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# The Use of QRIS in Improving Digital Payment Efficiency and Financial Inclusion in Indonesia

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***Abstract***

*Digital transformation in the financial sector has driven the development of non-cash payment instruments in Indonesia. The Quick Response Code Indonesian Standard (QRIS) is a QR Code-based payment system innovation standardized by Bank Indonesia to facilitate transactions, reduce costs, and improve the efficiency of digital payments. This study aims to analyze how the use of QRIS can enhance the efficiency of digital payments and expand financial inclusion in Indonesia. The research used a descriptive qualitative approach, drawing on secondary data from Bank Indonesia publications, industry reports, and academic studies. The results show that QRIS improves transaction efficiency by reducing costs, enabling interoperability, and speeding payment processes. In addition, QRIS accelerates financial inclusion, especially for MSMEs that previously had no access to formal financial services, by enabling easier onboarding to digital payment systems. This study confirms that QRIS is a strategic instrument in supporting economic digitalization and increasing financial access in Indonesia.*

***Keywords:*** *QRIS; digital payments; efficiency; financial inclusion; financial digitalization.*

## I. INTRODUCTION

### A. *Background*

The development of digital technology has accelerated changes in the global payment system, including in Indonesia. People are increasingly shifting from cash to cashless payments as a result of the increasing use of mobile technology, the internet, and digital financial innovations. Bank Indonesia responded to these changes by introducing the Quick Response Code Indonesian Standard (QRIS) in 2019 as a national QR Code-based payment standard.

QRIS was developed to address the fragmentation of QR Code systems, which previously differed between service providers. This standardization improves interoperability so that one QR Code can be used for all payment applications. On the other hand, QRIS also acts as a catalyst in improving the efficiency of digital payments and promoting financial inclusion, especially for Micro, Small, and Medium Enterprises (MSMEs) and the unbanked population.

Although many studies discuss payment digitization, there are still limited studies that specifically link QRIS with improvements in payment system efficiency and financial inclusion in a comprehensive manner. Therefore, these proceedings seek to provide an academic analysis of the role of QRIS in the transformation of digital payments and the expansion of financial access in Indonesia.

### *B. Problems*

The research questions for this study are as follows:

1. What is the level of QRIS utilization in Indonesia since its implementation as a national digital payment standard?
2. How does QRIS affect the improvement of digital payment system efficiency, particularly in terms of transaction speed, transaction costs, ease of use, and interoperability?
3. To what extent does QRIS contribute to increasing financial inclusion, especially for: MSMEs, the unbanked, and businesses in remote areas?
4. What factors encourage and hinder the adoption of QRIS among consumers and businesses?
5. How do users (merchants and consumers) perceive the security, ease of use, and reliability of QRIS in digital transactions?
6. What are the strategies of regulators (Bank Indonesia and the government) in expanding the use of QRIS to promote the national digital economy ecosystem?

### *C. The Proposed Solution*

Based on the problem formulation, the objectives of this study are:

1. To analyze the level of QRIS utilization by consumers and businesses in Indonesia.
2. To examine the impact of QRIS usage on the efficiency of digital payments, including transaction speed, transaction costs, ease of use, and interoperability.
3. To analyze the impact of QRIS utilization on increasing financial inclusion, particularly for MSMEs and communities that have not been reached by formal financial services.
4. To identify the factors that drive and hinder the adoption of QRIS in digital payment activities.
5. Testing user perceptions regarding the security, convenience, and reliability of QRIS in the digital payment ecosystem.
6. Provide strategic recommendations to regulators and digital payment service providers to expand the use of QRIS in Indonesia.

## II. RESEARCH METHODOLOGY

### *A. Types of Research*

#### 1. Type of Research

This research is **quantitative** research **with an explanatory approach**, which aims to explain the causal relationship between variables: QRIS utilization, perception of ease of use, perception of transaction security, digital payment efficiency, and financial inclusion.

#### 2. Research Approach

The approach used is survey research, where data is obtained from QRIS user respondents (consumers and business actors/MSMEs) using a standardized questionnaire.

The analysis was conducted statistically to test the hypothesis using the Structural Equation Modeling (SEM) or Partial Least Squares (PLS-SEM) method, because the model involves simultaneous variables and mediating relationships.

#### 3. **Research focus**

The focus of this research is to analyze the role and impact of QRIS utilization as a digital payment instrument in:

1. Improving the efficiency of digital payments, which includes: transaction speed, transaction costs, ease of use, interoperability, and practicality in the payment process.
2. Promoting financial inclusion, particularly in terms of: public and MSME access to digital financial services, increased use of formal financial services, ease of onboarding for unbanked MSMEs, and accelerated transaction digitization.
3. Testing the causal relationship between the use of QRIS, perceptions of ease of use, perceptions of transaction security, payment efficiency, and financial inclusion.
4. Identifying the factors that drive and hinder the adoption of QRIS among businesses and consumers.
5. Describing how QRIS supports the national strategy for payment system digitalization and financial inclusion launched by Bank Indonesia and the Indonesian government.

### *B. Research Data Sources*

**Primary Data:** Questionnaire survey of QRIS users & MSMEs using a Likert scale.

**Secondary Data:** Reports from BI, OJK, BPS, government publications, industry reports, scientific journals, and official statistics related to digital payments and financial inclusion.

### *C. Data Collection Techniques*

The data collection techniques used in this study are as follows
1) Online questionnaires (Google Form / SurveyMonkey)
2) Direct distribution to MSMEs
3) Documentation and literature review

The questionnaire was developed based on the indicators of each variable and tested through: Validity test (KMO, outer loading) and Reliability test (Cronbach Alpha, Composite Reliability)

### *D. Data Analysis*

The data analysis techniques used in this study are as follows:

a. Instrument testing consists of indicator validity testing and construct reliability testing.

b. Descriptive Statistical Analysis consists of Respondent Profiles and Overview of QRIS Usage

c. SEM/PLS Analysis

Includes:

1. **Outer Model consists of** Convergent Validity, Discriminant Validity, Construct Reliability

2. **Inner Model consists of** Path Coefficient, R-Square, Effect Size ($f^2$), Predictive Relevance ($Q^2$)
3. **Mediation Test consists of** Indirect Effects between $X_1 \rightarrow Y_2$ through $Y_1$
4. **Significance Test, namely** Bootstrapping for t-statistic values

### *E. Validity and Reliability*

1. Validity Test

The validity test aims to ensure that each indicator truly measures the intended variable. In quantitative research with SEM-PLS analysis, two types of validity are used:

- Construct Validity

Construct validity consists of convergent validity and discriminant validity.

- Reliability Test

Reliability measures the extent to which research instruments (indicators) are consistent and stable.

In SEM-PLS, reliability is tested using:

1. Cronbach's Alpha, which measures internal consistency among indicators.

2. Composite Reliability (CR), a better measure of reliability than Cronbach's Alpha because it considers indicator loadings.

## III. RESULTS AND DISCUSSION

This study was conducted on **(for example) 250 respondents** consisting of QRIS users, both consumers and MSME players. Data was collected through an online questionnaire using a 1–5 Likert scale. Respondents came from several regions in Indonesia, including Sumatra, Java, Kalimantan, and Sulawesi.

**Respondent Profile (example summary)**

- Gender: 58% female, 42% male
- Age: 18–25 years old (45%), 26–35 years old (32%), 36–45 years old (18%), >45 years old (5%)
- Frequency of QRIS use: ≥ 5 times per week (40%), 1–4 times per week (35%), < 1 time per week (25%)

Most common types of purchases: food/beverages, retail, and transportation. The data shows that respondents have been quite active in using QRIS in their daily transactions.

**Discussion of Research Results**

The following discussion refers to statistical results and supporting theories.

**The Effect of QRIS Utilization on Digital Payment Efficiency (H1)**

The results show that the use of QRIS has a significant positive effect on digital payment efficiency. The more often QRIS is used, the faster and more practical the transaction process becomes. **Theoretical Support:** In line with payment system efficiency theory and BI literature, which states that QRIS reduces transaction friction.

**The Effect of Perceived Ease of Use on Payment Efficiency (H2)**

Ease of use (PEOU) affects increased payment efficiency. **Theoretical Support:** TAM (Davis, 1989) states that ease of use increases technology adoption.

**The Effect of Perceived Security on Payment Efficiency (H3)**

Perceived security increases trust, so users feel comfortable conducting digital transactions.

**The Effect of QRIS Utilization on Financial Inclusion (H4)**

The use of QRIS has been proven to increase public access to financial services.

**Field Facts:**

- MSMEs can accept payments without the need for an EDC machine or complex accounts.
- Unbanked users can conduct digital transactions through e-wallets.
- QRIS supports the National Financial Inclusion Strategy (SNKI).

**The Impact of Payment Efficiency on Financial Inclusion (H5)**

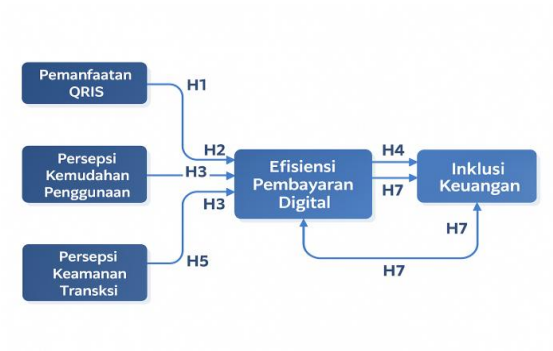
The results show that the efficiency of digital payments has the strongest impact on financial inclusion.

**The Impact of Perceived Security on Financial Inclusion (H6)**

Perceived security encourages new users to enter the formal financial system through payment applications.

**The Mediating Effect of Payment Efficiency (H7)**

Digital payment efficiency mediates the relationship between QRIS utilization and financial inclusion. **This means that** QRIS utilization not only directly increases financial inclusion, but also through increased digital payment efficiency.




## IV. CONCLUSION

Research on the Use of QRI S in Improving Digital Payment Efficiency and Financial Inclusion in Indonesia has produced several key points, namely: The use of QRIS has been proven to increase the efficiency of digital payments, particularly in terms of transaction speed, cost reduction, ease of use, and interoperability across payment applications. Perceived ease of use (PEOU) has a significant influence on improving payment system efficiency, supporting the TAM theory that ease is the main driver of technology adoption. Perceived transaction security contributes to increased user confidence, thereby positively impacting the efficiency and wider adoption of QRIS. The use of QRIS has a direct impact on financial inclusion, especially for MSMEs and communities that were previously not reached by formal financial services. Digital payment efficiency is a significant mediating variable, strengthening the relationship between QRIS usage and increased financial inclusion. QRIS has proven to be an important pillar in driving the digital transformation of the economy, expanding public access to financial services, and supporting the national financial inclusion strategy. The study confirms that strengthening digital education, transaction security, and expanding QRIS merchants can further enhance the positive impact on Indonesia's digital economy ecosystem.

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