The Effectiveness of Using QRIS as a Non-Cash Payment Tool in the "Yogya Karawang" Supermarket

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Abstract

Payment tools have now developed very quickly due to technological advances in the developing modern payment system. The launch of QRIS is one of Bank Indonesia's efforts to increase the efficiency of digital payments. This research aims to explain the effectiveness strategy and effectiveness factors of Quick Response Code Indonesian Standard (QRIS). The research method uses descriptive quantitative, the research location is Yogya Grand Karawang. The respondents were customers who used QRIS when making transactions at supermarket cashiers. Data was collected using 22 questionnaires. The results of this study showed that the 22 indicators were formed into 4 main factors with a total variance of (71.535%). These factor groups are system quality factors, information quality, user satisfaction, net profit. The research results show that the use of QRIS in Yogya Karawang supermarkets provides effectiveness in non-cash payments. The strategy implemented by Yogya Karawang is to provide an EDC (Electronic Data Capture) machine for each bank in each cashier so that the transaction process using QRIS can run effectively and not hamper the cashier queue due to the limitations of the EDC machine. This study contributes to the understanding of the benefits of QRIS in improving supermarket operations and customer shopping experience.

1. Introduction

Judging from the characteristics (market share) of outlets (supermarkets) that operate more in the middle to upper segment, they will practically not be affected by the decline in purchasing power. According to records from the Indonesian Retail Entrepreneurs Association (Aprindo), the growth performance of the modern retail industry in the first quarter of 2024 will reach 5%-7%. At the same time, the consumer confidence index (IKK) also reached its highest level after the Covid-19 pandemic, growing 4.91% year on year (yoy). Meanwhile, turnover in the first quarter of 2024 grew by 18.65% from IDR 4.04 trillion in 2023 to IDR 4.79 trillion (Pramesti Regita Cindy, Mei 18 2024).
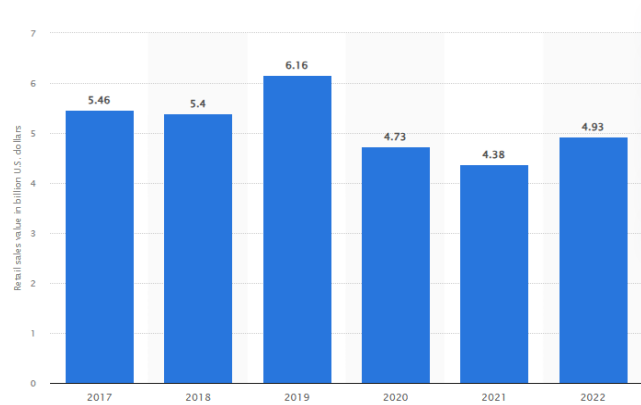
Fig. 1 *Development of supermarkets in Indonesia*

In Fig. 1 the development of supermarkets in Indonesia from 2017 to 2022 experienced an increase in 2019 and as time went by there was another decline in 2020-2021 due to the occurrence of Covid-19. However, after the pandemic ended, there will be an increase again in 2022, where many supermarkets have opened in Indonesia.

Yogya Group (PT. Akur Pratama) started from the Djokja batik shop in Kosambi Bandung. Founded in 1948 and managed simply. Toko Djokja underwent a transformation, including changing its name to Toserba Yogya. Currently, Toserba Yogya has developed into a business that encompasses several businesses such as Toserba Yogya, Toserba Griya, and Yomart minimarket, as well as other strategic businesses. The Indonesian government views the Yogya Department Store as one of the pioneers of modern retail in Indonesia (Yogya Group, 2023).

Supermarkets are one of the shopping places most frequently visited by the public. Nowadays, financial transactions are very easy. Payment tools have evolved at a rapid pace due to technological advances in the emerging modern payment systems. The launch of Quick Response Code Indonesian Standard is one of Bank Indonesia's efforts to increase the efficiency of digital payments (Amamilah *et al.*, 2024).

Data shows that the majority of Yogya Grand Karawang customers use Quick Response Code Indonesian Standard (QRIS), as illustrated in the user data below:
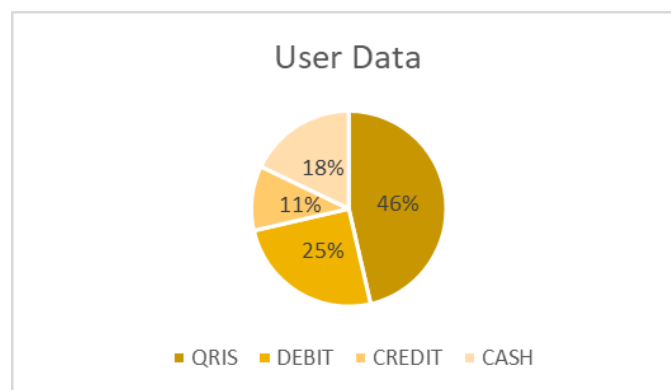

Fig. 2 *User data*

Fig. 2 above shows that 46% of Quick Response Code Indonesian Standard users shop at Yogya Grand Karawang. The problem is that there are still customers who use cash, as many as 18%. Apart from that, another problem is that many people don't know how to use Quick Response Code Indonesian Standard, and there are many factors that become obstacles when using QRIS (Yogya group, 2023).

Based on previous research conducted by Rohmah & Tristiarini (2021), it is proven that the overall perception of convenience has a positive and significant effect on interest in using electronic money. This shows that when the various conveniences felt by the public increase, people's interest in using electronic money also increases. Then previous research conducted by Suhendry (2018) explained that the convenience of electronic money attracts people to use it, so that perceptions about this convenience can influence consumers' decisions to use electronic money as a transaction tool. And previous research conducted by Afandi *et al.* (2022) can be concluded that the effectiveness of QRIS in using a non-cash payment system significantly increases student financial involvement in the Bank Indonesia Sibolga working area.

According to several previous studies, QRIS has a lot of potential to become an effective non-cash payment tool. However, barriers, such as network security, and comparison with other payment methods, must be improved to gain greater acceptance.

So, the aim of this research is to determine the effectiveness factors of using QRIS, and to find out strategies for increasing the effectiveness of using QRIS.

2. Literature Review

According to Olsen in Irfan Pramayoga Saputra (2019) Behavior Finance or behavioral finance is a new paradigm of financial theory, which seeks to understand and predict the implications of financial markets systematic approach to psychological decision making. Explain that financial behavior is related with how people treat, manage, and use resources financial resources available to him. Individuals who have financial behavior responsible people tend to be effective in using their money, such as making a budget, saving money and controlling expenses, invest, and pay obligations on time.

2.1 Financial Technology (Fintech)

Fintech is not a service provided by banking but rather a new business model that really helps society. Fintech provides services in the form of financial transactions without having to have an account like banking in general (Rahma, 2018). The financial technology (fintech) industry is one method of financial services that is gaining popularity in today's digital era. And digital payments are one of the sectors in the FinTech industry that is growing the most in Indonesia. It is this sector that the government and society most hope to encourage an increase in the number of people who have access to financial services (Muzdalifa *et al.*, 2018).

Based on the definition above, it can be concluded that Financial Technology (Fintech) is an innovation in the financial services industry that utilizes the use of technology. which can facilitate the public to carry out financial transaction processes.

2.2 Benefits Of Cashless Payment

Apart from providing convenience and practicality for users, cashless payments also have many benefits for business and the economy as a whole. Here are some of the benefits of this payment method that can help increase business effectiveness and overall economic growth:
1. More efficient and safer
In the cashless payment method, users do not need to carry cash when shopping, thereby avoiding the risk of losing or theft of physical money.
2. Save costs on managing physical money
In non-cash payments, the costs and time users need to spend on cash management can be reduced. Thus, this payment method can help users save costs that users previously spent on managing physical money. Apart from that, using non-cash payments can also reduce the risk of losing physical money or theft due to using electronic technology.
3. Increase financial circulation
With cashless payments, users can carry out transactions electronically and money can circulate more quickly because there is no need to wait for the physical money management process. This can help increase financial circulation and accelerate economic growth.
4. Time Efficiency
In transactions using cash, the payment process takes quite a long time to take out physical money, count the money, and wait for change. However, with non-cash payments, users can carry out the payment process more quickly and efficiently (Mohammad Alparidzy, 05 2023).

2.3 Indonesian Standard Quick Response Code (QRIS)

QRIS is a payment system based on a shared delivery channel, namely one code that uses various different payment services, and can be monitored by a single supervisor. (Ningsih & Sasmita, 2021). The QR Code standard is needed as an anticipatory step towards technological advances and developments in payment systems. using QR Codes can help the growth of the payment system industry and increase expectations of national non-cash payments (Mayanti, 2020). QRIS (Quick Response Code Indonesian Standard) is a payment system based on shared delivery channels that is used to standardize payment transactions using QR codes (Carera *et al.*, 2022). From the definition above, it can be concluded that (Quick Response Code Indonesian Standard) is a QR code developed in Indonesia to facilitate the digital transaction process. QRIS allows various payment tools, such as bank transfers, payments using credit cards, or digital wallets, to be used via one QR code.

3. Framework Study

With a digital wallet platform, payments are made more efficient, fast, easy and safe. Businesses that provide this service are virtual which have a number of features to facilitate electronic transactions between customers and

businesses. To assess the feasibility and success of a program, it is necessary to evaluate various effectiveness indicators that have been determined.

There are 3 dimensions of effectiveness, namely: On time, right quality, right quantity. (Indrawijaya, 2010). Nursalam, MI (2023) states that there are 6 indicators of effectiveness, namely system quality, information quality, service quality, user quality, user satisfaction, net profit.

An entrepreneur generally has the goal of increasing profitability through sales. One strategy is to utilize QRIS which is connected to the internet to facilitate the transaction process. Current advances in information technology have made a positive contribution to the use of QRIS, and many entrepreneurs are interested in adopting it to simplify their sales operations. To understand the factors that encourage entrepreneurs to continue using the internet in their business, influenced by their belief in the benefits that can be obtained. With awareness of the benefits of QRIS for their business, entrepreneurs tend to have a strong motivation to adopt it in their operations. If entrepreneurs believe that QRIS can provide positive benefits for their business, then they will be increasingly motivated to integrate it in their business activities.

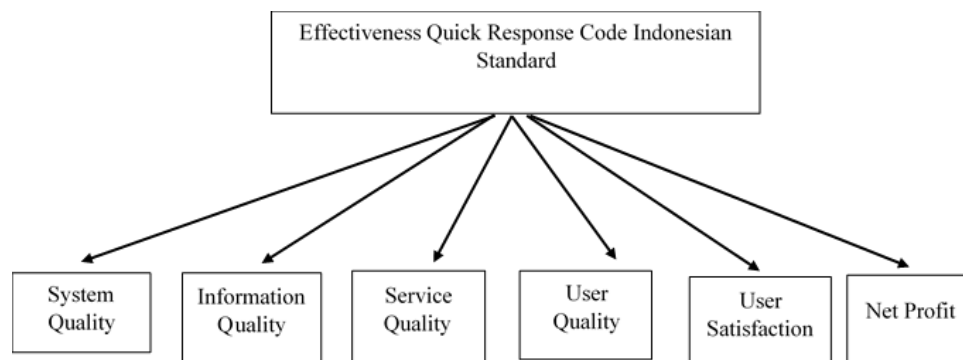The following is the Paradigm of the Thinking Framework:

Fig. 3 *Framework of Thought*

4. Research Methodology

This research applies quantitative descriptive research methods, using data sources from primary data and secondary data. Secondary data was obtained from journal references and previous research, while primary data was collected directly from the company through filling out questionnaires by respondents, who were customers who used QRIS when making transactions at the Yogya Karawang supermarket cash register. The total population is 2,497 based on customer data using QRIS in 2023. The sample was determined using the Slovin formula with a minimum sample size of 96 respondents with an uncertainty tolerance of 10%, but then the researchers rounded it up to 100 samples. Because the larger the sample is closer to the population, the smaller the chance of generalization error.

The sampling technique was carried out using a purposive sampling method, taking into account certain criteria for the selected sample, namely: (1) As a customer of Yogya Grand Karawang. (2) Customers who transact using QRIS. Data was collected using questionnaires and distributed using Google Form to Yogya Karawang customers.

Data analysis from the questionnaire results was carried out using the Statistical Package for the Social Sciences (SPSS) version 25. The quality of the questionnaire or hypothesis is very dependent on the accuracy of the data collected in testing. If the tools used to collect data do not have validity and reliability then this research data cannot be said to be relevant.

5. Results And Discussion

5.1 Respondent profile

Respondent characteristics are important information to explain the profile or condition of the respondents who are research subjects. This helps understand the research findings. The respondents who are the focus of this research are consumers who shop in Yogya Karawang, with a total of 100 respondents obtained through distributing questionnaires. Respondent characteristics include variables such as gender, occupation, and duration of QRIS use, as shown in the image below:
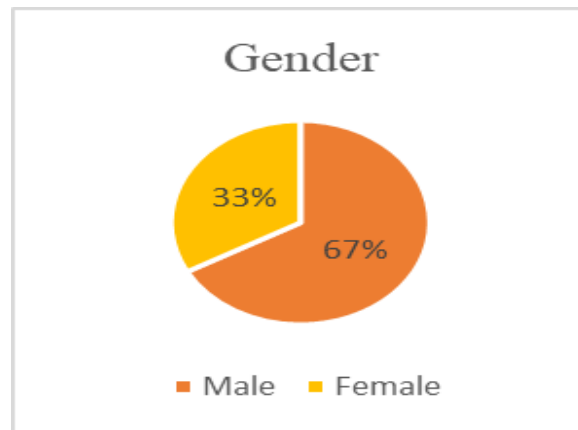
Fig. 4 *Gender*
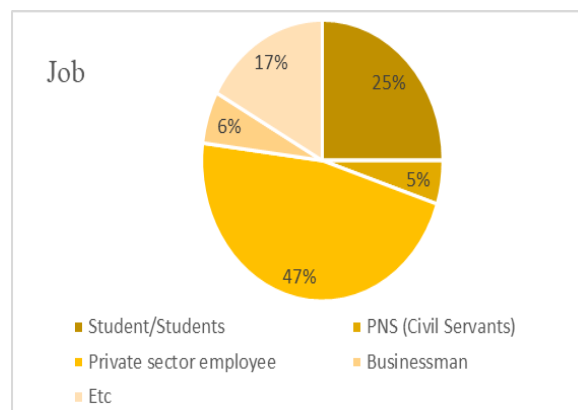
Fig. 5 *Occupation*
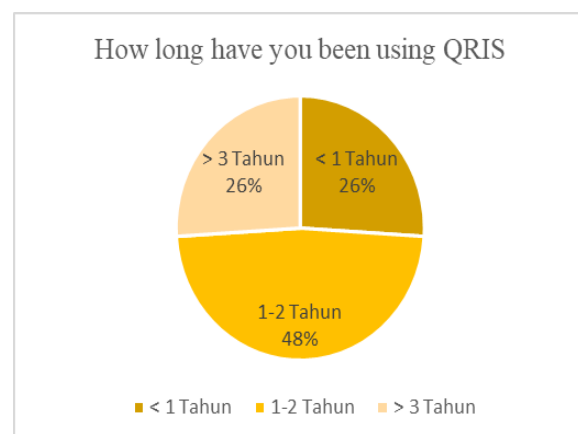
Fig. 6 *Duration of QRIS users*

Fig. 4 above, it is known that the sample of 100 consumers is dominated by 67% women and 33% men. So, it was concluded in this study that more women shopped in Yogya Karawang than men. Judging from Fig. 5 consumer jobs are dominated by private sector employees with a percentage of 47%. And Fig. 6 above shows that the duration of using QRIS is 1-2 years as much as 48%. It can be concluded that this research QRIS has been used for quite a long time by consumers who make transactions in Yogya Karawang.

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Table 1 *Descriptive Analysis Test*

No	Indicator	Total Score	Explanation
1	QRIS system quality	437	Very High
2	QRIS system data management	424	Very High
3	The QRIS level protects payment data	427	Very High
4	Clarity of information regarding promotions or special offers	399	High
5	Clarity of information related to transactions provided by QRIS	413	High
6	Level of information about discounts, cashback and vouchers	402	High
7	QRIS service quality	435	Very High
8	QRIS related services responsively help transactions	445	Very High
9	Level of consumer satisfaction with the experience of using QRIS	449	Very High
10	QRIS changes the cash payment system to non-cash	442	Very High
11	Consumer satisfaction with the experience of using QRIS	449	Very High
12	The effectiveness of QRIS compared with debit and credit	435	Very High
13	Potential cost savings incurred	432	Very High
14	Minimize the risk of excess or shortage in transactions	375	High
15	Additional costs incurred by QRIS	311	High Enough
16	Accuracy in using Qris	421	Very High
17	Transaction process error using Qris	333	High Enough
18	Accuracy of transactions using QRIS	397	High Enough
19	Ease of using QRIS	457	Very High
20	Flexibility in using QRIS	445	Very High
21	Transaction speed using QRIS	416	High
22	Speed in the cashier queue	363	High Enough

ST	R	CT	T	ST
100	180	260	340	420	500
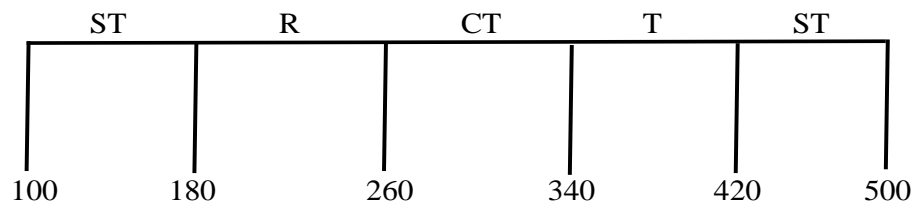
Fig. 7 *Scale Range for Reading Total Score*

Based on Table 1 above, it is known that of the 22 indicators, there are 5 indicators that have a high role in generating QRIS effectiveness. Meanwhile, there are 4 indicators whose role is quite high. And there are 13 indicators that play a very high role.

5.2 Validity Test

Results of validity testing using Microsoft Excel 2016 and Statistics Package for the Social Sciences (SPSS Version 29) can be displayed in Table 2 below.

Table 2 *Validity Test Results*

Indicator	r-count	r-table	Information
System quality	0.8	0.1966	Valid
QRIS system data management	0.875	0.1966	Valid
The QRIS level protects payment data	0.772	0.1966	Valid
Clarity of information regarding promotions or special offers	0.591	0.1966	Valid
Clarity of information related to transactions provided by QRIS	0.693	0.1966	Valid
Level of information about discounts, cashback and vouchers	0.562	0.1966	Valid
QRIS service quality	0.748	0.1966	Valid

QRIS related services responsively help transactions	0.777	0.1966	Valid
Level of consumer satisfaction	0.784	0.1966	Valid
QRIS changes the cash payment system to non-cash	0.704	0.1966	Valid
Consumer satisfaction with the experience of using QRIS	0.806	0.1966	Valid
The effectiveness of QRIS compared with debit and credit	0.796	0.1966	Valid
Potential cost savings incurred	0.673	0.1966	Valid
Minimize the risk of excess or shortage in transactions	0.706	0.1966	Valid
Additional costs incurred by QRIS	0.673	0.1966	Valid
Accuracy in using Qris	0.73	0.1966	Valid
Transaction process error using Qris	0.513	0.1966	Valid
Accuracy of transactions using QRIS	0.762	0.1966	Valid
Ease of using QRIS	0.625	0.1966	Valid
Flexibility in using QRIS	0.578	0.1966	Valid
Transaction speed using QRIS	0.682	0.1966	Valid
Speed in the cashier queue	0.651	0.1966	Valid

Validity test as a tool to measure whether or not the variable instrument questionnaire is valid by looking at the total *correlation* in Excel. If r count > r the table can be declared valid, whereas if r count < r the table is declared invalid. Of the 22 questionnaires, they can be declared valid because they have a correlation value above 0.1966.

5.3 Reliability Test

According to Sugiyono (2017:130) Reliability testing is a means used by researchers to evaluate questionnaires presented to respondents by considering the indicators of the research variables. Testing to determine whether the questionnaire is reliable or not is carried out using SPSS.

Table 3 *Reliability Test Results*

Variable	Cronbach's Alpha	Cronbach's Alpha Standard	Explanation
Effectiveness	0.769	0.60	Reliable

From table 3 above, if the alpha value calculated from the question items shows a number above 0.60, then it can be stated that all the questions in this research are reliable.

The initial step before carrying out factor analysis is to evaluate the *Bartlett's Test of Sphericity test value* . This test aims to assess whether there is a significant relationship between the variables to be analyzed. Apart from that, it is also necessary to determine the *Kaiser Meyer Olkin* (KMO) *Measure of Sampling Adequacy* (MSA) value to assess sample adequacy by comparing the observed correlation coefficient with the partial correlation coefficient. *Bartlett's Test of Sphericity and KMO* data are shown in Table 4. As follows:

Table 4 *KMO and Bartlett's Test*

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.866
Bartlett's Test of Sphericity	Approx. Chi-Square	1554.271
	Df	231
	Sig	0.000

The results of this analysis show a value for KMO of 0.866, which indicates that this value exceeds 0.5 and has a significance value of 0.001. This indicates that the processed data meets the minimum requirements for sample adequacy for each indicator. Meanwhile, *the Bartlett's Test of Sphericity value* of 1554.271 indicates that the factor analysis can be continued.

Table 5 *Anti Image Correlation*

No	Indicator	Anti Image	MSA Value >0.5	Explanation
1	System quality	0.836	0.50	Valid
2	QRIS system data management	0.876	0.50	Valid
3	The QRIS level protects payment data	0.898	0.50	Valid
4	Clarity of information regarding promotions or special offers	0.844	0.50	Valid
5	Clarity of information related to transactions provided by QRIS	0.879	0.50	Valid
6	Level of information about discounts, cashback and vouchers	0.869	0.50	Valid
7	QRIS service quality	0.907	0.50	Valid
8	QRIS related services responsively help transactions	0.886	0.50	Valid
9	Level of consumer satisfaction	0.834	0.50	Valid
10	QRIS changes the cash payment system to non-cash	0.847	0.50	Valid
11	Consumer satisfaction with the experience of using QRIS	0.937	0.50	Valid
12	The effectiveness of QRIS compared with debit and credit	0.905	0.50	Valid
13	Potential cost savings incurred	0.907	0.50	Valid
14	Minimize the risk of excess or shortage in transactions	0.847	0.50	Valid
15	Additional costs incurred by QRIS	0.724	0.50	Valid
16	Accuracy in using Qris	0.92	0.50	Valid
17	Transaction process error using Qris	0.779	0.50	Valid
18	Accuracy of transactions using QRIS	0.874	0.50	Valid
19	Ease of using QRIS	0.871	0.50	Valid
20	Flexibility in using QRIS	0.845	0.50	Valid
21	Transaction speed using ORIS	0.798	0.50	Valid
22	Speed in the cashier queue	0.67	0.50	Valid

The Measure of Sampling Adequacy (MSA) values for each indicator are above 0.50 so that they meet the MSA criteria, so it is appropriate to carry out factor analysis. The total variance explained from the related factors can be seen in Table 6 below:

Table 6 *Total Variance Explained*

No	Total Eigenvalues	% of Variance	Cumulative %	Total	Extraction Sums of Squared Loadings	Cumulative %	Total	Rotation Sums of Squared Loadings	Cumulative %
1	9.801	44.551	44.551	9.801	44.551	44.551	7.178	32.629	32.629
2	2.304	10.473	55.024	2.304	10.473	55.024	3.318	15.083	47.712
3	1.738	7.901	62.925	1.738	7.901	62.925	2.844	12.927	60.638
4	1.335	6.069	68.994	1.335	6.069	68.994	1.838	8.356	68.994

The Total *Variance Explained table* is to find out how many factors are formed. Based on Table 6. above, it provides an overview of how much information has been explained by the factors analyzed. Of the 22 indicators extracted into 4 factors formed from QRIS Effectiveness, they are as follows:

Factor 1 has a *rotation sums value* of 7.178 and *a variance* of 32.629, factor 2 has a *rotation sums value* of 3.318 and *a variance* of 15.083, factor 3 has a *rotation sums value* of 2.844 and *a variance of 12.927, factor 4 has a rotation sums* value of 1.838 and *a variance* of 1.838. 8,356.

Table 7 *Rotated Component Matrix* [a]

No	Indicator	Component 1	Component 2	Component 3	Component 4
1	QRIS Quality System	0.699	0.452	0.049	-0.024
2	QRIS system data management	0.8	0.157	0.009	0.184
3	The QRIS level protects payment data	0.613	0.476	0.149	0.112
4	Clarity of information regarding promotions or special offers	0.202	0.746	-0.052	0.341
5	Clarity of information related to transactions provided by QRIS	0.351	0.758	0.109	0.012
6	Level of information about discounts, cashback and vouchers	0.143	0.842	0.101	0.103
7	QRIS service quality	0.735	0.137	0.109	0.172
8	QRIS-related services responsively assist transactions	0.768	0.197	0.235	-0.012
9	Level of consumer satisfaction	0.773	0.267	0.123	-0.127
10	QRIS changes the cash payment system to non-cash	0.755	-0.001	-0.098	0.311
11	Consumer satisfaction with the experience of using QRIS	0.819	0.139	0.257	0.031
12	The effectiveness of QRIS compared with debit and credit	0.793	0.141	0.098	0.122
13	Potential cost savings incurred	0.762	0.071	0.141	0.192
14	Minimize the risk of excess or shortage in transactions	0.177	0.495	0.481	0.315
15	Additional costs incurred by QRIS	0.022	0.18	0.294	0.805
16	Accuracy in using QRIS	0.554	0.306	0.467	0.16
17	Transaction process error using QRIS	0.183	0.126	0.031	0.768
18	Accuracy of transactions using QRIS	0.205	0.395	0.627	0.282
19	Ease of using QRIS	0.64	0.396	0.337	-0.103
20	Flexibility in using QRIS	0.632	0.377	0.259	-0.101
21	Transaction speed using QRIS	0.296	-0.075	0.83	0.054
22	Speed at the checkout line	0.009	0.049	0.898	0.054

Table 7 shows a clearer distribution of variables. The rotating component matrix grouping is presented with the highest value of each indicator and its components. The explanation below explains the factors that cause the effectiveness of using QRIS in Yogya Karawang supermarkets:

1. The first factor has 13 indicators, namely: quality of the QRIS system (0.699) Management of QRIS system data (0.800) Level of QRIS protecting payment data (0.613) Quality of QRIS services (0.735) Services related to QRIS responsively help transactions (0.768) Level of consumer satisfaction (0.773) QRIS changes the cash payment system to non-cash (0.755) Consumer satisfaction with the experience of using QRIS (0.819) Effectiveness of QRIS compared to debit and credit (0.793) Potential cost savings (0.762) Accuracy in using QRIS (0.554) Ease of use QRIS (0.640) Flexibility in using QRIS (0.632).

2. The second factor has four indicators, namely: Clarity of information related to promotions or special offers (0.746) Clarity of information related to transactions provided by QRIS (0.758) Level of information about discounts, cashback and vouchers (0.842) Minimizing the risk of excesses or shortages in transactions (0.495).

3. The third factor has three indicators, namely: Transaction accuracy using QRIS (0.627) Transaction speed using QRIS (0.830) Cashier queue speed (0.898).

4. The fourth factor has two indicators, namely: Additional costs incurred (0.805) Error rate using QRIS (0.768).

6. Discussion

6.1 QRIS Effectiveness

Based on the results of research on the effectiveness of using QRIS, there are 22 indicators that have been selected which will then be processed using factor analysis and then formed into 4 factors that influence how effective the use of QRIS is. After the grouping and number of factors formed by reduction are determined, factor naming can be done in Figure 7 below:
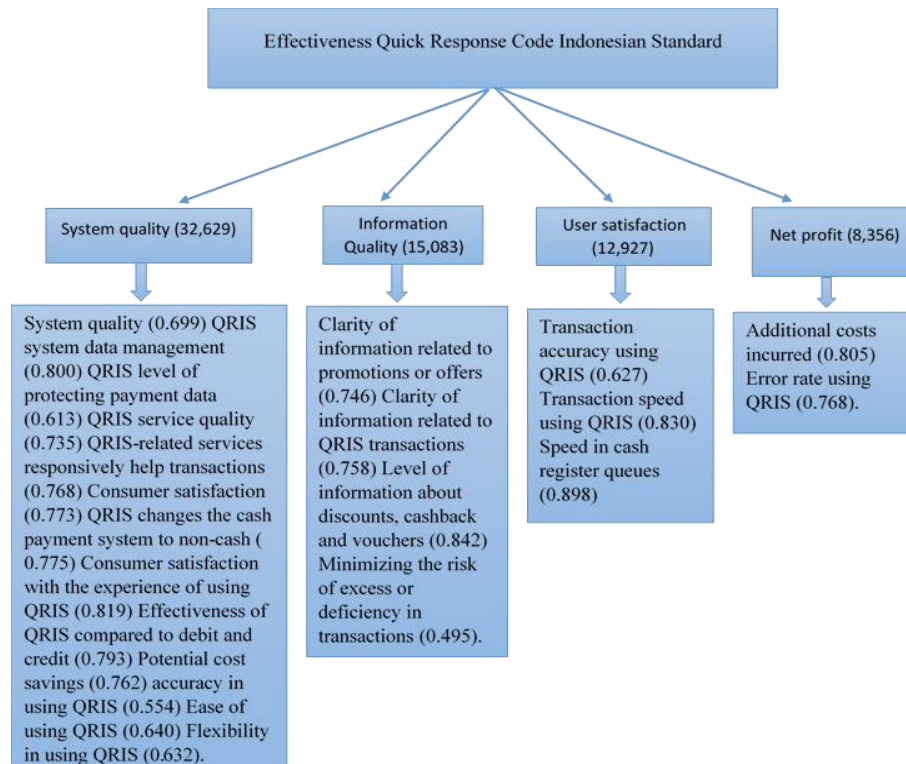

Fig. 8 *Preparation of factor analysis results of the Rotated Component Matrix [a]*

Fig. 8 above shows that from the 22 indicators there are 4 factors that have an MSA (*measure of sampling adequacy)* value of more than 0.5 and the factors formed can cause effectiveness, namely (1) The system quality factor has a relationship of 32.629%. (2) Information quality is 15.083%. (3) User satisfaction of 12.927%. (4) Net profit of 8.356%.

The presence of Quick Response Code Indonesian Standard as a non-cash payment method has opened up opportunities for supermarkets to increase operational efficiency and provide a more practical shopping experience for customers. One example of a supermarket that has successfully implemented QRIS is "Yogya Karawang". The use of QRIS in the "Yogya Karawang" supermarket has brought significant changes to the shopping experience. Now, customers can easily make payments without carrying cash or credit cards. Simply by pointing their smartphone at the QR code available at the cashier, transactions can be carried out immediately. A comparison between cash payment times and payments using QRIS in terms of queues at the cashier shows that cash payments can result in queues or slow down the process, especially if there are difficulties in counting money or preparing change. Meanwhile payments using QRIS can reduce complexity, where customers only need to scan the QR code to complete the payment and reduce the risk of counterfeit money.

The benefits for customers who use QRIS are that QRIS users do not need to carry cash, reducing the risk of loss and several reward programs such as discounts or cashback can be integrated with QRIS payments providing additional benefits to customers. Meanwhile, the benefit for the company itself is that the payment process using QRIS can be more effective and allows the company to improve services to a larger number of customers in a more efficient time.

This research is similar to research conducted by Suhendry (2021). The convenience provided by QRIS is an advantage for someone who uses QRIS, so that this convenience has an impact on their decision to use QRIS as a means of payment. In addition, the study emphasizes that the benefits of QRIS are one of the factors that can influence a person's decision to use it as a primary payment method.

6.2 Strategy

The strategy for responding to the data above is to maximize quality and quantity starting from the transaction aspect and the benefits of be to be or *business to business* , maximizing the quality of transactions, the company must analyze it using the QRIS method, for example speeding up the transaction time process, reducing queues at the cash register, if the process is late or there are several obstacles in the process. The non-cash transaction process on the EDC machine can be directly transferred to QRIS *e-payment* , one company must be able to understand consumers who have various banks or other *e-wallets* so that all banks can be transacted in one *payment* or payment. Apart from that, *e-payment* or QRIS transactions are more accurate and reduce the occurrence of undesirable negative impacts that have the potential to harm the company due to counterfeit money and damaged or unfit money.

B2B (business *to business)* from QRIS can include promotions in the *online corner* such as cashback, discounts, as well as vouchers or other promotions, it would be better if be to be runs in collaboration with accompanying parties or agrees to companies collaborating with parties banks that provide these services. Not 100% of people have QRIS, therefore this service must still be maximized.

The strategy implemented by Yogya Karawang is to provide an EDC *(Electronic Data Capture) machine* for every bank such as BCA, BRI, BNI and so on at every cashier so that the transaction process using QRIS can run effectively and not block the cashier queue due to the limitations of the EDC machine. *(Electronic Data Capture)* .

This research is similar to research conducted by Atika Dury (2022) showing that promotions have a significant impact on transaction decisions using QRIS at Bank Aceh Syariah, and ease of service also has a significant impact on decisions in making transactions using QRIS.

7. Implications

1. Comparison of effectiveness with debit payment methods. Comparing the effectiveness of QRIS with other non-cash payment methods used in Yogya Karawang supermarkets can provide a broader understanding of QRIS's position in the supermarket payment ecosystem.
2. Proposing ideas for developing innovative business models involving QRIS, such as special offers for QRIS users. This can provide a strategy to increase the attractiveness of QRIS to consumers.
3. Further research and innovation need to continue to be carried out to optimize the contribution of QRIS in payment system transformation.
4. Yogya Karawang should design a strategy so that each cashier has one barcode that can be used for transactions using QRIS from various banks. Currently Yogya Karawang still uses Electronic Data Capture (EDC) for QRIS payments, it does not yet have one barcode that can access all banks. Thus, it would be more efficient if each cash register was equipped with one barcode which would allow customers to make payments using QRIS from various banks without problems.

8. Conclusion

The results of this research show that of the 22 indicators there are 13 indicators that have a high level of effectiveness. The results of factor analysis show that there are 4 groups of factors formed which can cause effectiveness with a total role of 68.995%, namely (1) System quality factors have a relationship of 32.629% (2) information quality 15.083% (3) user satisfaction 12.927% (4) net profit 8.356%.

The results of this research conclude that although there are several challenges that need to be overcome, the use of QRIS as a non-cash payment method in Yogya Karawang supermarkets provides various significant benefits. Evaluations carried out on these supermarkets confirm the effectiveness of QRIS, showing how well this technology improves the transaction experience for customers. Factors that support the effectiveness of QRIS include accelerating transactions, reducing queues at the cashier, and increasing convenience for consumers. QRIS has succeeded in increasing operational efficiency by reducing payment times, facilitating more effective stock management, and reducing administration costs related to non-cash payments. The strategy implemented by Yogya Karawang involves providing EDC (Electronic Data Capture) machines from various banks such as BCA, BNI, BRI at each cashier, so that the transaction process using QRIS can run smoothly without blocking the queue at the cash register due to the limitations of the EDC machine.

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Conflict of Interest

Authors declare that there is no conflict of interests regarding the publication of the paper.

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Author Contribution

The authors confirm contribution to the paper as follows: **study conception and design:** *Dela Vida Rochani, Uus Mohammad Darul Fadli, Ery Rosmawati;* **data collection:** *Dela Vida Rochani, Ery Rosmawati;* **analysis and interpretation of results:** *Dela Vida Rochani, Ery Rosmawati;* **draft manuscript preparation:** *Dela Vida Rochani, Uus Mohammad Darul Fadli, Ery Rosmawati. All authors reviewed the results and approved the final version of the manuscript.*

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