v2i1.911>
- Ahmad, M., & Wilkins, S. (2025). Purposive sampling in qualitative research: A framework for the entire journey. *Quality & Quantity*, 59, 1461–1479. <https://doi.org/10.1007/s11135-024-02022-5>
- Alfian, I., Abd Majid, M. S., & Sugianto. (2025). The role of Sharia fintech in enhancing financial inclusion in the digital era. *Journal of Finance and Islamic Banking*, 8(1), 79–94. <https://doi.org/10.22515/jfib.v8i1.11798>
- Almgrashi, A., & Al-Hattami, H. M. (2025). The influence of the digital accounting system on the quality of sustainable decision-making. *Journal of Risk and Financial Management*, 18(11), 602. <https://doi.org/10.3390/jrfm18110602>
- Bindeeba, D. S., Atuhaire, S., & Bakashaba, R. (2025). Digital business process integration and sustainability among SMEs: The mediating role of operational efficiency and the moderating role of credit access. *Journal of Sustainable Business*, 10, 11. <https://doi.org/10.1186/s40991-025-00121-6>
- Bindeeba, D. S., Tukamushaba, E. K., & Bakashaba, R. (2025). Digital transformation and its multidimensional impact on sustainable business performance: Evidence from a meta-analytic review. *Future Business Journal*, 11, 90. <https://doi.org/10.1186/s43093-025-00511-z>
- Cosa, M., & Torelli, R. (2024). Digital transformation and flexible performance management: A systematic literature review of the evolution of performance measurement systems. *Global Journal of Flexible Systems Management*, 25, 445–466. <https://doi.org/10.1007/s40171-024-00409-9>
- Fattah, I. A. (2024). Decision making performance of business analytics capabilities: The role of big data literacy and analytics competency. *Business Process Management Journal*, 30(6), 2096–2126.

- <https://doi.org/10.1108/BPMJ-11-2023-0894>
- Grijalba, M. A., Hernández, Y. B., & Perez-Encinas, A. (2025). Does the use of digital tools improve a firm's performance? *Review of Managerial Science*, 19, 2193–2210. <https://doi.org/10.1007/s11846-024-00750-4>
- Hair, J., & Alamer, A. (2022). Partial Least Squares Structural Equation Modeling (PLS-SEM) in second language and education research: Guidelines using an applied example. *Research Methods in Applied Linguistics*, 1(3), 100027.
- Hanelt, A., Bohnsack, R., Marz, D., & Antunes Marante, C. (2021). A systematic review of the literature on digital transformation: Insights and implications for strategy and organizational change. *Journal of Management Studies*, 58(5), 1159–1197. <https://doi.org/10.1111/joms.12639>
- Hung, B. Q., Hoa, T. A., Hoai, T. T., & Nguyen, N. P. (2023). Advancement of cloud-based accounting effectiveness, decision-making quality, and firm performance through digital transformation and digital leadership: Empirical evidence from Vietnam. *Heliyon*, 9(6), e16929. <https://doi.org/10.1016/j.heliyon.2023.e16929>
- Indiharwati, A., Herianingrum, S., Hapsari, M. I., Rusgianto, S., Arifin, S., Napitupulu, R. M., ... Muzakki, L. A. (2026). Leveraging Islamic business ethics for sustainable SMEs prosperity. *International Journal of Ethics and Systems*, 1–33. <https://doi.org/10.1108/IJOES-01-2026-0050>
- Karaboga, T., Zehir, C., Tatoglu, E., Karaboga, H. A., & Bouguerra, A. (2023). Big data analytics management capability and firm performance: The mediating role of data-driven culture. *Review of Managerial Science*, 17(8), 2655–2684. <https://doi.org/10.1007/s11846-022-00596-8>
- Kraus, S., Durst, S., Ferreira, J. J., Veiga, P., Kailer, N., & Weinmann, A. (2022). Digital transformation in business and management research: An overview of the current status quo. *International Journal of Information Management*, 63, 102466. <https://doi.org/10.1016/j.ijinfomgt.2021.102466>
- Kraus, S., Jones, P., Kailer, N., Weinmann, A., Chaparro-Banegas, N., & Roig-Tierno, N. (2021). Digital transformation: An overview of the current state of the art of research. *SAGE Open*, 11(3), 1–15. <https://doi.org/10.1177/21582440211047576>
- Lutfi, A., Al-Okaily, M., Alsyouf, A., & Alrawad, M. (2022). Evaluating the D&M IS success model in the context of accounting information system and sustainable decision making. *Sustainability*, 14(13), 8120. <https://doi.org/10.3390/su14138120>
- Maldonado, D. E., Diaz, M. C., & Gonzales, L. V. (2025). Business intelligence for improving decision making and organizational performance: A systematic literature review 2019-2024. *Proceedings of the LACCEI International Multi-Conference for Engineering, Education and Technology*. <https://doi.org/10.18687/LACCEI2025.1.1.881>
- MayaPutra, M. U., & Yusrizal. (2025). Islamic marketing within the digital economy: Ethical and sustainable practices in Indonesia's cellular services sector. *EKONOMIKA SYARIAH: Journal of Economic Studies*, 9(2). <https://doi.org/10.30983/es.v9i2.10101>
- Mohamed, H. A., & Otake, T. (2025). The role of Islamic FinTech in digital financial inclusion and sustainable development post COVID-19: Cross-country analysis. *International Journal of Islamic and Middle Eastern Finance and Management*, 18(3), 649–671. <https://doi.org/10.1108/IMEFM-02-2024-0100>
- Moussas, K., Hafiane, J., & Achaba, A. (2024). Business intelligence and its pivotal role in organizational performance: An exhaustive literature review. *Journal of Autonomous Intelligence*, 7(4). <https://doi.org/10.32629/jai.v7i4.1286>
- Nabella, S. D., Rivaldo, Y., Kurniawan, R., Nurmayunita, Sari, D. P., Luran, M. F., ... Wulandari, K. (2022). The Influence of Leadership and Organizational Culture Mediated by Organizational Climate on Governance at Senior High School in Batam City. *Journal of Educational and Social Research*, 12(5), 119–130. <https://doi.org/10.36941/jesr-2022-0127>
- Rubio-Andrés, M., Linuesa-Langreo, J., Gutiérrez-Broncano, S., & Sastre-Castillo, M. Á. (2025). Tackling digital transformation strategy: How it affects firm innovation and organizational effectiveness. *The Journal of Technology Transfer*, 50, 1893–1918. <https://doi.org/10.1007/s10961->

024-10164-9

- Sagala, G. H., & Óri, D. (2024). Toward SMEs digital transformation success: A systematic literature review. *Information Systems and E-Business Management*, 22, 667–719. <https://doi.org/10.1007/s10257-024-00682-2>
- Sarstedt, M., Hair, J. F., Pick, M., Liengaard, B. D., Radomir, L., & Ringle, C. M. (2022). Progress in partial least squares structural equation modeling use in marketing research in the last decade. *Psychology & Marketing*, 39(5), 1035–1064. <https://doi.org/10.1002/mar.21640>
- Shehadeh, M., Atta, A., Barrak, T., Lutfi, A., & Alrawad, M. (2024). Digital transformation: An empirical analysis of operational efficiency, customer experience, and competitive advantage in Jordanian Islamic banks. *Uncertain Supply Chain Management*, 12(2), 695–708. <https://doi.org/10.5267/j.uscm.2024.1.015>
- Surahman, S., Shee, H., Fitriani, Z., Adi, A. S., & Yударuddin, R. (2023). The effect of digital transformation and innovation on SMEs' performance in times of COVID-19. *Problems and Perspectives in Management*, 21(4), 84–100. [https://doi.org/10.21511/ppm.21\(4\).2023.07](https://doi.org/10.21511/ppm.21(4).2023.07)
- Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M. (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, 122, 889–901. <https://doi.org/10.1016/j.jbusres.2019.09.022>
- Wang, Y., Sui, X., & Zhang, Q. (2021). Can fintech improve the efficiency of commercial banks? An analysis based on big data. *Research in International Business and Finance*, 55, 101338. <https://doi.org/10.1016/j.ribaf.2020.101338>