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Integrating SERVQUAL and ECM to Explain E-Wallet Satisfaction and Continuance in Semi-Urban and Rural Indonesia

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Abstract. This study aims to analyze user satisfaction and continuance intention toward mobile payment applications in semi-urban and rural Indonesia by integrating the SERVQUAL framework and the Expectation–Confirmation Model (ECM). Although e-wallet adoption has increased rapidly, empirical evidence on post-adoption behavior in non-urban contexts remains limited. This study addresses this gap by examining how service quality, expectation, confirmation, and digital literacy shape satisfaction and continued usage. Using a quantitative survey, data were collected from 212 active DANA users in Central Lombok Regency during December 2025–January 2026 and analyzed using PLS-SEM with SmartPLS. The results show that among the five SERVQUAL dimensions, only empathy has a significant positive effect on user satisfaction. Expectation and confirmation significantly influence satisfaction, whereas perceived usefulness does not directly affect either satisfaction or continuance intention. User satisfaction and digital literacy significantly predict continuance intention, while the moderating effect of digital literacy is not supported. From a practical perspective, these findings indicate that providers should prioritize user assistance, communication, and expectation management rather than interface or technical attributes when serving semi-urban and rural markets. This study demonstrates that expectation fulfillment and relational-based service quality are more decisive for sustaining e-wallet usage than technical features in non-urban settings.

Keywords: E-wallet; User satisfaction; Continuance intention; SERVQUAL; ECM

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1. INTRODUCTION

The transformation of financial services through application-based digital payments has significantly accelerated the adoption of electronic wallets (e-wallets) across developing economies, including Indonesia. However, the success of e-wallet services is not solely determined by initial adoption rates, but rather by users' continuance intention, as users tend to switch services when perceived benefits are not consistently aligned with actual usage experiences [1], [2]. This issue has become increasingly salient amid intense competition among e-wallet providers, who continuously introduce new features and promotional strategies that are not always accompanied by stable improvements in service quality during everyday use [3]. In the Indonesian context, the rapid growth of digital transactions is closely linked to the national agenda of financial inclusion, yet its effectiveness largely depends on whether users experience digital payment services as secure, reliable, and easy to understand [4]. These challenges are particularly pronounced in semi-urban and rural areas, where infrastructural limitations, uneven digital literacy, and unstable network conditions can substantially shape transaction experiences [5].

Ultimately, the sustainability of e-wallet usage is determined not by users' initial intention to adopt the technology, but by their satisfaction and post-adoption evaluations of the service experience as a whole [6]. Prior studies consistently identify user satisfaction as a key determinant of continued usage behavior in digital payment services, especially when users evaluate security, convenience, and system reliability as integral components of their end-to-end experience [7], [8], [9]. A growing body of research also emphasizes that perceived security and personal data protection foster trust, which in turn contributes to higher levels of satisfaction and loyalty toward e-wallet services (Almaiah et al., 2022). Nevertheless, empirical evidence suggests that the effects of these factors are not uniform across contexts, as geographical and demographic differences particularly between rural and urban settings, shape how users perceive risks and engage in protective behaviors [5], [10].

To better explain post-adoption behavior, many scholars have employed the Expectation Confirmation Model (ECM), which emphasizes the roles of initial expectations, confirmation of experience, perceived usefulness, and satisfaction as primary drivers of continuance

intention [11]. ECM-based studies in the e-wallet domain demonstrate that expectation and confirmation are strong predictors of perceived usefulness and satisfaction, which subsequently influence users' decisions to continue using digital payment applications [12]. Several studies have further extended ECM by incorporating additional constructs such as usage experience, perceived risk, or trust to capture the complexity of post-adoption dynamics in digital payment services [13]. This line of research highlights that e-wallets are not merely technological artifacts, but service systems whose quality is shaped by transaction experiences, customer support, system reliability, and users' perceptions of security [14], [15], [16].

Beyond ECM, service quality perspectives particularly SERVQUAL and its electronic service quality derivatives have long been employed to explain how service attributes influence user satisfaction and loyalty [6]. Empirical studies on mobile wallets indicate that service quality dimensions significantly affect satisfaction and loyalty; however, the magnitude and significance of these effects vary depending on user characteristics and service contexts [14]. In Indonesia, several studies have examined the service quality of e-wallets, including DANA, and its relationship with user satisfaction and loyalty using e-SERVQUAL or digital service quality frameworks [17], [18]. Despite these contributions, many studies still treat service quality as a direct antecedent of satisfaction or loyalty, without explicitly linking it to post-adoption cognitive mechanisms that emphasize the alignment between initial expectations and actual experiences [16].

The state of the art in e-wallet research can be broadly categorized into three major streams: adoption models (such as TAM and UTAUT and their extensions), post-adoption models (primarily ECM and its variants), and service quality based models focusing on satisfaction and loyalty [19], [20]. Studies that integrate multiple theoretical perspectives generally provide more robust explanations of continuance intention, as they capture cognitive, affective, and service-related factors simultaneously [21]. For instance, research involving students and young users demonstrates that satisfaction and perceived usefulness constitute critical pathways toward continued usage, although the antecedent constructs may differ across contexts [22]. Moreover, trust, perceived risk, and security are frequently identified as essential components shaping e-satisfaction and reuse intention in digital payment services [7], [23].

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Despite the growing literature, several limitations remain evident [1], [24]. First, a substantial proportion of e-wallet studies focus on urban populations, university students, or young consumers, resulting in the underrepresentation of semi-urban and rural contexts characterized by infrastructural constraints and heterogeneous digital competencies [25]. This gap is particularly important because comparative rural–urban studies reveal systematic differences in risk perception, usage preferences, and protective behaviors in digital service adoption [5], [26]. Second, service quality research on e-wallets often evaluates service dimensions in isolation, without integrating them into ECM-based mechanisms that emphasize expectation–experience congruence as the foundation of post-adoption satisfaction [14]. Third, ECM studies in the e-wallet domain tend to focus on confirmation and perceived usefulness, while paying limited attention to operational service quality dimensions such as responsiveness, assurance, and empathy that shape users' everyday transaction experiences [11].

Furthermore, although digital literacy is frequently acknowledged as an important factor in digital service adoption, its role in explaining e-wallet continuance intention in non-urban contexts remains inconclusive [27]. Research on fintech adoption in rural areas suggests that users' ability to understand and operate digital services influences their perceptions of usefulness, risk, and trust, which subsequently affect their decisions to continue using such services [28]. However, other studies indicate that the effects of digital literacy may interact with trust, service quality, and security, resulting in non-linear and context-dependent relationships [29], [30], [31]. Consequently, examining digital literacy as an explanatory factor in semi-urban and rural settings is essential to clarify how user capabilities condition post-adoption behavior [32], [33].

In addition, empirical research specifically focusing on the DANA e-wallet in semi-urban and rural contexts remains limited compared to studies conducted in major urban areas [34]. Although prior Indonesian studies have evaluated DANA's service quality and user satisfaction, they generally do not position non-urban geographical contexts as a central analytical focus for understanding post-adoption behavior [35]. Other studies also suggest that while promotions and ease of use may encourage initial adoption, long-term satisfaction and continuance intention are more strongly driven by actual usage experiences, service quality, and perceived security [36].

In light of these limitations, this study positions its contribution in integrating SERVQUAL and the Expectation Confirmation Model (ECM) to explain user satisfaction and continuance intention toward e-wallet services in semi-urban and rural communities [16]. Conceptually, this integration is appropriate because SERVQUAL captures the operational aspects of service quality experienced by users, while ECM explains the cognitive evaluation processes that shape satisfaction and continued usage decisions after adoption [11]. Such an integrated approach aligns with recent research trends emphasizing comprehensive models to enhance explanatory power in digital payment continuance behavior [21]. Moreover, incorporating digital literacy as an additional explanatory factor is particularly relevant in semi-urban and rural contexts, where variations in user capabilities may influence how benefits and satisfaction are evaluated and how usage-related risks are managed [28].

Empirically, Central Lombok Regency provides a relevant research setting, as it encompasses a mix of semi-urban and rural areas characterized by heterogeneous network access, economic activity intensity, and user experience with digital services [37] Evidence from rural studies across different countries indicates that continuance usage of mobile money and mobile wallets in subsistence markets is shaped by a combination of service experience, trust, and contextual constraints [37]. Furthermore, sustained usage of digital payment services in non-urban areas has the potential to strengthen financial inclusion, provided that service quality and user experience can be consistently maintained [38]. This study makes three key contributions to the literature on mobile payment continuance in non-urban contexts. First, it develops and empirically validates an integrated SERVQUAL–ECM framework to explain user satisfaction and continuance intention in semi-urban and rural fintech settings, where service experience and post-adoption evaluations are shaped by infrastructural and capability constraints. Second, it examines digital literacy not only as a direct antecedent of continuance intention but also as a moderating variable that conditions how perceived usefulness and user satisfaction translate into sustained usage. Third, it provides novel empirical evidence from Central Lombok Regency, a semi-urban and rural region in Indonesia, thereby extending predominantly urban-based e-wallet research into a context characterized by heterogeneous digital access and user capabilities. Therefore, this study aims to (1) evaluate the effects of SERVQUAL dimensions on user satisfaction, (2) examine the influence of expectation and confirmation on perceived usefulness and satisfaction, and (3) analyze the effects of perceived usefulness, satisfaction, and digital

literacy on continuance intention toward the DANA e-wallet among semi-urban and rural communities in Central Lombok Regency.

2. METHODS

This study employs a quantitative approach using a survey design to examine post-adoption behavior in mobile payment services [11]. The survey method was selected because it is effective in capturing users' perceptions of service quality, experience confirmation, user satisfaction, and continuance intention in the context of e-wallet applications [6]. The empirical focus of this research is on users of the DANA mobile payment application in Central Lombok Regency, Indonesia, which was deliberately chosen as it represents the characteristics of semi-urban and rural regions with substantial heterogeneity in digital infrastructure access, economic activities, and user capabilities [37], [39].

Central Lombok Regency comprises a mix of semi-urban growth centers and rural villages that experience varying levels of network availability and digital literacy, thereby reflecting real-world conditions of mobile payment adoption and continued usage outside major metropolitan areas [5]. This non-metropolitan context is particularly relevant for investigation, as digital service usage in semi-urban and rural areas is shaped by infrastructural disparities, risk perceptions, and diverse levels of digital competence that are more complex than those typically observed in large urban settings [5]. Accordingly, the findings of this study are expected to provide contextual insights into the determinants of user satisfaction and continuance intention toward e-wallet services among semi-urban and rural communities in Indonesia, without claiming direct statistical generalization at the national level [37].

2.1. Research Procedure and Data Collection Stages

The research procedure was conducted through a series of structured stages encompassing model development, instrument design, data collection, and statistical analysis [21]. The first stage involved the formulation of a conceptual framework by integrating service quality dimensions with post-adoption mechanisms to explain user satisfaction and continuance intention toward mobile payment services [16]. This integration was intended to capture both operational service experiences and cognitive evaluation processes following actual

system use. The second stage focused on the development of the survey instrument based on measurement indicators that have been widely applied and validated in prior studies on e-wallets and mobile payment systems, thereby ensuring strong conceptual grounding and cross-study comparability [6]. All measurement items were adapted to the context of the DANA mobile payment application and refined to ensure clarity and contextual relevance for users in semi-urban and rural settings. The research procedure and data collection stages are summarized in Figure 1, which illustrates the research workflow from model development to PLS-SEM analysis.

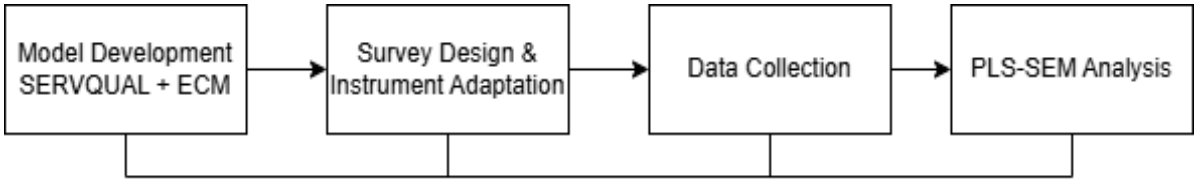

Figure 1. Research procedure and data collection process

The third stage involved data collection, which was conducted between December 2025 and January 2026. This period was deliberately selected to capture users' perceptions during a relatively intensive transaction phase, corresponding to end-of-year and early-year financial activities, when mobile payment usage tends to increase [3]. The fourth stage consisted of data screening, cleaning, and validation, including the removal of incomplete or inconsistent responses, to ensure the robustness and reliability of subsequent statistical inference [40], [41], [42].

The target population of this study comprised active users of the DANA application residing in Central Lombok Regency, Indonesia [37]. A purposive sampling technique was employed, with eligibility criteria requiring respondents to have prior experience using DANA for actual transaction activities, thereby enabling them to meaningfully evaluate post-adoption constructs such as satisfaction and continuance intention [25]. Purposive sampling is commonly applied in e-wallet research, as the primary objective is to obtain responses from users who are substantively relevant to the evaluation of post-adoption behavior rather than from the general population [7].

The questionnaire was administered through a combination of online distribution and assisted data collection to accommodate respondents with varying levels of digital access

and digital literacy across semi-urban and rural areas [28]. A total of 212 responses were deemed valid and retained for analysis. The respondent profile reflects substantial heterogeneity in terms of gender, age, educational background, duration of application usage, frequency of use, and types of transactions performed, thereby providing a comprehensive representation of user experiences with the DANA application in the study context [34]. Detailed respondent characteristics are presented in Table 1.

Table 1. Respondent Characteristics (N = 212)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Female	101	47.6
	Male	111	52.4
Age (years)	< 20	19	9.0
	21–30	129	60.8
	31–40	47	22.2
	41–50	15	7.1
	> 50	2	0.9
Highest	Primary school or equivalent	2	0.9
Educational	Junior high school or equivalent	3	1.4
Level	Senior high school / vocational school	86	40.6
	Diploma (D1–D3)	24	11.3
	Bachelor's degree	88	42.5
	Postgraduate degree (Master's/Doctoral)	9	4.2
Duration of	< 6 months	25	11.8
DANA	6 months – 1 year	48	22.6
Application	1–2 years	69	32.5
Usage	> 2 years	70	33.0
Frequency of	Rare (1–2 times per month)	33	15.6
DANA	Moderately frequent (3–5 times per month)	47	22.2
Application	Frequent (6–10 times per month)	74	34.9
Usage	Very frequent (> 10 times per month)	58	27.4
Most	Balance top-up	39	18.4
Frequently	Transfer to other users	48	22.6
Used	Utility payments	32	15.1
Transaction	Online shopping payments	46	21.7
Type	QRIS payments	36	17.0
	Others	11	5.2

2.2. Variable Measurement and Scale

The research instrument employed a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree") to measure respondents' perceptions across all constructs included in the research model [40], [41], [42]. The five-point Likert scale was selected as it offers an appropriate balance between measurement sensitivity and respondent comprehensibility, particularly in studies examining digital service usage in heterogeneous user populations [6]. Service quality constructs were operationalized based on the SERVQUAL framework, encompassing five dimensions: tangibles, reliability, responsiveness, assurance, and empathy. These dimensions have been widely applied and empirically validated in evaluating service performance within technology-enabled and application-based service environments, including mobile payment systems [14]. The SERVQUAL dimensions were adapted to reflect users' direct experiences with the operational and support features of the DANA mobile payment application.

Post-adoption constructs were measured using the Expectation–Confirmation Model (ECM), which includes expectation, confirmation, perceived usefulness, and user satisfaction. This model was employed to capture the cognitive evaluation process through which users assess whether their initial expectations are confirmed by actual usage experiences, subsequently shaping satisfaction and continuance intention toward the service [11]. The ECM framework is particularly suitable for mobile payment research, as continuance behavior is strongly influenced by post-use evaluations rather than initial adoption motives. In addition, digital literacy was incorporated as a key explanatory variable to represent users' capabilities in understanding digital information, effectively operating mobile applications, and resolving basic technical issues encountered during service use. This construct is especially relevant in semi-urban and rural contexts, where disparities in digital skills and access may significantly influence perceived usefulness, satisfaction, and sustained usage of mobile payment services [27]. In this study, the expectation construct reflects respondents' retrospective evaluation of their initial beliefs about the DANA application prior to continued use, as captured at the time of the survey. This operationalization is consistent with post-adoption ECM research, where expectation is commonly measured as users' recalled pre-use beliefs when longitudinal pre-adoption data are unavailable. Although retrospective measurement may introduce recall bias, this approach remains appropriate

for modeling post-adoption evaluations in cross-sectional fintech studies and is acknowledged as a limitation.

2.3. Model Modification and Theoretical Rationale

This study applies a modified research model by integrating the SERVQUAL framework and the Expectation Confirmation Model (ECM) into a single conceptual structure to enhance the explanatory power of user satisfaction and continuance intention in mobile payment applications [16]. This integration is theoretically justified because ECM captures users' post-adoption cognitive evaluation processes such as initial expectations, confirmation of experience, and perceived usefulness whereas SERVQUAL focuses on operational service experiences that are directly perceived during system use [11]. Prior studies have demonstrated that integrated models generally provide a more comprehensive explanation of continuance behavior than single-theory approaches, particularly in the context of mobile payment services that rely on sustained usage rather than one-time adoption [21]

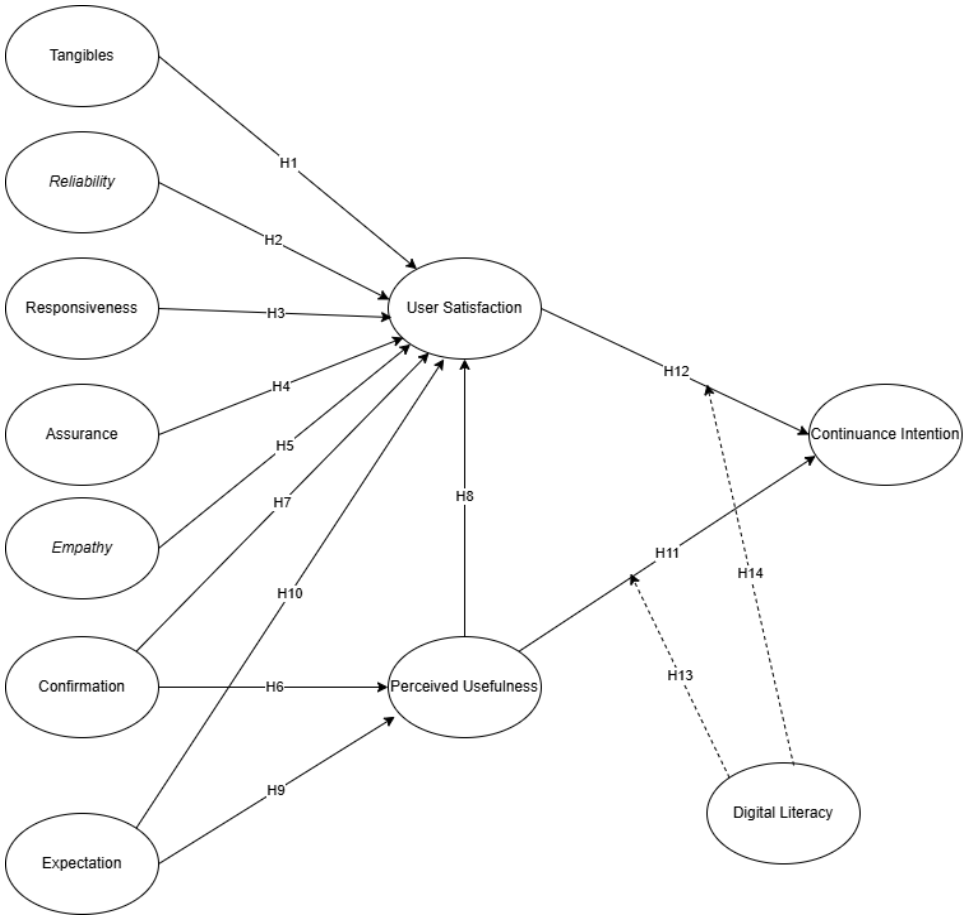

Figure 2. Research model

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As illustrated in Figure 2, the five SERVQUAL dimensions tangibles, reliability, responsiveness, assurance, and empathy are specified as antecedents of user satisfaction. These relationships reflect the assumption that users' evaluations of application appearance, system reliability, responsiveness of services, security assurance, and attentiveness to user needs collectively shape their overall satisfaction with mobile payment services. Furthermore, in accordance with the ECM framework, expectation and confirmation are positioned as key cognitive antecedents influencing perceived usefulness and user satisfaction. This structure represents the post-adoption evaluation process through which users compare their initial expectations with actual usage experiences when interacting with mobile payment applications.

Within the conceptual framework, perceived usefulness and user satisfaction are subsequently modeled as direct predictors of continuance intention, reflecting users' decisions to maintain long-term usage of the application. This configuration is consistent with post-adoption literature, which emphasizes that continuance decisions are primarily driven by evaluations of actual experiences rather than initial adoption motivations [11].

In addition to the direct relationships among the core constructs, this study incorporates digital literacy as a contextual variable to enrich the explanation of continuance intention in semi-urban and rural settings. As depicted in Figure 2, digital literacy is examined not only as a direct predictor of continuance intention but also as a moderating variable on the relationships between perceived usefulness and continuance intention, as well as between user satisfaction and continuance intention [33], [43], [44]. This moderating approach is particularly relevant because prior e-wallet studies suggest that the effects of perceived benefits and satisfaction on continuance behavior are not always linear and may depend on individual user characteristics, including digital capabilities [29]. By testing digital literacy as both a direct effect and an interaction effect, the proposed model comprises a total of fifteen hypothesized relationships, as reflected in the paths illustrated in Figure 2. This modeling strategy is consistent with best practices in PLS-SEM research, where contextual variables are frequently examined simultaneously as predictors and moderators to capture the complexity of user behavior in heterogeneous digital environments [41], [42], [45].

2.4. Hypotheses Development

Within the SERVQUAL framework, tangibles reflect the visual appearance, interface design, and perceived professionalism of an application, which collectively shape users' initial impressions of digital services [46]. In the context of mobile payment systems, an attractive and user-friendly interface enhances usability and perceived service quality, which in turn contributes positively to user satisfaction [6]. Accordingly, the following hypothesis is proposed:

H1 : Tangibles have a significant effect on user satisfaction.

The reliability dimension refers to the ability of a system to deliver services accurately, consistently, and without errors [46]. Transaction reliability is a fundamental requirement in e-wallet services, as system failures or inaccuracies may reduce satisfaction and increase users' intentions to switch to alternative providers [7]. Based on this argument, the following hypothesis is formulated:

H2 : Reliability has a significant effect on user satisfaction.

Responsiveness represents the speed and effectiveness of the system and customer support in responding to users' requests and problems (Parasuraman et al., 1988). Prior studies on e-service quality indicate that prompt and effective responses enhance users' service experiences and satisfaction, particularly in real-time digital transaction environments [14]. Therefore, the following hypothesis is proposed:

H3 : Responsiveness has a significant effect on user satisfaction.

The assurance dimension reflects users' perceptions of security, trust, and confidence in both the system and the service provider [46]. In fintech services, perceived security and data protection play a critical role in shaping users' trust and satisfaction [20]. Hence, the following hypothesis is formulated:

H4 : Assurance has a significant effect on user satisfaction.

Empathy describes the degree to which service providers understand and address users' individual needs [46]. In semi-urban and rural contexts, empathy is particularly important due to user heterogeneity and differences in digital literacy levels, which may influence service expectations and evaluations [5]. Accordingly, the following hypothesis is proposed:

H5 : Empathy has a significant effect on user satisfaction.

Within the Expectation Confirmation Model (ECM), confirmation refers to the extent to which users' initial expectations are met by their actual usage experiences [47]. When application performance meets or exceeds expectations, users are more likely to perceive the system as useful and experience higher satisfaction levels [11]. Based on this mechanism, the following hypotheses are proposed:

H6 : Confirmation has a significant effect on perceived usefulness.

H7 : Confirmation has a significant effect on user satisfaction.

Expectation represents users' initial beliefs regarding system performance and anticipated benefits prior to use [47]. Positive expectations are likely to shape users' post-use evaluations, particularly perceived usefulness, in mobile payment services [12]. Therefore, the following hypotheses are proposed:

H9 : Expectation has a significant effect on perceived usefulness.

H10 : Expectation has a significant effect on user satisfaction.

Perceived usefulness reflects the extent to which users believe that an application enhances the effectiveness and efficiency of their transactions [48]. Prior literature suggests that perceived usefulness is a key determinant of user satisfaction in digital services, as functional benefits form the basis of rational post-adoption evaluations [7]. Accordingly, the following hypothesis is proposed:

H8 : Perceived usefulness has a significant effect on user satisfaction.

Continuance intention represents users' intentions to continue using an application in the future [47]. In the e-wallet context, continuance intention is primarily driven by users' evaluations of perceived usefulness and satisfaction derived from prior usage experiences [6]. Thus, the following hypotheses are formulated:

H11 : Perceived usefulness has a significant effect on continuance intention.

H12 : User satisfaction has a significant effect on continuance intention.

Digital literacy reflects users' abilities to understand, operate, and effectively utilize digital technologies [27]. In semi-urban and rural environments, digital literacy plays a crucial role in determining sustained use of e-wallet services, as users' capabilities influence their

confidence and continuity of engagement [5]. Based on this argument, the following hypothesis is proposed:

H15 : Digital literacy has a significant effect on continuance intention.

Beyond its direct effect, digital literacy is also conceptualized as a moderating variable that influences the strength of the relationships between perceived usefulness and continuance intention, as well as between user satisfaction and continuance intention. Prior studies indicate that users' digital capabilities may strengthen or weaken the translation of perceived benefits and satisfaction into long-term usage decisions [33]. Therefore, the following moderating hypotheses are proposed:

H13 : Digital literacy moderates the relationship between perceived usefulness and continuance intention.

H14 : Digital literacy moderates the relationship between user satisfaction and continuance intention.

2.5. Data Analysis Technique

Data analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM), as this approach is well suited for relatively complex research models involving multiple latent constructs and interaction effects [41]. PLS-SEM is particularly appropriate for studies that emphasize prediction and the explanation of variance in endogenous constructs, especially in the context of digital service usage and post-adoption behavior. Parameter estimation was performed using SmartPLS software, following a stepwise procedure that includes the evaluation of both the measurement model and the structural model [42], [45] The measurement model was assessed by examining convergent validity through indicator loadings and Average Variance Extracted (AVE), as well as internal consistency reliability using Cronbach's alpha and composite reliability. Discriminant validity was evaluated using the Heterotrait–Monotrait ratio (HTMT) to ensure that each construct was empirically distinct from the others in the model [42]. Only after the measurement model satisfied all recommended criteria was the structural model subsequently evaluated. Structural model assessment involved examining path coefficients, their statistical significance, and potential multicollinearity among predictor constructs using the Variance Inflation Factor (VIF). The explanatory power of the model was assessed using the

coefficient of determination (R^2) for the endogenous constructs, while predictive relevance was evaluated using Stone–Geisser's Q^2 values obtained through a blindfolding procedure. In addition, the effect size (f^2) of each structural path was analyzed to identify the relative contribution of each predictor construct to the explained variance of the endogenous variables [42], [45].

The significance of the estimated parameters was tested using a bootstrapping procedure with 10,000 subsamples to obtain robust t-statistics and p-values. Bootstrapping is widely employed in mobile payment and fintech research to assess both direct and moderating effects within PLS-SEM frameworks [21]. Moderation analysis was conducted by creating interaction constructs between digital literacy and the main predictor variables, and subsequently testing their effects on continuance intention in accordance with established PLS-SEM interaction modeling procedures. This analytical approach was designed to provide a comprehensive empirical evaluation of the determinants of user satisfaction and continuance intention toward mobile payment applications in semi-urban and rural contexts [38] The moderating effects of digital literacy were tested using the two-stage approach in SmartPLS. In the first stage, latent variable scores for perceived usefulness, user satisfaction, and digital literacy were estimated. In the second stage, interaction terms were created by multiplying the standardized latent scores of digital literacy with the corresponding predictor constructs (PU × DL and US × DL), which were then used to estimate the moderation effects on continuance intention.

3. RESULTS AND DISCUSSION

3.1. Measurement Model

The measurement model was evaluated to ensure that the latent constructs employed in this study met the requirements of validity and reliability prior to testing the structural relationships. The assessment followed established Partial Least Squares Structural Equation Modeling (PLS-SEM) guidelines, covering convergent validity, internal consistency reliability, and discriminant validity [40], [41], [42].

3.1.1. Convergent Validity and Internal Consistency Reliability

Convergent validity was assessed by examining indicator loadings and Average Variance Extracted (AVE), while internal consistency reliability was evaluated using Cronbach's alpha, rho_A, and composite reliability. The indicator loadings for all constructs are reported in Table 2, showing that all items exceeded the recommended threshold of 0.70, indicating strong associations between indicators and their respective latent constructs.

Table 2. Measurement Model Evaluation

Construct	Indicator	Code	Outer Loading
Tangibles	Attractive and modern interface	TG1	0.930
	Easy-to-find menus	TG2	0.940
	Comfortable application design	TG3	0.933
	Clear information display	TG4	0.930
	Professional visual appearance	TG5	0.837
Reliability	Accessible at all times	RL1	0.898
	Accurate transaction processing	RL2	0.895
	Stable system performance	RL3	0.942
	Accurate transaction history	RL4	0.787
Responsiveness	Fast system response	RS1	0.918
	Responsive customer service	RS2	0.833
	Easy access to support	RS3	0.928
	Fast transaction processing	RS4	0.920
Assurance	Secure transaction process	AS1	0.882
	Reliable security system	AS2	0.910
	Protected personal information	AS3	0.940
	Trustworthy transaction management	AS4	0.828
Empathy	Understanding user needs	EM1	0.874
	Personalized service delivery	EM2	0.886
	Clear service information	EM3	0.921
	Caring customer attention	EM4	0.875
Confirmation	Performance meets expectations	CF1	0.937
	Functions work as promised	CF2	0.942
	Features meet user needs	CF3	0.937

Construct	Indicator	Code	Outer Loading
	Experience matches expectations	CF4	0.866
Expectation	Positive initial expectations	EX1	0.874
	Expected transaction convenience	EX2	0.867
	Expected application usefulness	EX3	0.908
	Clear quality expectations	EX4	0.871
Perceived	Improves transaction efficiency	PU1	0.885
Usefulness	Simplifies transaction process	PU2	0.917
	Useful for daily activities	PU3	0.909
	Enhances transaction effectiveness	PU4	0.830
User	Overall user satisfaction	US1	0.872
Satisfaction	Expectations fully met	US2	0.947
	Enjoyable user experience	US3	0.951
	Beneficial application usage	US4	0.899
Continuance	Intention to continue usage	CI1	0.922
Intention	Regular application usage	CI2	0.892
	Willingness to recommend	CI3	0.920
	Preference over alternatives	CI4	0.917
Digital Literacy	Digital technology skills	DL1	0.887
	Digital information understanding	DL2	0.929
	Application utilization skills	DL3	0.934
	Basic technical problem-solving	DL4	0.878

A summary of reliability and AVE values is presented in Table 3. All constructs demonstrated Cronbach's alpha and composite reliability values above 0.70, and AVE values greater than 0.50. These results confirm that the constructs exhibit satisfactory internal consistency and are able to explain a substantial proportion of variance in their indicators, thereby establishing adequate convergent validity and reliability.

Table 3. Construct Reliability and Convergent Validity

Construct	CA	rho_A	CR	AVE
Assurance	0.917	1.019	0.939	0.794
Confirmation	0.940	0.955	0.957	0.848

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Construct	CA	rho_A	CR	AVE
Continuance Intention	0.933	0.939	0.952	0.833
Digital Literacy	0.929	0.936	0.949	0.824
Empathy	0.914	0.947	0.938	0.791
Expectation	0.903	0.905	0.932	0.775
Perceived Usefulness	0.908	0.908	0.936	0.785
Reliability	0.905	0.951	0.933	0.779
Responsiveness	0.922	0.924	0.945	0.811
Tangibles	0.955	1.027	0.962	0.837
User Satisfaction	0.937	0.938	0.955	0.842

Note(s): CA = Cronbach's alpha; rho_A = Dijkstra–Henseler's rho; CR = Composite Reliability; AVE = Average Variance Extracted.

Two constructs (Tangibles and Assurance) exhibit rho_A values slightly above 1.0. This phenomenon is known to occur in PLS-SEM due to very high inter-item correlations and is not an indication of model misspecification. Importantly, both constructs demonstrate strong internal consistency as confirmed by Cronbach's alpha and composite reliability values well above the recommended threshold of 0.70. Therefore, the reliability of these constructs is considered satisfactory.

3.1.2. Discriminant Validity

After confirming convergent validity and reliability, discriminant validity was examined to ensure that each construct was empirically distinct from the others. Two complementary approaches were employed: the Fornell–Larcker criterion and the Heterotrait–Monotrait ratio (HTMT).

The results of the Fornell–Larcker criterion are presented in Table 4. The square root of AVE for each construct, shown on the diagonal, is higher than the corresponding inter-construct correlations in the same row and column. This finding indicates that each construct shares more variance with its own indicators than with other constructs, thereby supporting discriminant validity.

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Table 4. Discriminant Validity – Fornell Larcker Criterio

Construct	AS	CF	CI	DL	EM	EX	PU	RL	RS	TG	US
AS	0.891										
CF	0.055	0.921									
CI	0.188	0.044	0.913								
DL	0.006	-0.002	0.602	0.907							
EM	0.520	-0.047	0.060	0.280	0.889						
EX	0.045	-0.013	0.589	0.748	0.272	0.880					
PU	0.104	-0.035	0.435	0.594	0.369	0.675	0.886				
RL	0.802	0.022	0.127	0.026	0.528	0.070	0.159	0.882			
RS	0.375	-0.039	0.105	0.288	0.618	0.344	0.608	0.432	0.901		
TG	0.076	-0.005	-0.045	0.001	0.096	-0.027	-0.106	-0.002	-0.056	0.915	
US	0.067	0.071	0.569	0.744	0.328	0.785	0.625	0.102	0.341	-0.055	0.918

Note(s) : Note : Assurance (AS); Confirmation (CF); Continuance Intention (CI); Digital Literacy (DL); Empathy (EM); Expectation (EX); Perceived Usefulness (PU); Reliability (RL); Responsiveness (RS); Tangibles (TG); User Satisfaction (US)

To further validate these results, discriminant validity was also assessed using the HTMT approach, with results reported in Table 5. All HTMT values were below the conservative threshold of 0.85, confirming the absence of discriminant validity concerns. The consistent results obtained from both methods provide strong evidence that the constructs are conceptually and empirically distinct.

Table 5. Discriminant Validity Assessment (HTMT Criterion)

Construct	AS	CF	CI	DL	EM	EX	PU	RL	RS	TG	US	DL x PU	DL x US
AS													
CF	0.061												
CI	0.198	0.051											
DL	0.039	0.036	0.635										
EM	0.554	0.091	0.087	0.294									
EX	0.046	0.032	0.639	0.814	0.285								
PU	0.105	0.045	0.470	0.642	0.394	0.743							
RL	0.890	0.076	0.125	0.042	0.578	0.074	0.172						
RS	0.404	0.043	0.113	0.310	0.659	0.377	0.664	0.474					
TG	0.084	0.036	0.043	0.029	0.102	0.065	0.104	0.069	0.053				

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Construct	AS	CF	CI	DL	EM	EX	PU	RL	RS	TG	US	DL x PU	DL x US
US	0.065	0.076	0.607	0.794	0.339	0.853	0.676	0.104	0.367	0.049			
DL x PU	0.054	0.074	0.348	0.437	0.137	0.435	0.411	0.112	0.194	0.091	0.337		
DL x US	0.038	0.053	0.364	0.440	0.110	0.452	0.352	0.049	0.144	0.076	0.385	0.871	

Note(s) : Note : Assurance (AS); Confirmation (CF); Continuance Intention (CI); Digital Literacy (DL); Empathy (EM); Expectation (EX); Perceived Usefulness (PU); Reliability (RL); Responsiveness (RS); Tangibles (TG); User Satisfaction (US)

3.1.3. Measurement Model Visualization

A graphical representation of the measurement model is provided in Figure 3, which displays the indicator loadings, coefficients of determination (R^2) for endogenous constructs, and the overall structure of the measurement model. The visualization corroborates the statistical results reported in Tables 2–5, showing that all indicators contribute meaningfully to their latent constructs and that the model demonstrates adequate explanatory power at the measurement level.

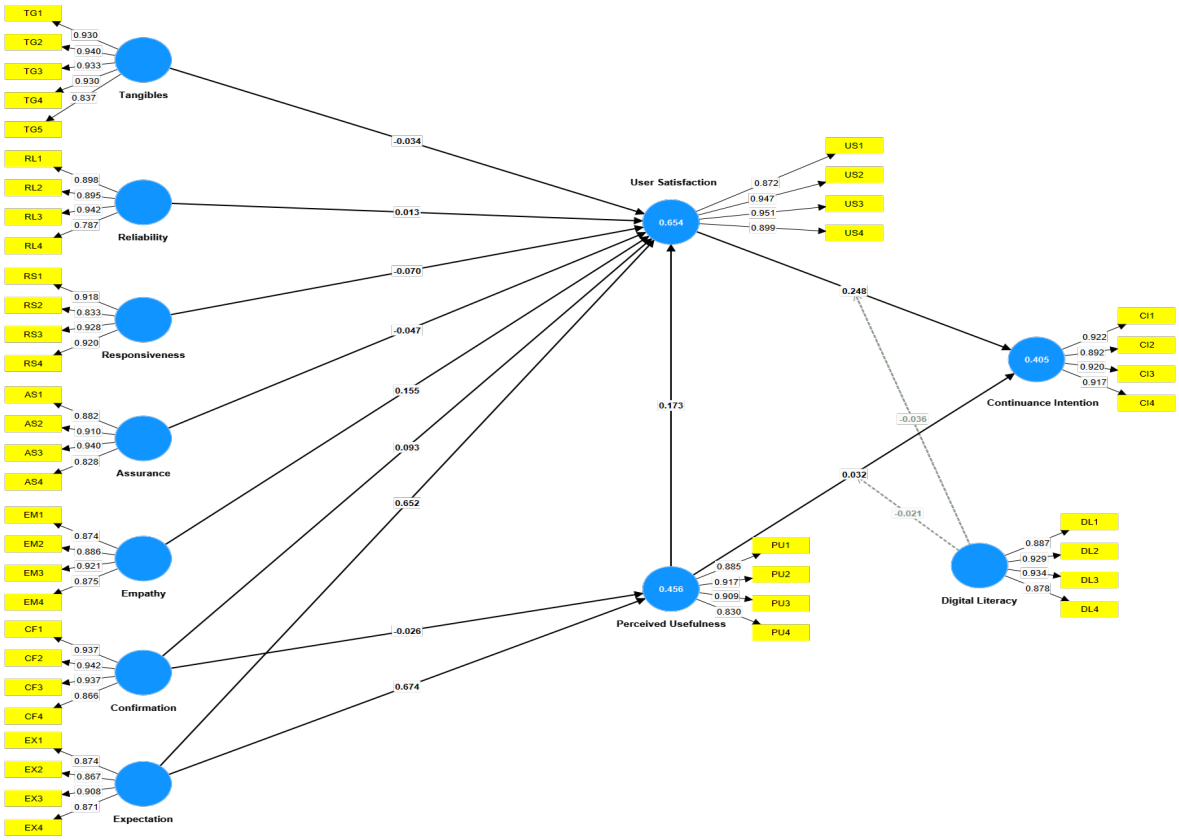

Figure 3. Result model

The measurement model evaluation indicates that all constructs in this study meet the required criteria for convergent validity, internal consistency reliability, and discriminant validity. These results confirm that the measurement model is robust and suitable for subsequent structural model analysis to test the proposed hypotheses and causal relationships among the constructs.

3.2. Structural Model Results

The structural model was evaluated after the measurement model satisfied the requirements of reliability and validity. The assessment focused on examining the explanatory power, predictive relevance, and the significance of the hypothesized relationships among constructs using the Partial Least Squares Structural Equation Modeling (PLS-SEM) approach [41], [42].

3.2.1. Structural Model Quality and Predictive Relevance

The model demonstrates substantial explanatory power for the endogenous constructs. As reported in Table 6, the coefficient of determination (R^2) for User Satisfaction is 0.654, indicating that 65.4% of the variance in user satisfaction is explained by the SERVQUAL dimensions, confirmation, expectation, and perceived usefulness. This value exceeds the threshold for substantial explanatory power in behavioral research, suggesting a well-specified model [41].

Table 6. Structural Model Quality and Predictive Relevance

Endogenous Construct	R^2	Adjusted R^2	Q^2	t-value	p-value
Continuance Intention	0.405	0.390	0.323	5.014	< 0.001
Perceived Usefulness	0.456	0.451	0.349	6.222	< 0.001
User Satisfaction	0.654	0.640	0.537	13.327	< 0.001

Note(s): R^2 = Variance explained; Adjusted R^2 = Adjusted coefficient of determination; Q^2 = Predictive relevance (Stone–Geisser criterion).

Similarly, Perceived Usefulness exhibits an R^2 value of 0.456, meaning that expectation and confirmation jointly explain 45.6% of its variance. The R^2 value for Continuance Intention is 0.405, indicating that perceived usefulness, user satisfaction, and digital literacy account for 40.5% of the variance in continuance intention. These results suggest that the integrated SERVQUAL–ECM framework provides a meaningful explanation of post-adoption behavior

in mobile payment usage within semi-urban and rural contexts. Predictive relevance was assessed using the Stone–Geisser Q^2 statistic obtained through blindfolding procedures. All endogenous constructs show Q^2 values greater than zero (User Satisfaction = 0.537; Perceived Usefulness = 0.349; Continuance Intention = 0.323), confirming that the model has strong predictive relevance for all key outcome variables [41].

3.2.2. Hypothesis Testing and Path Relationships

The hypothesis testing results are summarized in Table 7 and visualized in Figure 3. Among the SERVQUAL dimensions, only Empathy has a significant positive effect on User Satisfaction (β = 0.155, t = 2.516, p = 0.012), supporting H5. In contrast, Tangibles (H1), Reliability (H2), Responsiveness (H3), and Assurance (H4) do not exhibit statistically significant effects on user satisfaction. These findings suggest that, in the context of semi-urban and rural mobile payment usage, affective and relational aspects of service quality are more influential than technical or functional attributes.

Table 7. Structural Model Results and Hypothesis Testing

Hypothesis/ Relationship	β	T-value	P values	Effect size (f2)	VIF	Supported
H1: TG -> US	-0.034	0.789	0.430	0.003	1.055	No
H2: RL -> US	0.013	0.191	0.848	0.000	3.045	No
H3: RS -> US	-0.070	1.166	0.244	0.006	2.379	No
H4: AS -> US	-0.047	0.666	0.505	0.002	2.988	No
H5: EM -> US	0.155	2.516	0.012	0.034	2.029	Yes
H6: CF -> PU	-0.026	0.443	0.658	0.001	1.000	No
H7: CF -> US	0.093	2.438	0.015	0.024	1.012	Yes
H8: PU -> US	0.173	1.934	0.053	0.032	2.675	No
H9: EX -> PU	0.674	12.018	0.000	0.835	1.000	Yes
H10: EX -> US	0.652	8.518	0.000	0.648	1.890	Yes
H11: PU -> CI	0.032	0.489	0.625	0.001	1.863	No
H12: US -> CI	0.248	2.941	0.003	0.039	2.629	Yes
H13: DL x PU -> CI	-0.021	0.287	0.774	0.001	4.484	No
H14: DL x US -> CI	-0.036	0.485	0.628	0.002	4.394	No
H15: DL -> CI	0.354	4.251	0.000	0.083	2.530	Yes

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Note(s): n = 10,000 subsample; $^{*}p < 0.05$; $^{**}p < 0.01$; $^{***}p < 0.001$; $t(0.05; 4{,}999) = 1.645$; $t(0.01; 4{,}999) = 2.327$; $t(0.001; 4{,}999) = 3.092$; β: Path Coefficients; f^2: Effect size VIF: Variance Inflation Factor; Assurance (AS); Confirmation (CF); Continuance Intention (CI); Digital Literacy (DL); Empathy (EM); Expectation (EX); Perceived Usefulness (PU); Reliability (RL); Responsiveness (RS); Tangibles (TG); User Satisfaction (US)

Within the Expectation Confirmation Model, Expectation emerges as a dominant predictor. Expectation significantly influences Perceived Usefulness (β = 0.674, t = 12.018, p < 0.001), supporting H9, and also has a strong positive effect on User Satisfaction (β = 0.652, t = 8.518, p < 0.001), supporting H10. These results highlight the critical role of pre-use beliefs in shaping post-adoption evaluations.

The effect of Confirmation is partially supported. Confirmation has a significant positive effect on User Satisfaction (β = 0.093, t = 2.438, p = 0.015), supporting H7, but does not significantly influence Perceived Usefulness (H6 not supported). This indicates that confirmation primarily affects affective evaluations rather than functional benefit perceptions in this context. Contrary to expectations, Perceived Usefulness does not significantly affect User Satisfaction (H8) nor Continuance Intention (H11). These results suggest that functional benefits alone are insufficient to drive satisfaction or sustained usage when expectations and experiential factors dominate user evaluations.

Regarding continuance intention, User Satisfaction has a significant positive effect (β = 0.248, t = 2.941, p = 0.003), supporting H12. This confirms satisfaction as a key mediator translating service and experience evaluations into sustained usage intentions. Additionally, Digital Literacy has a direct and significant effect on Continuance Intention (β = 0.354, t = 4.251, p < 0.001), supporting H15, indicating that users with higher digital competencies are more likely to continue using mobile payment applications.

However, the moderating effects of digital literacy on the relationships between Perceived Usefulness and Continuance Intention (H13) and between User Satisfaction and Continuance Intention (H14) are not statistically significant. This suggests that digital literacy functions primarily as an independent enabler rather than a conditional factor that strengthens or weakens these relationships.

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3.2.3. Effect Size and Collinearity Assessment

The effect size analysis (f^2) shows that Expectation has a large effect on both perceived usefulness ($f^2 = 0.835$) and user satisfaction ($f^2 = 0.648$), reinforcing its dominant role in the model. Other significant paths exhibit small to moderate effect sizes, consistent with complex behavioral models in digital service contexts [41].

Variance Inflation Factor (VIF) values for all structural paths are below the conservative threshold of 5, indicating that multicollinearity does not pose a concern in the model estimation. Overall, the structural model results demonstrate that post-adoption behavior of mobile payment users in semi-urban and rural Indonesia is primarily driven by expectation formation, experiential satisfaction, and digital capability rather than technical service attributes alone. The integrated SERVQUAL–ECM framework successfully explains both satisfaction and continuance intention, while also revealing contextual nuances that differentiate non-metropolitan users from those in urban-centric studies. To assess the robustness of the findings, the model was further examined across key user characteristics such as usage frequency and educational level. The direction and significance patterns of the main relationships remained stable, particularly for expectation, satisfaction, and digital literacy, indicating that the core results are not driven by a specific subgroup of users. This supports the generalizability of the model within the semi-urban and rural context.

3.3. Discussion

This study investigates user satisfaction and continuance intention toward mobile payment applications by integrating SERVQUAL and the Expectation–Confirmation Model (ECM) in a semi-urban and rural Indonesian context. The structural results reveal that only selected SERVQUAL dimensions significantly influence user satisfaction, while ECM constructs and digital literacy play a more dominant role in explaining post-adoption behavior. These findings offer important theoretical insights into how service quality and cognitive evaluation mechanisms operate in non-metropolitan fintech environments. The simultaneous non-significance of most SERVQUAL dimensions can be attributed to suppression and overlap effects that commonly occur when multiple correlated service quality dimensions are modeled together. In this study, tangibles, reliability, responsiveness, and assurance are strongly interrelated and jointly represent a baseline level of technical service performance that users expect as a minimum standard. When these dimensions are

entered simultaneously into the model, their shared variance is absorbed, leaving only the dimension that captures unique experiential value empathy to emerge as statistically significant. This pattern indicates that technical service attributes function as hygiene factors rather than differentiators in semi-urban and rural mobile payment usage.

1) The Predominance of Empathy and the Insignificance of Technical Attributes

Among the five SERVQUAL dimensions, empathy is the only factor that significantly affects user satisfaction, whereas tangibles, reliability, responsiveness, and assurance are not statistically significant. This pattern suggests that, in semi-urban and rural contexts, user satisfaction with mobile payment services is shaped more by relational and experiential aspects than by technical system attributes. The non-significant effect of tangibles can be explained by the phenomenon of *technology normalization*. Most mobile payment applications have reached a relatively standardized level of interface design and visual aesthetics, reducing their discriminatory power in shaping satisfaction. When visual design becomes an expected baseline feature, users tend to perceive it as a hygiene factor rather than a satisfaction driver [6].

Similarly, the lack of significant effects for reliability and assurance reflects a *baseline trust assumption*. Users generally expect mobile payment systems to be accurate, stable, and secure. As long as no major system failures or security breaches occur, these attributes remain neutral in satisfaction evaluations. Their influence becomes salient only when expectations are violated, at which point dissatisfaction emerges [7]. Hence, reliability and assurance function more as dissatisfiers than as positive satisfaction enhancers. The insignificance of responsiveness may be attributed to contextual adaptation. In semi-urban and rural areas, users often face infrastructural limitations such as network instability or limited customer support access. Consequently, expectations regarding system speed or customer service responsiveness are relatively moderated, and minor variations do not substantially affect satisfaction levels [5].

In contrast, empathy significantly influences user satisfaction, highlighting the importance of perceived care, accessibility of assistance, and contextual understanding of user needs. In non-metropolitan settings characterized by heterogeneous digital literacy levels, users value human-centered service interactions that reduce uncertainty and cognitive effort.

This finding underscores the emotional and relational nature of satisfaction formation in rural and semi-urban digital service usage.

2) Dominant Role of Expectation and Confirmation in the ECM Framework

The results demonstrate that expectation is the strongest predictor of both perceived usefulness and user satisfaction, with large effect sizes. This finding aligns with ECM theory, which posits that post-adoption evaluations are anchored in users' pre-use cognitive frameworks. In the mobile payment context, initial beliefs regarding convenience, usefulness, and transaction efficiency serve as reference points for subsequent evaluations. The significant effect of confirmation on user satisfaction, but not on perceived usefulness, suggests that expectation–experience congruence primarily affects affective evaluations rather than functional assessments. While users may maintain stable perceptions of usefulness once adoption occurs, satisfaction remains sensitive to whether actual experiences align with prior expectations.

Interestingly, perceived usefulness does not significantly affect either user satisfaction or continuance intention. This finding indicates that functional benefits alone are insufficient to drive satisfaction or sustained usage in semi-urban and rural settings. As mobile payments become embedded in daily routines, their usefulness is often taken for granted, diminishing its explanatory power relative to experiential and emotional factors.

3) User Satisfaction and Digital Literacy as Drivers of Continuance Intention

Consistent with post-adoption literature, user satisfaction significantly influences continuance intention, confirming its role as a key mediator translating service evaluations into sustained usage behavior. This result reinforces the view that long-term engagement with mobile payment services depends on holistic experiential evaluations rather than isolated functional benefits. Moreover, digital literacy has a significant direct effect on continuance intention, highlighting its role as an enabling capability. Users with higher digital literacy are better equipped to navigate application features, resolve minor technical issues, and manage perceived risks, thereby increasing their likelihood of continued use. This effect is particularly salient in semi-urban and rural contexts, where disparities in digital competence remain pronounced.

However, the moderating effects of digital literacy on the relationships between perceived usefulness, user satisfaction, and continuance intention are not significant. This suggests that digital literacy operates primarily as an independent antecedent rather than a conditional amplifier. In other words, while digital literacy increases the overall propensity to continue using mobile payment applications, it does not significantly alter how usefulness or satisfaction translates into continuance intention.

4) Theoretical Implications of Non-Significant Relationships

The presence of multiple non-significant paths does not indicate model inadequacy but rather reflects the contextual nature of post-adoption behavior in semi-urban and rural environments. As technical service attributes and functional benefits become normalized, users shift their evaluative focus toward experiential quality, expectation fulfillment, and personal capability. These findings support a transition from a *technology-centric* to an *experience-centric* perspective in mobile payment research, particularly outside metropolitan settings. The integrated SERVQUAL–ECM framework effectively captures this shift by combining operational service quality with cognitive and affective post-adoption mechanisms. Overall, this study demonstrates that continuance intention toward mobile payment applications in semi-urban and rural Indonesia is driven primarily by expectation formation, satisfaction derived from actual experiences, and users' digital capabilities rather than by technical service attributes alone. The findings contribute to the fintech literature by highlighting the contextual dependency of service quality effects and by extending ECM through the integration of relational service quality and digital literacy in non-metropolitan settings.

3.4. Theoretical Contributions

This study offers several important theoretical contributions to the literature on mobile payment adoption and continuance intention, particularly within semi-urban and rural contexts that remain underrepresented in prior research. First, this research advances the Expectation–Confirmation Model (ECM) by empirically demonstrating that, in non-metropolitan environments, expectation and confirmation exert a stronger influence on user satisfaction than perceived usefulness. While prior ECM-based studies typically emphasize perceived usefulness as a central mediator in post-adoption behavior, the present findings suggest that usefulness becomes a *taken-for-granted baseline attribute*

once mobile payment services are routinized. This contribution refines ECM by highlighting a contextual boundary condition, wherein affective evaluations driven by expectation fulfillment outweigh purely functional considerations in shaping satisfaction and continuance intention.

Second, this study contributes to service quality theory by reinterpreting the role of SERVQUAL dimensions in digital financial services. Unlike traditional service settings where technical dimensions such as reliability, assurance, and responsiveness often emerge as dominant predictors of satisfaction, this study finds that only empathy significantly influences user satisfaction. This result extends SERVQUAL theory by demonstrating that, in mobile payment contexts characterized by infrastructural constraints and heterogeneous digital capabilities, relational and human-centered service attributes supersede technical service attributes in determining satisfaction. Thus, the study supports a shift from a technology-centric to an experience-centric interpretation of service quality in fintech research.

Third, by integrating SERVQUAL and ECM into a single analytical framework, this study provides a more comprehensive explanation of post-adoption behavior than models relying on either framework alone. SERVQUAL captures users' evaluations of operational service experiences, while ECM explains the cognitive processes through which expectations and confirmations translate into satisfaction and continuance intention. The empirical evidence confirms that such integration enhances explanatory power, particularly in contexts where service experience and cognitive evaluation jointly shape sustained usage behavior. This integration represents a meaningful theoretical extension for post-adoption studies in mobile payment and digital service research.

Fourth, this study introduces digital literacy as a contextual capability construct in explaining continuance intention. The findings show that digital literacy directly influences continuance intention but does not significantly moderate the relationships between perceived usefulness, satisfaction, and continuance intention. This contributes to digital adoption theory by clarifying that digital literacy functions primarily as an enabling antecedent, rather than a conditional amplifier, in post-adoption decision-making. Theoretically, this distinction

refines the positioning of digital literacy within technology continuance models, especially in semi-urban and rural settings.

Fifth, the study contributes to the contextualization of fintech adoption theory by providing empirical evidence from Kabupaten Lombok Tengah, a setting that reflects structural and socio-digital characteristics common to many semi-urban and rural regions in Indonesia and other emerging economies. By demonstrating that satisfaction formation and continuance intention mechanisms differ from those observed in metropolitan or student-based samples, this research underscores the necessity of context-sensitive theorization in mobile payment research. It challenges the implicit assumption of universal applicability often embedded in urban-centric adoption models.

Finally, the non-significant findings across several SERVQUAL dimensions and ECM paths represent a theoretical contribution rather than a limitation. They empirically support the argument that post-adoption behavior is shaped by normalization effects, where technical service attributes lose explanatory power once minimum performance thresholds are met. This insight enriches post-adoption theory by emphasizing that sustained usage is driven less by incremental technical improvements and more by experiential satisfaction, expectation alignment, and user capability in everyday usage contexts. This study contributes to theory by (1) refining ECM through contextual boundary conditions, (2) extending SERVQUAL into experience-centric fintech evaluation, (3) demonstrating the value of integrated post-adoption models, (4) clarifying the theoretical role of digital literacy, and (5) advancing context-aware fintech adoption theory for semi-urban and rural environments.

4. CONCLUSION

This study evaluated user satisfaction and continuance intention toward mobile payment applications by integrating SERVQUAL and the Expectation–Confirmation Model (ECM) in a semi-urban and rural Indonesian context using DANA users in Central Lombok Regency. The results show that post-adoption behavior in non-metropolitan settings is driven more by relational and experiential factors than by technical service attributes. Among the SERVQUAL dimensions, only empathy significantly influences user satisfaction, indicating that user-oriented service quality is more critical than system-related features, which are

perceived as baseline requirements. Within the ECM framework, expectation and confirmation significantly affect satisfaction, whereas perceived usefulness does not directly influence either satisfaction or continuance intention. User satisfaction and digital literacy are the main predictors of continuance intention, while digital literacy does not moderate the effects of perceived usefulness or satisfaction, suggesting that it functions as a basic enabling capability rather than a conditional factor. Based on these findings, three practical recommendations are proposed: (1) mobile payment providers should strengthen user training and assistance services, (2) providers should actively manage user expectations through clear and consistent communication, and (3) community-based onboarding programs should be implemented to support continued e-wallet usage in semi-urban and rural areas. Despite its contributions, this study is limited by its cross-sectional design and focus on a single region and platform. Future research should apply longitudinal designs, include multiple mobile payment services, and incorporate additional contextual variables to further enhance understanding of post-adoption behavior in non-urban fintech settings.

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