

Research Article

Attitude of Customers towards Digital Payment Modes

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Abstract: The rapid expansion of digital technologies has transformed traditional payment systems, making digital payment modes increasingly prevalent in everyday financial transactions. However, customer attitude toward digital payment modes continues to be shaped by several perceptual and behavioral factors. This study examines the determinants of customer attitude toward digital payment modes by analysing the influence of trust, compatibility, perceived ease of use, perceived usefulness, and perceived risk. Drawing on established technology acceptance and consumer behavior theories, a conceptual model is proposed in which these constructs serve as independent variables, while customer attitude represents the dependent variable. Primary data were collected from 806 respondents using a structured questionnaire administered to individuals with prior experience in using digital payment modes. The sample size is adequate for robust statistical analysis and enhances the reliability of the findings. Partial Least Squares–Structural Equation Modeling (PLS-SEM) was employed to assess both the measurement and structural models, as it is well suited for predictive research and complex causal relationships among latent variables. Reliability and validity of the constructs were confirmed prior to hypothesis testing. The results indicate that all five independent variables—trust, compatibility, perceived ease of use, perceived usefulness, and perceived risk—have a positive and significant impact on customer attitude toward digital payment modes. Trust emerges as a critical determinant, emphasizing the importance of security and reliability in digital transactions. Compatibility and perceived ease of use positively influence attitude by reflecting alignment with users’ lifestyles and ease of interaction. Perceived usefulness significantly enhances favorable attitudes by highlighting efficiency and convenience. Additionally, perceived risk demonstrates a positive relationship, suggesting that effective risk management and awareness can strengthen customer confidence. The findings contribute to the digital payment literature by providing empirical evidence using PLS-SEM and offer practical insights for service providers and policymakers aiming to enhance customer acceptance and sustained usage of digital payment systems.

Keywords: Digital Payment Modes, Customer Attitude, Trust, Perceived Usefulness, PLS-SEM.

INTRODUCTION

Digital payment systems, popularly known as electronic payments or e-payments, have graduated from being simply a recent phenomenon to being accepted widely. These payments mark the transition from an era of payment methods built on cash and checks to money transferred electronically for settling transactions. This allows the transfer of money through electronic channels, and without any physical cash or cheque transaction, thereby improving efficiency, security, transparency, and convenience when conducting trades of some economic values (Shon & Swatman, 1998; Hord, 2005).

Payment systems have come a long way since the barter system to commodity money, coins, paper currency, and cheques. Cash is considered to be the ultimate means of making payments, but surely with many drawbacks: transaction costs are high, risk of theft and counterfeiting, traceability is absent and inefficient handling and storage. Trade expansion, globalization, and increase in transaction volumes made traditional ones less and less able to cater to the requirements of the contemporary economies (Humphrey et al., 2000). Thus, an alternative has arisen in the form of digital payments capable of sustaining huge volumes of transactions safely and cheaply.

Digital payment means any kind of payment transaction that is initiated, processed, and completed via electronic mode without direct involvement of physical cash or paperwork. Shon and Swatman (1998) defined digital payment as the transfer of funds initiated through electronic communication channels. In contrast, Gans and Scheelings (1999) said that value transfer keeps on buzzing through electronic impulses connected to bank or credit accounts. In 2005, Hord stressed that the digital payments rely on some kind of electronic infrastructure rather than cash or paper-based instruments.

Background of the study

Strategic brand concept-image management framework was introduced by Park et al. (1986), who distinguish between functional, symbolic, and experiential brand concepts in their study. The study further charges that for effective brand management, the guiding marketing activities should be aligned with the core brand concept. The authors maintain that coherent communication about the brand concept clarifies the brand image and understanding among consumers. This framework had been beneficial to several brand positioning and communication decisions across different product categories. The contribution of this study to the branding

theory was to show that the meaning of brand was something that was being managed deliberately to achieve differentiation and relevance from brand to consumer.

Bürk & Pfitzmann, (1989) investigated user perception on acceptance of electronic payment systems and also discussed evolution of electronic payment systems that are economically efficient. It highlighted the several benefits that electronic payments had over traditional payment methods, such as cost reduction and speed of transactions. It also concluded that security and lack of acquaintance with electronic systems are the major effects on user's perception, and that technological advantages on their own did not suffice.

Ho and Ng (1994) evaluated consumers' risk perceptions of electronic payment systems. Main barriers identified include financial, privacy, and performance risks. It was found that in high perceived risk consumers, the use intention declines rather significantly. This early work was foundational, as it set risk perception against trust in studies of electronic transactions. Adaptations of the study continue to hold for contemporary online payment systems in which much of fostered trust and adoption was achieved through management of perceived risk.

Oliver (1999) extended satisfaction research to establish a comprehensive conceptualization of consumer loyalty. The work postulates that loyalty passes through stages of cognitive and affective loyalties, conative loyalty, and finally action loyalty. The author attests that loyalty was more than just repeat purchases, whereas this study defines a deep psychological commitment towards the brand. Whereas satisfaction was considered necessary for loyalty, it was insufficient since other factors such as trust and emotional attachment also play significant roles. This paper contributes immensely to the literature on loyalty by presenting a multidimensional view of loyalty and a process of formation for loyalty itself. In this manner, the paper strongly supports empirical studies directed towards long-term consumer-brand relationships and behavioral commitment.

Mulvenna et al. (2000) characterized personalization on the Internet through web mining techniques. This study makes clear how user data are to be analyzed to produce personalized content, recommendations, and services. Personalization, as perceived by the authors, would be holistic with respect to satisfying, engaging, and bonding users by provisioning the right information according to user preference. The conceptualization establishes early personalization in e-commerce literature, in terms of strategic value, emphasizing data-driven customization. It then aims at developing research later on about recommender systems and personalized digital experiences, where the trade-off would be between what the consumer earns with personalization and what he/she gives up concerning privacy.

Gefen (2000) remained focused on the role of familiarity and trust in e-commerce adoption. The study argued that the familiarity of an online vendor or system would in turn

reduce uncertainty and create trust for transacting intentions to materialize. Results from empirical research showed that repeated interactions and the experience of accumulated trust had a significant effect on trust formation. This study was important for electronic payment adoption since the payment mechanism itself often thrives on repeated user interactions and long-term relationships. The study emphasizes the dynamic nature of trust growing over time through consistent and satisfactory interactions. By distinguishing promotion of familiarity before trust, the research shows how payment service providers can ensure consumer confidence through continuity and reliability.

Abrazhevich (2001) examined the characteristics that influence a customer's attitude towards both traditional and electronic payment systems and looked into some issues in user acceptance of electronic payment systems. The research was conducted in the Netherlands wherein users of cash, debit cards, credit cards, and Internet-based payment systems provided data. The findings pointed to the influences of trust, security, reliability, and ease of use on user acceptance of electronic payments. Moreover, it indicated that the reluctance of users to adopt or continue using them occurs whenever the systems are perceived to be insecure or untrustworthy. results emphasized technological efficiency not being enough but perceptions related to users themselves are overwhelmingly significant factors in acceptance and success of electronic payment systems.

Srinivasan et al. (2002) discussed the antecedents and consequences of customer loyalty in e-commerce contexts. Some of these are trust, personalization, convenience, interactivity, and service quality. The study further indicates that loyalty constituting both behavioral and attitudinal dimensions in the online scenario brings about improved profitability in terms of less price sensitivity along with higher revenues for the businesses. Customer loyalty was considered a strategic asset in any digital market that was highly competitive. This research goes on to contribute significantly to e-commerce literature in terms of putting the spotlight on the building of relationships over the transaction efficiency paradigm. The increasing emphasis on understanding what constitutes a long-term customer-engagement model was thus highlighted for performance of online businesses.

Marsh et al. (2004) critically evaluated cutoff value applications in regard to fit indices from the SEM descriptive field. The authors warn against applying these cutoff values and generalized models invariably across contexts, emphasizing that an evaluation of a model depends on sample size, complexity of model, and context of research. They highlight the dangers of overgeneralizing from previous simulation studies and the necessity for theoretical justification in model assessment. This makes a significant methodological contribution to the quantitative research pushing towards more nuanced and context-sensitive approaches in model evaluation. Primarily, it would benefit researchers providing SEM for social sciences, particularly marketing and information systems. Mahatanankoon (2007) delved into inquiring personality

dimensional differences concerning optimum stimulation level and personality traits into mobile behavior in text messaging and mobile commerce intentions. Greater stimulation needs, together with an open mindset towards experiencing things, lead to more frequent activities in texting and relate to high intents towards adopting mobile commerce services. Thus, the study fairly indicates that the psychological constructs really influence the psychographic impact of mobile patterns of usage besides technology or other non-technological factors. This contribution to mobile consumer behavior literature integrates personality psychology into the technology adoption model, segmenting advertising and communication services used in mobile marketing based on differences between individuals.

Petruzzellis (2010) investigated mobile phone choice behavior in the Italian market, captures the relative emphasis of technology features and branding. The report states that although technological attributes weigh into functional evaluation, brand image was the one attribute that swings overall preference and purchase decision. Dimensional findings suggest that strong brands may lower perceived risk and simplify consumer choice in technologically rife markets. The paper was of consequence in the literature of consumer electronics and branding by substantively proving the branding effect in high-technology products. It gives managerial insights into the trade-off between tech innovation and branding positioning.

Riquelme & Rios (2010) analyzed the effect of the perception of users particularly from different demographics in the adoption of mobile banking services. The study focused on internet banking users in Singapore and primary data were collected through structured questionnaires from 681 respondents. The study looked into the influence which factors like perceived usefulness, perceived ease of use, perceived risk, relative advantage and social norms had on customer intentions to adopt mobile banking. Results revealed that perceived usefulness stood out to be the strongest factors affecting intention to adopt, followed by social norms and then perceived risk. While perceived risk was found to negatively affect adoption, perceived ease of use and relative advantage determined intention indirectly via perceived usefulness. The study further demonstrated that gender moderates the relationship between the perception variables and adoption intention.

Chavosh et al. (2011) studied customers on whether they are degree holders or not concerning banks e-payment services at Penang residing customers. This study was conducted primarily based on 304 bank customers with a structured questionnaire, whereas analysis was done using SPSS. The findings suggested that despite concerns of security, cost, and inconvenience generally expressed by both groups showing an overwhelming satisfaction toward e-payment services, especially on the lower degree holders. The results, while ease-of-use concern-wise, indicated that most degree holders perceive e-payment systems as more cost-effective and secure, while non-degree holders

expressed a higher concern relative to ease-of-use. Thus, it shows that security and inconvenience remain the two major factors in forming customers' perceptions toward electronic payment systems; however, both shared an overall acceptance and preference for e payments compared to traditional ones.

Ray et al. (2019) examined the factors influencing the adoption of e-services in rural India by incorporating perspectives of both consumers and service providers. The study addresses a significant research gap by focusing on rural contexts, which are often underrepresented in digital adoption literature. Using an empirical approach, the authors identify infrastructure availability, digital literacy, trust, perceived usefulness, and affordability as critical determinants of consumer adoption. From the service providers' viewpoint, challenges such as lack of reliable connectivity, resistance to change, and inadequate policy support emerge as key constraints. The findings indicate that while consumers recognize the potential benefits of e-services, adoption was hindered by contextual and systemic barriers unique to rural settings. The study contributes to e-governance and digital inclusion literature by highlighting the need for coordinated efforts involving policy interventions, capacity building, and service design tailored to rural populations. It underscores that technological readiness alone was insufficient and must be complemented by socio-economic and institutional support mechanisms.

Upadhyay et al. (2022) examined consumer adoption of mobile payment services during the COVID-19 pandemic by extending the meta-UTAUT framework with health-related and psychological variables. Recognizing that traditional technology adoption models may be insufficient in crisis contexts, the authors incorporate perceived severity of COVID-19 and self-efficacy to explain behavioral intention. Using survey data and structural equation modeling, the study demonstrates that performance expectancy, effort expectancy, and facilitating conditions remain significant predictors of mobile payment adoption. However, perceived severity of the pandemic significantly strengthens consumers' motivation to shift toward contactless payment solutions, highlighting the role of situational risk in technology adoption decisions. Additionally, self-efficacy was found to positively influence behavioral intention, indicating that individuals' confidence in their ability to use mobile payment technologies enhances adoption likelihood. The study contributes theoretically by contextualizing meta-UTAUT within a public health crisis and empirically validating the relevance of risk perception and personal capability. Practically, the findings suggest that financial institutions and payment service providers should emphasize ease of use, safety, and user empowerment when promoting mobile payments during periods of uncertainty. Overall, the research advances understanding of mobile payment adoption by integrating contextual and psychological factors into established adoption theory.

Hasan et al. (2024) studied how various factors influence the intention of Indian youngsters to use digital payment

systems, focusing on adoption as mobile wallets. The research employs a structured questionnaire survey targeting young users in India to obtain the model for structural equation modeling (SEM) with constructs like perceived value, trust, compatibility, perceived enjoyment, and social influence to explain the intention behind adopting mobile wallets. This study found trust, perceived value, compatibility, and social influence as significant and positive influencers of behavioral intention, with perceived enjoyment being of no significant effect. Among all of the determinants, trust was found to be the strongest predictor of behavioral intention for youth, judging the predominance of service security, reliability, and trustworthiness in the eyes of the young users. This study contributes to the current knowledge in digital payment

literature by providing fresh empirical evidence in an Indian context showing that functional value and trust-based factors outdistance hedonic motivations in shaping digital payment adoption among youth.

While trust and perceived risk have been widely recognized as critical factors affecting the adoption of digital payment, prior literature studied them separately. Limited research is available which focuses on their combined influence on the user’s attitude towards digital payments. This study fulfills this gap.

Research Objective

The objective of the study is to analyze the attitude of customers towards digital payment modes

Research Hypotheses

To validate the research objectives, the research hypotheses of the study have been formulated. The hypotheses of the study are as under:

H1: Trust has a positive impact on attitude towards use.
H2: Compatibility has a positive impact on attitude towards use.
H3: Perceived usefulness has a positive impact on attitude towards use.
H4: Perceived ease of use has a positive impact on attitude towards use.
H5: Perceived risk has a positive impact on attitude towards use.

Sample Design

Sr. No	Description	Contents
1	Target Population	6 administrative divisions of Haryana State
2	Sample Size	806 Respondents
3	Sampling Units	Students, Self-Employed, Government Employee, Private Employee
4	Sampling Method	Non-probability sampling method
5	Sampling Technique	Convenience sampling technique

Source: Primary

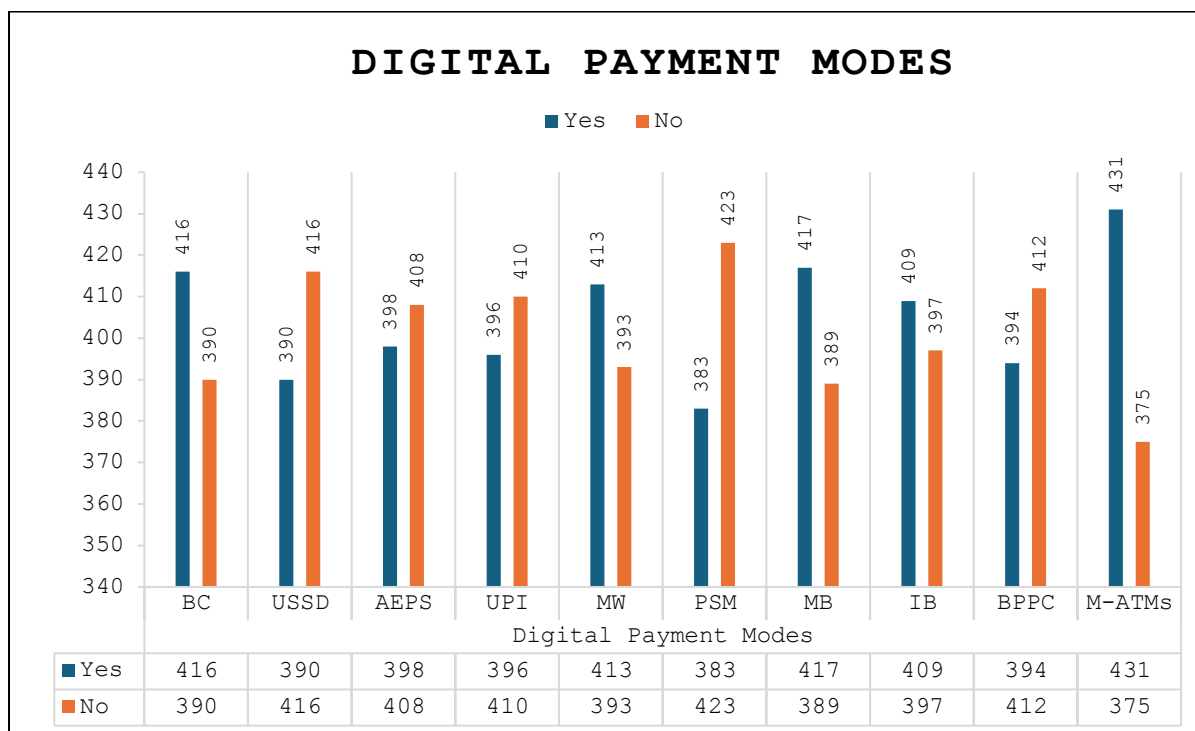
Respondents Profile

The demographic profile of respondents reveals a fairly balanced representation of gender, with 412 males and 394 females. The age distribution indicates that the majority of respondents are concentrated in the 38–42 years group, followed closely by those aged more than 42 years and 28–32 years, suggesting that adults form the dominant segment of the study. In terms of marital status, unmarried respondents outnumbered the married, reflecting the younger sample composition. Educational qualifications show a diverse mix, with graduates forming the largest group, followed by postgraduates and Ph.D. holders. Employment status is also balanced, with notable representation from self-employed, private employees, and government employees, alongside students. The geographical spread covers six key districts of Haryana, with the highest participation from Rohtak and the lowest from Gurugram, ensuring a reasonable regional representation.

Digital Payment Modes

The analysis of customer responses towards various digital payment modes reveals a mixed but insightful pattern of adoption. Among the modes, Mobile ATMs (M-ATMs) and Mobile Banking (MB) emerge as the most preferred, with 431 and 417 positive responses respectively, indicating strong customer trust and usability in these channels. Internet Banking (IB) and Banks Pre-paid Cards (BPPC) also reflect considerable acceptance. On the other hand, modes such as Point-of-Sale Machine (PSM) and USSD-based payments show relatively lower adoption, highlighting that while customers are aware of these options, their practical usage remains limited. Interestingly, UPI—a rapidly growing payment mode in India—garnered 396 affirmative responses, suggesting it is gaining traction but not yet surpassing traditional mobile or internet banking in this dataset. Overall, the findings suggest that while customers are open to a wide spectrum of digital payment systems, their preferences are skewed towards those perceived as more convenient, accessible, and reliable, with newer or less user-friendly technologies facing slower uptake. The detailed picture of digital payment modes used by the consumers have been shown in Figure 1

Figure 1: Digital Payment Modes



Source: Author's self-creation

Measurement Model Assessment

The measurement model was assessed to establish the reliability and validity of the constructs before proceeding to structural model evaluation (Hair et al., 2010). Indicator reliability was first examined through the outer loadings of items on their respective constructs. All loadings exceeded the recommended threshold of 0.70, indicating that each indicator had an adequate level of association with its underlying construct (Hair et al., 2017). Next, internal consistency reliability was evaluated using Cronbach's Alpha and Composite Reliability (CR) values. All constructs recorded Cronbach's Alpha values greater than 0.70 and CR values above 0.70, confirming the internal consistency of the measurement model (Hair et al., 2019). Convergent validity was assessed through the Average Variance Extracted (AVE), with all constructs achieving values above 0.50, indicating that more than half of the variance in the indicators was explained by the latent construct (Hair et al., 2014).

To ensure discriminant validity, both the Fornell–Larcker criterion and the Heterotrait–Monotrait Ratio (HTMT) were applied. The square root of the AVE for each construct was greater than its correlations with other constructs (Fornell & Larcker, 1981), and HTMT ratios were below the conservative threshold of 0.85, thereby supporting discriminant validity (Hair et al., 2019). Collectively, these results confirm that the measurement model exhibits strong reliability and validity, providing a sound basis for testing the hypothesized structural relationships. The results of the measurement model have been shown in Tables 2 and 3. Also, the path relationship between the variables has been shown in Figure 2

Table 2: Construct Reliability and Validity

Constructs and Items	Outer Loadings	Cronbach's Alpha	Composite Reliability (CR) (rho_a); (rho_c)	Average Variance Extracted (AVE)
Trust (TR)...		0.826	0.827; 0.878	0.590
TR1	0.774			
TR2	0.741			
TR3	0.790			
TR4	0.733			
TR5	0.802			
Compatibility (CM)...		0.831	0.832; 0.881	0.597
CM1	0.760			
CM2	0.772			
CM3	0.772			
CM4	0.762			
CM5	0.797			
Perceived Usefulness (PU)...		0.835	0.837; 0.883	0.603
PU1				
PU2	0.796			

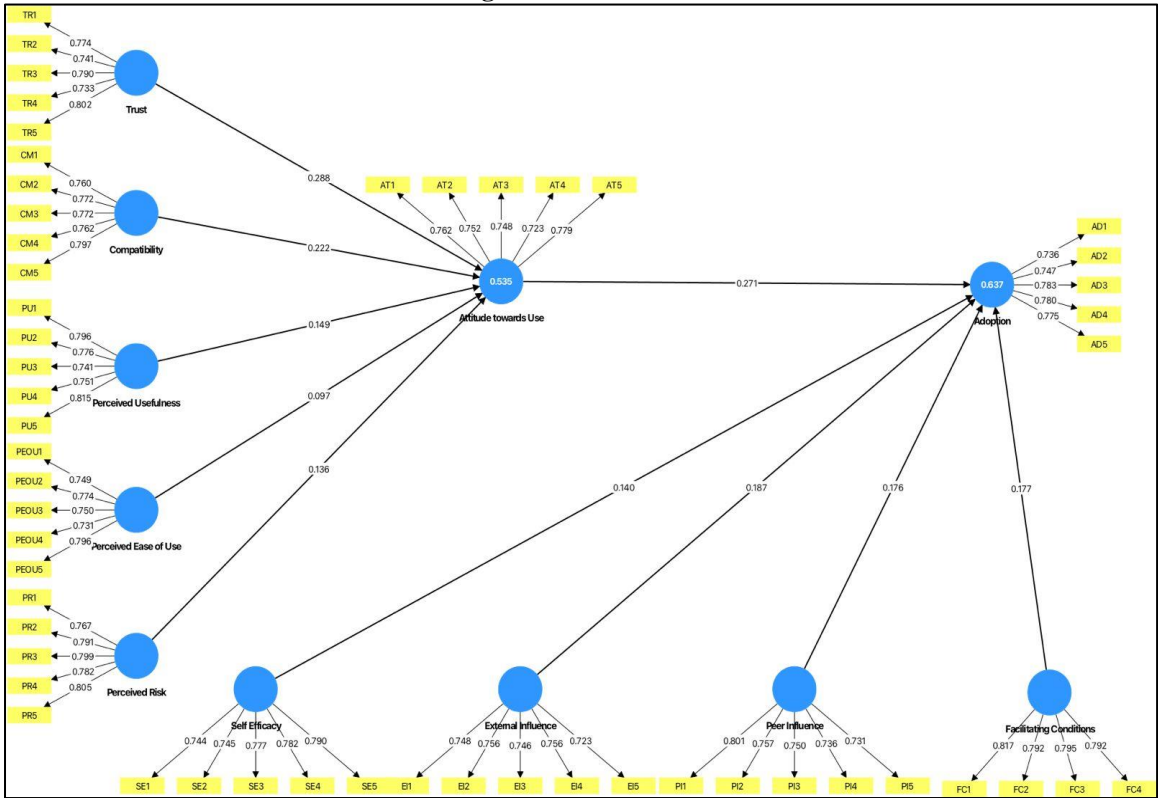
PU3	0.776			
PU4	0.741			
PU5	0.751			
	0.815			
Perceived Ease of Use (PEOU)...		0.817	0.818; 0.872	0.578
PEOU1	0.749			
PEOU2	0.774			
PEOU3	0.750			
PEOU4	0.731			
PEOU5	0.796			
Perceived Risk (PR)...		0.849	0.850; 0.892	0.623
PR1	0.767			
PR2	0.791			
PR3	0.799			
PR4	0.782			
PR5	0.805			
Attitude (AT)...		0.809	0.809; 0.867	0.567
AT1	0.762			
AT2	0.752			
AT3	0.748			
AT4	0.723			
AT5	0.779			

Table 3: Discriminant Validity (HTMT)

	AT	CM	PEOU	PR	PU	TR
AT						
CM	0.748					
PEOU	0.677	0.679				
PR	0.665	0.686	0.637			
PU	0.687	0.641	0.795	0.579		
TR	0.789	0.754	0.680	0.684	0.702	

Source: Author’s self-creation

Figure 2: Path Model



Source: Software Output (SmartPLS4)

Structural Model Assessment

9.1 Multicollinearity Analysis

Variance Inflation Factors (VIFs) values were calculated to assess multicollinearity among the predictor constructs in the structural model (Kock, 2015). In PLS-SEM, multicollinearity is a concern when constructs share high variance, as it may distort path coefficients and weaken the interpretability of relationships. A commonly accepted guideline is that VIFs values should be below 5.0, with more conservative thresholds recommending values below 3.33 to ensure robustness (Hair et al., 2019; Kock, 2015). In this study, all outer and inner VIFs values fell well below the critical limit of 3.33, indicating that collinearity among the predictor constructs is not problematic. This confirms that each construct contributes uniquely to explaining the dependent variable without redundancy or overlap. Thus, the results of the structural model can be interpreted with confidence, as multicollinearity does not pose a threat to the validity of the findings. Table 4 displays the results of the multicollinearity analysis.

Table 4: Multicollinearity Analysis

Construct	Inner VIFs	Items	Outer VIFs
TR	2.085	TR1	1.660
		TR2	1.591
		TR3	1.740
		TR4	1.538
		TR5	1.828
CM	2.005	CM1	1.602
		CM2	1.633
		CM3	1.654
		CM4	1.648
		CM5	1.781
PU	2.039	PU1	1.794
		PU2	1.685
		PU3	1.568
		PU4	1.642
		PU5	1.923
PEOU	2.093	PEOU1	1.491
		PEOU2	1.660
		PEOU3	1.572
		PEOU4	1.504
		PEOU5	1.810
PR	1.786	PR1	1.596
		PR2	1.733
		PR3	1.899
		PR4	1.796
		PR5	1.912
AT	2.049	AT1	1.605
		AT2	1.562
		AT3	1.548
		AT4	1.446
		AT5	1.727

Source: Author's self-creation

Coefficient of Determination (R²)

The explanatory power of the proposed structural model was assessed using the Coefficient of Determination (R²) (Hair et al., 2014). For the final dependent variables, Customer Attitude of Digital Payment Modes, the R² values indicate the proportion of variance in each construct explained by its respective predictors. The R² value for Attitude was found to be 0.532, suggesting a moderate level of explanatory power based on the guidelines proposed by Cohen (1988).

Hypotheses Testing

The hypotheses were tested using the path coefficients (β values) and their corresponding p-values obtained through bootstrapping in PLS-SEM (Hair et al., 2017). The β values indicate the strength and direction of the relationships between constructs, while the p-values determine their statistical significance (Hair et al., 2022).

Results showed that all paths were significant at the 0.05 level, confirming the hypothesized relationships. The higher β values for constructs including Trust ($\beta = 0.288$, $p = 0.000$), Compatibility ($\beta = 0.222$, $p = 0.000$), Perceived usefulness ($\beta = 0.149$, $p = 0.001$), Perceived ease of use ($\beta = 0.097$, $p < 0.019$), and Perceived risk ($\beta = 0.136$, $p = 0.001$) indicate their strong positive influence on customer attitudes towards digital payment modes.

Table 5: Summarized Results of Hypotheses

Hypotheses	Result
H1: Trust has a positive impact on attitude towards use.	Supported
H2: Compatibility has a positive impact on attitude towards use.	Supported
H3: Perceived usefulness has a positive impact on attitude towards use.	Supported
H4: Perceived ease of use has a positive impact on attitude towards use.	Supported
H5: Perceived risk has a positive impact on attitude towards use.	Supported

CONCLUSION

Using PLS-SEM, the study tested the relationships among multiple constructs drawn from established technology adoption theories (Cordero et al., 2024). The results provide a clear distinction between factors that shape customer attitude and those that directly influence adoption intentions. Specifically, trust, compatibility, perceived usefulness, perceived ease of use, and perceived risk emerged as critical determinants of attitude towards digital payments. Among these, trust and compatibility played a particularly significant role, consistent with prior literature which suggests that consumers are more willing to embrace new technologies when they perceive them as reliable and aligned with their existing habits (Moore & Benbasat, 1991). Interestingly, while perceived usefulness and ease of use were positively associated with attitude (Davis, 1989; Wu & Li, 2018), their effects were weaker compared to social and contextual factors, highlighting that rational cost–benefit evaluations are not the sole drivers of digital payment adoption.

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