“Customer loyalty toward mobile wallet apps in the post-COVID-19 period: The moderating role of customer engagement in Jordan”

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CUSTOMER LOYALTY TOWARD MOBILE WALLET APPS IN THE POST-COVID-19 PERIOD: THE MODERATING ROLE OF CUSTOMER ENGAGEMENT IN JORDAN

Abstract

The COVID-19 boosted the adoption of mobile wallets, which resulted in heightened competition among the digital payment providers, and customer loyalty became a decisive factor to remain in use. This paper examines customer loyalty determinants to mobile wallet applications in Jordan by applying the Technology Acceptance Model (TAM) to determine trust, information quality, perceived security, customer engagement, and moderating effect of engagement. Online survey of the users of mobile wallets in Amman, Jordan, from January to April 2025, was used to collect the data that consisted of 365 valid responses. The proposed model was tested using the Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings have shown significant positive impact of customer loyalty on perceived usefulness ($\beta = 0.24$, $p = 0.001$), perceived ease of use ($\beta = 0.21$, $p = 0.001$), information quality ($\beta = 0.18$, $p = 0.003$), trust ($\beta = 0.27$, $p = 0.001$), perceived security ($\beta = 0.22$, $p = 0.001$), and customer engagement ($\beta = 0.20$, $p = 0.00$). The customer engagement has a moderate moderating effect on the relationships between the perceived usefulness and loyalty ($\beta = 0.130$, $p = 0.006$) and between the trust and the loyalty ($\beta = 0.150$, $p = 0.001$), but other paths do not have significant moderating effect. The model describes 64% in customer loyalty. The results show the significance of functional value, trust, and customer engagement in maintaining mobile wallets use in emerging economies and empirically support the idea of extending TAM to digital financial services setting.

Keywords mobile wallets, customer loyalty, trust, security, engagement, technology acceptance

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INTRODUCTION

Mobile wallet technologies are no longer something optional to digital solutions, but they are the core of the modern financial ecosystem, with the surge in the rate of digital transformation efforts and the growing use of contactless transactions. The research indicates that there is massive increase in the mobile payment adoption in developed and emerging economies due to convenience, access, and financial inclusion interests (Salah & Ayyash, 2025). Financial institutions, central banks and governments have been working harder to ensure that cashless systems are encouraged as part of the overall economic modernization process. According to the empirical data, mobile wallet services contribute to the efficiency of transactions and transform consumer behavior in payment (Do et al., 2025). Regardless of this growth, long-term use is not assured, especially in the emerging economies, where people are deeply entrenched in cash-based habits. There is some indication that even as more consumers registered mo-

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bile wallets during the pandemic, some groups returned to cash after restrictions were eased, which suggests that some of the adoption boom could have been fueled by exogenous limits, and not consistent behavior change (Fujiki, 2025). These reversals are strategic problems of financial institutions and other fintech providers whose digital infrastructure investments rely on the volume of transactions and retention of customers.

The current studies have been more inclined towards first time adoption of technology as opposed to the loyalty. The cognitive assessment of the perceived ease of use and perceived usefulness are well-established in the Technology Acceptance Model (Davis, 1989), but financial technologies concern perceived risk, security, and relational trust which can be determining factors in the use of financial technologies (Qatawneh et al., 2025; Goswami et al., 2025). Further on, the engagement of customers, in its cognitive, emotional, and behavioral terms, has been also demonstrated to enhance loyalty relationships but has not been studied as a moderating factor in the context of mobile wallets (Zang et al., 2025; Thalhath et al., 2025). Thus, this research examines the factors of customer loyalty to the mobile wallet application in the post-pandemic world in Jordan. The study is an extension of TAM, adding trust, information quality, perceived security, and customer engagement to it and investigates the moderating role of engagement in the development of loyalty relationships. The study would provide context-dependent findings on the sustainability of digital payments and policy implications to policymakers and financial service providers aiming to sustain digital transaction adoption in the long term by targeting an emerging economy with high levels of cash-based traditions.

1. LITERATURE REVIEW AND HYPOTHESES

Mobile wallet research has emerged at the intersection of consumer behavior, information system and digital financial service. Initial research was mainly aimed at analyzing the intentions of users in order to use digital payment technologies; positive cognitive assessment of system-specific properties in reaction with technological innovation and regulatory reinforcement was presented. In this stream, the scholars described the influence of the perceptions of utility, cognitive evaluation, and system characteristics on the behavioral reactions to mobile payment platforms. Technology Acceptance Model (TAM) is one of the most effective theoretical models of this field that describes technology-related behavior using perceived ease of use and perceived usefulness (Davis, 1989). TAM has proven to be a powerful explanatory model in the digital payment settings (Al Rob et al., 2025).

Perceived ease of use can be explained as the extent to which the users perceive that using a system does not need much effort. The reduction of movement between cognitive and affective processing in mobile wallet settings, through the use of intuitive user interfaces, easy navigation and simplified transactions, enhances satisfaction and habitual use, which ultimately leads to long-term loyalty (Gazi et al., 2025; Shkeer et al., 2024; Alkfairy et al., 2024). Perceived usefulness is a belief of the users about the efficiency, convenience and performance strengths of the technology (Davis, 1989). The utility outcomes in digital payment services include faster transactions, easy access, and better financial management. It has been confirmed that high perceptions of usefulness can enhance both satisfaction and continuance intentions and loyalty (Aldraiweesh & Alturki, 2025; Gevers et al., 2024), and repeated positive experiences strengthen dependency and weaken switching behavior (Ghouse et al., 2025). Although TAM has been relevant, mobile wallet usage has monetary, and personal information, which increases perceived risk and uncertainty. As a result, scholars have expanded the TAM with relational and informational elements like trust, the quality of information and perceived security (Schamberger et al., 2024; Soni et al., 2025; Thalhath et al., 2025; Bhopal & Devi, 2025; Dang & Khanra, 2024). The quality of information (i.e., its accuracy, clarity, transparency, and timeliness) minimizes uncertainty and contributes to decision-making (Cichosz et al., 2020; Zhang et al., 2023). Accurate balances, real-time transaction confirmation and clear histories would boost user trust and increase

loyalty towards service providers (Alrifae et al., 2026; Shahzad et al., 2025; Mustafa et al., 2024; Rungruangjit & Charoenpornpanichkul, 2024).

Trust is a principal component to digital financial services, and it reflects the dependability, honesty, and ability of the providers to users (Pigola & da Costa, 2025). Due to the impossibility of physical verification of digital transactions, the long-term relationships are maintained by trust (El-Annan & Hassoun, 2025). Perceived security is closely similar to perceived security and is the judgments of users regarding the efficiency of data protection and fraud prevention systems. It is a consistent fact that, according to empirical findings, high security perceptions lead to higher levels of trust and loyalty, and security concerns promote resistance and service abandonment, especially in risk-averse markets (Alshdaifat et al., 2024; Al-Khawaja et al., 2025; Lee et al., 2025; Alqudah et al., 2025). Later customer engagement has become a multidimensional concept that includes cognitive, emotional, and behavioral investment into a service. In mobile wallet applications, the interaction builds up with interactive functionality, customized deals, loyalty, and continuous communication, creating emotional connection and enhancing loyalty (Nsisong Louis Eyo-Udo, 2024; Mustafa et al., 2024). There is also a possibility that engagement enhances the strength of other loyalty drivers, including usefulness, trust, and security due to strengthening relational ties between customers and providers (Alzubi et al., 2018).

Despite abundant information on adoption and security perception offered in the previous studies, the image of customer loyalty in the context of the post-pandemic world has been under-researched. Numerous studies focus on adoption the first time but not on continued usage after external pressure factors, including mobility and health constraints, are eliminated (Harriet et al., 2024). This restriction is specifically applicable to the emerging economies with high cash-use cultures, where structural and behavioral challenges to long-term digital payment diffusion can be anticipated. Current TAM-related paradigms provide useful information; however, they lack incorporation of trust, information quality, perceived security, and customer engagement as sufficient factors in post-pandemic settings to explain the loyalty. To fill this gap, the current research will examine the factors of customer loyalty with mobile wallets in Jordan when TAM is expanded to include relational and engagement factors:

H1: Perceived ease of use significantly influences customer loyalty.

H2: Perceived usefulness significantly influences customer loyalty.

H3: Information quality significantly influences customer loyalty.

H4: Trust significantly influences customer loyalty.

H5: Perceived security significantly influences customer loyalty.

H6: Customer engagement significantly influences customer loyalty.

H7: Customer engagement significantly moderates the relationship between perceived ease of use and customer loyalty.

H8: Customer engagement significantly moderates the relationship between perceived usefulness and customer loyalty.

H9: Customer engagement significantly moderates the relationship between information quality and customer loyalty.

H10: Customer engagement significantly moderates the relationship between trust and customer loyalty.

H11: Customer engagement significantly moderates the relationship between perceived security and customer loyalty.

2. METHODOLOGY

This research has incorporated a quantitative, descriptive research design under the use of structured questionnaire as described by close questions to explore the factors that determine customer loyalty to mobile wallets in Jordan. A survey

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approach was chosen to be used because it enables collecting standardized data in a systematic manner and the study is perfect in analyzing relationships between various constructions in digital payment and technology acceptance study. The research was properly conducted in a step-by-step investigation. Initially, measurement items were determined and based on known and empirically tested scales used in the previous studies, such as perceived ease of use, perceived usefulness, information quality, trust, perceived security, customer engagement, and customer loyalty (Davis, 1989; Gefen, 2000; Alzubi et al., 2018; Kumar et al., 2025; Zeithaml et al., 1996; Al-Okaily, 2025; Salah & Ayyash, 2025; Abu-AlSondos, 2025 Al-Maaitah et al.,2026). These were chosen because they were proven to be reliable and relevant in terms of the research in technology adoption and quality of services. All the constructions included in the questionnaire were the ones that were directly related to the use of mobile wallets to ensure that respondents are not overwhelmed by the questionnaire and that construct validity is preserved. All were measured based on a five-point Likert scale with the range between 1 (strongly disagree) and 5 (strongly agree), which is appropriate to measure the difference in perceptions and further on the structural equation modeling. The entire questionnaire is presented in Appendix A.

Primary data were gathered using the electronic survey of mobile wallet users in Jordan based on the internet-proof digital communication systems (WhatsApp, Messenger, email). The research context chosen is Jordan because the development of digital payment services is at a strong pace during and after the COVID-19 pandemic, and cash-based transactions persist. Data were collected from January to April 2025, which was a period selected to capture the payment behavior of the people post-pandemic following the lifting of most health-related restrictions. The sampling was limited to those people who had used mobile wallet apps before because the relevance of replies could not be guaranteed by not doing so.

Purposive sampling method was utilized whereby the center was based on the student body of the university and young professionals since these are the most active users of digital financial services in Jordan. Although the purposive sampling technique does not enable to make a complete statistical generalization, it gives meaningful understanding of respondents who are already acquainted with the use of mobile wallets (Habib et al., 2022). Out of the number of questionnaires received, 388 in total, 365 questionnaires were collected to be analyzed because of screening based on their completeness and consistency.

The present sample size is larger than the required amounts needed in accordance with the Partial Least Squares Structural Equation Modeling (PLS-SEM), which can be used to study multiple constructs and moderating effects (Henseler et al., 2015; Ali et al., 2024; Alrifae, 2025). Table 1 shows the demographic features of the respondents. The sample included 61.9% males and 38.1% females with most of them falling within the 21-30 years age group (69.6%). Majority of the respondents had Bachelor's (59.5%) and then Postgraduate degrees (29.6%). The frequency of usage data shows that there is constant interaction to the services of mobile wallets, which evidences the appropriateness of the sample when it comes to studying customer loyalty.

Table 1. Demographic distribution of respondents (N = 365)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	226	61.9
	Female	139	38.1
Age	18-20 years	32	8.8
	21-30 years	254	69.6
	31-40 years	57	15.6
	Above 40 years	22	6.0
Education level	Bachelor's degree	217	59.5
	Postgraduate degree	108	29.6
	Diploma/Other	40	10.9
Usage frequency	Daily	146	40.0
	Weekly	121	33.2
	Monthly	66	18.1
	Rarely	32	8.8

The research design was a study that used human subjects, and the research ethics were followed. The interviews were optional, and the purpose of the study was told to the respondents before the questionnaire was filled. At the start of the survey, the informed consent was achieved electronically. Anonymity and confidentiality were provided by not gathering any personally identifiable data

and all the responses were analyzed in aggregated form. It was clarified to the respondents that they could leave the study at will without any repercussion. The information of this study is original and is collected using specific knowledge of this study which has not been utilized elsewhere in any previous publication.

3. RESULTS

The accuracy and reliability of the constructs of the study were evaluated before the hypothetical testing was conducted based on the measurement model evaluation. The reliability of items was also verified when all the standardized loading of the indicators was above the recommended reliability of 0.70 (Hair et al., 2017). They also determined internal consistency reliability whereby Cronbach's Alpha (0.85-0.91) and Composite Reliability (CR) was between 0.82 and 0.93, which is much higher than what should have been which is 0.70 and above. Convergent validity was established since Average Variance Extracted (AVE) of each construction was greater than 0.50, which implied that each of the constructions presented in the study accounted more than fifty percent of the variance in the indicators. Table 2 shows the results of reliability and convergent validity.

Table 2. Reliability and convergent validity

Construct	Cronbach's Alpha	CR	AVE
Perceived Ease of Use	0.87	0.90	0.66
Perceived Usefulness	0.88	0.91	0.68
Information Quality	0.85	0.89	0.64
Trust	0.89	0.92	0.69
Perceived Security	0.86	0.90	0.65
Customer Engagement	0.91	0.94	0.71
Customer Loyalty	0.90	0.93	0.70

Fornell-Larcker check and Heterotrait-Monotrait ratio (HTMT) criterion were used as a measure of discriminating between validity. Fornell-Larcker findings showed that the square root of the AVE of each of the constructs surpassed the correlations with other constructs and therefore supported the discriminant validity. Moreover, all the values of HTMT were lower than the conservative proportion of 0.85, which proves that the constructions were empirically different. After ensuring that measurement quality was up to the mark, structural model was tested to test the hypothesized relationships. Bootstrapping method was used to estimate path coefficients 0.18, t-values and p-values, with 5,000 subsamples. The model described a sizable portion of customer loyalty (R2 = 0.64) denoting that the predictors collectively expanded by 64 percent of the variation in loyalty. Table 3 presents the results of a direct effect.

All the postulated direct correlations were statistically significant and positive. To further determine relevance of the findings practically, effect sizes (f2) were assessed. Based on the guidelines provided by Cohen (1988), both perceived usefulness and trust showed the medium effect size, whereas perceived ease of use, information quality, perceived security, and customer engagement showed the small effect size. Assessment of predictive relevance of the model was done based on the Stone Geisser Q2 value that was obtained due to blindfolding. The value of Q2 (customer loyalty) was not less than zero and this showed that the structural model had good predictive relevance.

The moderation of the effect of customer engagement was then established against the relationship between independent variables and customer loyalty. The interaction terms employed in the PLS-SEM model were used to estimate moderation effects. The findings reveal that customer engagement played a significant role as a temper within the relationship between the perceived usefulness and customer loyalty, and trust and customer loyalty. On the other hand, the perceived ease of use,

Table 3. Structural model results (direct effects)

Hypothesis	Path	β	t-value	p-value	Supported
H1	PEOU → Loyalty	0.21	3.42	0.001	Yes
H2	PU → Loyalty	0.24	4.01	< 0.001	Yes
H3	IQ → Loyalty	0.18	2.95	0.003	Yes
H4	Trust → Loyalty	0.27	4.55	< 0.001	Yes
H5	Perceived Security → Loyalty	0.22	3.87	< 0.001	Yes
H6	Engagement → Loyalty	0.20	3.11	0.002	Yes

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Table 4. Moderation effects of customer engagement

Moderated path	β	t-value	p-value	Supported
PEOU × Engagement → Loyalty	0.06	1.12	0.263	No
PU × Engagement → Loyalty	0.13	2.74	0.006	Yes
IQ × Engagement → Loyalty	0.05	1.01	0.311	No
Trust × Engagement → Loyalty	0.15	3.21	0.001	Yes
Security × Engagement → Loyalty	0.07	1.34	0.181	No

information quality, perceived security moderate effects were not found to have a significant impact. The results of the moderation are outlined in Table 4.

4. DISCUSSION

The results of the current study give empirical evidence on what influences customer loyalty towards mobile wallet services in a post-pandemic, emerging economy environment. The findings show that the two determinants that have the greatest impact on customer loyalty amongst mobile wallet users in Jordan are trust and perceived usefulness. This conclusion conforms with previous research in digital banking and mobile commerce that states the perceived reliability of the service and functional perceived value in a decisive role in service long-term use (Ali et al., 2025; Song et al., 2024). High impact of perceived usefulness supports previous findings that digital payment technologies can better retain their users in case they have clearly shown they are more efficient in terms of transactions and financial convenience.

The beneficial impact of the perceived ease of use and information quality also is consistent with the available technology acceptance literature. Successful past research demonstrates that a user-friendly interface of systems and precise and timely information lessen cognitive dissonance and uncertainty, and hence promote use again (Ali & Warraich, 2024). These arguments are further reinforced by the current findings that show that these factors are applicable not only in initial adoption but also in nurturing loyalty in mobile wallet services, especially in the developing country settings, where the digital familiarity is different among different sets of users.

The perceived security and trust were also identified to have a significant impact on customer loyalty, which supports previous studies according to which the perception of risks matters in digital financial services (Singh & Milan, 2025; Chi et al., 2025). Seeing that mobile wallets are an area implicating both confidential financial and personal information, the aspect of loyalty to the system should be greatly influenced by the trustworthiness of their integrity and protection measures. In comparison with the results of certain developed economies, in which the experiential or hedonic factors can be considered more dominant factors, these findings indicate that the functional reliability and security can be accepted as the main bases of loyalty in the context of emerging and cash-driven markets, including Jordan.

The analysis of moderation found that customer engagement enhances the relationships between perceived usefulness and trust with customer loyalty but the moderation effect of customer engagement on perceived ease of use, information quality, and perceived security did not differ significantly. This subtle phenomenon contributes to the findings of earlier research that engagement does not have a comparable positive effect on all the loyalty drivers (Terason et al., 2025). In fact, the increased loyalty seems to be a result of the engagement enhancing the trust of the users in the value and credibility of the service instead of changing the basic perception of usability or security. This difference leads to a decadent interpretation of engagement as a conditional strengthener and not a standard moderator.

In a theoretical perspective, the findings enlarge the Technology Acceptance Model because they establish that customer loyalty in the digital payment systems evolves because of interaction within the functional evaluation and relationship mechanisms. Although traditional TAM constructs remain useful in understanding why people accept the systems and further use them,

the consideration of trust and perceived security and customer engagement can further seem as a more accurate explanation of loyalty in post-pandemic online financial settings (Arizal et al., 2024). Notably, the findings reveal that the role of engagement as designed to be complementary, as opposed to adversarial, to core functional and trust-based drivers, implying the situation of the formation of loyalty in the emerging economies.

CONCLUSION

This paper has explored the customer loyalty factors of mobile wallet service in the post-COVID period in Jordan through expanding the Technology Acceptance Model to also incorporate trust, information quality, perceived security, and the customer engagement. It aimed to offer empirical support to the variables that sustain the use of mobile wallet beyond the initial adoption of the product in an emerging-economy setting. As the results show, the functional and trust aspects of mobile wallets are deemed the key factors that determine customer loyalty. All the perceived usefulness, trust, perceived security, perceived ease of use, and information quality were discovered to significantly and positively affect loyalty. Moreover, customer engagement was also a significant factor that enhanced the impact of trust and perceived usefulness on loyalty and moderated the other relations. The findings show that user trust in the reliability of the mobile wallet systems, value formation and protection of data is determining factors in loyalty to mobile wallets and not the inherently experiential-driven or novelty-driven aspects.

On the findings of this study, it can be said that long-term loyalty to mobile wallets by the emerging economies will be pegged into capacity by the service providers to provide reliable, secure, and functionally worthy payment solutions. As much as the engagement mechanisms increase loyalty if they are connected to trust and utility perceptions, they do not replace the core system's performance and security. This highlights the timeless status of the main components of Technology Acceptance Model, relational variables to explain post-adoption behavior of digital financial services. This study can also be expounded in further researches that add up more moderating or mediating variables such as social influence, perceived risk, or digital literacy to further determine the formation of loyalty. Besides, the generalizability of results and more accurate understanding of the sustainability of mobile wallet adoption in the emerging market could be increased with the help of wider and more diverse sample usage, comparisons across countries, or longitudinal design of the research.

AUTHOR CONTRIBUTIONS

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Writing – original draft: Mohammad Mahmoud Saleem Alzubi.
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REFERENCES

1. Abu-AlSondos, I. A. (2025). Eliminating data silos with business intelligence: The role of organizational culture and leadership in Jordan's insurance sector. *Insurance Markets and Companies, 16*(2), 24-37. https://doi.org/10.21511/ins.16(2).2025.03
2. Al Rob, M. A., Nor, M. N. M., Alshdaifat, S. M., & Salleh, Z. (2025). Impact of competition and client size on big data analytics adoption: A TAM study of auditors. *Qubahan Academic Journal, 5*(1), 278-294. https://doi.org/10.48161/qaj.v5n1a1129
3. Aldraiweesh, A. A., & Alturki, U. (2025). The Influence of Social Support Theory on AI Acceptance: Examining Educational Support and Perceived Usefulness using SEM analysis. *IEEE Access*. https://doi.org/10.1109/ACCESS.2025.3534099
4. Ali, A. B. A., Ayyasamy, R. K., Akbar, R., Jebna, A. K., & Adnan, K. (2025). Cybersecurity Infrastructure Compliance Key Factors to Detect and Mitigate Malware Attacks in SMEs: A Systematic Literature Review. *SAGE Open, 15*(1), 21582440251314670. https://doi.org/10.1177/21582440251314671
5. Ali, A., Sharabati, A., Alqurashi, D., Shkeer, A., & Allahha, M. (2024). The impact of artificial intelligence and supply chain collaboration on supply chain resilience: Mediating the effects of information sharing. *Uncertain Supply Chain Management, 12*(3), 1801-1812. https://doi.org/10.5267/j.uscm.2024.3.002
6. Ali, I., & Warraich, N. F. (2024). *Meta-analysis of technology acceptance for mobile and digital libraries in academic settings using technology acceptance model (TAM). Global Knowledge, Memory and Communication*. https://doi.org/10.1108/GKMC-09-2023-0360
7. Al-kfairy, M., Shuhaiber, A., Al-khatib, A. W., Alrabaee, S., & Khaddaj, S. (2024). Understanding Trust Drivers of S-commerce. *Heliyon, 10*(1), e23332. https://doi.org/10.1016/j.heliyon.2023.e23332
8. Al-khawaja, H., AbuBaker, S., & AlZu'bi, S. (2025). Financial Technology and Its Role in Enhancing Digital Services in the Jordanian Commercial Banks. *Al-Basaer Journal of Business Research, 1*(1). https://doi.org/10.71202/paper18
9. Al-Maaitah, D. A., Alghraibeh, K. M., Mo'men, H. M., & Ahmad, R. A. (2026). The future of sustainable human resource efficiency: A study on the impact of emerging digital tools. Heritage and Sustainable Development, 8(1), 1. https://doi.org/10.37868/hsd.v8i1.1629
10. Al-Okaily, M. (2025). The influence of e-satisfaction on users'e-loyalty toward e-wallet payment apps: a mediated-moderated model. *International Journal of Emerging Markets, 20*(6), 2428-2454. https://doi.org/10.1108/IJOEM-08-2022-1313
11. Alqudah, A. M. A., Alzubi, M. M. S., ALarabiat, Y. A., Al Zoubi, M. I., & Alqudah, O. M. (2025). Adoption of digital payment systems in e-marketing: The moderating role of consumer trust in Jordan. *Heritage and Sustainable Development, 7*(2), 663-674. https://doi.org/10.37868/hsd.v7i2.1270
12. Alrifae, A. A. M. (2025). Enhancing employee engagement through HRM practices: A study of the education sector in Jordan. *Problems and Perspectives in Management, 23*(3), 372. https://doi.org/10.21511/ppm.23(3).2025.27
13. Alrifae, A. A. M., Mahmoud, M. M. H., Al Zumot, R., Ali, A., & AlZubi, M. M. (2026). The impact of electronic human resource management on organizational performance in the Jordanian telecommunications sector with employee engagement as a mediating variable. Discover Sustainability. https://doi.org/10.1007/s43621-026-02644-9
14. Alshdaifat, S. M., Aziz, N. H. A., Alhasnawi, M. Y., Alharasis, E. E., Al Qadi, F., & Al Amosh, H. (2024). The role of digital technologies in corporate sustainability: a bibliometric review and future research agenda. *Journal of Risk and Financial Management, 17*(11), 509. https://doi.org/10.3390/jrfm17110509
15. Alzubi, M. M., Al-Dubai, M. M., & Farea, M. M. (2018). Using the technology acceptance model in understanding citizens' behavioural intention to use m-marketing among Jordanian citizen. *Journal of Business and Retail Management Research, 12*(2). https://doi.org/10.24052/JBRMR/V12IS02/UTTAMIUCBITUM-MAJC
16. Arizal, N., Nofrizal, Dwika Listihana, W., & Hadiyati. (2024). Gen Z customer loyalty in online shopping: an integrated model of trust, website design, and security. *Journal of Internet Commerce, 23*(2), 121-143. https://doi.org/10.1080/15332861.2024.2330812
17. Bhopal, R., & Devi, R. (2025). Post-COVID-19: leveraging digital payment services for a sustainable future through bibliometric analysis. *IIMT Journal of Management*. https://doi.org/10.1108/IIMTJM-07-2024-0077
18. Chi, T., Desch, G., Huynh, H., Duquaine, M., Chen, Y., & Fang, L. (2025). Apparel resale program: how US consumers respond to the new business model. *Journal of Responsible Production and Consumption, 2*(1), 496-524. https://doi.org/10.1108/JRPC-12-2024-0075
19. Cichosz, M., Wallenburg, C. M., & Knemeyer, A. M. (2020). Digital transformation at logistics service providers: barriers, success factors and leading practices. *The International Journal of Logistics Management, 31*(2), 209-238. https://doi.org/10.1108/IJLM-08-2019-0229
20. Dang, A., & Khanra, S. (2024). Mobile payment services in hospitality and tourism sector: technology determinism, social constructivism, and technology ecosystem. *Asia Pacific Journal of Tourism Research, 29*(10), 1204-1221.https://doi.org/10.1080/10941665.2024.2398692

21. Davis, F. D. (1989). *User Acceptance of Information Systems: Technology Acceptance Model (TAM).* Retrieved from https://quod.lib.umich.edu/b/busadwp/images/b/1/4/b1409190.0001.001.pdf

22. Do, A. D., Ha, D. L., Nguyen, A. T., Le, M. D., Nguyen, M. H. N., & Dang, A. Q. (2025). Digital transformation of online payments: interface design and customer service roles in E-wallet adoption in Vietnam. *Cogent Business & Management, 12*(1), 2557966 https://doi.org/10.1080/23311975.2025.2557966

23. El-Annan, S. H., & Hassoun, R. (2025). Enhancing Consumer Trust Through Transparent Data Practices and Ethical Data Management in Business. In *Innovation Management for a Resilient Digital Economy* (pp. 105-148). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-8357-5.ch005

24. Fujiki, H. (2025). Choice of Payment Method by Japanese Households. In *Japan's Financial System: New Perspectives and Potential Risks in the Post-Global Financial Crisis Era* (pp. 3-29). Singapore: Springer Nature Singapore. https://doi.org/10.1007/978-981-97-9258-0_1

25. Gazi, M. A. I., Masud, A. Al, Emon, M., Amin, M. Bin, AbdAlatti, A., Biswas, S., Senathirajah, A. R. bin S., & Fenyves, V. (2025). Mediation effects of engagement and job satisfaction between Herzberg's theory and performance: with moderation role of abusive supervision. *Cogent Business & Management, 12*(1), 2528434. https://doi.org/10.1080/23311975.2025.2528434

26. Gefen, D. (2000). E-commerce: the role of familiarity and trust. *Omega, 28*(6), 725-737. https://doi.org/10.1016/S0305-0483(00)00021-9

27. Gevers, N., Millemann, J. A., & Schnellbaecher, B. (2024). Factors affecting customer satisfaction in the customer journey in B2B and B2C e-commerce environment. *International Journal of Technology Marketing, 18*(3), 241-268. https://doi.org/10.1504/IJTMKT.2024.139783

28. Ghouse, S. M., Shekhar, R., & Chaudhary, M. (2025). Driving financial inclusion: exploring mobile wallet adoption among rural Omani millennials. *Journal of Islamic Marketing, 16*(4), 1229-1257. https://doi.org/10.1108/JIMA-02-2024-0073

29. Goswami, D., Verma, B., Kumar Sinha, S., & Mittal, A. (2025). Cracking the code of initial trust: pathways to adoption of financial Robo-advisors via cognitive absorption. *Journal of Internet Commerce, 24*(4), 287-324. https://doi.org/10.1080/15332861.2025.2546494

30. Habib, G., Sharma, S., Ibrahim, S., Ahmad, I., Qureshi, S., & Ishfaq, M. (2022). Blockchain technology: benefits, challenges, applications, and integration of blockchain technology with cloud computing. *Future Internet, 14*(11), 341. https://doi.org/10.3390/fi14110341

31. Harriet, N., Arthur, N., Komunda, M. B., & Mugizi, T. (2024). Service Quality, Customer Loyalty and Customer Retention among Private Health Care Services in Mbarara City. *Open Journal of Social Sciences, 12*(01), 101-126. https://doi.org/10.4236/jss.2024.121008

32. Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science, 43,* 115-135. https://doi.org/10.1007/s11747-014-0403-8

33. Kumar, A., Haldar, P., & Chaturvedi, S. (2025). Factors influencing intention to continue use of e-wallet: Mediating role of perceived usefulness. *Vilakshan-XIMB Journal of Management, 22*(1), 45-61. https://doi.org/10.1108/XJM-12-2023-0243

34. Lee, H. K., Kim, W. Bin, & Choo, H. J. (2025). Consumers' engagement in online shopping platform: influences on self-concept and subjective well-being within the platform. *Asia Pacific Journal of Marketing and Logistics*. https://doi.org/10.1108/APJML-10-2024-1411

35. Luo, D., Ni, X., Aw, E. C. X., & Tan, G. W. H. (2025). Willingness to disclose information in mobile banking apps: how to tackle privacy concerns? *International Journal of Bank Marketing, 43*(3), 665-682. https://doi.org/10.1108/IJBM-01-2024-0001

36. Mustafa Ayobami Raji, Hameedat Bukola Olodo, Timothy Tolulope Oke, Wilhelmina Afua Addy, Onyeka Chrisanctus Ofodile, & Adedoyin Tolulope Oyewole. (2024). Digital Marketing in Tourism: A Review of Practices in the Usa and Africa. *International Journal of Applied Research in Social Sciences, 6*(3), 393-408. https://doi.org/10.51594/ijarss.v6i3.896

37. Nsisong Louis Eyo-Udo. (2024). Digital transformation as a catalyst for business model innovation: A critical review of impact and implementation strategies. *Open Access Research Journal of Engineering and Technology, 6*(2), 001-022. https://doi.org/10.53022/oarjet.2024.6.2.0085

38. Pigola, A., & da Costa, P. R. (2025). Cybersecurity management: an empirical analysis of dynamic capabilities framework for enhancing cybersecurity intelligence. *Information & Computer Security*. https://doi.org/10.1108/ICS-08-2024-0185

39. Qatawneh, N., Al-Okaily, A., Al-Okaily, M., & Ur Rehman, S. (2025). Exploring the antecedent factors of continuous intention to use mobile money: insights from emerging markets. *Digital Policy, Regulation and Governance, 27*(2), 175-200. https://doi.org/10.1108/DPRG-04-2024-0080

40. Rungruangjit, W., & Charoenpornpanichkul, K. (2024). What motivates consumers' continued usage intentions of food delivery applications in post-COVID-19 outbreak? Comparing generations X, Y and Z. *Journal of Asia Business Studies, 18*(1), 224-251 https://doi.org/10.1108/JABS-06-2023-0234

http://dx.doi.org/10.21511/im.22(1).2026.17

41. Salah, O. H., & Ayyash, M. M. (2025). Understanding user adoption of mobile wallet: extended TAM with knowledge sharing, perceived value, perceived privacy awareness and control, perceived security. *VINE Journal of Information and Knowledge Management Systems, 55*(5), 1223-125 https://doi.org/10.1108/VJIKMS-03-2023-0055

42. Schamberger, M., Breu, M., & Bodendorf, F. (2024). Data-Driven Decision-Making in Shop Floor Quality Management-A Systematic Literature Review. In Proceedings of *International Conference on Flexible Automation and Intelligent Manufacturing* (pp. 424-431). https://doi.org/10.1007/978-3-031-74485-3_47

43. Shahzad, M. F., Xu, S., & Zahid, H. (2025). Exploring the impact of generative AI-based technologies on learning performance through self-efficacy, fairness & ethics, creativity, and trust in higher education. *Education and Information Technologies, 30*(3), 3691-3716. https://doi.org/10.1007/s10639-024-12949-9

44. Shkeer, A. S., Sharabati, A.-A. A., Samarah, T., Alqurneh, M. I. M., & Ali, A. A. A. (2024). The influence of social media content marketing on consumer engagement: A mediating of the role of consumer cognition. *International Journal of Data and Network Science, 8*(4), 2423-2434. https://doi.org/10.5267/j.ijdns.2024.5.015

45. Singh, Y., & Milan, R. (2025). Utilitarian and hedonic values of gamification and their influence on brand engagement, loyalty, trust and WoM. *Entertainment Computing, 52,* 100868. https://doi.org/10.1016/j.entcom.2024.100868

46. Song, G., Zhang, Z., Chen, Y., Hou, W., Zhong, W., Zhou, Y., Zhang, A., & Xu, Y. (2024). PU. 1 induces tumor-associated macrophages promoting glioma progression through BTK-mediated Akt/mTOR pathway activation. *American Journal of Cancer Research, 14*(3), 1139. https://doi.org/10.62347/USAJ2794

47. Soni, H., Shyamsunder, C., Singh, S., & Srinivas, V. (2025). The impact of mobile-wallet factors on customer satisfaction and customer loyalty: A study of B-schools in Hyderabad. *Qubahan Academic Journal, 5*(1). https://doi.org/10.48161/qaj.v5n1a1074

48. Terason, S., Pattanayanon, P., & Phawitpiriyakliti, C. (2025). From Interaction to Loyalty: The Role of Digital Engagement in Automobile Consumers. *Human Behavior and Emerging Technologies, 2025*(1), 9912657. https://doi.org/10.1155/hbe2/9912657

49. Thalhath, P., Ali, K. A., Madathil, J. C., & Ananda, S. (2025). Investigating brand loyalty in mobile payment apps: the impact of cognitive and app-level factors. *Journal of Financial Services Marketing, 30*(3), 18. https://doi.org/10.1057/s41264-025-00311-0

50. Zang, L., Xiong, W., Liu, Y., & Dai, T. (2025). Understanding the formation process of positive customer engagement behaviors: a quantitative and qualitative interpretation. *Asia Pacific Journal of Marketing and Logistics, 37*(5), 1401-1424. https://doi.org/10.1108/APJML-07-2024-0972

51. Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The Behavioral Consequences of Service Quality. *Journal of Marketing, 60*(2), 31-46. https://doi.org/10.1177/002224299606000203

52. Zhang, L., Shao, Z., Benitez, J., & Zhang, R. (2023). How to improve user engagement and retention in mobile payment: A gamification affordance perspective. *Decision Support Systems, 168,* 113941. https://doi.org/10.1016/j.dss.2023.113941

APPENDIX A

Section I: Demographic information

1. Gender

☐ Male
☐ Female

2. Age

☐ 18-20 years
☐ 21-30 years
☐ 31-40 years
☐ Above 40 years

3. Education level

☐ Diploma/Other
☐ Bachelor's degree
☐ Postgraduate degree

4. Frequency of mobile wallet usage

☐ Daily
☐ Weekly
☐ Monthly
☐ Rarely

Section 2

Subsection A: Perceived Ease of Use (PEOU)

Adapted from Davis (1989)

☐ PEOU1. I find it not difficult to learn how to use mobile wallet applications.
☐ PEOU2. Mobile wallet applications are clear and understandable in my interaction with them.
☐ PEOU3. I can have an easy time being competent in the use of mobile wallet apps.
☐ PEOU4. In general, mobile wallet applications are user-friendly to me.

Subsection B: Perceived Usefulness (PU)

Adapted from Davis (1989)

☐ PU1. With mobile wallet applications, I will be able to transact more in a shorter time.
☐ PU2. One way of using cell phone wallet applications to enhance efficiency of my payment activities is through cell phone.
☐ PU3. The applications on mobile wallets improve the efficiency of the control of my financial operations.
☐ PU4. Generally, mobile wallet applications are handy in my day-to-day payments.

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Subsection C: Information Quality (IQ)

Adapted from Salah and Ayyash (2025)

☐ IQ1. The mobile wallet apps give correct information on transactions.
☐ IQ2. The data available by mobile wallet applications is concise and simple to comprehend.
☐ IQ3. The mobile wallet applications will keep one informed regarding transactions and balances.
☐ IQ4. Mobile wallets applications are trustworthy of the transaction history.

Subsection D: Trust (TR)

Adapted from Gefen (2000)

☐ TR1. I also believe that mobile wallet applications will work well in making transactions.
☐ TR2. The providers of mobile wallet services are reputable.
☐ TR3. Mobile wallet applications take into consideration my best interests.
☐ TR4. I am confident whenever making a transaction with the help of mobile wallet apps.

Subsection E: Perceived Security (PS)

Adapted from Luo et al. (2025)

☐ PS1. My age group is not likely to have problems with the security of my personal information in case of the mobile wallet application.
☐ PS2. In my opinion, my financial background is not at risk in case of using mobile wallet applications.
☐ PS3. Mobile wallet apps provide sufficient security risk measures to combat trickery.
☐ PS4. In general, mobile wallet applications are safe to use.

Subsection F: Customer Engagement (CE)

Adapted from Alzubi et al. (2018)

☐ CE1. I am interested when communicating with mobile wallet programs.
☐ CE2. Mobile wallet applications make me interact frequently using the application.
☐ CE3. I am very attentive to the updates, offers, or messages of mobile wallet applications.
☐ CE4. I am emotionally attached to the mobile wallet apps which I am using.

Subsection G: Customer Loyalty (CL)

Adapted from Kumar et al. (2025)

☐ CL1. I will be regular with the applications of mobile wallets in the future.
☐ CL2. I would suggest that others should use mobile wallet applications.
☐ CL3. I use mobile wallet applications as compared to cash and other methods of payment.
☐ CL4. I am also attached to mobile wallet applications that I use.