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DIGITAL PAYMENT READINESS AND COMMUTER ACCEPTANCE IN PUBLIC TRANSPORTATION: EVIDENCE FROM NEGROS ORIENTAL, PHILIPPINES

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ABSTRACT

Digital fare payment has the potential to modernize public transportation, but its successful adoption depends on commuter readiness and acceptance. Completed in May 2026, this study examined the readiness and acceptance of digital payment systems among 300 public transport commuters in the 3rd Congressional District of Negros Oriental, Philippines. A mixed-methods descriptive-correlational research design was employed, utilizing a researcher-made questionnaire and optional open-ended responses. Data were analyzed using descriptive statistics, Spearman's rank correlation, Mann–Whitney U test, Kruskal–Wallis H test, and thematic analysis. Findings revealed high overall commuter readiness (M = 3.16, SD = 0.55) and acceptance (M = 3.08, SD = 0.56). Knowledge of digital payment platforms emerged as the strongest readiness dimension (M = 3.29), while access to digital devices and internet connectivity ranked lowest (M = 3.06). Perceived ease of use recorded the highest acceptance mean (M = 3.16), whereas perceived usefulness ranked lowest (M = 3.03). A strong positive and statistically significant relationship was found between readiness and acceptance (Spearman's $\rho = 0.785$, $p < 0.001$). Although 71.7% of respondents used digital wallets, only 29.0% had previously utilized digital payments for transportation. Connectivity limitations, accessibility barriers, and security concerns were identified as implementation challenges. The findings support a gradual and inclusive implementation strategy emphasizing digital literacy, reliable infrastructure, secure transactions, and continued cash-payment alternatives. However, the cross-sectional design and convenience sampling limit causal interpretation and generalizability.

Keywords: *Commuter Acceptance, Digital Payments, Public Transportation, Readiness, Technology Acceptance Model*

INTRODUCTION

Digital payment platforms, including electronic wallets, QR payments and contactless systems, are increasingly incorporated into daily transactions. In public transportation, however, fare collection presents particular challenges: transactions must be quick, reliable and accessible within moving vehicles and at terminals. Studies of cashless public transport have emphasized both opportunities for convenient payment and exclusion risks for passengers without suitable devices, payment accounts or internet access (Abdoli et al., 2022; Mogaji & Nguyen, 2024).

In the Philippines, digital retail transactions have increased, and national financial-inclusion priorities encourage broader access to digital financial services (Bangko Sentral ng Pilipinas, 2022, 2025). Yet familiarity with mobile wallets for retail transactions cannot be assumed to translate into use during local transport trips. Philippine research has linked e-wallet acceptance to perceived ease of use, perceived usefulness, trust and perceived risk (Belmonte et al., 2024; Lacap, 2022; Sanchez & Tanpoco, 2023). Studies of transport-related payment technologies likewise highlight infrastructure, travel context and user experience (Mogaji & Nguyen, 2024; Wani et al., 2025).

The Technology Acceptance Model provides a perspective on how usefulness and ease of use relate to technology acceptance. The present study also assessed awareness, access, knowledge, willingness, perceived security and trust to reflect practical conditions of local transport. The evidence addresses a geographic gap in commuter-focused research on digital fare payment in the 3rd Congressional District of Negros Oriental. The central purpose of this article is to examine the extent to which reported readiness is associated with commuter acceptance, not to claim that digital fare systems have already been widely implemented.

Research Questions

1. What is the level of readiness for digital payment systems in public transport in terms of awareness, access, knowledge and willingness?
2. What is the level of commuter acceptance in terms of perceived usefulness, ease of use, security and trust?
3. How are commuter profile characteristics related to readiness and acceptance?
4. Is there a significant relationship between overall readiness and commuter acceptance?
5. What implementation concerns and suggestions emerge from the respondents' open-ended answers?

METHODOLOGY

Research design and setting. A mixed-methods descriptive-correlational, convergent parallel design was used in selected municipalities of the 3rd Congressional District of Negros Oriental, Philippines. Quantitative responses described readiness and acceptance and tested associations; qualitative responses contextualized implementation concerns.

Participants and sampling. The study included 300 commuters who used local public transport. Convenience sampling recruited participants based on availability, accessibility and willingness to respond. Distribution through Google Forms and online messaging and social-media channels may have favored digitally connected commuters. The sample was largely aged 19–25 years (63.7%) and college-level (65.3%).

Instrument. A researcher-made survey included respondent characteristics, 16 readiness items (awareness, access, knowledge and willingness), 16 acceptance items (usefulness, ease of use, security and trust), and two optional open-ended questions. Responses to the scale items used four agreement categories, from 1 (Strongly Disagree) to 4 (Strongly Agree). The questionnaire was pilot-tested with 30 respondents outside the study district; the source reports Cronbach's alpha = 0.984 for the pilot test. No separate subscale reliability estimates were provided in the source study.

Procedure and analysis. After securing reported permissions and informed consent, the researchers distributed the online questionnaire and checked downloaded data. Frequencies and percentages summarized profiles; means and standard deviations described composite outcomes. The original study used Spearman rho for ordinal associations, Mann–Whitney U for two-group comparisons and Kruskal–Wallis H for multi-group categorical comparisons, at alpha = 0.05. The open-ended responses were coded into recurring themes, allowing multiple themes per response. Interpretation bands were 3.26–4.00 (Very High), 2.51–3.25 (High), 1.76–2.50 (Low), and 1.00–1.75 (Very Low). Statistical results below are transcribed from the study rather than recomputed from respondent-level data.

Scope and limitations. Results concern this convenience sample and cannot be generalized to all district commuters or other regions. Online recruitment may underrepresent people without internet access; findings are self-reported and cross-sectional. Correlations and group differences do not establish causal effects. The optional online responses do not provide the depth available from interviews or focus groups.

RESULTS

Respondent profile. Of 300 participants, 191 (63.7%) were aged 19–25, 196 (65.3%) reported college-level education, and 127 (42.3%) used public transportation daily. Tricycles were the most commonly reported mode (105; 35.0%), followed by buses (86; 28.7%). Although 215 (71.7%) used digital wallets or online payment applications, only 87 (29.0%) reported prior digital fare payment; 213 (71.0%) had not. The source reports GCash as the most frequently used platform for 288 respondents (96.0%).

Table 1. Selected Respondent Characteristics (N = 300)

Characteristic	Category	n	%
Age	19–25 years	191	63.7
Education	College	196	65.3

Characteristic	Category	n	%
Public transport use	Daily	127	42.3
Main transport	Tricycle	105	35.0
Uses digital wallet / payment app	Yes	215	71.7
Prior digital payment for transport	Yes	87	29.0
Prior digital payment for transport	No	213	71.0

Readiness and acceptance. Table 2 shows high overall readiness (M = 3.16, SD = 0.55), with knowledge in using digital payment platforms the highest dimension (M = 3.29, SD = 0.62). Access to devices and internet connectivity ranked lowest (M = 3.06, SD = 0.60). Among individual readiness items, knowledge of QR scanning and verification of successful transactions each reached M = 3.33; having resources available during trips scored M = 2.98. Acceptance was high (M = 3.08, SD = 0.56). Ease of use ranked highest (M = 3.16, SD = 0.59), whereas usefulness was lowest (M = 3.03, SD = 0.64).

Table 2. Readiness and Acceptance Dimensions

Dimension	M	SD	Interpretation
Awareness	3.16	0.67	High
Access to Digital Devices and Internet Connectivity	3.06	0.60	High
Knowledge in Using Digital Payment Platforms	3.29	0.62	Very High
Willingness to Use Digital Payment Systems	3.12	0.64	High
Overall Readiness	3.16	0.55	High
Perceived Usefulness	3.03	0.64	High
Perceived Ease of Use	3.16	0.59	High
Perceived Security	3.07	0.64	High
Trust	3.06	0.65	High
Overall Commuter Acceptance	3.08	0.56	High

Profile associations. Previous experience with digital fare payment was significantly associated with readiness (U = 7,633.5, p = 0.016) and acceptance (U = 7,601, p = 0.014). Use of a digital wallet or online payment app was also significantly associated with acceptance (U = 7,362, p = 0.008), but not readiness (p = 0.205). Age, education, public transport frequency, transport mode, frequently used digital payment platform and reported mobile data availability did not show significant associations in the source tables (p > 0.05).

Table 3. Selected Associations Between Profile and Study Outcomes

Profile variable	Outcome	Test statistic	p
Prior fare-payment experience	Readiness	Mann–Whitney U = 7,633.5	0.016
Prior fare-payment experience	Acceptance	Mann–Whitney U = 7,601	0.014

Profile variable	Outcome	Test statistic	p
Uses digital wallet / payment app	Readiness	Mann–Whitney U = 8,280.5	0.205
Uses digital wallet / payment app	Acceptance	Mann–Whitney U = 7,362	0.008

Main association. The Spearman rank correlation between overall readiness and commuter acceptance was 0.785 ($p < 0.001$), indicating a strong positive association in the sample. This is an association between concurrent self-report composites, not evidence that increasing readiness will necessarily cause acceptance to increase.

Table 4. Relationship Between Overall Readiness and Commuter Acceptance

Variables	Statistical test	Coefficient	p
Readiness and acceptance	Spearman rho	0.785	< 0.001

Qualitative context. Among 159 respondents providing substantive concerns, 96 (60.4%) raised connectivity or system reliability, 76 (47.8%) mentioned digital-literacy or access exclusion, and 70 (44.0%) mentioned fraud, security or privacy. Among 162 respondents offering substantive suggestions, 94 (58.0%) sought better connectivity or technical support; 64 (39.5%) suggested tutorials, and 64 (39.5%) suggested improved loading access or multiple payment methods. Percentages use the respective substantive-response denominators, and responses could have multiple codes.

Table 5. Most Common Themes in Optional Open-Ended Responses

Type / denominator	Theme	n	%
Concerns / n = 159	Connectivity / system reliability	96	60.4
Concerns / n = 159	Access / digital literacy exclusion	76	47.8
Concerns / n = 159	Security / fraud / privacy	70	44.0
Suggestions / n = 162	Improve connectivity / technical support	94	58.0
Suggestions / n = 162	Tutorials / information campaigns	64	39.5
Suggestions / n = 162	Loading points / inclusive payment methods	64	39.5

DISCUSSION

The study provides local evidence of a pronounced link between perceived readiness and willingness to accept digital fare payment. The positive correlation (rho = 0.785) is consistent with technology-acceptance research associating ease of use, usefulness and enabling conditions with adoption intentions (Belmonte et al., 2024; Rosli et al., 2023). However, because both measures were collected in the same questionnaire and readiness includes willingness items, their conceptual overlap may contribute to the

magnitude of the correlation. Future research should test the distinctness of these constructs and use longitudinal or behavioral outcomes.

Respondents' reported knowledge was stronger than their practical access. This distinction is important for transport settings: recognizing payment procedures does not ensure adequate mobile data, power, wallet balance or immediate transaction confirmation. The lowest readiness item concerned resources available during trips (M = 2.98). The qualitative emphasis on connectivity and technical reliability reinforces this concern. Such findings align with work emphasizing equitable cashless transport design and infrastructure constraints (Abdoli et al., 2022; Wani et al., 2025).

High ease-of-use scores alongside relatively lower usefulness ratings suggest that commuters may consider digital fares easy to learn without being equally convinced that payment will be faster or more beneficial in actual trips. Perceived security and trust were also high but not at the top of the acceptance dimensions. Practical demonstrations, transparent fare displays, reliable confirmation, official QR codes and procedures for failed transactions therefore warrant attention. Research on mobile payment continuance similarly emphasizes trust, usefulness and security (Sanchez & Tanpoco, 2023; Siagian et al., 2022).

The contrast between widespread digital wallet use (71.7%) and limited experience paying for transit digitally (29.0%) indicates an implementation gap rather than simply an absence of digital familiarity. Prior fare-payment experience was associated with both outcomes, although the analyses cannot determine whether experience enhances readiness or more ready commuters are more likely to seek such experiences. Given the young, online-recruited sample, a staged rollout should be evaluated with broader and less digitally connected user groups before policy expansion.

Conclusions

The surveyed commuters exhibited high reported readiness and acceptance of digital payment in public transportation. Readiness was strongest for platform knowledge and comparatively weaker for practical access, while acceptance was strongest for ease of use and weakest for perceived usefulness. Prior experience with digital fare payment was significantly associated with both readiness and acceptance; general digital wallet use was associated with acceptance. The central finding was a strong positive readiness–acceptance correlation ($rho = 0.785$, $p < 0.001$). Connectivity, inclusion and security concerns indicate that favorable attitudes alone are insufficient to ensure workable implementation. Conclusions apply to the surveyed commuters and do not imply causation.

Recommendations

Local governments, transport associations and payment providers should pilot optional digital fares on selected routes while continuing to accept cash. Pilot activities should include hands-on demonstrations; prominent, officially verified QR information;

clear fares; rapid payment confirmation; fallback procedures for weak connectivity or failed transactions; convenient cash-in points; and training for drivers and conductors. The pilot should evaluate actual transaction success, accessibility for older and offline commuters, and user experience before scale-up. Subsequent research should recruit representative samples, collect operator perspectives, test distinct measurement constructs and follow changes in actual payment behavior over time.

Compliance with Ethical Standards

The study adhered to ethical principles throughout the research process. Necessary permissions were secured before data collection, and informed consent was obtained from all respondents. Participation was entirely voluntary, and respondents were informed of their right to withdraw from the study at any time without consequences. Anonymity and confidentiality were maintained to protect respondents' privacy, and no personally identifiable information was disclosed in the presentation of the findings. All collected data were securely stored and used exclusively for academic and research purposes. The researchers upheld the principles of honesty, transparency, objectivity, and respect for participants throughout the conduct of the study. The findings were presented without intentional manipulation or misrepresentation, and proper acknowledgment was given to the sources and scholarly works used in the research.

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REFERENCES

Abdoli, S., Burke, M., & Leung, A. (2022). Cashless payments for public transport: Equity and exclusion issues. Australasian Transport Research Forum 2022 Proceedings. https://research-repository.griffith.edu.au/bitstreams/0cff14c0-190c-4b54-bf6b-1b5cbd017cf6/download

Bangko Sentral ng Pilipinas. (2022). National Strategy for Financial Inclusion 2022-2028. https://www.bsp.gov.ph/Pages/InclusiveFinance/NSFI-2022-2028.pdf

Bangko Sentral ng Pilipinas. (2025). 2024 report on e-payments measurement. https://www.bsp.gov.ph/PaymentAndSettlement/2024_Report_on_E-payments_Measurement.pdf

Belmonte, Z. J. A., Prasetyo, Y. T., Cahigas, M. M. L., Nadlifatin, R., & Gumasing, M. J. J. (2024). Factors influencing the intention to use e-wallet among Generation Z and Millennials in the Philippines: An extended technology acceptance model (TAM) approach. Acta Psychologica, 250, Article 104526. https://doi.org/10.1016/j.actpsy.2024.104526

Lacap, J. P. G. (2022). Exploring mobile wallet adoption in the Philippines: A partial least squares path modelling approach. Proceedings of the International Halal Science and Technology Conference, 15(1), 14-23. https://doi.org/10.31098/ihsatec.v15i1.590

Mogaji, E., & Nguyen, N. P. (2024). Evaluating the emergence of contactless digital payment technology for transportation. Technological Forecasting and Social Change, 203, Article 123378. https://doi.org/10.1016/j.techfore.2024.123378

Rosli, M. S., Saleh, N. S., Ali, A. M., & Bakar, S. A. (2023). Factors determining the acceptance of e-wallet among Gen Z from the lens of the extended Technology Acceptance Model. Sustainability, 15(7), Article 5752. https://doi.org/10.3390/su15075752

Sanchez, J. A. R., & Tanpoco, M. (2023). Continuance intention of mobile wallet usage in the Philippines: A mediation analysis. Review of Integrative Business and Economics Research, 12(3), 128-142. https://buscompress.com/uploads/3/4/9/8/34980536/riber_12-3_12_b23-054_128-142.pdf

Siagian, H., Tarigan, Z. J. H., Basana, S. R., & Basuki, R. (2022). The effect of perceived security, perceived ease of use, and perceived usefulness on consumer behavioral intention through trust in digital payment platform. International Journal of Data and Network Science, 6(3), 861-874. https://doi.org/10.5267/j.ijdns.2022.2.010

Wani, S. A., Pani, A., Mohan, R., & Bhowmik, B. (2025). Digital payment adoption in public transportation: Mediating role of mode choice segments in developing cities. Transportation Research Part A: Policy and Practice, 191, Article 104319. https://doi.org/10.1016/j.tra.2024.104319

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