

Exploring Consumer Readiness and Satisfaction in the Adoption of QR Ph Standard

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Abstract

The Philippines' current payment system is changing, shifting away from traditional cash payments toward QR-based payments. To combat this, the Bangko Sentral ng Pilipinas (BSP) implemented QR Ph to normalize the QR-based payment system. However, issues with QR Ph, such as internet dependence, affordability, trust, and digital literacy, arise once QR Ph is implemented. The study's objective is to assess consumer satisfaction and preparedness for the QR Ph payment adoption as a national cashless payment standard. The modified Unified Theory of Acceptance and Use of Technology 2 (UTAUT 2) served as the foundation of this research's quantitative approach, to which the researchers have gathered data from 257 respondents around the National Capital Region (NCR). The study used a significance level, with Cronbach's Alpha to assess the reliability and consistency of the questionnaires. The relationship between constructs such as Performance Expectancy (PE), Effort Expectancy (EE), Social Influence (SI), Subjective Norms (SN), Facilitating Conditions (FC), Hedonic Motivation (HM), and Data Privacy and Security (DPSEC) was analyzed using the Structural Equation Modeling (SEM). The research concludes that among these constructs, Hedonic Motivation and Data Privacy and Security have a significant influence on consumers' behavioral intention to use QR Ph. This paper provides important insights to merchants, policymakers, the BSP, and financial institutions to improve the readiness and satisfaction towards QR PH usage, providing a broader adoption in the Philippines. Future research should explore merchants' viewpoints, expand research data collection outside of the region, and conduct a comparison analysis with other cashless payment systems.

Keywords

QR Ph, UTAUT2, Quantitative research, Structural Equation Modelling, Finance

1. Introduction

Smartphones are one of the factors that influenced the Philippines' shift towards cashless transactions. The shift mainly happened due to the COVID-19 outbreak, which changed the payment habits of people. By 2025, up to 58.7 million smartphone users were recorded, and 40.3 million in 2020, according to Montano (2023). In the study of Susilo and Dizon (2025), it was stated that the rise was crucial to the acceptance of digital payments, due to governmental digitalization initiatives and the desire for contactless transactions.

The shift was mainly due to Bangko Sentral ng Pilipinas (BSP) promoting financial access and fintech innovations and solutions through initiatives like QR Ph, the national standard for QR-based payments, as stated by Celestino

(2024). The National Retail Payment System (NRPS) also supports QR Ph, as it aims to create quick and safe payment systems, as stated and explained by Dakila (2022). The adjustments support the BSP's goal of making the Philippines a cash-lite economy.

QR technology significantly changed the payments sector by enabling quicker and more convenient payment options, according to Djayparanata and Setyawan (2025). Due to the change, businesses are currently forced to adapt in order to accommodate the new consumer preferred payment methods (Diaz, 2025). Although there are concerns about data privacy, digital literacy, security, and accessibility that contribute to the full adoption of QR Ph, as such, to stay competitive, businesses must adjust accordingly to the customer demands and overall make transactions convenient and flexible (Apriani & Wuryandari, 2022; Diaz, 2025), as digital payment systems by MSMEs are influenced by customer preferences.

This study provides practical implications for policymakers and financial institutions by identifying key factors, including security, usability, and trust, that influence QR Ph adoption. The payment system QR Ph functions as an open standard payment system, which enables transactions between different platforms, unlike traditional mobile wallets that restrict users within their systems. The study focuses on NCR because of its digital infrastructure, allowing the study of behavioral factors without considering access limitations.

Prior research focused on the technical and regulatory side of cashless payments, and not on the behavioral elements that either help or hinder the use of QR Ph, particularly in the National Capital Region, where these elements are important. This study addresses that gap, in which it tackles customer satisfaction and preparedness using the UTAUT2 (Unified Theory of Acceptance and Use of Technology 2) model. Key constructs that influence the use of QR Ph are identified by analyzing concepts like effort expectancy, social influence, hedonic motivations, and data privacy. In order to help the BSP, legislators, and financial institutions create a trusted system, the results help improve their strategies.

1.1 Objectives

The objective of this study is to evaluate consumer readiness and satisfaction towards the adoption of QR Ph payments to understand consumers' overall perspective while using QR Ph as a cashless payment standard. For specific research objectives, it aims to address the following: Determine and analyze the socio-demographic status (age, gender, income, educational attainment, etc.) that influences consumers' readiness to use QR Ph payments, Examine the relationship between prior knowledge of other online payment methods (GCash, Maya, or online banking) and the consumer's readiness to adopt QR Ph as a regular online payment method, To assess, using a modified UTAUT2, its contribution to consumer satisfaction and readiness with QR Ph payments, To analyze the relationship between consumer readiness and satisfaction with QR Ph payment usage, and interpret how readiness may predict or alter satisfaction outcomes, or vice versa, Identify the barriers that hinder consumers' use of QR Ph and the enabling factors that shape consumers' perspectives on adopting QR Ph as a preferred cashless payment standard, Propose evidence-based recommendations based on the study's findings and areas for improvement for government agencies, financial institutions, and merchants to help consumers be better prepared and more satisfied, thereby fostering broader acceptance and sustained use of QR Ph payments, and Provide recommendations and direction for future research to improve consumer readiness and satisfaction in adopting and changing QR Ph as an online payment method.

2. Literature Review

Money has changed over time from being a physical coin to a digital currency due to economic and technical advancements. Because of innovations such as QR codes, cash and physical cards, such as debit cards, have become unnecessary. This has revolutionized the payment process by providing quicker, more convenient, and contactless transactions for customers and merchants (Selvan, 2021). The Bangko Sentral ng Pilipinas has been leading the nation's shift towards digital payment. QR-based payment implementation has been encouraged by the BSP to industries as part of their objective to promote financial digitalization (Celestino, 2024). Furthermore, as we enter the new normal, COVID-19 has become one of the main driving forces towards the transition to digital payments, and according to Acopiado et al. (2022), this is one of the strategies done by corporates to recover financially.

Additionally, because of mobile payments, banks have improved their big data analytics to solve upcoming additional data privacy problems, making it possible for banks to continuously update their mobile banking apps (Hitachi Solutions, 2024). In the Philippines, this digital evolution is supported by the National Retail Payment System (NRPS),

which was identified as the foundation for a secure, affordable, and efficient electronic payment system (Dakila, 2022). A key component of this framework is QR Ph, which standardizes QR-based payments. Ultimately, the real treasure of QR Ph lies in its unmatched convenience, which varies with how users manage their daily financial transactions (Brankas, 2023).

The QR-based payment system has become a popular payment method because it is affordable and widely used by consumers and companies. According to Tu et al. (2022), mobile payments using QR codes may eventually take the role of cash and credit cards in physical establishments. On the other hand, users of digital wallets or mobile wallets (such as GCash, Maya, GrabPay, ShopeePay, LazPay, AliPay, and Apple Pay) can store money, send money, pay bills, scan-to-pay using QR codes, and even access investment, insurance, and savings tools through an easy-to-use app-based user interface (Ng, 2025).

However, Ing et al. (2025) pointed out that while the adoption of digital payments helps the digital economy expand, there are obstacles, such as a lack of service providers, expensive ICT, inadequate internet access, problems with trust, and low public awareness. Based on its utility, certain research investigates the possibility of implementing cashless payments. According to Khando et al.'s (2023) Swedish study, convenience, cost, trust, hazards, norms, and consumer preferences are important elements in adoption decisions. Raon et al. (2021) found that the adoption of an e-payment system was significantly influenced by perceived risk, trust, security, use of web assurance seals, perceived utility, and perceived advantage.

3. Methods

The study utilized quantitative data. Almendingen (2021) stated that this method creates various viewpoints, and McBeath (2022) stated that online surveys can efficiently collect quantitative data. This approach makes the use of the UTAUT2 model possible. And the study of Alkhwalid et al. (2023), which also utilized the UTAUT model to study technology adoption, supports this.

4. Data Collection

Surveys were conducted both online and in person to collect the data. Structural Equation Modeling (SEM), a multivariate data analysis technique that investigates interactions between constructs and indicators, will be used to examine said data (Hair et al., 2021). The questionnaire was developed based on the modified UTAUT2 model and additional variables relevant to consumer readiness and satisfaction in QR Ph adoption. It is divided into eleven sections, namely: (1) Demographics (Age, Gender, Socioeconomic Status, Civil Status, Educational Attainment, Occupation, Mobile Banking/E-Wallet Ownership), (2) Performance Expectancy, (3) Effort Expectancy, (4) Social Influence, (5) Facilitating Conditions, (6) Hedonic Motivation, (7) Security, (8) Data Privacy, (9) Behavioral Intention, (10) Use Behavior, and (11) Perceived Satisfaction. Each section consists of structured Likert-scale questions adapted from recent literature (2020 and beyond) on digital and cashless payment adoption, ensuring that the instrument captures both the readiness of consumers to use QR Ph and their overall satisfaction with its implementation. Path analysis and factor analysis were also used to test theoretical models, and divide indicators and constructs (Shrestha, 2021)/ Convenience sampling was also used in the study for faster collection (Stratton, 2021).

4.1 Theoretical Research Model

Figure 1 is a modified version of Unified Theory of Acceptance and Use of Technology 2 (UTAUT2). It is used in the study to analyze behavioral intention by examining the constructs such as performance expectancy, effort expectancy, social influence, facilitating conditions, hedonic motivations, security, and data privacy, and the relationship they have with individual demographic profiles, resulting in either satisfaction or dissatisfaction with the current state of QR systems. The majority of individuals are familiar with QR codes, though only a minority uses them. User experience and security perceptions drive QR code usage; as such, enhancing both quality and service security fosters user satisfaction, which, in turn, encourages regular use.

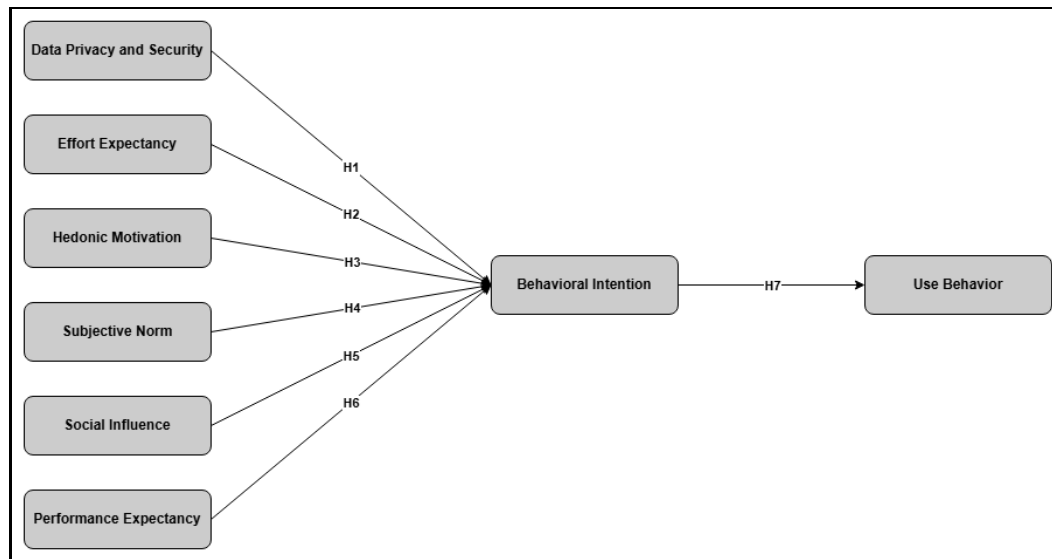


Figure 1. Theoretical Research Model

4.2 Hypotheses

4.2.1 Data Privacy and Security (DPSEC)

Data Privacy and Security (DPSEC) is concerned with trust theory and perceived risk theory, which suggests that users are more likely to adopt a technology when perceived risks, such as data breaches, are minimized (Sahi et al., 2022). In digital payment systems, concerns regarding financial security and personal data protection are critical for the user's trust. In the context of QR Ph, transactions involve the exchange of sensitive financial and personal information, making security and privacy crucial for building confidence in the system. When users perceive that QR Ph provides secure transactions, their trust increases, which strengthens their intention to adopt the system. With this, the study suggests that:

Hypothesis 1 (H1) - *The security of the transaction and data protection encourages users to adopt QR Ph systems, thus having a positive behavioral intention to adopt the system.*

4.2.2 Effort Expectancy (EE)

Effort Expectancy (EE) is derived from the UTAUT2 model, which presumes that technologies that are perceived as easy to use are more likely to be adopted (Rumangkit et al., 2023). According to cognitive load theory, users would prefer systems that require minimal effort to learn and operate. In QR Ph, ease of scanning, intuitive interfaces, and minimal transaction steps reduce user effort. When users perceive QR Ph as simple and user-friendly, they are more likely to adopt the system as a preferred payment method. With this, the study suggests that:

Hypothesis 2 (H2) - *The ease of use of QR Ph has a significant and positive effect on consumers' intention to adopt QR Ph as a standard for cashless payments.*

4.2.3 Hedonic Motivation (HM)

Hedonic Motivation (HM) is derived from the UTAUT2 model, where intrinsic enjoyment or pleasure influences technology adoption (Malarvizhi et al., 2022). Beyond functional benefits, users are motivated by the perceived enjoyment, novelty, and satisfaction derived from using the system. In QR Ph, the experience of fast, seamless, and modern transactions can create a sense of technological engagement. This positive emotional response enhances the user's willingness to adopt the system. With this, the study suggests that:

Hypothesis 3 (H3) - *The enjoyment and satisfaction of the user have a positive effect on influencing the consumers' intention to adopt QR Ph cashless payment.*

4.2.4 Subjective Norm (SN)

Subjective Norm (SN) refers to individuals being influenced by perceived expectations of peers when deciding whether to perform a behavior (Greisel et al., 2022). In the context of QR Ph, users may feel encouraged or pressured to adopt QR payments due to societal trends, peer expectations, or widespread usage. This perceived social pressure can influence their intention to adopt the system. With this, the study suggests that:

Hypothesis 4 (H4) - *Social pressure to use existing QR Ph does, in fact, have positive effects towards influencing consumers' intention to adopt the standardization of QR Ph.*

4.2.5 Social Influence (SI)

Social Influence (SI) is derived from the UTAUT2 model, referring to the degree to which individuals perceive that important others believe they should adapt to or use the technology. In QR Ph, recommendations from peers, family, or colleagues can reinforce trust and reduce uncertainty, thereby encouraging the adoption of the system. Observing others using QR Ph may also normalize its use. With this, the study suggests that:

Hypothesis 5 (H5) - *Social influence by being encouraged and pressured does have a significant positive effect in terms of the adoption of QR Ph standardization.*

4.2.6 Performance Expectancy (PE)

Performance Expectancy (PE) is derived from the UTAUT2 model, which suggests that users are more likely to adopt the technology if they perceive that it will enhance their performance or efficiency (Rumangkit et al., 2023). In QR Ph, this includes faster transactions, reduced reliance on cash, and improved convenience. When users perceive that QR PH improves transaction efficiency, they are more likely to adopt the system. With this, the study suggests that:

Hypothesis 6 (H6) - *Performance expectancy has a positive effect on the behavioral intention in the adoption of QR Ph.*

4.2.7 Behavioral Intention (BI)

Behavioral Intention (BI) is a key predictor of actual usage behavior in UTAUT2, where intention serves as the immediate antecedent of behavior (Saini et al., 2023). In QR Ph, users who intend to use the system regularly are more likely to translate that intention into actual usage behavior. With this, the study suggests that:

Hypothesis 7 (H7) - *The intention to use a technology has a significant positive effect on user behavior in the adoption of QR Ph-based payments.*

5. Results and Discussion

The study is imperative since it deals with the consumers' preparedness and readiness for the implementation of the QR Ph as a standard cashless payment in the National Capital Region (NCR). With the use of structural equation modeling (SEM) and a quantitative research approach, it is able to gather important information and insights regarding the dynamics of QR Ph's digital payment. Variables from Behavioral Intentions and Use Behavior (UTAUT2) were utilized in the study and tweaked to match contemporary trends.

5.1 Data Analysis

Based on the demographic profile, many of the respondents are female (54.1%) and between the ages of 18 and 24 (83.3%) (Table 1). The major contributors in the survey are students (72.4%) who have a degree (81.3%) and are from lower-to-middle class income. Many of the respondents live in cities (87.2%), are single (93.4%), and already have experience in using e-wallets or mobile banking (93.8%), highlighting their financial and digital knowledge. It shows that the respondents have capabilities in terms of a financially and tech-savvy group, which makes them a good candidate to examine behavioral intentions about the adoption of QR Ph as a common cashless payment method.

Table 1. Summary of Demographics, N=257

Characteristics	Value	Frequency	Percentage (%)
Gender	Female	139	54.1
	Male	111	43.3
	Prefer not to say	7	2.7
Age	18-24 years old	214	83.3
	25-34 years old	27	10.5
	35-44 years old	7	2.7
	45-above years old	9	3.5
Socioeconomic Status	Lower Class	102	39.7
	Lower Middle Class	67	26.1
	Middle Class	60	23.3
	Upper Middle Class	20	7.8
	Upper Class	5	1.9
	Rich	3	1.2
Civil Status	Single	240	93.4
	Married	17	6.6
Educational Attainment	Highschool	48	18.7
	College	209	81.3
	No Educational Background	0	0
Occupation	Student	186	72.4
	Employed	52	20.2
	Self-employed	10	3.9
	Unemployed	8	3.1
	Retired	1	0.4
Residence	Yes	224	87.2
	No	33	12.8
Mobile Banking/E-wallets Ownership	Yes	241	93.8
	No	16	6.2

5.2 Reliability Testing

In studies, to assess the questionnaire's consistency and stability, reliability testing was used to examine these. The objective of this is to ensure that the data is reliable and suitable. For an accurate conclusion, reliability testing and validity of factors need to be acknowledged (Ahmed et al., 2021). Cronbach's Alpha is a statistical tool that measures a data set's internal consistency, indicating how well items relate to one another and how well they represent a concept. The scores range between 0 and 1, where scores below 0.60 are considered poor, 0.60 - 0.69 are questionable, 0.70 - 0.79 are acceptable, 0.80 - 0.89 are good, and 0.90 and above are excellent (Ahmad et al., 2024).

Table 2. Cronbach's Alpha

Latest Variables	Cronbach's Alpha	Cut-off	Remarks
Data Privacy and Security (DPSEC)	.967	≥ 0.7	Acceptable
Hedonic Motivations (HM)	.926	≥ 0.7	Acceptable
Effort Expectancy (EE)	.893	≥ 0.7	Acceptable
Subjective Norms (SN)	.876	≥ 0.7	Acceptable
Social Influence (SI)	.852	≥ 0.7	Acceptable
Performance Expectancy (PE)	.841	≥ 0.7	Acceptable

Table 2 shows the tests for validity and reliability. The Cronbach's Alpha results indicate that all latent variables exceed 0.7, suggesting that they are all acceptable in accordance with the study of Cheung et al. (2023).

5.3 Structural Equation Model

Figure 2 shows the initial results of the Structural Equation Model (SEM) in evaluating the readiness and satisfaction of people in implementing the QR Ph standard in NCR, Philippines. Based on the figure, specific hypotheses were negligible. The relationship between Effort Expectancy, Subjective Norm, Performance Expectancy, and Social Influence to Behavioral Intention, EE-BI ($\beta = 0.08$), SN-BI ($\beta = -0.09$), PE-BI ($\beta = -0.08$), and SI-BI ($\beta = 0.08$). Thus, these latent variables were excluded to increase the model's fit (Table 3).

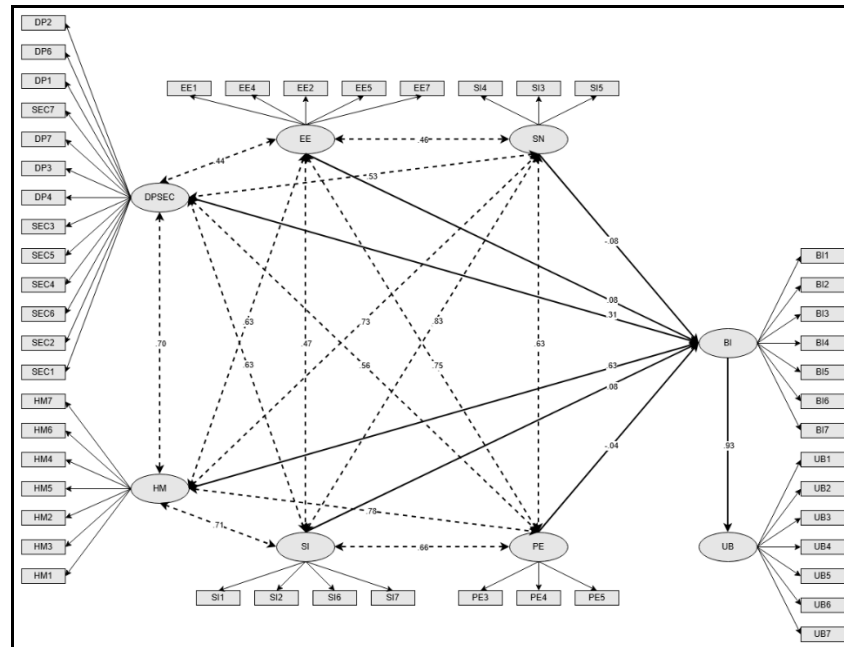


Figure 2. Initial SEM Model

Table 3. Model Fit Measures of the Initial Structural Equation Model

Fit Measures	Estimates	Minimum cut-off	Reference
P-value	.000	< 0.05	Obienu et al., (2025)
RMSEA	.077	< 0.1	Obienu et al., (2025)
GFI	.740	Between 0-1. Higher Values Indicate Good Model Fit	Obienu et al., (2025)
CFI	.911	Between 0-1. Higher Values Indicate Good Model Fit	Obienu et al., (2025)
NFI	.862	< 0.8	Obienu et al., (2025)
TLI	.905	< 0.8	Obienu et al., (2025)

**Note: P-Value - Probability Value; RMSEA - Root Mean Square Error of Approximation; GFI - Goodness of Fit Index; CFI - Comparative Fit Index; NFI - Normed Fit Index; TLI - Tucker Lewis Index; CMIN/DF - Chi-Square/Degree of Freedom; PNFI - Parsimony Normed Fit Index*

5.4 Modified Model

Figure 3 shows the modified structural model to identify correlations among constructs and the significant relationship affecting consumer readiness to QR Ph. The modified version is more comprehensive and structured, as it filters out noise from the previous model. The latent variables DP and HM are well connected, and both affect Behavioral Influence, which in turn affects Use Behavior (Table 4).

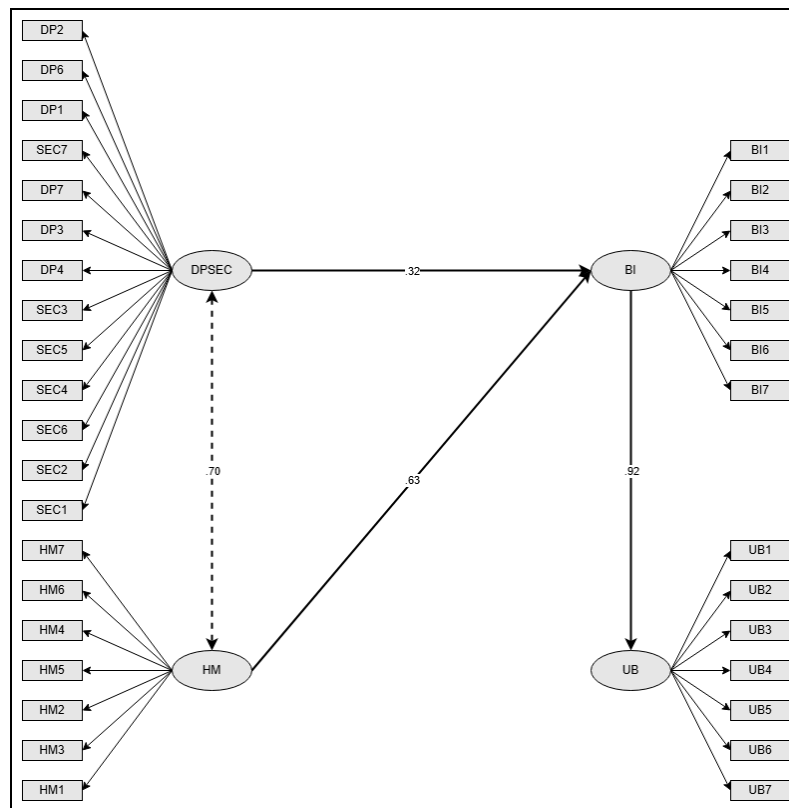


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6. Conclusion

The study assessed what factors influence users to use QR Ph as a mode of payment, and to gather significant data from the respondents, the researchers used convenience sampling as a means of data collection. With this, the gathered data was more likely to be from respondents aged between 18 and 24 years old. The likelihood of the data leaning towards the adaptation and use of QR Ph would be high, and there could be bias in the data because there were fewer insights from the older bracket of the population. The researchers suggest implementing selective sampling as their sampling process, so that they could eliminate biases and improve balance, and weigh the perspectives of others.

After a thorough analysis of the data, constructs such as Data Privacy and Security, Hedonic Motivation, Behavioral Intention, and Use behavior were the only variables that remained active after being entered into SEM. These factors assessed the consumer's readiness and satisfaction with the adoption of QR Ph as a cashless payment system. However, other variables in the aforementioned modified UTAUT2 were eliminated because they showed little to no relationship with Behavioral Intention and Use Behavior. They thus did not contribute to the study's objective.

A recent study showed that DPSEC is indeed a factor, as consumers need to safeguard their personal details, especially in the digital world (Siagan et al., 2021). This also aligns with the HM that consumers see the QR Ph as fun, interactive, and easy to use, leading to satisfaction with its use (Al-Azawei and Alowayr, 2020). These two constructs directly impacted BI and DPSEC, and HM must be focused on when adopting QR Ph, since they will serve as the basis for a successful adoption in the long run. Lastly, BI directly impacts and shows a relationship with UB, and the study showed that a strong relationship between the two directly affects the consumer's perspective on standardizing QR-based payments.

This concludes that the study about the QR Ph is dependent on the success of user privacy and data, while also accounting for factors such as ease of use for consumers. Based on the results, the consumers consider QR Ph as a logical tool for money transfers, but their satisfaction differs from one to another based on their belief in the platform's safety and openness. The results indicate that being ready is not just a willingness to accept but a mirror of inclusiveness in the system, digital systems' ability to cater to consumers from different socioeconomic backgrounds, digital literacy levels, and areas.

Overall, after assessing the study, it focused on DPSEC and HM to affect BI, which directly affects UB, and will address the readiness and satisfaction of the QR Ph payment. In terms of the DPSEC, readiness poses a little problem, as consumers are concerned about the safety of their personal information. In terms of the HM, satisfaction is high, as consumers are satisfied with their use of QR Ph. DPSEC and HM will directly impact the BI and UB, and therefore, focusing on DPSEC and HM must be the key to ensuring consumers are readily and satisfactorily using QR Ph.

Declaration of Competing Interests, Ethical Compliance, and Use of Artificial Intelligence in Academic Writing Research

The authors affirm complete adherence to ethical norms and disclose no conflicts of interest. The study ideas were not generated by AI, but were used only to improve readability. In order to minimize any biases or inaccuracies associated with AI, the authors meticulously examined and revised the final manuscript to ensure accuracy and clarity. The researchers carried out all analyses and interpretations to guarantee correctness, although AI technologies helped with composition and readability. The authors admit that early concepts were drafted using AI technology to improve readability. However, because AI can introduce bias and mistakes, human editing was necessary for data analysis and interpretation to guarantee correctness and credibility.

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Collectively, these experiences reflect his strong sense of responsibility, leadership potential, and commitment to personal growth, teamwork, and continuous improvement.

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Frederick Norman Raci A. Dimaano is currently a fourth-year student at the Technological Institute of the Philippines – Quezon City, pursuing a Bachelor of Science in Industrial Engineering. He served as a Library Student Assistant, assisting with managing library materials and with the students' academic needs.

Maricar M. Navarro holds the esteemed titles of ASEAN Engineer (AE) and Professional Industrial Engineer (PIE), accredited by the ASEAN Federation of Engineering Organizations (AFEO) and the Philippine Institute of Industrial Engineers (PIIE). She currently serves as a Professor in both the Undergraduate and Graduate School Programs of the Technological Institute of the Philippines, bringing over 18 years of combined experience in industry, academia, and research. Her expertise spans optimizing production processes, facility layout design, warehouse operations, and service delivery. Dr. Navarro's current research interests focus on financial optimization and decision-making in operations research. She earned both her master's and Ph.D. in Industrial Engineering from MAPUA University. As an active associate member of the National Research Council of the Philippines (NRCP) and member of PIIE, Dr. Navarro contributes significantly to advancing research initiatives and professional standards in Industrial engineering and related fields. Her dedication and expertise make her a pivotal figure in both academic circles and national research endeavors.