# Customer Perception on Adoption of Quick Response (QR) Code Payment in Nepal

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## Abstract

The Quick Response (QR) code payment system has grown popularity in recent years. This study aims to examine the impact of customer perception on adoption of QR code payment in Nepal. Descriptive and causal comparative research design has employed with structured questionnaire survey administered to 385 banks customers in Nepal. This study analyze the relationships and impact between the variables by using pearson correlation and regression analysis. The findings reveal positive and significant impact of Knowledge about QR Code Perceived Cost on adoption of QR code and Ease of Use while Trust and Security have insignificant impact on customer perception. The findings of this study may offer valuable insights to banks customers, policymakers, and the future researchers, aiding the value of QR code payment on cusomer satisfaction. This study offers a unique contribution by exploring how the QR code payment enhance banking transaction with customer satisfaction in the context of Nepal, where only the limited research has been conducted.

## Key Words

Customer Satisfaction, QR Code payment, Nepal

## Introduction

The Quick Response (QR) code payment system, which has witnessed a significant surge in popularity and usage over the past few years in developing countries including Nepal. A Quick Response (QR) code is a kind of barcode that is two-dimensional and is composed of black squares that are placed in a square grid on a white backdrop. It comprises information that is accessible by machines and this information may be retrieved via the use of a QR code scanner or the camera on a smartphone (Sapkota, 2021). By harnessing the capabilities of smartphones and digital applications, QR code payments facilitate transactions that are not only highly secure but also remarkably fast, offering a seamless alternative to traditional payment methods. The rate at which QR code payments are being accepted has increased as a result of the growth of smartphones that are equipped with cameras and internet connections (Zhou, 2020). As a consequence of this, the rate of adoption has been increased.

QR codes make the process of making a payment easier due to the fact that enable customers to scan a code using their smartphone. QR codes have become an enticing choice for both consumers and companies as a result of their incorporation into a variety of payment systems, such as mobile wallets and banking applications (Ali & Hameed, 2020). There are a number of factors that have a significant influence on the way in which customers understand and make use of QR code payments. The simplicity of use, the amount of security that is perceived by consumers, and the level of trust that customers acquire are all characteristics of this category. In the context of QR code payment systems, the term "perceived ease of use"

refers to the ease with which customers can browse and utilize these systems, while the term "perceived security" refers to the safety measures that are in place to protect user data and transactions (Lin, 2021).

Customers' adoption of QR code payments may be delayed by a range of factors, including concerns around the protection of their personal information and their faith in technological advancements. Despite the fact that QR code payments provide a multitude of benefits, including the capacity to be fast and easy, this is the situation that has arisen. Choi and Lee (2023) conducted a research that brought to light the fact that the degree of user experience and the level of technological trust are two factors that have a big impact on the adoption of QR code payments.

Many countries that are still in the process of development, QR code payments. There are a number of possible challenges that might impede the introduction of new technologies by preventing them from being implemented. For the time being, mobile payments that are performed via the use of QR codes are still in the earliest phases of being accepted in Nepal. The adoption rates of QR codes in Nepal are influenced by a number of factors, including limited knowledge, problems with infrastructure, and varying degrees of trust in the advancement of technology. Moreover, perceived security, simplicity of use, speed, and convenience may impact customer opinions towards QR code payments (shrestha, 2021).

Quick response (QR) code payments have both potential and problems in emerging countries. First, they provide a cheap option to financial inclusion that allows consumers in outlying regions to use digital payment systems without investing in costly and complex infrastructure (Sharma, 2024). However, there are a lot of obstacles that could stand in the way of introducing new technology. Inadequate infrastructure and a general lack of technical knowledge are them. The importance of knowledge and awareness in the effective adoption of QR code payments in countries that are deemed underdeveloped (Dwivedi & Rana, 2019).

This study seeks to shed light on the various factors that influence the adoption and continued use of QR code payment systems in Nepal, a country that is experiencing an increasing integration of digital payment technologies. What are the factors influencing consumer adoption of QR code payments system in Nepal, what is the relationship between consumer perceptions variables and adoption of QR code payment system in Nepal, what is the impact of ease of use, trust & security, perceived cost and knowledge about QR code with adoption QR code payment system in Nepal.

## Literature Review

Shafir (2013) employs behavioural economics principles to examine the factors influencing consumer acceptance of QR payments, with an emphasis on perceived ease of use and trust. The research indicates, using an experimental methodology and data from a 500-person survey, that ease of use has a significant impact on trust, which promotes adoption. The article also looks at cognitive biases that influence customer decision-making in mobile payments, addressing topics such as user experience and trust building. Like as, Kalinic (2017) uses survey data from 640 respondents in China and Europe to compare the adoption of QR code payments among consumers in both regions. The findings highlight differences in trust, security concerns, and ease of use, indicating that consumer perceptions of QR payments are heavily influenced by cultural factors. The study provides information for organizations worldwide who use QR codes in a variety of applications. Moreover,Tan (2018) examines the likelihood of QR code payments utilizing mobile technologies using a sample of 500 mobile users. Validated by structural equation modeling, the research identifies three key factors influencing adoption: consumer perception, social influence, and ease of use. The findings suggest that consumer perception and social influence have a

significant impact on adoption, which has implications for mobile payment providers and future research directions.

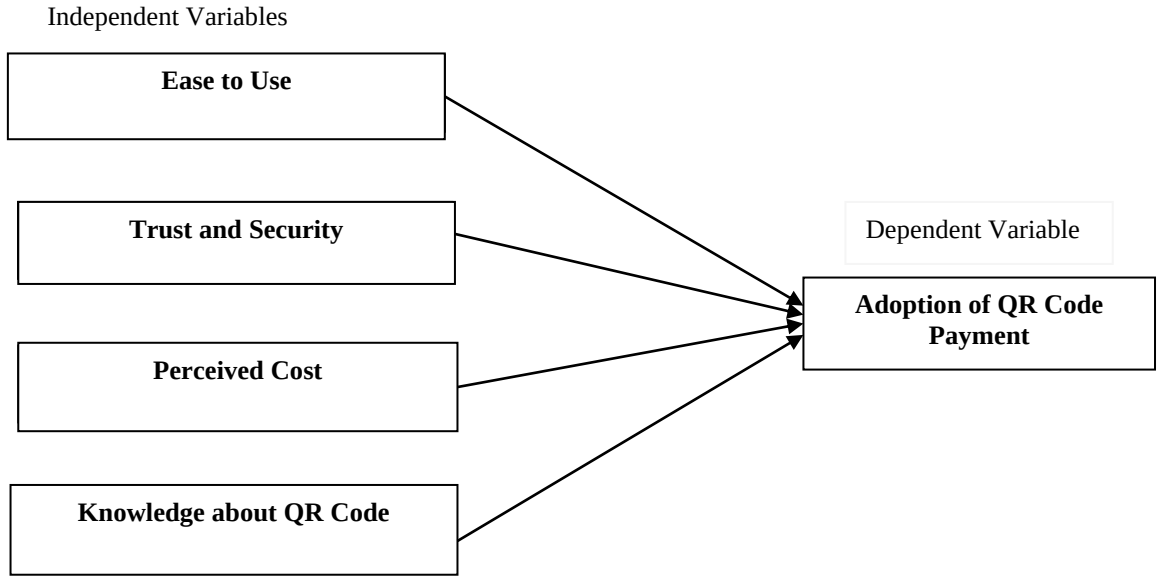
Rana (2019) explores the role of awareness and knowledge in the acceptability of QR code payments in developing nations using a quantitative methodology and a survey of 300 consumers from many countries. The findings suggest that increasing adoption is dependent on knowledge and comprehension; higher levels of both will enhance consumer confidence. The paper emphasizes the need for concentrated educational initiatives to increase consumer knowledge and awareness, giving important suggestions to governments and financial institutions. Similarly, Zhou (2020) seeks to discover the elements that influence continued mobile payment adoption, including QR code payments. Using structural equation modeling, the study investigates 385 user data to identify the primary factors perceived ease of use, trust, and perceived usefulness. Ensuring continued usage is dependent on trust, which has implications for service providers seeking to improve security measures. Chen (2020) uses a quantitative technique and structural equation modeling on 800 consumers to investigate how perceived risk and trust influence consumer behavior toward QR code payments. The findings suggest that perceived threat reduces consumer trust; nevertheless, appropriate security measure communication may assist to mitigate this risk. The research emphasizes the need of building client trust for broad QR code payment acceptance. Like as, Hameed (2020) uses a mixed-methods approach, including quantitative surveys and qualitative interviews, to explore the factors influencing consumer adoption of QR code payment systems in a developing nation. Research indicates that adoption is influenced by perceived security and ease of use, as well as demographic factors like as age and wealth. The report offers suggestions for how businesses and politicians may enhance QR code payment acceptability. Wang (2020) found the impact of perceived value on consumer adoption of QR code payments in India. According to the report, perceived value the driving force behind adoption is heavily impacted by simplicity, security, and social effect. The poll also takes into account demographics, with younger consumers being more likely to utilize QR payments. There are several suggestions for increasing perceived value in order to encourage more widespread acceptance.

Khan and Ali (2021) investigate the links between perceived risk, trust, and mobile payment acceptance using QR code payments as an example. The study uses a 500-person sample to evaluate how gender influences these interactions. Results reveal that, although trust is an important mediator, perceived risk limits adoption. Men also have higher levels of faith in technology than women. The paper makes recommendations for how marketers may boost trust and reduce perceived risks in mobile payments. Moreover, Sinha (2022) uses a survey of 384 respondents from major metropolitan regions to study the impact of social influence on the adoption of QR code payments in urban India. According to the study, peer recommendations and social media have a significant effect on consumer decisions to adopt QR payments. It also underlines the importance of digital literacy in increasing social effect, and it concludes with recommendations for leveraging social media to promote QR payment adoption. Cronin (2022) conducted the various firms define and rate service excellence. The study also examined how purchasing decisions, customer appeal, and service quality interacted. It studied the significance of the relationship between service quality, customer satisfaction, and purchase intention, as well as another method for operationalizing apparent service quality. According to the findings, performance-based service quality assessment may be a better strategy to assessing service quality in banks and other service organizations. According to studies, customer pleasure is directly proportional to service quality, which has a significant impact on purchasing behavior. However, service quality has less of an influence on purchase intention than customer satisfaction. Chio and Lee (2023) use a mixed-methods approach to investigate the factors impacting QR code payment acceptability in

South Korea, collecting data from 500 consumers and conducting in-depth interviews with 20 industry experts. With security concerns and a lack of expertise among elderly clients identified as impediments, the findings indicate that technical trust and user experience are the primary drivers of adoption. The implications for lawmakers and service providers are discussed in detail. Sharma (2024) investigates client attitudes about digital payments in underdeveloped countries, focusing on QR code systems. Using a survey of 250 respondents from three nations, the research found that knowledge of infrastructure availability and quality is critical for customer views. It also emphasizes the need of financial knowledge in allowing the acceptance of digital payments and finishes with ideas for enhancing consumer trust in digital payments. Dhakal (2024) explored the idea of trust in regard to the use of QR code payments in Nepal's retail sector. The study used a mixed-methods approach, combining qualitative interviews with retail store owners and consumers with quantitative questionnaires administered to those people. Based on the data, it is obvious that trust in the payment system's security and reliability is an important factor influencing broad adoption. According to the study, a significant boost in consumer trust has been linked to a brand's reputation as well as previous positive experiences with QR code payments. A number of suggestions are made for merchants and payment service providers to emphasize the creation of trust via the deployment of transparent and secure payment processes.

Thapa (2024) conducted research to evaluate the factors that impact the acceptance of QR code payments among consumers in Kathmandu, Nepal. The research looks at how customers perceive the ease of use, security, convenience, and social effect of a product or service. The findings show that perceived security and convenience are the most critical factors influencing adoption. The data was collected using questionnaires sent to a total of 300 respondents. Further barriers to wider adoption, according to the research, include a lack of understanding and few acceptance points. This research contributes to our understanding of Nepal's digital payment ecosystem and provides information that governments and enterprises may utilize to promote consumer adoption of QR code payments.

**Figure 1** Conceptual Framework




**Source:** Zhou (2020)

From insights collected through a systematic literature review, the conceptual framework has been carefully developed, emphasizing ease to use, trust and security, perceived cost and

knowledge about QR code as a independent variables of dependent variable customer satisfaction on adoption of QR code payment in Nepal.

## Research Methodology

Data and variables used for the study using a tested structured questionnaire from articles. The questionnaires were distributed to the bank's customers both the physical contact and using Google forms through various online social media platforms. Descriptive and casual comparative research design was used. The respondents for this study have been selected through non-probability sampling technique, i.e., convenience sampling. The population is regarded as infinite. Therefore, a sample size of 385 respondents has been considered for this study (Cochran, 1977). Descriptive as well as inferential both the statistical techniques employed in this study. The reliability statistics of the constructs has been tested with Cronbach's Alpha and got of 0.902 across 25 items, reflecting excellent internal consistency for the combined scale.

The multiple regressions have been used in this research is as follow:

$AQRP = \beta 0 + \beta 1EU + \beta 2TS + \beta 3PC + \beta 4KQR + \varepsilon$ ……. (i)
Where,
AQRP = Adoption QR Code Payment
EU = Ease of Use
TS = Trust and Security
PC = Perceive Cost
KQR = Knowledge about QR Code
$\beta 0$ = Intercept of the dependent variable
$\varepsilon$ = error term and
$\beta 1$, $\beta 2$, $\beta 3$ and $\beta 4$ are the beta coefficients of the explanatory variables to be estimated.

## Results and Discussion

**Table 1** Demographic Profile of Respondents

| Variables/Categories | Frequency | Percentage |
|---|---|---|
| Gender | | |
| Male | 210 | 54.5 |
| Female | 175 | 45.5 |
| Age Groups | | |
| Under 20 | 62 | 16.1 |
| 21-30 | 65 | 16.9 |
| 31-40 | 181 | 47.0 |
| 41-50 | 46 | 11.9 |
| Above 50 | 31 | 8.1 |
| Education | | |
| +2 Level | 74 | 19.2 |
| Bachelor Degree | 228 | 59.2 |
| Master Degree and above | 83 | 21.6 |

Table 1 summarizes the gender distribution of the respondents. Among the total 385 participants, 210 (54.5%) are male, while 175 (45.5%) are female. This indicates a slightly

higher representation of male respondents compared to female respondents. The age distribution of the respondents. The largest group comprises individuals aged 31-40, accounting for 181 respondents (47.0%). This is followed by the 21-30 age group with 65 respondents (16.9%) and those under 20 with 62 respondents (16.1%). Participants aged 41-50 represent 46 respondents (11.9%), while the smallest group is those above 50, with 31 respondents (8.1%). The total sample size is 385, reflecting diverse age representation. The majority, 228 respondents (59.2%), hold a bachelor's degree, indicating a highly educated sample. This is followed by 83 respondents (21.6%) with a master's degree or higher, and 74 respondents (19.2%) with education at the +2 level. The total sample consists of 385 individuals, showcasing a well-educated population overall.

**Table 2** Descriptive Statistics

| Variables | Minimum | Maximum | Mean | Std. Dev. |
|---|---|---|---|---|
| Adoption QR Code Payment (AQRP) | 1.80 | 5.00 | 3.20 | 0.63 |
| Ease to Use (EU) | 2.20 | 5.00 | 3.49 | 0.51 |
| Trust and Security (TS) | 1.60 | 5.00 | 3.39 | 0.53 |
| Perceive Cost (PC) | 2.20 | 5.00 | 3.50 | 0.54 |
| Knowledge about QR Code (KQR) | 2.40 | 5.00 | 3.70 | 0.59 |

Table 2 decipts the descriptive statistics for the variables related to the adoption of QR code payment systems. The table reports the minimum, maximum, mean, and standard deviation (Std. Dev.) for each variable.

The Adoption QR Code Payment variable has a mean of 3.20 with a standard deviation of (0.63), indicating moderate adoption levels and some variability in responses. The Ease of Use variable has a higher mean of 3.49 and a lower standard deviation (0.51), reflecting a generally favorable and consistent perception of ease. The Trust and Security variable has a mean of 3.39 with a standard deviation of (0.53), suggesting moderate trust in the security of QR code payments with relatively consistent responses. For Perceived Cost, the mean is 3.50 with a standard deviation of (0.54), indicating a positive view of the cost-effectiveness of QR code payments and moderate variability. Lastly, the Knowledge about QR Code variable has the highest mean 3.70 and a standard deviation of (0.59), reflecting a good level of knowledge and relatively consistent responses among participants.

**Table 3** Correlation Analysis

| Variables | AQRP | EU | TS | PC | KQR |
|---|---|---|---|---|---|
| AQRP | 1 | .541** | .426** | .731** | .812** |
| | | .000 | .000 | .000 | .000 |
| EU | | 1 | .520** | .595** | .532** |
| | | | .000 | .000 | .000 |
| TS | | | 1 | .493** | .401** |
| | | | | .000 | .000 |
| PC | | | | 1 | .784** |
| | | | | | .000 |
| KQR | | | | | 1 |

**. Correlation is significant at the 0.01 level (2-tailed).

Table 3 reveals the correlation analysis between the variables related to QR code payment adoption. The correlation coefficients are all statistically significant at the 0.01 level (denoted by **), indicating strong relationships between the variables.

The variable Adoption QR Code Payment (AQRP) shows the strongest correlation with Knowledge about QR Code (KQR) (r = 0.812), suggesting that greater knowledge about QR codes is strongly associated with higher adoption of QR code payment systems. AQRP also has a strong positive correlation with Perceived Cost (PC) (r = 0.731), indicating that a more

positive perception of cost-effectiveness is associated with higher adoption. Like as the variable Ease of Use (EU) is significantly correlated with AQRP (r = 0.541) and Trust and Security (TS) (r = 0.520), suggesting that perceptions of ease of use are positively linked to both adoption and trust in QR code payments. EU also has a moderate correlation with PC (r = 0.595), showing that ease of use is perceived as linked to the cost-effectiveness of QR code payments. Similarly, trust and Security (TS) has significant positive correlations with PC (r = 0.493) and KQR (r = 0.401), highlighting that trust in security measures is associated with perceived cost-effectiveness and knowledge about QR codes. Perceived Cost (PC) has a very strong positive correlation with KQR (r = 0.784), suggesting that individuals who perceive QR code payments as cost-effective tend to have more knowledge about QR codes.

**Table 4** Multiple Regression Analysis

| Model | | Unstandardized Coefficients | | Standardized Coefficients | t | Sig. |
|---|---|---|---|---|---|---|
| | | B | Std. Error | Beta | | |
| 1 | (Constant) | -.469 | .145 | | -3.240 | .001 |
| | EU | .104 | .046 | .085 | 2.236 | .026 |
| | TS | .059 | .041 | .050 | 1.438 | .151 |
| | PC | .214 | .058 | .183 | 3.666 | .000 |
| | KQR | .637 | .049 | .604 | 13.054 | .000 |
| R = 0.832 | $R^2$ = 0.691 | f = 212.85 | Sig. = 0.000 | | | |

Dependent Variable: Adoption QR Code Payment

Table 4 shows the model summary for the relationship between the dependent variable, Adoption QR Code Payment (AQRP), and the independent variables: Ease of Use (EU), Trust and Security (TS), Perceived Cost (PC), and Knowledge about QR Code (KQR). The model's overall R value is 0.832, indicating a strong relationship between the independent variables and the dependent variable. The $R^2$ of 0.691 shows that the model explains 69.1% of the variance in QR code payment adoption. The f-statistic of 212.85 and a significance level of 0.000 further support the overall significance of the model.The unstandardized coefficients (B) and standardized coefficients (Beta) show the contribution of each independent variable to the dependent variable. Knowledge about QR Code (KQR) has the highest unstandardized coefficient (B = 0.637) and standardized coefficient (Beta = 0.604), indicating it has the strongest impact on the adoption of QR code payment systems. The t-statistic for KQR is 13.054, with a significance level of 0.000, showing that this variable is highly significant. Perceived Cost (PC) also has a significant positive impact on adoption, with an unstandardized coefficient of B = 0.214 and a standardized coefficient of Beta = 0.183. The t-statistic is 3.666, with a significance level of 0.000, indicating a strong relationship between perceived cost and adoption. Ease of Use (EU) shows a positive but weaker effect, with an unstandardized coefficient of B = 0.104 and a standardized coefficient of Beta = 0.085. The t-statistic is 2.236, with a significance level of 0.026, indicating statistical significance but a smaller impact compared to KQR and PC.Trust and Security (TS) has a positive coefficient (B = 0.059) and a standardized coefficient (Beta = 0.050), but its effect is insignificant, with a t-statistic of 1.438 and a significance level of 0.151, suggesting that while trust and security are related to adoption, their contribution is weaker compared to the other variables.

## Discussion

Younger adults dominate QR code payment adoption in Nepal. Dhakal (2024), found that trust in the security and reliability of QR code payments was a key factor influencing adoption in Nepal's retail sector. Similarly, Chio and Lee (2023) noted that technical trust

was a primary driver of adoption, particularly in South Korea. The common theme across these studies is that consumers' concerns about security must be addressed to increase adoption rates. Chio and Lee (2023) emphasize the significance of ease of use in encouraging QR code payment adoption. Likeas, Thapa (2024), where ease of use was identified as a major factor influencing QR code payment adoption. Basnet (2024) too identified digital literacy as a barrier to the adoption of QR payments in rural areas. Like as, this finding is similar to the research by Sharma (2024), who highlighted the importance of financial knowledge in driving the acceptance of digital payments in underdeveloped countries.

However, this study found some concerns about hidden fees and the need for greater transparency in the cost structure, this issue was not as explicitly emphasized in the other studies. Sharma (2024) focused more on the availability and quality of infrastructure as influencing customer views, rather than concerns about hidden costs, which seems to be more relevant to this study in Nepal. Moreover, this study found that while respondents generally have a good understanding of QR code payments, they felt less confident in resolving issues such as failed transactions or security concerns.

In contrast, like Dhakal (2024) and Basnet (2024) indicates a potential area for improvement in terms of user education, which is not as prominently discussed in other studies. Lastly, this study noted gender differences, with male respondents showing a slightly higher likelihood of adopting QR code payments. However, this is not a common theme in the other studies. Tamang (2024) found gender discrepancies in QR code adoption, with men more likely to use QR payments, which aligns with this study, but this was not a focal point in other studies like Sharma (2024) or Thapa (2024), which did not extensively explore gender-related adoption patterns.

## Conclusion

Based on the findings of this study, several key conclusions can be drawn regarding the factors influencing the adoption of QR code payment systems in Nepal. First, consumer adoption is significantly influenced by the perceived ease of use, cost-effectiveness, and the level of knowledge about QR code payments. Respondents generally find QR code payments easy to use and appreciate their convenience and efficiency. While the adoption of QR code payments is not yet fully mainstream, there is a strong willingness to continue using and recommending them to others, suggesting positive attitudes toward the system. Second, while trust and security are important factors, they appear to have a lesser impact on adoption compared to perceived cost and knowledge. Although respondents express confidence in security features such as encryption, there is a slightly lower level of trust in the overall safety of QR code payments, pointing to concerns about potential fraud or system vulnerabilities. Third, the study highlights the importance of transparency in the costs associated with QR code payments. While many respondents perceive QR codes as cost-effective, concerns about hidden fees emphasize the need for clearer communication regarding any associated charges. Addressing these concerns could further promote the widespread adoption of QR code payments. Additionally, the findings underscore the importance of consumer knowledge in fostering adoption.

### *Implications*

The findings of this study have several important implications for the practitioners and policymakers in Nepal, as well as for future researcher. Businesses and service providers should focus on improving the user experience by addressing concerns related to ease of use, design, and interface friendliness. Policymakers should consider regulating and standardizing

QR code payment systems to ensure that they are secure, transparent, and user-friendly. Future researcher could further explore the specific barriers to QR code payment adoption. More detailed studies could investigate consumer concerns regarding security and trust in greater depth, as well as identify other factors that may influence adoption, such as cultural attitudes toward technology or the role of social influence. Moreover, longitudinal studies could assess how the adoption of QR code payments evolves over time and the impact of interventions designed to address the issues identified in this study.

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