

## Traditional Market Attractiveness and Customer Loyalty: The Moderating Role of Digital Literacy

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### Abstract

This study develops and empirically tests the Cultural–Digital Traditional Market Attractiveness Model, an integrated framework explaining how cultural and functional market attributes generate customer loyalty toward traditional markets. Grounded in the stimulus–organism–response paradigm and customer perceived value theory, the model positions market attractiveness as the evaluative mechanism that converts local product uniqueness, cultural atmosphere, digital payment availability, market accessibility, and price competitiveness into customer loyalty, and specifies buyers' digital literacy as a boundary condition of that conversion. A quantitative explanatory design was applied to 300 traditional-market consumers in Surabaya, Indonesia, selected through purposive sampling, and the data were analyzed using Partial Least Squares Structural Equation Modeling with SmartPLS 4. Local product uniqueness ( $\beta = 0.355$ ), cultural atmosphere ( $\beta = 0.303$ ), price competitiveness ( $\beta = 0.268$ ), and market accessibility ( $\beta = 0.188$ ) significantly increase market attractiveness, whereas digital payment availability does not ( $\beta = 0.049$ ;  $p = 0.237$ ). Market attractiveness strongly increases customer loyalty ( $\beta = 0.496$ ), and buyers' digital literacy positively moderates this relationship ( $\beta = 0.118$ ;  $p = 0.010$ ), raising the simple slope from 0.378 at one standard deviation below the mean to 0.614 at one standard deviation above it. Market attractiveness transmits the indirect effects of the four significant antecedents on loyalty but not that of digital payment availability. The model explains 70.2% of the variance in market attractiveness and 38.1% of the variance in customer loyalty. The findings indicate that digital modernization strengthens loyalty only when it complements cultural authenticity, product differentiation, accessibility, and economic value, and only when buyers possess the literacy required to use it. Traditional-market revitalization should therefore prioritize distinctive local products, authentic cultural experience, and buyer digital literacy rather than payment infrastructure alone.

### Keywords:

Traditional Market Attractiveness; Local Product Uniqueness; Digital Payment; Customer Loyalty; Digital Literacy; PLS-SEM.

## 1. INTRODUCTION

Traditional markets remain an essential component of urban economic systems: they support small-scale traders, distribute local products, sustain social interaction, and preserve community identity through interpersonal bargaining and culturally embedded exchange (Sufi et al., 2023). These characteristics are increasingly challenged by modern retail chains and digital commerce platforms offering standardized service, predictable quality, and convenient transactions. The pressure is most visible in large cities such as Surabaya, where consumer expectations regarding cleanliness, accessibility, transaction speed, and payment flexibility have risen sharply. PD Pasar Surya (2023) recorded 67 traditional markets and 14,675 traders in Surabaya, yet

only 8.96% of these markets were categorized as being in good condition, while 76.12% were in moderate and 14.93% in fair condition. The declining appeal of traditional markets is therefore not merely a matter of consumer perception but is also associated with market facilities, spatial organization, comfort, and managerial readiness. Recent evidence similarly shows that cleanliness, comfort, orderly market governance, and flexible payment systems are important elements in strengthening the attractiveness and loyalty of traditional-market consumers (Gulo & Zebua, 2025).

The problem cannot be resolved through physical revitalization alone. Improvements in buildings and facilities reduce functional deficiencies but do not automatically produce a distinctive customer experience or sustainable loyalty. Purwanti et al. (2022) found that revitalization requires not only comfort, security, and cleanliness but also distinctive characteristics that differentiate traditional markets from alternative shopping destinations, while Udjiyanto et al. (2023) argue that competitiveness can be strengthened through branding and digital strategies that generate unique and engaging visitor experiences. Modernization must therefore improve functional performance and preserve market identity simultaneously. This study conceptualizes that combination through Market Attractiveness, defined as buyers' overall cognitive and affective evaluation of a traditional market as a desirable, valuable, and distinctive shopping destination. Attractiveness does not arise from a single attribute; it is formed through an integrated evaluation of functional benefits such as accessibility, competitive prices, and payment convenience, together with experiential benefits arising from cultural atmosphere and unique local products. This multidimensional view matters because loyalty is increasingly understood as being constructed from the meanings consumers attach to consumption places and experiences rather than from satisfaction or transactional efficiency alone (Närvänen et al., 2020).

Two cultural attributes are particularly relevant. Local Product Uniqueness represents the distinctiveness, authenticity, and regional embeddedness of products that are difficult to obtain through standardized retail channels, whereas Cultural Atmosphere refers to the perceived presence of local traditions, interpersonal interaction, bargaining practices, community identity, and an authentic market environment. Ramadania et al. (2023) indicate that cultural sensitivity and culturally meaningful brand attributes differentiate local offerings in increasingly globalized markets, and research on local Indonesian products shows that consumption value and attitudes toward local products influence behavioral intentions (Thio et al., 2024b). Evidence from heritage and cultural destinations further shows that socio-cultural attributes strengthen loyalty when they generate vivid and memorable experiences (Jokom et al., 2025), while Kristia et al. (2024) report that traditional and locally rooted products retain strong appeal when associated with authenticity and sustainability values. Although these studies were not conducted in Surabaya's traditional markets, they support the proposition that local distinctiveness and cultural atmosphere enhance the perceived attractiveness of consumption destinations.

Consumers also evaluate the functional capacity of traditional markets through Market Accessibility, Price Competitiveness, and Digital Payment Availability. Accessibility reflects the ease with which consumers can reach, enter, navigate, and shop within a market; price competitiveness represents perceptions that products offer reasonable and advantageous value relative to alternative retail channels; and digital payment availability refers to the extent to which buyers can transact through the Quick Response Code Indonesian Standard (QRIS), electronic wallets, mobile banking, or other cashless methods. These attributes matter because urban consumers compare traditional markets with modern retailers and digital platforms that minimize time, mobility, and transaction-related effort. Ramayanti et al. (2024) demonstrate that the actual use of digital payments is shaped by intention, perceived usefulness, facilitating conditions, and technological readiness, and Zhong and Chen (2023) show that perceived system quality, service value, and satisfaction contribute to continued use and loyalty. In Indonesian traditional markets, however, digital transformation remains uneven: Oktaviani (2024) identifies continuing resistance to digital payments among traditional-market actors, argue that QRIS and digital transactions need to be integrated with local knowledge and market practices rather than implemented as isolated technological interventions. The mere presence of digital payment infrastructure therefore cannot guarantee stronger market attractiveness unless it is accessible, trusted, and compatible with the behavior of buyers and traders.

Despite growing scholarly attention, current research remains fragmented in three respects. First, traditional-market revitalization has generally been investigated through physical infrastructure, public policy, branding, cultural preservation, or digital-payment adoption separately. This fragmented approach does not explain how cultural differentiation and functional modernization jointly shape consumers' overall assessment of a market. Physical modernization without cultural distinctiveness may transform traditional markets into imitations of modern retail, whereas cultural preservation without improvements in accessibility, prices, and payment convenience may render them increasingly irrelevant to contemporary urban consumers. The unresolved strategic issue is therefore not whether traditional markets should preserve tradition or adopt modernization, but how both dimensions can be harmonized to create superior market attractiveness.

Second, previous research has frequently positioned satisfaction, service quality, or purchase decisions as the final behavioral outcomes of market modernization, overlooking the psychological process through which separate attributes are integrated into an overall judgment that a market is worth visiting and revisiting. Market Attractiveness is therefore positioned in this study as the intervening mechanism that converts cultural and functional attributes into Customer Loyalty, defined as a buyer's commitment to revisit, continue purchasing

from, and recommend a traditional market. Destination-loyalty research supports this positioning (Rini et al., 2024; Jokom et al., 2025), yet the mechanism has rarely been tested within urban traditional markets.

Third, studies on digitalization have produced divergent conclusions regarding its behavioral consequences. Digital payments can reduce transaction effort and improve convenience, but technological availability alone does not ensure adoption or loyalty, because consumers differ in their ability to access applications, assess digital information, manage transaction security, and resolve payment problems. OECD (2025) emphasizes that digital financial literacy is necessary for consumers to use digital payments in an informed and secure manner, and Vilano et al. (2025) demonstrate that digital literacy can alter the strength of relationships between digitally enabled customer experiences and customer loyalty. These findings justify positioning Digital Literacy of Buyers as a moderating variable rather than merely as another direct predictor.

To address these gaps, this study proposes the Cultural–Digital Traditional Market Attractiveness Model, which examines whether Local Product Uniqueness, Cultural Atmosphere, Digital Payment Availability, Market Accessibility, and Price Competitiveness enhance Market Attractiveness; whether Market Attractiveness increases Customer Loyalty; and whether Digital Literacy of Buyers strengthens the relationship between Market Attractiveness and Customer Loyalty. The novelty of the study lies in three contributions. First, it integrates cultural assets, conventional market attributes, and digital-payment availability into a single model of traditional-market attractiveness. Second, it positions Market Attractiveness as the principal psychological mechanism through which these attributes are converted into Customer Loyalty rather than as a descriptive characteristic of the market. Third, it introduces Digital Literacy of Buyers as a boundary condition that explains why an attractive and digitally enabled market may generate stronger loyalty among some buyers but not among others. The study therefore shifts the modernization debate from a binary choice between cultural preservation and digital transformation toward a harmonization perspective in which tradition and technology jointly create customer value.

Accordingly, the model is tested empirically among buyers at traditional markets in Surabaya using Partial Least Squares Structural Equation Modeling (PLS-SEM). Three research questions guide the investigation. First, to what extent do local product uniqueness, cultural atmosphere, digital payment availability, market accessibility, and price competitiveness shape market attractiveness in urban traditional markets? Second, does market attractiveness transmit the influence of these attributes to customer loyalty? Third, does buyers' digital literacy alter the strength with which market attractiveness is converted into loyalty? The study is expected to extend retail marketing and consumer-behavior literature by providing an integrated explanation of cultural–digital market competitiveness, and to support local governments, market managers, and traders in designing modernization policies that improve accessibility, payment convenience, product differentiation, cultural experience, and customer loyalty without eliminating the social identity of traditional markets. The remainder of the article develops the theoretical framework and hypotheses, describes the research design and analytical procedures, reports and discusses the empirical results, and presents the conclusions, limitations, and directions for further research.

### 1.1. Theoretical Foundation

The Cultural–Digital Traditional Market Attractiveness Model is grounded in the stimulus–organism–response (S–O–R) paradigm, which explains consumer behavior as a sequence in which environmental cues are processed into an internal evaluative state that subsequently produces a behavioral response. In this model, the five market attributes operate as stimuli, market attractiveness represents the organism component, and customer loyalty constitutes the response. This structure is theoretically preferable to specifying each attribute as a direct predictor of loyalty, because consumers do not evaluate accessibility, prices, products, atmosphere, and payment facilities in isolation; they integrate these cues into a single judgment about whether a market remains worth visiting.

The S–O–R structure is complemented by customer perceived value theory, which conceptualizes value as the trade-off between the benefits a consumer obtains and the sacrifices incurred. Traditional markets deliver functional benefits through accessibility, competitive prices, and payment convenience, and experiential benefits through cultural atmosphere and distinctive local products, while imposing sacrifices in travel effort, time, and transactional uncertainty; Zhong and Chen (2023) demonstrate that multidimensional perceived value, rather than technological quality alone, determines satisfaction and loyalty. A third anchor is the meaning-based framework of Närvänen et al. (2020), in which loyalty is constructed from the meanings consumers attach to consumption places rather than from transactional satisfaction alone—a perspective appropriate for traditional markets, where habitual visits, familiarity with traders, and culturally embedded exchange rituals generate attachment that cannot be reduced to price or convenience. Digital literacy is finally incorporated as an individual capability conditioning the organism–response link: OECD (2025) reports that many consumers who already use digital payments fall below a minimum threshold of digital financial competence, and Nguyen et al. (2024) show that digital literacy shapes online security behavior and electronic-payment intention.

## 1.2. Market Attractiveness as an Evaluative Mechanism

Market attractiveness is defined in this study as buyers' overall cognitive and affective evaluation of a traditional market as a desirable, valuable, and distinctive shopping destination. It differs from satisfaction, which is a post-purchase assessment of expectation confirmation, and from market image, which refers to the associations held about a market irrespective of personal evaluation. Attractiveness is prospective and comparative: it expresses the degree to which a market is judged worth choosing relative to modern retailers and online platforms, an analogue of the destination attractiveness and destination value that precede behavioral loyalty (Rini et al., 2024; Zhao et al., 2024). Positioning attractiveness as the organism component therefore identifies the psychological mechanism through which heterogeneous market attributes are converted into loyalty.

## 1.3. Cultural Attributes and Market Attractiveness

Local product uniqueness refers to the distinctiveness, authenticity, and regional embeddedness of the goods offered in a market. Such products are difficult for standardized retail channels to replicate because they depend on local supply relationships, seasonal availability, artisanal preparation, and place-specific knowledge. Thio, Jokom, and Widjaja (2024a) show that the consumption value attached to local food raises destination attractiveness and revisit intention; Thio, Kristanti, and Sondak (2024b) demonstrate that food consumption value and attitudes toward local products shape behavioral intentions; and Kristia et al. (2024) report that sustainability values and locally rooted attributes drive younger Indonesian consumers' appetite for traditional food. Product distinctiveness therefore constitutes a resource that is valuable, rare, and costly to imitate.

H1. Local product uniqueness has a positive effect on market attractiveness.

Cultural atmosphere denotes buyers' perception of local traditions, interpersonal interaction, bargaining practices, trader friendliness, and the authenticity of the market environment. Jokom et al. (2025) demonstrate that socio-cultural destination attributes strengthen loyalty by generating vivid and memorable experiences, Zhao et al. (2024) show that perceived authenticity and involvement improve visitor evaluations of culturally embedded places, and Udjiyanto et al. (2023) argue that traditional-market competitiveness depends on experience-based identity rather than on physical facilities alone. Because bargaining, familiarity, and social exchange remain constitutive features of Indonesian market life, a stronger cultural atmosphere is expected to raise attractiveness.

H2. Cultural atmosphere has a positive effect on market attractiveness.

## 1.4. Functional and Digital Attributes and Market Attractiveness

Digital payment availability describes the extent to which buyers can settle transactions through QRIS, electronic wallets, mobile banking, or other cashless channels. Ramayanti et al. (2024) show that the actual use of digital payments depends on intention, perceived usefulness, facilitating conditions, and technological readiness, while Zhong and Chen (2023) demonstrate that system quality and perceived value drive continued use and loyalty. Alamsyah (2023) reports that the availability of digital payments can strengthen customer loyalty in Indonesian food retailing. Evidence from traditional markets is nevertheless more equivocal: Oktaviani (2024) documents persistent trader resistance grounded in awareness, trust, and security concerns, argue that QRIS adoption must be embedded in local market practice rather than introduced as an isolated technological intervention. Consistent with the benefit side of perceived value theory, availability is nonetheless hypothesized to contribute positively to attractiveness.

H3. Digital payment availability has a positive effect on market attractiveness.

Market accessibility reflects the ease with which buyers can reach, enter, navigate, and shop within a market, and it encompasses location, transport connections, parking, internal circulation, supporting facilities, and operating hours. Accessibility reduces the sacrifice component of perceived value by lowering the time, mobility, and effort costs of shopping. Gulo and Zebua (2025) identify location and physical condition as constituent dimensions of traditional-market image, and Mirza et al. (2025) show that store attributes in brick-and-mortar retail influence perceived value and subsequent repurchase and word-of-mouth behavior.

H4. Market accessibility has a positive effect on market attractiveness.

Price competitiveness captures buyers' perception that the prices offered are reasonable and advantageous relative to alternative retail channels, including the possibility of negotiation. Price remains a salient dimension of traditional-market image and a recognized determinant of consumer evaluation and loyalty (Gulo & Zebua, 2025; Mirza et al., 2025). Because household purchasing in Indonesian traditional markets is frequent and budget-sensitive, favorable price perceptions are expected to raise the overall attractiveness of the market.

H5. Price competitiveness has a positive effect on market attractiveness.

## 1.5. Market Attractiveness and Customer Loyalty

Customer loyalty is defined as a buyer's commitment to revisit a market, continue purchasing from its traders, and recommend it to others. Within the S-O-R structure, loyalty is the behavioral response generated by a favorable internal evaluation. Destination and retail research consistently reports that perceived attractiveness and perceived value precede revisit intention, recommendation, and resistance to switching (Rini

et al., 2024; Thio et al., 2024a; Mirza et al., 2025), and the meaning-based framework of Närvänen et al. (2020) explains why such commitment can persist even when cheaper or more convenient alternatives are available.

H6. Market attractiveness has a positive effect on customer loyalty.

### 1.6. Moderating Role of Buyers' Digital Literacy

Digital literacy of buyers refers to the capability to search for and evaluate digital information, complete digital transactions, protect personal data, and resolve problems encountered in digital environments. Its role here is conditional rather than direct: literacy does not create market attractiveness, but it governs how effectively a favorable evaluation can be enacted through digitally supported behavior such as comparing prices, verifying product information, paying by QRIS, or recommending a market through social media. Nguyen et al. (2024) show that digital literacy influences online security behavior and e-payment intention, OECD (2025) emphasizes that digital financial competence is a precondition for the safe use of digital payments, and Vilano et al. (2025) demonstrate that digital literacy alters the strength of the relationship between digitally enabled customer experience and loyalty.

H7. Buyers' digital literacy positively moderates the relationship between market attractiveness and customer loyalty, such that the relationship becomes stronger as digital literacy increases.

### 1.7. Mediating Role of Market Attractiveness

If market attractiveness is the evaluative mechanism through which market attributes are translated into behavior, its influence should be observable as an indirect transmission of the antecedents to loyalty. Jokom et al. (2025) find that memory-based evaluations mediate the effects of socio-cultural and economic destination attributes on tourist loyalty, and Mirza et al. (2025) report that perceived value mediates the effect of store attributes on repurchase and word-of-mouth behavior. Accordingly, the following mediation hypotheses are proposed.

H8a–H8e. Market attractiveness mediates the effects of local product uniqueness (H8a), cultural atmosphere (H8b), digital payment availability (H8c), market accessibility (H8d), and price competitiveness (H8e) on customer loyalty.

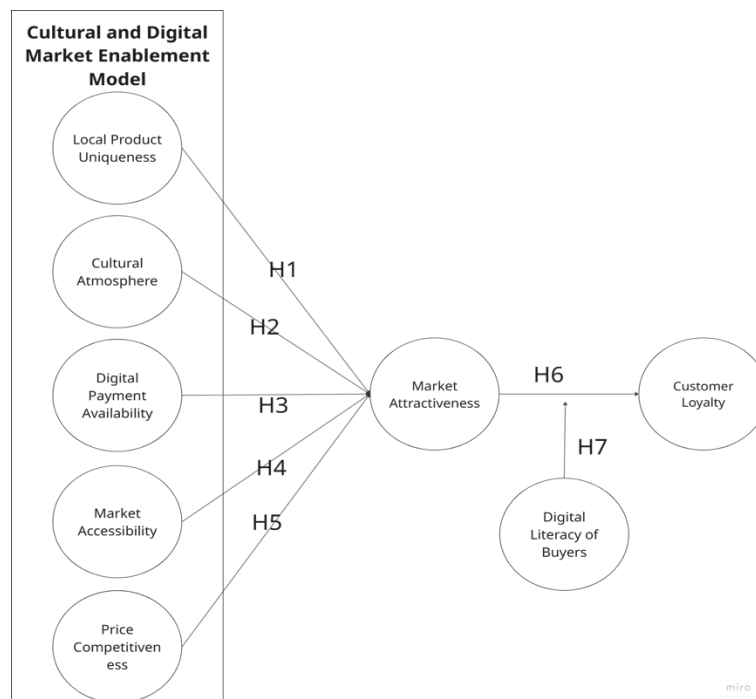


Figure 1. Conceptual Framework and Research Hypotheses (Source: Researchers, 2026)

## 2. RESEARCH METHOD

### 2.1. Research Design and Setting

This study employed a quantitative explanatory research design to examine the proposed Cultural–Digital Traditional Market Attractiveness Model in the context of traditional markets in Surabaya, Indonesia. The model investigates the effects of Local Product Uniqueness, Cultural Atmosphere, Digital Payment Availability, Market Accessibility, and Price Competitiveness on Market Attractiveness, the influence of Market Attractiveness on Customer Loyalty, and the moderating role of Digital Literacy of Buyers in that relationship. Surabaya was selected as the research setting because it combines a large, institutionally managed



traditional-market system with one of the fastest-growing digital-payment ecosystems in Indonesia, which makes the tension between cultural preservation and digital modernization empirically observable within a single urban context.

## 2.2. Population, Sample, and Data Collection

Data were collected using a structured questionnaire measured on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The target population consisted of consumers with shopping experience in traditional markets in Surabaya. A purposive sampling technique was employed, requiring respondents to (1) be domiciled in Surabaya, (2) have purchased products from one of the selected traditional markets during the previous six months, and (3) be at least 18 years old. A total of 300 valid questionnaires were obtained and included in the final analysis.

The adequacy of the sample was assessed against two established criteria. The ten-times rule requires a minimum of ten observations per structural path directed at the most complex endogenous construct; with five arrows entering Market Attractiveness, this yields a minimum of 50 respondents. The more conservative inverse square root method of Kock and Hadaya (2018) requires a minimum of  $(2.486 / |p|)^2$  observations, where  $p$  is the smallest path coefficient expected to be significant; applying the smallest significant coefficient obtained in this study (0.188) yields approximately 175 respondents. The realized sample of 300 therefore exceeds both thresholds and provides adequate statistical power.

Data were collected on site at the seven selected markets by trained enumerators. Participation was voluntary and anonymous, respondents were informed of the purpose of the study, and no personally identifying information was recorded. Several procedural remedies were applied to limit common method variance: anonymity was guaranteed, no correct or preferred answers were implied, predictor and criterion items were separated within the instrument, and item wording was pre-tested for clarity with a small group of traditional-market consumers before full deployment.

## 2.3. Operational Definitions and Measurement

The study measured eight latent constructs: Local Product Uniqueness, Cultural Atmosphere, Digital Payment Availability, Market Accessibility, Price Competitiveness, Market Attractiveness, Digital Literacy of Buyers, and Customer Loyalty. The first five were specified as antecedents of Market Attractiveness because they represent the cultural and functional attributes that determine consumers' evaluations of traditional markets; Market Attractiveness was conceptualized as the central mechanism translating these attributes into Customer Loyalty; and Digital Literacy of Buyers was incorporated as a moderating construct. All constructs were modeled reflectively and measured with multi-item scales adapted from previously validated instruments and reworded for the traditional-market context. Table 1 presents the operational definition of each construct, the number and coding of its indicators, and the source from which the scale was adapted.

Table 1. Operational Definitions and Measurement of Constructs

| Construct (code)                   | Operational definition                                                                                                                                                         | Indicators                                                                                                                                                 | Adapted from                                   |
|------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| Local Product Uniqueness (LPU)     | The extent to which buyers perceive the goods offered in the market as distinctive, authentic, locally embedded, and difficult to obtain through standardized retail channels. | Five items (LPU1–LPU5): product distinctiveness, authenticity, local origin, product variety, and presence of local MSME products.                         | Thio et al. (2024a); Kristia et al. (2024)     |
| Cultural Atmosphere (CAT)          | Buyers' perception of local traditions, interpersonal interaction, bargaining practices, trader friendliness, and the authenticity of the market environment.                  | Five items (CAT1–CAT5): social interaction, bargaining practice, trader friendliness, local identity, and market ambience.                                 | Jokom et al. (2025); Zhao et al. (2024)        |
| Digital Payment Availability (DPA) | The extent to which buyers can complete transactions through QRIS, electronic wallets, mobile banking, or other cashless channels.                                             | Five items (DPA1–DPA5): QRIS availability, e-wallet acceptance, mobile-banking transfer, ease of cashless transaction, and perceived transaction security. | Ramayanti et al. (2024); Zhong and Chen (2023) |
| Market Accessibility (MAC)         | The ease with which buyers can reach, enter, navigate, and shop within the market.                                                                                             | Five items (MAC1–MAC5): reachability of location, transport connection, parking, internal circulation, and operating hours.                                | Gulo and Zebua (2025); Mirza et al. (2025)     |
| Price Competitiveness (PC)         | Buyers' perception that prices are reasonable and advantageous relative to alternative retail channels.                                                                        | Five items (PC1–PC5): affordability, value for money, price–quality suitability, bargaining flexibility, and price                                         | Gulo and Zebua (2025); Mirza et al. (2025)     |

|                                  |                                                                                                                                   | comparison with modern retail.                                                                                                                                                            |                                             |
|----------------------------------|-----------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|
| Market Attractiveness (MAT)      | Buyers' overall cognitive and affective evaluation of the market as a desirable, valuable, and distinctive shopping destination.  | Six items (MAT1–MAT6): overall appeal, perceived distinctiveness, perceived value, shopping comfort, preference over alternatives, and emotional appeal.                                  | Rini et al. (2024); Thio et al. (2024b)     |
| Digital Literacy of Buyers (DLB) | Buyers' capability to search for and evaluate digital information and to use digital transaction services safely and confidently. | Six items (DLB1–DLB6): information search, evaluation of digital content, use of payment applications, personal-data protection, problem solving, and confidence in digital transactions. | Nguyen et al. (2024); OECD (2025)           |
| Customer Loyalty (CL)            | A buyer's commitment to revisit the market, continue purchasing from its traders, and recommend it to others.                     | Six items (CL1–CL6): revisit intention, continued purchase, market prioritization, recommendation, positive word of mouth, and resistance to switching.                                   | Närvänen et al. (2020); Mirza et al. (2025) |

Source: Researchers, 2026.

Note. All indicators were measured on a five-point Likert scale ranging from 1 = strongly disagree to 5 = strongly agree. The complete item wording is available in the supplementary questionnaire.

2.4. Data Analysis

Data analysis was performed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4. The measurement model was evaluated through indicator reliability, internal consistency reliability (Cronbach's alpha and composite reliability), convergent validity (average variance extracted, AVE), and discriminant validity (Heterotrait–Monotrait ratio, HTMT). The structural model was assessed through multicollinearity diagnostics (variance inflation factor, VIF), path coefficients, coefficients of determination ( $R^2$ ), effect size ( $f^2$ ), predictive relevance ( $Q^2$ ), and bootstrapping with 5,000 resamples. PLS-SEM was considered appropriate because the study estimates a predictive model involving multiple antecedent constructs, an endogenous mediating construct, and a moderation mechanism within a single analytical framework.

Three additional procedures were incorporated into the analytical protocol. First, common method bias was assessed statistically through the full collinearity test, in which variance inflation factors above 3.3 would indicate contamination by method variance. Second, the mediating role of Market Attractiveness was examined by estimating the specific indirect effect of each antecedent on Customer Loyalty. Third, the moderating effect of Digital Literacy of Buyers was evaluated through the product-indicator interaction term together with a simple-slope analysis computed at one standard deviation below the mean, at the mean, and at one standard deviation above the mean.

3. RESULTS AND DISCUSSION

3.1. Results

3.1.1. Respondent Characteristics

The respondents were 300 consumers with shopping experience at traditional markets in Surabaya who satisfied the three screening criteria. Table 2 presents their demographic and shopping characteristics. Women constituted 73.7% of the sample; respondents aged over 45 years formed the largest group (41.7%), followed by those aged 36–45 (26.0%), 29–35 (16.7%), and 23–28 years (15.7%); most had completed senior high school (67.7%); and the majority were self-employed entrepreneurs (44.0%) or housewives (43.3%). Respondents were distributed across seven markets managed by PD Pasar Surya—Pabean, Wonokromo, Keputran, Bratang, Genteng Baru, Balongsari, and Pucang Anom—providing broad representation across the city. Shopping behavior confirms the everyday role of these markets: 39.7% visited daily and 34.0% shopped two to three times per week, mainly for food ingredients (33.0%) and vegetables and fruits (30.0%). Cash remained the dominant payment method (94.0%) while only 6.0% used QRIS, indicating that digital payment adoption has begun to emerge but conventional methods still prevail. The respondent profile is therefore appropriate for examining the proposed model.

Table 2. Respondent Characteristics

| Characteristic | Category    | Frequency | Percentage (%) |
|----------------|-------------|-----------|----------------|
| Gender         | Male        | 79        | 26.3           |
|                | Female      | 221       | 73.7           |
| Age            | 23–28 years | 47        | 15.7           |

|                            |                             |     |       |
|----------------------------|-----------------------------|-----|-------|
|                            | 29–35 years                 | 50  | 16.7  |
|                            | 36–45 years                 | 78  | 26.0  |
|                            | Over 45 years               | 125 | 41.7  |
| Educational attainment     | Junior high school          | 66  | 22.0  |
|                            | Senior high school          | 203 | 67.7  |
|                            | Diploma                     | 13  | 4.3   |
|                            | Bachelor's degree           | 18  | 6.0   |
| Occupation                 | Entrepreneur/Self-employed  | 132 | 44.0  |
|                            | Housewife                   | 130 | 43.3  |
|                            | Employee                    | 30  | 10.0  |
|                            | Other/Ojek driver           | 8   | 2.7   |
| Domicile                   | Surabaya                    | 300 | 100.0 |
| Traditional market visited | Pabean Market               | 54  | 18.0  |
|                            | Wonokromo Market            | 49  | 16.3  |
|                            | Keputran Market             | 41  | 13.7  |
|                            | Bratang Market              | 41  | 13.7  |
|                            | Genteng Baru Market         | 40  | 13.3  |
|                            | Balongsari Market           | 39  | 13.0  |
|                            | Pucang Anom Market          | 36  | 12.0  |
| Shopping frequency         | Every day                   | 119 | 39.7  |
|                            | Two to three times per week | 102 | 34.0  |
|                            | Once per week               | 44  | 14.7  |
|                            | One to two times per month  | 16  | 5.3   |
|                            | Rarely                      | 19  | 6.3   |
| Main product purchased     | Food ingredients            | 99  | 33.0  |
|                            | Vegetables and fruits       | 90  | 30.0  |
|                            | Fish and meat               | 52  | 17.3  |
|                            | Local/MSME products         | 43  | 14.3  |
|                            | Clothing and textiles       | 11  | 3.7   |
|                            | Other products              | 5   | 1.7   |
| Payment method             | Cash                        | 282 | 94.0  |
|                            | QRIS                        | 18  | 6.0   |
| Total respondents          |                             | 300 | 100.0 |

Source: Processed questionnaire data, 2026.

### 3.1.2. Measurement Model Assessment

The measurement model was evaluated using indicator reliability (outer loadings and bootstrapping), internal consistency reliability (Cronbach's alpha and composite reliability), convergent validity (AVE), and discriminant validity. Following Hair et al. (2022), outer loadings above 0.70, Cronbach's alpha and composite reliability above 0.70, and AVE above 0.50 indicate acceptable measurement quality.

Table 3. Validity and Reliability Test

| Construct                    | Indicators | Outer Loading Range | t-statistic Range | p-value Range | Cronbach's Alpha | Composite Reliability | AVE   | Decision           |
|------------------------------|------------|---------------------|-------------------|---------------|------------------|-----------------------|-------|--------------------|
| Local Product Uniqueness     | LPU1–LPU5  | 0.711–0.868         | 23.987–52.725     | <0.001        | 0.855            | 0.896                 | 0.634 | Valid and reliable |
| Cultural Atmosphere          | CAT1–CAT5  | 0.734–0.899         | 17.277–69.647     | <0.001        | 0.856            | 0.897                 | 0.636 | Valid and reliable |
| Digital Payment Availability | DPA1–DPA5  | 0.555–0.927         | 2.485–4.960       | <0.001–0.013  | 0.873            | 0.874                 | 0.592 | Valid and reliable |
| Market Accessibility         | MAC1–MAC5  | 0.725–0.845         | 19.178–31.748     | <0.001        | 0.849            | 0.891                 | 0.622 | Valid and reliable |
| Price Competitiveness        | PC1–PC5    | 0.776–0.834         | 23.671–25.963     | <0.001        | 0.860            | 0.899                 | 0.640 | Valid and reliable |



|                            |           |             |               |        |       |       |       |                    |
|----------------------------|-----------|-------------|---------------|--------|-------|-------|-------|--------------------|
| Market Attractiveness      | MAT1–MAT6 | 0.750–0.790 | 25.595–34.129 | <0.001 | 0.863 | 0.898 | 0.594 | Valid and reliable |
| Digital Literacy of Buyers | DLB1–DLB6 | 0.769–0.822 | 22.244–31.292 | <0.001 | 0.883 | 0.911 | 0.630 | Valid and reliable |
| Customer Loyalty           | CL1–CL6   | 0.689–0.773 | 13.521–30.373 | <0.001 | 0.824 | 0.871 | 0.531 | Valid and reliable |
| Rule of thumb              |           | ≥0.70       | ≥1.96         | ≤0.05  | ≥0.70 | ≥0.70 | ≥0.50 |                    |

Source: Processed SmartPLS output, 2026.

Table 3 shows that the outer loadings range from 0.555 to 0.927, with most indicators exceeding the recommended threshold of 0.70. Four indicators fall below that level—DPA4, DPA5, CL4, and CL6—but they remain within the acceptable range of 0.40–0.70 and were retained because their removal was not theoretically necessary and the corresponding constructs continued to satisfy the requirements for internal consistency and convergent validity (Hair et al., 2019). All indicators are statistically significant, with t-statistics from 2.485 to 69.647 and p-values below 0.05. Internal consistency is likewise satisfactory: Cronbach’s alpha ranges from 0.824 to 0.883 and composite reliability from 0.871 to 0.911, all above 0.70 and below 0.95. The AVE values range from 0.531 to 0.640, exceeding the minimum criterion of 0.50, with Price Competitiveness highest (0.640) and Customer Loyalty lowest (0.531) but still explaining more than half of the variance in its indicators. All eight constructs therefore meet the requirements for indicator reliability, internal consistency, and convergent validity.

Table 4. Discriminant Validity Summary

| Criterion                 | Result                                                                                                                                                                                                                      | Decision |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| Fornell–Larcker Criterion | The square root of AVE for each construct is greater than its correlations with the other constructs. The diagonal values range from 0.729 to 0.800.                                                                        | Accepted |
| HTMT                      | All HTMT values range from 0.053 to 0.761, which are below the conservative threshold of 0.85 and the general threshold of 0.90.                                                                                            | Accepted |
| Discriminant Validity     | Local Product Uniqueness, Cultural Atmosphere, Digital Payment Availability, Market Accessibility, Price Competitiveness, Market Attractiveness, Digital Literacy of Buyers, and Customer Loyalty are empirically distinct. | Accepted |

Source: Processed SmartPLS output, 2026.

Table 4 confirms discriminant validity. Under the Fornell–Larcker criterion, the square root of the AVE for each construct exceeds its correlations with the other constructs, with diagonal values from 0.729 to 0.800. The Heterotrait–Monotrait ratio supports this conclusion (Henseler et al., 2015): all HTMT values range from 0.053 to 0.761, below both the conservative threshold of 0.85 and the general threshold of 0.90. The highest values occur between Local Product Uniqueness and Market Attractiveness (0.761), Price Competitiveness and Market Attractiveness (0.740), and Cultural Atmosphere and Market Attractiveness (0.714); although relatively strong, they remain acceptable. All constructs are therefore empirically distinct and suitable for structural model analysis.

### 3.1.3. Common Method Bias

Common method bias was assessed using the full collinearity approach. All variance inflation factors obtained in the structural model range from 1.014 to 1.490, well below the threshold of 3.3 above which method variance is considered problematic. Together with the procedural remedies applied during data collection, this indicates that common method bias is unlikely to have distorted the relationships reported below.

### 3.1.4. Structural Model Evaluation

Before assessing the structural model, a robustness check was conducted using Confirmatory Tetrad Analysis (CTA). The p-values of all constructs range from 0.057 to 0.196, exceeding the 0.05 threshold, which supports the reflective specification of all constructs. Variance inflation factors range from 1.014 to 1.490, substantially below both the maximum threshold of 5.00 and the conservative threshold of 3.00, so the model is free from problematic multicollinearity.

Table 5. Structural Model Quality

| Assessment                                           | Result                                                     | Decision                                            |
|------------------------------------------------------|------------------------------------------------------------|-----------------------------------------------------|
| CTA p-value range                                    | 0.057–0.196                                                | Reflective specification accepted                   |
| VIF range                                            | 1.014–1.490                                                | No collinearity problem                             |
| R <sup>2</sup> of Market Attractiveness              | 0.702                                                      | Moderate, approaching substantial explanatory power |
| R <sup>2</sup> of Customer Loyalty                   | 0.381                                                      | Weak-to-moderate explanatory power                  |
| Strongest f <sup>2</sup> effect                      | Market Attractiveness → Customer Loyalty = 0.382           | Large effect                                        |
| Strongest antecedent effect on Market Attractiveness | Local Product Uniqueness = 0.305                           | Moderate-to-large effect                            |
| PLSpredict versus IA                                 | Lower RMSE for all endogenous indicators                   | Good predictive relevance                           |
| PLSpredict versus LM                                 | Lower RMSE for 8 indicators, equal for 1, and higher for 3 | Moderate predictive power                           |
| SRMR                                                 | 0.079                                                      | Acceptable model fit                                |
| GoF                                                  | 0.575                                                      | High supplementary overall fit                      |
| CVPAT: PLS-SEM versus IA                             | Loss difference = −0.180; p < 0.001                        | PLS-SEM significantly better than IA                |
| CVPAT: PLS-SEM versus LM                             | Loss difference = −0.001; p = 0.953                        | No significant predictive difference                |
| Overall decision                                     |                                                            | Suitable for hypothesis testing                     |

Source: Processed SmartPLS output, 2026.

Table 5 demonstrates that the structural model satisfies the principal quality criteria. The R<sup>2</sup> of Market Attractiveness is 0.702, indicating that the five antecedents jointly explain 70.2% of its variance—moderate explanatory power approaching the substantial category. The R<sup>2</sup> of Customer Loyalty is 0.381, meaning that Market Attractiveness, Digital Literacy of Buyers, and their interaction explain 38.1% of its variance, which suggests that loyalty is also shaped by factors outside the model such as satisfaction, trust in traders, product quality consistency, habitual shopping behavior, and emotional attachment.

The effect-size analysis shows that Market Attractiveness has the strongest effect on Customer Loyalty (f<sup>2</sup> = 0.382, a large effect). Among the antecedents of Market Attractiveness, Local Product Uniqueness contributes most (f<sup>2</sup> = 0.305), followed by Cultural Atmosphere (0.230), Price Competitiveness (0.162), Market Accessibility (0.093), and Digital Payment Availability (0.008). The interaction between Digital Literacy of Buyers and Market Attractiveness records f<sup>2</sup> = 0.034, a small but meaningful moderating effect.

The predictive assessment supports the model but requires careful interpretation. PLSpredict produces lower root mean square error values than the Indicator Average (IA) benchmark for all endogenous indicators; against the Linear Model (LM) benchmark, PLS-SEM yields lower errors for eight indicators, an identical error for one, and higher errors for three, indicating moderate rather than uniformly superior out-of-sample prediction. The Cross-Validated Predictive Ability Test is consistent: PLS-SEM records a lower loss than IA (0.413 versus 0.593; average difference −0.180, p < 0.001), whereas the comparison with LM yields almost identical losses (average difference −0.001, p = 0.953). Finally, the SRMR of 0.079 is below the recommended maximum of 0.08, and the GoF of 0.575 indicates high overall fit, although global GoF should be read as supplementary evidence rather than a primary criterion. Overall, the model demonstrates acceptable structural quality and is suitable for hypothesis testing.

### 3.1.5. Hypothesis Testing

The hypotheses were evaluated using path coefficients, standard deviations, t-statistics, and p-values generated through bootstrapping in SmartPLS. For a two-tailed test at the 5% significance level, a hypothesis was accepted when the t-statistic exceeded 1.96 and the p-value was below 0.05.

Table 6. Structural Model Results (Direct Effects)

| Hypothesis | Relationship Between Variables                       | Path Coefficient | STDEV | t-value | p-value | Decision |
|------------|------------------------------------------------------|------------------|-------|---------|---------|----------|
| H1         | Local Product Uniqueness → Market Attractiveness     | 0.355            | 0.037 | 9.671   | <0.001  | Accepted |
| H2         | Cultural Atmosphere → Market Attractiveness          | 0.303            | 0.034 | 8.795   | <0.001  | Accepted |
| H3         | Digital Payment Availability → Market Attractiveness | 0.049            | 0.041 | 1.183   | 0.237   | Rejected |
| H4         | Market Accessibility → Market                        | 0.188            | 0.035 | 5.306   | <0.001  | Accepted |

|    | Attractiveness                                                        |       |       |        |        |          |
|----|-----------------------------------------------------------------------|-------|-------|--------|--------|----------|
| H5 | Price Competitiveness → Market Attractiveness                         | 0.268 | 0.034 | 7.917  | <0.001 | Accepted |
| H6 | Market Attractiveness → Customer Loyalty                              | 0.496 | 0.046 | 10.812 | <0.001 | Accepted |
| H7 | Digital Literacy of Buyers × Market Attractiveness → Customer Loyalty | 0.118 | 0.046 | 2.566  | 0.010  | Accepted |

Source: Processed SmartPLS output, 2026.

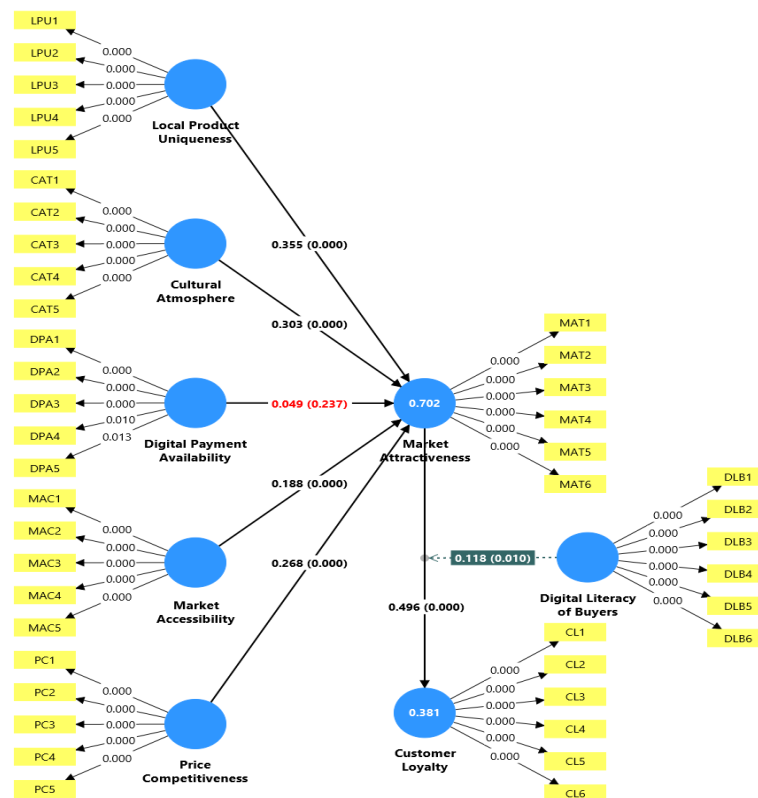


Figure 2. PLS Bootstrapping (Source: Processed SmartPLS output, 2026)

Table 6 and Figure 2 show that four of the five antecedents affect Market Attractiveness positively and significantly, supporting H1, H2, H4, and H5. Local Product Uniqueness exerts the strongest effect ( $\beta = 0.355$ ,  $t = 9.671$ ,  $p < 0.001$ ), followed by Cultural Atmosphere ( $\beta = 0.303$ ,  $t = 8.795$ ,  $p < 0.001$ ), Price Competitiveness ( $\beta = 0.268$ ,  $t = 7.917$ ,  $p < 0.001$ ), and Market Accessibility ( $\beta = 0.188$ ,  $t = 5.306$ ,  $p < 0.001$ ). Traditional markets thus become more attractive when they offer distinctive local products, preserve an authentic cultural shopping atmosphere, provide competitive prices, and remain easy to reach. The smaller coefficient for accessibility indicates that it functions as an enabling condition rather than the main source of attractiveness.

In contrast, Digital Payment Availability does not significantly affect Market Attractiveness ( $\beta = 0.049$ ,  $t = 1.183$ ,  $p = 0.237$ ), so H3 is rejected. The availability of QRIS, electronic wallets, mobile banking, or bank transfers has not yet become a principal reason for consumers to consider traditional markets attractive. This is consistent with the respondent profile, in which 94.0% used cash and only 6.0% used QRIS: digital payment facilities remain supporting infrastructure rather than a decisive source of market differentiation.

Market Attractiveness has a positive and significant effect on Customer Loyalty ( $\beta = 0.496$ ,  $t = 10.812$ ,  $p < 0.001$ ), supporting H6 and representing the largest direct relationship in the model. The interaction between Digital Literacy of Buyers and Market Attractiveness is also positive and significant ( $\beta = 0.118$ ,  $t = 2.566$ ,  $p = 0.010$ ), supporting H7. Buyers who perceive markets as distinctive, relevant, economically valuable, and emotionally meaningful are more likely to revisit, continue purchasing, and recommend them, and those better able to use digital payments, search for market information, and protect their personal data integrate digital facilities with their traditional-market shopping experience more effectively.

### 3.1.6. Mediation Analysis

Because Market Attractiveness is theorized as the mechanism that converts market attributes into loyalty, the specific indirect effect of each antecedent on Customer Loyalty was estimated as the product of the corresponding antecedent-attractiveness path and the attractiveness-loyalty path reported in Table 6, with

standard errors derived using the delta method applied to the bootstrap standard errors of the constituent paths. Table 7 reports the results.

Table 7. Specific Indirect Effects of Market Attractiveness

| Hypothesis | Indirect path  | Indirect effect | SE    | t-value | p-value | 95% CI          | Decision      |
|------------|----------------|-----------------|-------|---------|---------|-----------------|---------------|
| H8a        | LPU → MAT → CL | 0.176           | 0.025 | 7.168   | <0.001  | [0.128; 0.224]  | Supported     |
| H8b        | CAT → MAT → CL | 0.150           | 0.022 | 6.869   | <0.001  | [0.107; 0.193]  | Supported     |
| H8c        | DPA → MAT → CL | 0.024           | 0.020 | 1.188   | 0.235   | [-0.016; 0.064] | Not supported |
| H8d        | MAC → MAT → CL | 0.093           | 0.019 | 4.808   | <0.001  | [0.055; 0.131]  | Supported     |
| H8e        | PC → MAT → CL  | 0.133           | 0.021 | 6.363   | <0.001  | [0.092; 0.174]  | Supported     |

Source: Processed SmartPLS output, 2026.

Note. LPU = Local Product Uniqueness; CAT = Cultural Atmosphere; DPA = Digital Payment Availability; MAC = Market Accessibility; PC = Price Competitiveness; MAT = Market Attractiveness; CL = Customer Loyalty. Indirect effects were computed from the direct paths reported in Table 6; standard errors were obtained using the delta method.

The results support H8a, H8b, H8d, and H8e. Local Product Uniqueness exerts the largest indirect effect on Customer Loyalty (0.176), followed by Cultural Atmosphere (0.150), Price Competitiveness (0.133), and Market Accessibility (0.093). Because none of these antecedents was specified as having a direct path to Customer Loyalty, Market Attractiveness operates as a full transmission mechanism: cultural and functional attributes influence loyalty only insofar as they are integrated into a favorable overall evaluation of the market.

H8c is not supported: the indirect effect of Digital Payment Availability is 0.024 and its confidence interval includes zero. This follows directly from the non-significant DPA → MAT path in Table 6 and reinforces the interpretation that payment infrastructure, at its present level of adoption, neither raises market attractiveness nor reaches loyalty through it. The ordering of the indirect effects mirrors that of the direct paths, confirming the internal consistency of the model and showing that distinctive products carry approximately 1.9 times the loyalty-generating force of accessibility once the mediating evaluation is taken into account.

### 3.1.7. Moderation Analysis

Moderation was tested by estimating the interaction term between Digital Literacy of Buyers and Market Attractiveness; a moderating effect is supported when the interaction path has a t-value above 1.96 and a p-value below 0.05.

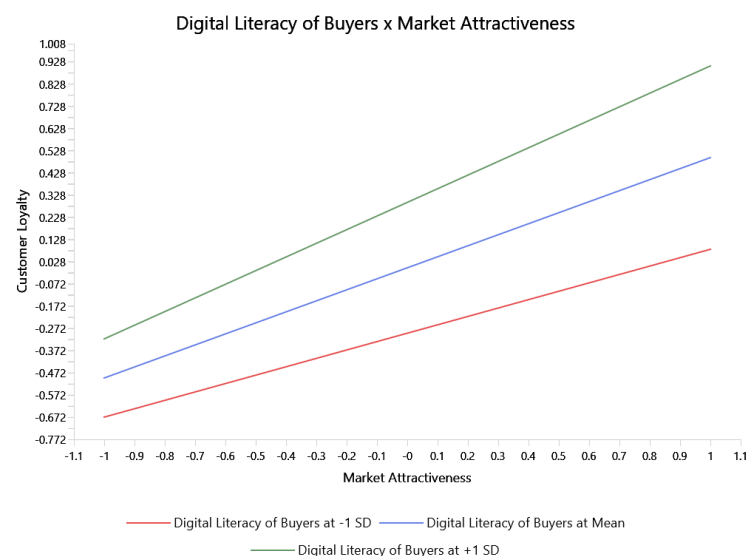


Figure 3. Slope Analysis (Source: Processed SmartPLS output, 2026)

Table 8. Moderation Analysis

| Hypothesis | Moderation Path                                                       | Interaction Effect | t-value | p-value | Decision |
|------------|-----------------------------------------------------------------------|--------------------|---------|---------|----------|
| H7         | Digital Literacy of Buyers × Market Attractiveness → Customer Loyalty | 0.118              | 2.566   | 0.010   | Accepted |

Source: Processed SmartPLS output, 2026

Table 8 shows that Digital Literacy of Buyers significantly moderates the relationship between Market Attractiveness and Customer Loyalty, with a positive interaction coefficient of 0.118, a t-value of 2.566, and a p-value of 0.010; H7 is therefore accepted. The influence of Market Attractiveness on Customer Loyalty becomes stronger as buyers' digital literacy increases. Although the interaction is relatively small, it confirms that digital literacy functions as an amplifying condition rather than as the primary foundation of loyalty.

The slope analysis in Figure 3 provides further evidence. At one standard deviation below the mean level of digital literacy, the effect of Market Attractiveness on Customer Loyalty is 0.378; at the mean it is 0.496; and at one standard deviation above the mean, it reaches 0.614. The consistently positive slopes indicate that Market Attractiveness increases loyalty at all literacy levels, but substantially more strongly among buyers with higher digital capabilities.

Digitally literate buyers are therefore more capable of converting favorable perceptions into sustained loyalty, because they can search for product and market information, evaluate the credibility of digital content, use QRIS or other electronic payment systems, and integrate physical shopping with digital services. Buyers with low digital literacy may still perceive markets as attractive but benefit less from digital information and transaction facilities, which explains the weaker effect in that group. Digital literacy thus acts as an amplifier without replacing the fundamental role of market attractiveness, which continues to rest on local product uniqueness, cultural atmosphere, competitive prices, and accessibility.

### 3.1.8. Importance–Performance Map Analysis (IPMA)

Importance–Performance Map Analysis (IPMA) was conducted to identify the constructs that should receive strategic priority in improving Customer Loyalty, by evaluating each construct on its total effect on the target construct (importance) and its average latent variable score (performance).

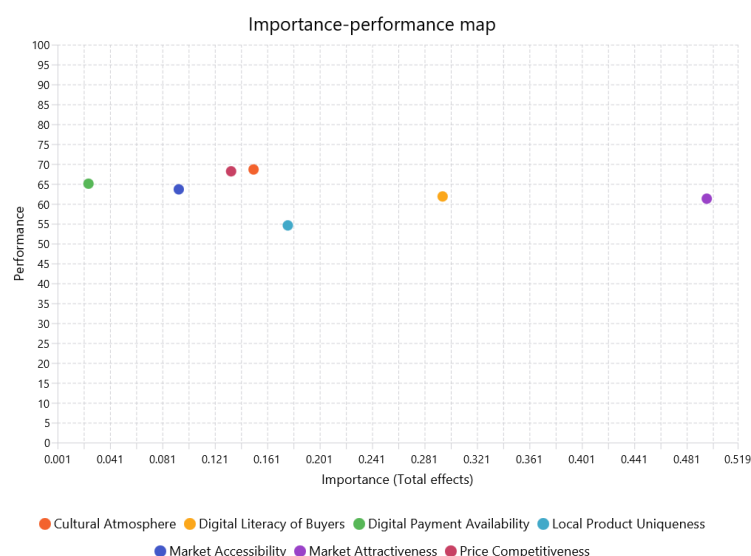


Figure 4. Importance–Performance Map Analysis (Source: Processed SmartPLS output, 2026)

Market Attractiveness records the highest importance for Customer Loyalty, confirming that consumers' willingness to revisit, continue purchasing from, and recommend traditional markets depend primarily on whether the market is perceived as distinctive, relevant, convenient, economically valuable, and emotionally appealing; its performance, however, is not the highest among the constructs examined, indicating substantial room for improvement. Digital Literacy of Buyers ranks second in importance but performs only moderately, suggesting that digital modernization will not achieve its full behavioral impact unless buyers possess sufficient capability and confidence to use the available technologies.

Among the antecedents of Market Attractiveness, Local Product Uniqueness combines relatively high importance with the lowest performance, making it the most urgent improvement priority: differentiation must be made visible through improved product variety, stronger local identity, clearer origin information, attractive presentation, and more consistent involvement of local micro, small, and medium enterprises. Cultural Atmosphere and Price Competitiveness show strong performance and meaningful importance and represent



established advantages to be maintained—preserving interpersonal interaction, trader friendliness, and bargaining practices while keeping prices affordable, transparent, and consistent with product quality. Market Accessibility has lower importance with reasonably satisfactory performance and should be treated as essential supporting infrastructure.

Digital Payment Availability has the lowest importance despite relatively good performance, consistent with its non-significant direct effect and the dominance of cash transactions in the sample. This does not imply that cashless facilities should be abandoned; rather, expanding them alone will not strengthen loyalty unless they are integrated with more attractive products, authentic cultural experiences, accessible services, and improved buyer digital literacy. The IPMA therefore establishes a clear order of priorities: strengthen Market Attractiveness first, improve Local Product Uniqueness second, and raise Digital Literacy of Buyers third, while maintaining Cultural Atmosphere and Price Competitiveness and treating accessibility and payment infrastructure as supporting strategies.

Table 9. Importance–Performance Priority Matrix for Customer Loyalty

| Construct                    | Importance<br>(total effect) | Performance | Position                                | Strategic priority                                                               |
|------------------------------|------------------------------|-------------|-----------------------------------------|----------------------------------------------------------------------------------|
| Market Attractiveness        | Highest                      | Moderate    | High importance / moderate performance  | Priority 1: strengthen the overall shopping value proposition                    |
| Digital Literacy of Buyers   | High                         | Moderate    | High importance / moderate performance  | Priority 2: consumer education, transaction assistance, and security information |
| Local Product Uniqueness     | High                         | Lowest      | High importance / low performance       | Priority 3: curate, present, and communicate product distinctiveness             |
| Cultural Atmosphere          | Moderate                     | High        | Moderate importance / high performance  | Maintain: protect authentic interaction and bargaining practice                  |
| Price Competitiveness        | Moderate                     | High        | Moderate importance / high performance  | Maintain: preserve affordability, transparency, and negotiation                  |
| Market Accessibility         | Lower                        | Adequate    | Lower importance / adequate performance | Support: treat as enabling infrastructure                                        |
| Digital Payment Availability | Lowest                       | Good        | Low importance / good performance       | Support: integrate with literacy, product, and experience strategies             |

Source: Derived from the IPMA output presented in Figure 4.

### 3.2. Discussion

This study examined the Cultural–Digital Traditional Market Attractiveness Model by testing how five market attributes shape Market Attractiveness and how Market Attractiveness influences Customer Loyalty under different levels of Digital Literacy of Buyers. Six of the seven hypotheses are supported. The competitiveness of traditional markets is therefore driven primarily by distinctive cultural and economic value, while digital capabilities operate as complementary rather than substitutive mechanisms.

Local Product Uniqueness has the strongest effect on Market Attractiveness ( $\beta = 0.355$ ;  $f^2 = 0.305$ ), supporting H1. Products perceived as authentic, culturally embedded, varied, and difficult to obtain through modern retail or online platforms provide a differentiation advantage that competitors cannot easily replicate, consistent with Thio et al. (2024b). Traditional markets should therefore not compete with supermarkets and digital platforms through standardization, because doing so weakens their most defensible resource: product origin, local knowledge, authenticity, direct trader relationships, and cultural meaning. The IPMA results nevertheless show high importance combined with low performance, indicating that this potential has not been fully converted into visible customer value and must be actively curated and communicated.

Cultural Atmosphere positively and significantly influences Market Attractiveness ( $\beta = 0.303$ ), supporting H2. Interaction with traders, bargaining, friendliness, familiarity, and the lively market environment provide emotional and relational value beyond the functional purpose of obtaining products, supporting the argument of Udjiyanto et al. (2023) that traditional markets are culturally embedded spaces whose sustainability rests on distinctive identity and experience-based branding. Modernization should therefore improve cleanliness, safety, circulation, and service consistency without removing bargaining practices, social interaction, trader familiarity, and local visual identity: the correct direction is harmonization rather than replacement.

Digital Payment Availability does not significantly influence Market Attractiveness ( $\beta = 0.049$ ;  $p = 0.237$ ;  $f^2 = 0.008$ ), leading to the rejection of H3. The presence of QRIS, electronic wallets, mobile banking, or transfer facilities is not yet a decisive reason for buyers to perceive traditional markets as attractive, which is understandable given that 94.0% of respondents used cash and only 6.0% used QRIS.

The non-significant result does not establish that digital payments are unimportant; it shows that availability alone is insufficient. Actual and continued use depends on perceived usefulness, facilitating conditions, security, technological readiness, and user capability rather than on infrastructure by itself (Ramayanti et al., 2024; Nguyen et al., 2024). The contrast with Alamsyah (2023), who reports a positive effect in a food-service setting, is instructive: where cashless payment is already routine, availability functions as an expected service standard, whereas in traditional markets it remains peripheral. Oktaviani (2024) documents the supply-side counterpart, showing that trader resistance rooted in awareness, trust, and security concerns constrains the effective presence of digital payment even where the technology is nominally available. Digital payment should therefore be treated as enabling infrastructure whose expansion is accompanied by trader readiness, clear signage, transaction assistance, reliable connectivity, consumer-protection information, and practical digital-literacy programs.

Market Accessibility positively and significantly affects Market Attractiveness ( $\beta = 0.188$ ), supporting H4 and aligning with Gulo and Zebua (2025). Its effect is nonetheless smaller than those of Local Product Uniqueness, Cultural Atmosphere, and Price Competitiveness, so accessibility is a necessary enabling condition rather than the primary reason consumers choose a traditional market: an accessible market lacking distinctive products may still fail to attract customers, while a culturally distinctive market may lose them when access, parking, circulation, or cleanliness create excessive inconvenience.

Price Competitiveness positively and significantly influences Market Attractiveness ( $\beta = 0.268$ ), supporting H5 and confirming that affordable prices, bargaining flexibility, and perceived price-quality fairness remain central advantages (Gulo & Zebua, 2025). This does not imply competing exclusively on price, which reduces trader margins and creates no defensible identity; the stronger configuration combines competitive prices with distinctive local products and an authentic cultural atmosphere, so that buyers perceive superior overall value rather than merely cheaper products.

Market Attractiveness has a strong positive effect on Customer Loyalty ( $\beta = 0.496$ ;  $f^2 = 0.382$ ), supporting H6 and representing the largest direct effect in the model, consistent with evidence that consumption value and destination attractiveness contribute to revisit intention (Thio et al., 2024a). Consumers do not become loyal merely because a market has accessible premises, affordable prices, cultural interaction, or unique products in isolation; they integrate these attributes into an overall judgment that the market remains worth visiting. The mediation results in Table 7 substantiate this statistically: the indirect effects of local product uniqueness, cultural atmosphere, price competitiveness, and market accessibility are all significant, whereas that of digital payment availability is not. Market Attractiveness therefore operates as a full mediator for the four culturally and economically grounded attributes, exactly as the harmonization argument predicts.

Digital Literacy of Buyers positively moderates the relationship between Market Attractiveness and Customer Loyalty ( $\beta = 0.118$ ;  $f^2 = 0.034$ ), supporting H7, with the slope rising from 0.378 at low literacy to 0.496 at the mean and 0.614 at high literacy. This is consistent with Nguyen et al. (2024) and extends prior work in which evidence on moderation remains mixed: Vilano et al. (2025) found a direct effect of digital literacy on loyalty but no support for moderation. The function of digital literacy therefore appears context dependent; in traditional markets, where physical interaction and emerging digital services coexist, literacy determines whether buyers can connect market attractiveness with digitally supported convenience.

The IPMA findings reinforce this interpretation: Market Attractiveness is the most important driver of loyalty; Local Product Uniqueness combines substantial importance with the lowest performance and should be a major improvement priority; Digital Literacy of Buyers strengthens the conversion of favorable evaluations into loyalty; Cultural Atmosphere and Price Competitiveness already perform well and should be protected; and Digital Payment Availability has low importance despite acceptable performance.

Overall, the study contributes to the traditional-retail and consumer-behavior literature by demonstrating that sustainable competitiveness depends on integrating cultural differentiation, functional value, and buyer capability. The results reject a technology-deterministic view of modernization: digital infrastructure does not automatically create market attractiveness, and its value depends on whether it complements distinctive products, cultural experience, accessibility, competitive pricing, and consumer literacy.

### 3.2.1. Theoretical Implications

This study makes three contributions to the retail-management and information-technology literature. First, it demonstrates the explanatory value of an S–O–R specification for traditional-market research: by modeling market attractiveness as an organism-level evaluation rather than a descriptive market characteristic, it identifies the psychological route through which heterogeneous attributes are converted into loyalty, and the mediation results confirm that this route carries the effects of four of the five attributes in full.

Second, the study qualifies technology-centered accounts of retail modernization. The non-significant effect of digital payment availability, replicated at the indirect level, indicates that infrastructure is not a sufficient stimulus in the S–O–R sequence. Technological cues acquire evaluative weight only when they are

behaviorally usable, which reframes digitalization as a capability problem rather than an availability problem and connects retail research to the digital financial literacy agenda advanced by OECD (2025) and Nguyen et al. (2024).

Third, the study specifies digital literacy as a boundary condition of the organism–response link rather than as an additional predictor. This positioning helps reconcile divergent findings: Vilano et al. (2025) found a direct effect of digital literacy on loyalty but no moderation in a café setting, whereas moderation emerges here in a traditional-market setting where physical exchange and emerging digital services coexist. The function of digital literacy therefore appears to depend on how much of the customer experience is actually mediated by technology.

### 3.2.2. Practical and Policy Implications

For market managers and traders, the results establish a clear sequence of action. Distinctive local products should be curated and made visible through clearer origin information, improved presentation, market-specific product clusters, and stronger participation by local micro, small, and medium enterprises, because this construct combines the largest direct and indirect effects with the weakest measured performance. The cultural atmosphere and price advantage that already perform well should be protected rather than standardized away during renovation.

For local governments and market authorities, the findings caution against equating modernization with the installation of payment technology. Investment in QRIS and related infrastructure remains worthwhile, but it should be bundled with trader readiness programs, clear signage, on-site transaction assistance, reliable connectivity, consumer-protection information, and practical digital-literacy training for buyers. Because digital literacy ranks second in importance in the IPMA while performing only moderately, buyer-side capability building is likely to yield a larger loyalty return than further hardware deployment alone.

## 4. CONCLUSION

This study developed and empirically validated the Cultural–Digital Traditional Market Attractiveness Model as an integrated framework explaining Customer Loyalty toward traditional markets in Surabaya. Cultural and functional attributes do not contribute equally to Market Attractiveness: Local Product Uniqueness, Cultural Atmosphere, Market Accessibility, and Price Competitiveness have positive and significant effects, whereas Digital Payment Availability does not. Local Product Uniqueness emerged as the strongest antecedent, followed by Cultural Atmosphere and Price Competitiveness, indicating that attractiveness is grounded primarily in distinctive local products, authentic cultural experience, economic value, and accessibility rather than in digital payment facilities alone.

Market Attractiveness is confirmed as the principal driver of Customer Loyalty, and the mediation analysis shows that it fully transmits the influence of local product uniqueness, cultural atmosphere, price competitiveness, and market accessibility, while the indirect effect of digital payment availability is not significant. Digital Literacy of Buyers positively moderates this relationship, indicating that digitally capable consumers convert favorable evaluations into loyalty more effectively; the relatively small moderation effect nevertheless shows that digital capability amplifies rather than founds loyalty. The model explains 70.2% of the variance in Market Attractiveness and 38.1% of the variance in Customer Loyalty.

Practically, modernization should prioritize strengthening Local Product Uniqueness and overall Market Attractiveness while preserving Cultural Atmosphere and Price Competitiveness as established advantages. Market managers and local governments should improve the visibility, presentation, variety, and cultural identity of local products; maintain authentic buyer–trader interaction; improve access and supporting facilities; and strengthen buyers' digital literacy. Digital-payment expansion should continue but not be treated as an independent modernization solution, because technology without consumer readiness and compelling market value is unlikely to generate loyalty.

Four limitations qualify these conclusions. First, the cross-sectional design permits inference about association and model-implied direction but not about causal ordering over time. Second, the study relies on self-reported perceptual measures from a single respondent group; although procedural remedies and the full collinearity test indicate that common method variance is unlikely to be severe, trader-side and behavioral data would strengthen the evidence. Third, the sample is confined to seven markets managed by a single municipal operator in Surabaya, which limits generalization to rural markets, smaller cities, and differently governed market systems. Fourth, the specific indirect effects in Table 7 were derived from the estimated direct paths using the delta method; bootstrap-based confidence intervals estimated directly on the resampled distribution would provide a more robust test.

Future research should test the model in other cities, market categories, and regional contexts, and may incorporate additional determinants such as service quality, market cleanliness, trader trust, perceived safety, shopping satisfaction, product quality consistency, emotional attachment, and habitual purchasing behavior. Longitudinal and multigroup studies are recommended to examine changes in loyalty over time and to compare the model across age groups, literacy levels, payment preferences, and shopping-frequency segments. Mixed-

method designs combining survey evidence with trader interviews would also help explain why payment infrastructure remains behaviorally peripheral despite its increasing availability.

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Conflict of interest. The authors declare that they have no competing financial or personal interests that could have influenced the work reported in this article.

Data availability. The dataset generated and analyzed during this study is available from the corresponding author upon reasonable request.

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