

DETERMINANTS OF DIGITAL PAYMENT ADOPTION AMONG MSMES: A SYSTEMATIC LITERATURE REVIEW

Ayudyah Pramesti¹, Gatot Wijayanto², Furkan Elce³,
ayudyahpramesti05@gmail.com¹, gatot.wijayanto@lecture.unri.ac.id²,

^{1,2}**Universitas Riau**

³**Istanbul University**

ABSTRACT,

The rapid development of financial technology has accelerated the transformation of transaction systems from conventional cash-based payments toward digital payment ecosystems among Micro, Small, and Medium Enterprises (MSMEs). In Indonesia, the implementation of Quick Response Code Indonesian Standard (QRIS) has become an important initiative supporting financial inclusion and business digitalization (Moritz Junger, 2019) and (Jusman & Fauziah, 2024). Nevertheless, the adoption of QRIS among MSMEs remains uneven due to technological limitations, security concerns, infrastructure readiness, and disparities in digital literacy (Nugraha et al., 2022) and (Setiawan, 2021)

This study aims to systematically review previous studies discussing determinants influencing QRIS and digital payment adoption among MSMEs. This study employed a Systematic Literature Review (SLR) approach by reviewing articles obtained from ScienceDirect, Emerald Insight, Google Scholar, and Scopus databases published between 2019 and 2025. The findings indicate that perceived usefulness, trust, facilitating conditions, and digital literacy consistently emerge as dominant determinants encouraging adoption behavior (Pratama¹ & Suputra², 2019) and (Appiah & Venyo, 2025). Conversely, perceived risk and cyber security concerns remain major barriers inhibiting adoption intention (Featherman & Pavlou, 2003a) and (Zhao & Khaliq, 2024). Furthermore, previous studies predominantly focus on urban users, while studies involving rural MSMEs remain limited.

Keywords: QRIS, Digital Payment, Fintech Adoption, MSMEs, Technology Acceptance

INTRODUCTION

The rapid advancement of financial technology has significantly transformed transaction systems across various economic sectors, including Micro, Small, and Medium Enterprises (MSMEs). The emergence of digital payment systems such as mobile banking, electronic wallets, and Quick Response Code Indonesian Standard (QRIS) has accelerated the transition from conventional cash-based transactions toward digital financial ecosystems. In Indonesia, QRIS was introduced by Bank Indonesia to standardize QR-based payment systems and support financial inclusion initiatives among business actors and consumers (Jusman & Fauziah, 2024).

The adoption of QRIS among MSMEs has become increasingly important because digital payment systems provide transaction efficiency, operational convenience, and improved customer experience. Previous studies indicate that digital payment adoption enables MSMEs to improve transaction flexibility and business competitiveness in increasingly digitalized markets (Nugraha et al., 2022) and (Pratama1 & Suputra2, 2019). However, the implementation of QRIS among MSMEs remains uneven due to several technological and behavioral barriers, including limited digital literacy, security concerns, inadequate infrastructure, and low technological readiness (Setiawan, 2021).

Several studies have employed the Technology Acceptance Model (TAM) and Unified Theory of Acceptance and Use of Technology (UTAUT) to explain digital payment adoption behavior (Davis, 1989) and (Venkatesh et al., 2003). Nevertheless, empirical findings remain inconsistent, particularly regarding the influence of perceived ease of use and perceived risk. Therefore, this study aims to systematically review determinants influencing QRIS adoption among MSMEs.

LITERATURE REVIEW

Previous studies have widely applied the Technology Acceptance Model (TAM) and the Unified Theory of Acceptance and Use of Technology (UTAUT) to explain digital payment adoption behavior among Micro, Small, and Medium Enterprises (MSMEs). TAM emphasizes perceived usefulness and perceived ease of use as dominant determinants influencing users' behavioral intention toward technology adoption (Davis, 1989). Several studies indicate that MSMEs are more likely to adopt QRIS when digital payment systems are perceived as beneficial for improving transaction efficiency, operational flexibility, and business productivity (Pratama1 & Suputra2, 2019) and (Nugraha et al., 2022).

In addition, UTAUT explains that performance expectancy, effort expectancy, social influence, and facilitating conditions significantly influence technology usage behavior (Venkatesh et al., 2003). Previous studies reveal that facilitating conditions such as internet accessibility, technological infrastructure, and smartphone ownership play important roles in supporting QRIS adoption among MSMEs (Bajunaied et al., 2023).

Trust and perceived risk also emerge as important determinants influencing digital payment adoption behavior. Trust strengthens users' confidence toward fintech systems, while perceived risk negatively affects behavioral intention because of concerns regarding financial security, privacy, and cybercrime (Featherman & Pavlou, 2003a) and (Appiah & Venyo, 2025). However, empirical findings regarding perceived ease of use and perceived risk remain inconsistent across different contexts and user characteristics, indicating the need for a more comprehensive literature review regarding QRIS adoption among MSMEs.

Expanded Literature Review

Taken together, TAM, UTAUT, trust theory, and perceived-risk theory offer complementary perspectives on digital payment adoption among MSMEs. TAM explains how expected usefulness and ease of use shape acceptance; UTAUT incorporates social influence and enabling conditions; trust theory addresses confidence in the system and provider; and perceived-risk theory explains concerns that may inhibit adoption. Digital literacy adds a capability dimension that is particularly relevant to small businesses with different levels of technological experience. The literature summarized in the source article suggests that these factors should be considered jointly, while acknowledging that their relative influence may differ by location, business characteristics, and experience with digital payments. This synthesis informs the present systematic review and supports the identified need for research on rural MSMEs, non-users, and post-adoption behavior.

Synthesis of the Theoretical Framework

Digital literacy refers to the knowledge and practical skills needed to use digital tools appropriately and safely. For MSMEs accepting QRIS, this may include operating a payment application, checking transaction notifications, matching payment records with sales, protecting account credentials, and recognizing suspicious messages. Facilitating conditions, in contrast, concern whether the resources and support required for use are available. These include reliable connectivity, suitable devices, clear instructions, and accessible customer support. The source article identifies digital literacy and facilitating conditions as important determinants of adoption and continued use (Ayub & Wendy, 2025). Considering both constructs is important because user capability may have limited practical value when infrastructure is inadequate, while infrastructure alone may not ensure effective use if users lack the necessary skills.

Digital Literacy and Facilitating Conditions

Perceived-risk theory explains why a user may avoid a technology when its possible negative outcomes are considered uncertain or consequential. Featherman and Pavlou (2003) discuss perceived risk in the context of electronic services, while Zhao and Khaliq (2024) examine perceived-risk determinants affecting fintech-use intention. In digital payments, relevant concerns may include unauthorized transactions, privacy exposure, payment errors, failed transactions, and uncertainty about complaint resolution. These concerns can affect whether MSMEs consider digital payments acceptable for routine business activity. The reviewed article identifies perceived risk and cybersecurity concerns as barriers, but also notes that findings vary across empirical settings. Such variation suggests that risk perceptions should be interpreted in relation to users' experience, knowledge, and the conditions under which the payment system is used. (Featherman & Pavlou, 2003b)



Perceived Risk and Security Concerns

Trust is relevant when users must rely on a technology provider and a transaction process that they cannot fully observe or control. In digital payments, trust may be associated with perceived system reliability, transparent transaction records, confidence that payments will be received correctly, and the availability of assistance when problems occur. The source article reports that trust is a recurring determinant of adoption intention because it can reduce uncertainty surrounding online financial transactions (Appiah & Venyo, 2025; Czechowska & Paduszyńska, 2025). For MSMEs, trust may be especially consequential when transaction records affect daily cash-flow decisions and the ability to reconcile sales. Trust should therefore be examined alongside perceived usefulness rather than treated as a substitute for practical business benefits.

Trust in Fintech and Digital Payment Systems

The Unified Theory of Acceptance and Use of Technology (UTAUT) broadens the analysis of technology adoption through performance expectancy, effort expectancy, social influence, and facilitating conditions (Venkatesh et al., 2003). Performance expectancy is closely related to the expected benefits of using a system, while effort expectancy concerns the perceived effort required. Social influence captures the perceived expectations or encouragement of relevant people, including customers, peers, and business networks. Facilitating conditions refer to the resources and support needed to use the technology. For MSMEs, these conditions may include smartphone availability, internet connectivity, access to service support, and practical guidance from payment providers or relevant institutions. UTAUT is useful because it places individual perceptions within a broader social and infrastructural environment.

Unified Theory of Acceptance and Use of Technology (UTAUT)

The Technology Acceptance Model (TAM) provides a foundational explanation of how users form intentions to adopt information technology. Davis (1989) identifies perceived usefulness and perceived ease of use as central constructs. Perceived usefulness concerns the extent to which a person believes that using a system will improve task performance, whereas perceived ease of use concerns the effort associated with using it. Applied to MSMEs, perceived usefulness may involve faster payment processing, greater convenience for customers, reduced dependence on cash handling, and support for day-to-day business operations. Perceived ease of use may relate to how easily business owners can display a QR code, confirm incoming payments, and resolve routine transaction issues. As noted in the source article, perceived usefulness appears consistently important, while findings concerning ease of use are not always consistent across contexts

Technology Acceptance Model (TAM)

Digital payment adoption refers not only to a business's decision to register for or accept a digital payment service, but also to its practical integration into routine transactions. In the context of this review, digital payments include QRIS and related fintech payment services used by micro, small, and medium enterprises (MSMEs). Adoption can therefore be considered at several related stages: awareness of the service, intention to use it, initial implementation, and continued use. Distinguishing these stages is important because the factors that encourage a business owner to try a payment system may differ from those that determine whether the system becomes part of regular business operations. The reviewed article emphasizes adoption intention and identifies post-adoption behavior as an area requiring further investigation.

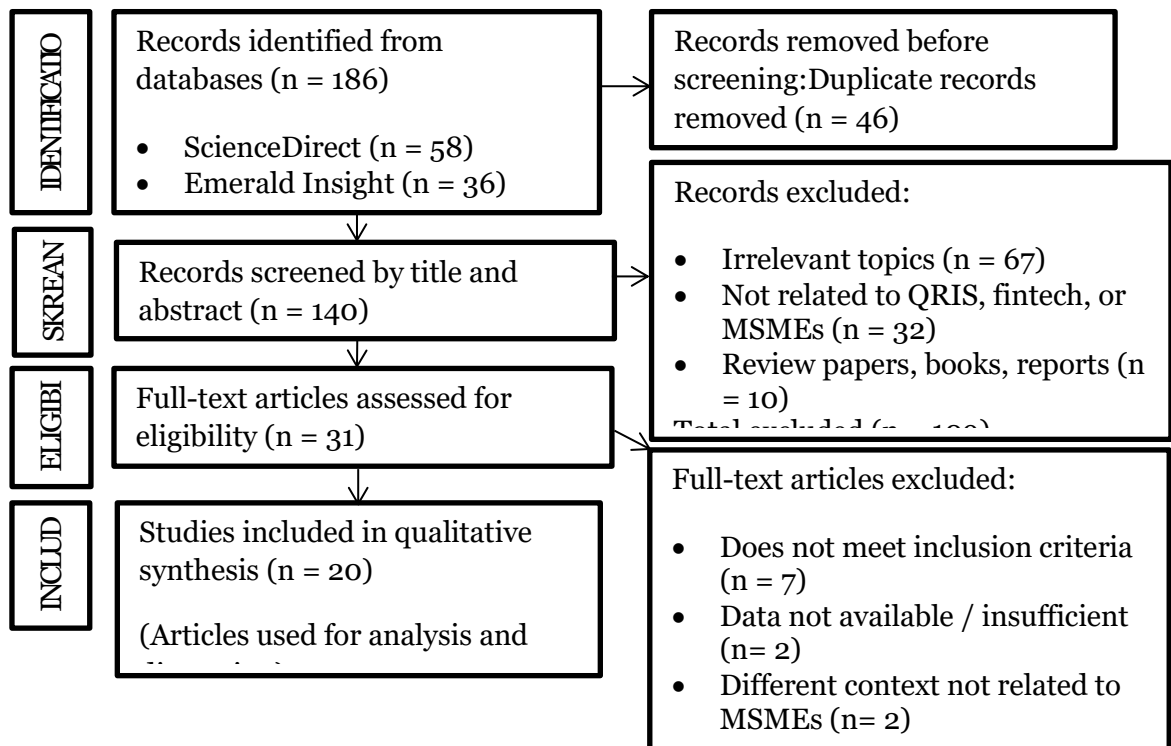
METHODS

This study employed a Systematic Literature Review (SLR) approach to identify, evaluate, and synthesize previous studies discussing determinants influencing QRIS and digital payment adoption among MSMEs. The SLR approach was selected because it enables researchers to systematically integrate findings from multiple studies and identify dominant research trends, inconsistencies, and future research opportunities.

The literature search process was conducted using several academic databases, including ScienceDirect, Emerald Insight, Google Scholar, and Scopus. The keywords used in the search process included "QRIS adoption," "digital payment adoption," "fintech adoption," "MSMEs," "Technology Acceptance Model," and "UTAUT."

The inclusion criteria consisted of: (1) peer-reviewed journal articles, (2) studies published between 2019 and 2025, (3) articles discussing fintech, digital payment systems, QRIS, or MSMEs, and (4) articles written in English. Meanwhile, conference papers, duplicated studies, and articles unrelated to digital payment adoption were excluded from the review process. The article selection process involved identification, screening, eligibility assessment, and final inclusion stages. Articles considered relevant were analyzed and synthesized to identify dominant determinants influencing QRIS adoption among MSMEs.

Figure 1. PRISMA Flow Diagram



Sumber: Adapted and developed by the author based on PRISMA methodology (2025)

RESULT AND DISCUSSION

Perceived Usefulness

Previous studies consistently indicate that perceived usefulness is one of the most influential determinants affecting QRIS adoption among Micro, Small, and Medium Enterprises (MSMEs). Digital payment systems are generally perceived as beneficial because they improve transaction efficiency, simplify payment activities, and enhance operational flexibility in business transactions (Pratama¹ & Suputra², 2019) and (Nugraha et al., 2022). MSMEs adopting QRIS also experience faster transaction processes and better financial management systems, which contribute to business productivity and competitiveness. These findings indicate that perceived usefulness remains a dominant factor encouraging MSMEs to integrate digital payment systems into their business operations.

Trust

Trust also emerges as a significant determinant influencing behavioral intention toward QRIS adoption. Previous studies reveal that MSMEs are more likely to adopt digital payment systems when fintech platforms are perceived as secure, reliable, and transparent (Appiah & Venyo, 2025) and (Czechowska & Paduszyńska, 2025). Trust reduces uncertainty associated with online financial transactions and strengthens users' confidence in utilizing digital payment systems. Consequently, fintech providers capable of

maintaining transaction security and service reliability are more likely to encourage long-term adoption behavior among MSMEs.

Perceived Risk

Perceived risk remains one of the primary barriers inhibiting QRIS adoption behavior among MSMEs. Several studies indicate that concerns regarding cyber security threats, financial uncertainty, privacy protection, and transaction failure risks negatively influence users' behavioral intention toward digital payment systems (Featherman & Pavlou, 2003a) and (Zhao & Khaliq, 2024). MSMEs operating in areas with limited digital infrastructure often demonstrate higher levels of perceived risk due to inadequate technological readiness and unstable internet connectivity.

Digital Literacy and Facilitating Conditions

Digital literacy and facilitating conditions significantly influence QRIS adoption among MSMEs. Previous studies indicate that MSMEs possessing stronger digital capabilities and adequate technological infrastructure demonstrate greater readiness to adopt digital payment systems (Bajunaied et al., 2023) and (Setiawan, 2021). Facilitating conditions such as internet accessibility, smartphone ownership, and technological support systems also contribute to adoption continuity. However, several empirical findings remain inconsistent, particularly regarding the influence of perceived ease of use on behavioral intention, indicating that QRIS adoption behavior is highly contextual and influenced by multiple technological and behavioral factors.

Tabel 1. Summary of Previous Studies on QRIS and Digital Payment Adoption

No	Authors	Theory	Variabel	Main Findings
1	Davis (1989)	TAM	PU, PEOU	PU sinificantly influences technology acceptance
2	Vencatesh et al. (2003)	UTAUT	PE, EE, FC, SI	UTAUT explains adoption behavior comprehensively
3	Pratama & Suputra (2019)	TAM	Usefulness, Trust	Trust and usefulness positively influence adoption
4	Nugraha et al. (2022)	TAM	Extension Literacy, Trust	Financial literacy affects fintech adoption
5	Appiah & Agblewornu (2025)	Trust Theory	Trust, Risk	Trust reduces uncertainty
6	Zhao & Khaliq (2024)	Perceived Risk	Security Risk	Perceived risk negatively affects adoption

Source: Author's synthesis based on previous studies (2025)

Tabel 2. Research Gap Analysis

Issue	Existing Findings	limitation	Future Research
QRIS Adoption	Mostly focuses on urban MSMEs	Rural MSMEs remain underexplored	Explore rural MSMEs
Perceived Risk	Findings remain inconsistent	Context rarely examined	Examine moderating variables
Digital Literacy	Mostly independent studies	Limited integration with trust	Develop integrated frameworks
Behavioral Intention	Focus on intention	Actual usage behavior rarely explored	Examine post-adoption behavior

Source: compiled and synthesized by the author based on reviewed literature (2025)

DISCUSSION

The main theoretical contribution of this review is its synthesis of determinants that are often discussed through separate explanatory lenses. TAM helps explain the role of perceived usefulness and ease of use; UTAUT broadens the analysis to social influence and facilitating conditions; trust theory highlights confidence in the service provider and system; and perceived-risk theory explains concerns that may discourage adoption. The reviewed findings suggest the value of examining these factors together while remaining attentive to inconsistent results across contexts. Future empirical research could test whether trust moderates the relationship between perceived usefulness and adoption intention, whether digital literacy changes how users assess risk, and whether facilitating conditions predict continued use after initial adoption. These are proposed directions for testing, not conclusions established by the present literature review.

Theoretical Contribution and Future Research Directions

The synthesis points to a coordinated approach for increasing QRIS adoption. First, outreach should demonstrate practical business benefits using examples relevant to different types and scales of MSMEs. Second, payment providers and relevant institutions should communicate transaction procedures, security practices, complaint channels, and error-resolution processes in accessible language. Third, digital literacy initiatives should include practical exercises, such as checking payment confirmations and identifying suspicious requests, rather than focusing solely on general awareness. Fourth, infrastructure and assistance need to be considered together, particularly in locations where connectivity or access to technical

support is limited. These measures are best treated as mutually reinforcing: improving only one dimension may leave other barriers unresolved. For financial-inclusion initiatives, adoption should also be evaluated through sustained and effective use, not merely registration or stated intention.

Practical Implications for MSME Support and Digital Financial Inclusion

The reviewed article identifies a concentration of prior research on urban MSMEs and comparatively limited attention to rural businesses. This gap matters because the conditions surrounding adoption may differ across locations. Differences in internet stability, access to digital training, business scale, customer payment preferences, and proximity to service providers may shape both perceived benefits and perceived risks. Consequently, findings from urban settings should not automatically be generalized to rural MSMEs. Future studies could compare urban and rural businesses, include both QRIS users and non-users, and distinguish initial adoption intention from actual and continued use. Such designs would help clarify whether the determinants identified in the literature operate similarly across contexts or whether their effects depend on local conditions.

Contextual Differences and the Research Gap

Digital literacy and facilitating conditions should be understood as complementary rather than interchangeable determinants. Digital literacy concerns the ability and confidence to operate payment applications, check transaction status, recognize suspicious activity, and respond appropriately when a transaction does not proceed as expected. Facilitating conditions refer to the practical resources that make such use possible, including a suitable smartphone, reliable internet access, access to technical support, and clear instructions. A business owner may understand the potential benefits of QRIS but remain unable to use it consistently when connectivity is unreliable or assistance is unavailable. Conversely, adequate infrastructure may not be sufficient if users lack the skills needed to manage transactions confidently. This interpretation supports the importance of combining user education with improvements in the service environment (Ayub & Wendy, 2025b)

Digital Literacy and Facilitating Conditions as Complementary Factors

Perceived usefulness appears especially important when MSME owners can connect digital payments with concrete operational needs, such as reducing the handling of cash, simplifying payment confirmation, and accommodating customers who prefer cashless transactions. However, recognizing these benefits does not automatically guarantee adoption. Business owners may still hesitate if they are uncertain about transaction security, the possibility of payment errors, dispute resolution, or the protection of customer and business information. Trust therefore functions as a condition that can strengthen the translation of perceived benefits into adoption intention, whereas perceived risk can weaken it. The findings imply that promotion focused only on convenience may be insufficient unless it is



accompanied by credible information about security, transaction procedures, and available assistance (Haryanto et al., 2026)

The Relationship between Perceived Benefits, Trust, and Risk

The reviewed literature suggests that QRIS adoption among MSMEs cannot be explained by a single determinant. Rather, adoption reflects the combined influence of expected business benefits, confidence in the payment system, users' digital capabilities, and the availability of supporting infrastructure. Perceived usefulness explains why business owners may consider QRIS relevant to daily operations, while trust and perceived risk shape whether they feel sufficiently confident to use it. Digital literacy and facilitating conditions determine whether that intention can be translated into practical and sustained use. This integrated interpretation is consistent with the complementary perspectives of TAM and UTAUT, alongside trust and perceived-risk perspectives (Featherman & Pavlou, 2003)

CONCLUSION

QRIS and digital payment systems have become important instruments supporting MSME digital transformation and financial inclusion. This review identifies perceived usefulness, trust, facilitating conditions, and digital literacy as dominant determinants encouraging digital payment adoption behavior among MSMEs. Conversely, perceived risk, cyber security concerns, and limited technological readiness remain major barriers inhibiting adoption intention.

This study also reveals inconsistencies regarding the influence of perceived ease of use and perceived risk across different empirical contexts, indicating that digital payment adoption behavior is highly contextual and influenced by interactions between technological, psychological, and environmental determinants.

The study contributes theoretically by integrating major determinants from TAM, UTAUT, trust theory, and perceived risk theory into a comprehensive discussion regarding QRIS adoption behavior among MSMEs. Practically, the findings provide insights for policymakers, financial institutions, and fintech providers in developing strategies to improve QRIS adoption among MSMEs. Future studies are recommended to examine rural MSMEs, non-user MSMEs, and post-adoption behavior to provide more comprehensive explanations regarding digital payment adoption.

REFERENCES

- Appiah, T., & Venyo, V. (2025). Heliyon The interplay of perceived benefit , perceived risk , and trust in Fintech adoption: Insights from Sub-Saharan Africa. *Heliyon*, 11(2), e41992. <https://doi.org/10.1016/j.heliyon.2025.e41992>
- Ayub, J. S. E. & Wendy. (2025a). Financial Technology Adoption Behavior in West Kalimantan: Examining the Role of Financial Literacy. *Ilomata*

- International Journal of Management*, 6(3), 1210–1232.
<https://doi.org/10.61194/ijjm.v6i3.1727>
- Ayub, J. S. E. & Wendy. (2025b). Financial Technology Adoption Behavior in West Kalimantan: Examining the Role of Financial Literacy. *Ilomata International Journal of Management*, 6(3), 1210–1232.
<https://doi.org/10.61194/ijjm.v6i3.1727>
- Bajunaied, K., Hussin, N., & Kamarudin, S. (2023). Behavioral intention to adopt FinTech services_ An extension of unified theory of acceptance and use of technology. *Journal of Open Innovation: Technology, Market, and Complexity*, 9(1), 100010.
<https://doi.org/10.1016/j.joitmc.2023.100010>
- Czechowska, I. D., & Paduszyńska, M. (2025). ScienceDirect The Role of Trust in Fintech Adoption and Development: The Role of Trust in Fintech Adoption and Development: Bibliometric Analysis Bibliometric Analysis. *Procedia Computer Science*, 270, 2790–2798.
<https://doi.org/10.1016/j.procs.2025.09.401>
- Davis, F. D. (1989). *Information Technology Introduction*. 13(3), 319–340.
- Featherman, M. S., & Pavlou, P. A. (2003a). *Predicting e-services adoption: A perceived risk facets perspective*. 59, 451–474.
[https://doi.org/10.1016/S1071-5819\(03\)00111-3](https://doi.org/10.1016/S1071-5819(03)00111-3)
- Featherman, M. S., & Pavlou, P. A. (2003b). Predicting e-services adoption: A perceived risk facets perspective. *International Journal of Human-Computer Studies*, 59(4), 451–474. [https://doi.org/10.1016/S1071-5819\(03\)00111-3](https://doi.org/10.1016/S1071-5819(03)00111-3)
- Haryanto, H., Andita, A., & Marheni, D. K. (2026). Reframing Fintech Adoption: The Mediating Role of Attitude Impact of User Perceptions in E-Wallet Usage Among Emerging Markets. *Jurnal Manajemen*, 17(3).
- Jusman, J., & Fauziah, I. (2024). *RECEPTIVENESS OF QRIS AS A DIGITAL PAYMENT AMONG*. 3(10), 718–728.
- Moritz Junger, M. M. (2019). *Banking goes digital: The adoption of FinTech services by German households*.
<https://doi.org/10.1016/j.frl.2019.08.008>
- Nugraha, D. P., Setiawan, B., Nathan, R. J., & Farkas, M. F. (2022). Fintech Adoption Drivers for Innovation for SMEs in Indonesia. *Journal of Open Innovation: Technology, Market, and Complexity*, 8(4), 208.
<https://doi.org/10.3390/joitmc8040208>
- Pratama¹, A. B., & Suputra², I. D. G. D. (2019). *Pengaruh Persepsi Manfaat, Persepsi Kemudahan Penggunaan, dan Tingkat Kepercayaan Pada Minat Menggunakan Uang Elektronik*. 27, 927–953.
- Setiawan, wayan arta. (2021). Qris Di Mata Umkm: Eksplorasi Persepsi Dan Intensi Umkm Menggunakan Qris. *Frontiers in Neuroscience*, 14(1), 1–13.
- Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). *User Acceptance of Information Technology*. 27(3), 425–478.
- Zhao, H., & Khaliq, N. (2024). Technological Forecasting & Social Change In quest of perceived risk determinants affecting intention to use fintech:



Moderating effects of situational factors. *Technological Forecasting & Social Change*, 207 (July), 123599.
<https://doi.org/10.1016/j.techfore.2024.123599>