

Digital literacy, trust, and e-commerce sustainability among women entrepreneurs in Indonesia: the mediating role of trust

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Abstract

This study investigates the relationship between digital literacy, trust, and e-commerce sustainability among women entrepreneurs in Indonesia. Although digital transformation has expanded entrepreneurial opportunities, many women-led digital businesses still face challenges in achieving long-term sustainability due to varying levels of digital capability and trust in online platforms. This study aims to examine the direct effect of digital literacy on trust and e-commerce sustainability, as well as the mediating role of trust in this relationship. A quantitative research design was employed using a structured online questionnaire distributed to women entrepreneurs across Indonesia. A total of 350 valid responses were analysed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results indicate that digital literacy has a significant positive effect on trust and e-commerce sustainability. Trust is also found to have a significant positive influence on e-commerce sustainability. Furthermore, trust partially mediates the relationship between digital literacy and e-commerce sustainability, suggesting that digital literacy enhances business sustainability both directly and indirectly through trust formation. The model demonstrates strong explanatory power and satisfactory goodness-of-fit. The findings highlight that digital literacy and trust are key determinants of sustainable digital entrepreneurship among women. The study contributes to the literature by integrating Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB), and Trust Theory into a unified framework. Practically, the findings suggest that improving women entrepreneurs' digital skills and strengthening platform trust mechanisms are essential for enhancing e-commerce sustainability in emerging digital economies.

Keywords:

digital literacy; e-commerce sustainability; trust; Indonesia; women entrepreneurs.

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Introduction

The expansion of the digital economy has reshaped entrepreneurial activity (Setyonaluri et al., 2021), while e-commerce platforms have enabled micro, small, and medium enterprises (MSMEs) to reach wider markets and reduce operating costs (Amornkitvikai et al., 2022). These opportunities are particularly relevant to women entrepreneurs, whose businesses contribute to inclusive development and household welfare (Ogbari et al., 2024) yet often remain concentrated in small-scale, resource-constrained activities (Kevane et al., 2024). Unequal digital capabilities can consequently limit the benefits women derive from participation in digital markets (Zhao et al., 2025).

In Indonesia, women account for a substantial share of MSME ownership but sustaining their businesses in digital markets remains challenging (Marsan et al., 2022). Basic digital participation does not necessarily extend to advanced uses such as analytics, advertising, and customer management (World Bank, 2021; IFC, 2021), while concerns about fraud, privacy, and technical competence can discourage deeper engagement (UNCTAD, 2021; World Bank, 2021). Trust is therefore relevant to continued participation in uncertain digital environments (Albshaier et al., 2024), alongside the capabilities required to maintain business continuity, customer relationships, innovation, and adaptability (Chavarnakul et al., 2025).

Previous research has examined digital literacy, trust, and technology adoption, but offers less clarity on how digital capabilities relate to sustained entrepreneurial participation (Sitaridis & Kitsios, 2024). In particular, treating digital literacy as a general technical skill can obscure the cognitive and evaluative competencies involved in assessing platform reliability and transaction security. Related research connects digital literacy with trust and adoption, although evidence from other digital-service contexts does not directly explain women entrepreneurs' business continuity (AbdulKareem & Oladimeji, 2024). Research on women's digital empowerment also leaves scope to distinguish initial participation from the economic and operational sustainability of online enterprises (Salamzadeh & Hadizadeh, 2026).

This distinction matters because platform access alone may not provide the confidence needed to sustain digital business activity. Persistent differences in infrastructure, digital education, and socio-cultural conditions further shape opportunities among women-led Indonesian MSMEs (Alifiana et al., 2025; MSMEs, 2023). The Technology Acceptance Model (TAM), the Theory of

Planned Behaviour (TPB), and Trust Theory offer complementary perspectives: digital literacy provides cognitive capability, trust addresses uncertainty, and perceived behavioural control helps explain continued engagement. However, how these capability and confidence-related evaluations connect to e-commerce business sustainability remains insufficiently explained.

This study aims to examine the direct relationship between digital literacy and e-commerce sustainability and the mediating role of trust among women entrepreneurs in Indonesia. A quantitative cross-sectional survey was conducted among women actively managing online or digitally supported businesses in Indonesia. Purposive sampling and eligibility screening yielded 350 valid responses. Data were analysed using partial least squares structural equation modelling (PLS-SEM) in SmartPLS 4 to assess the measurement model and estimate direct and indirect relationships among digital literacy, trust, and e-commerce sustainability.

The study contributes by positioning trust as a psychological pathway connecting digital capability with sustained entrepreneurial engagement. Digital literacy encompasses technical, informational, evaluative, and security-related competencies, while trust captures entrepreneurs' confidence in digital platforms and transactions. Drawing on complementary insights from TAM, TPB, and Trust Theory, the framework extends attention beyond initial adoption to perceived economic and operational business sustainability. Its focus on women-led enterprises in Indonesia also informs digital capacity-building initiatives that combine practical competence with platform assurance.

Literature review

Women's entrepreneurship contributes to economic growth and digital transformation, while digital platforms expand opportunities to overcome market barriers and sustain businesses (Mawardi et al., 2025). However, limited digital capabilities, technological access, and trust can constrain women's participation in digital markets (Ahmetaj et al., 2023). Digital literacy and trust are therefore relevant to understanding sustainable e-commerce participation. Women entrepreneurs require entrepreneurial and digital competencies to use online platforms competitively (Mudzakir et al., 2026). Entrepreneurial orientation, digital capability, and innovation further support performance and sustainability within digital business ecosystems (Mufidah & Eliyana, 2021).

Digital literacy and trust in digital entrepreneurship

Digital literacy encompasses technical, cognitive, and evaluative competencies for accessing, assessing, and using digital information (Young et al., 2020). In e-commerce, these competencies can reduce uncertainty and

strengthen confidence in digital transactions. The Technology Acceptance Model (TAM) identifies perceived ease of use and usefulness as central to technology acceptance (Tao et al., 2022). Digitally literate entrepreneurs are better equipped to understand platform functions, security mechanisms, and transaction procedures, providing a cognitive basis for evaluating platform reliability. Trust Theory emphasises knowledge, experience, and perceived reliability under uncertainty (Fjaeran, & Aven, 2021). These considerations are particularly relevant when transactions lack physical interaction (Palmié et al., 2022). By supporting assessments of platform credibility, payment security, and data protection, digital literacy may strengthen women entrepreneurs' trust. H1: Digital literacy positively influences trust among women entrepreneurs.

Digital literacy and e-commerce sustainability

E-commerce sustainability denotes an online enterprise's capacity to survive, adapt, and maintain commercial performance (Amornkitvikai et al., 2022). Its scope here is economic and operational, encompassing business continuity, customer retention, digital innovation, revenue stability, and market responsiveness rather than broader environmental or CSR outcomes (Gao et al., 2023). Digital literacy supports these activities by enabling strategic use of marketing, operational, and customer-engagement tools (Gao et al., 2023).

The Theory of Planned Behaviour (TPB) offers a complementary perspective through perceived behavioural control, linking perceived capability to engagement in technology-enabled activities (Hagger, 2022). Greater digital literacy may strengthen women entrepreneurs' confidence in managing online businesses (Ahmed et al., 2026), supporting responsiveness, informed decisions, and digital innovation (Raman et al., 2022). Effective use of social media, analytics, and customer management systems may consequently support sustained business participation.

H2: Digital literacy positively influences e-commerce sustainability among women entrepreneurs.

Trust and e-commerce sustainability

Trust concerns willingness to rely on digital platforms, systems, or actors based on expectations of reliability, integrity, and security (Handoyo, S. 2024). It is particularly relevant where uncertainty and information asymmetry complicate transactions. Trust can reduce perceived risk and encourage repeated transactions (Farida et al., 2022). Entrepreneurs who trust platforms may be more willing to invest in digital strategies and maintain engagement. Related evidence links customer trust to repeat purchases, loyalty, and revenue stability, although customer trust differs from the entrepreneur's platform trust examined here (Jalil et al., 2024). From a Trust Theory perspective, confidence in platform reliability may support continued investment despite transactional

uncertainty. Trust is therefore expected to reinforce business continuity and sustained e-commerce engagement.

H3: Trust positively influences e-commerce sustainability among women entrepreneurs.

The mediating role of trust between digital literacy and e-commerce sustainability

Digital literacy may relate to sustainability indirectly by strengthening entrepreneurs' ability to assess transaction security, platform reliability, and data protection, thereby supporting trust (Ullah et al., 2025). Drawing on TAM, TPB, and Trust Theory, this study positions digital literacy as an enabling capability and trust as a psychological mechanism connecting that capability with sustainable entrepreneurial outcomes (Linh & Huyen, 2025). Trust may help digitally capable entrepreneurs sustain their engagement with online business ecosystems (Shatila et al., 2025). Accordingly, confidence in platform reliability is expected to provide an additional pathway linking digital literacy to e-commerce sustainability.

H4: Trust mediates the relationship between digital literacy and e-commerce sustainability among women entrepreneurs.

Research method

Research design and data collection

This study employed a quantitative cross-sectional survey to examine the relationships among digital literacy, trust, and e-commerce sustainability among women entrepreneurs in Indonesia. Purposive sampling was used because no comprehensive sampling frame was available. Eligible respondents were women entrepreneurs actively managing online or digitally supported businesses and using e-commerce or social commerce for transactions and marketing.

Data were collected over three months through Google Forms, distributed through women's entrepreneur associations, including regional IWAPI WhatsApp groups, local MSME forums, Facebook seller communities, and Instagram and TikTok Business accounts. Respondents operated micro and small enterprises in fashion, culinary services, beauty and cosmetics, handicrafts, and online retail, with most reporting more than three years of business experience.

Response screening and sample adequacy

Mandatory screening questions verified eligibility, with ineligible respondents redirected to the survey's end. Duplicate prevention involved IP tracking and one-response-per-account restrictions. An embedded attention check, straight-lining assessment, and minimum completion time of three minutes were used to identify low-quality responses.

Of 412 submissions, 62 were excluded: 18 failed eligibility screening, 24 failed the attention check or exhibited straight-lining, 15 fell below the completion-time threshold, and five were incomplete. The final sample comprised 350 usable responses, representing 84.95% of submissions.

An a priori G*Power 3.1.9.7 analysis used multiple regression (F-test, fixed model, R^2 deviation from zero), two predictors, $f^2 = 0.15$, $\alpha = 0.05$, and target power of 0.95, indicating a minimum sample of 107. A supplementary post-hoc analysis reported power above 0.999 under the specified observed-effect assumptions. The final sample exceeded the planned requirement and the conventional power benchmark of 0.80 (Hair et al., 2019).

Ethical considerations

Ethical approval was obtained from the Institutional Review Board of Universitas Negeri Surabaya (Protocol No. IRB-FEB/2025/08-041). Digital informed consent preceded the questionnaire and explained the study's purpose, voluntary participation, confidentiality, and right to discontinue without penalty. The questionnaire did not request names, telephone numbers, or business registration identifiers. Research data were encrypted, stored securely, and analysed anonymously for academic purposes.

Construct measurement and instrument validation

Digital Literacy (DL), Trust (TR), and E-Commerce Sustainability (ECS) were specified as reflective constructs. All items used a five-point Likert scale ranging from 1 ("strongly disagree") to 5 ("strongly agree"). Table 1 presents the measurement items and their sources. Digital literacy comprised five indicators covering digital platform use, online information management, security knowledge, social media and marketplace utilisation, and technological adaptability (Ng, 2012; Van Deursen et al., 2014). Trust comprised four indicators assessing transaction security, data protection, platform credibility, and payment reliability (McKnight et al., 2002; Mayer et al., 1995). E-commerce sustainability comprised five indicators addressing business survival, repeat purchases, digital innovation, sales growth, and market adaptability (Ye & Kulathunga, 2019). Its reflective specification assumes that these outcomes manifest an underlying capacity to sustain digital operations (Hair et al., 2019).

Instrument adaptation followed four stages. First, a professional translator translated the English items into Indonesian, followed by independent back-translation by a bilingual academic. Second, three academic experts evaluated relevance using a four-point content-validity scale; the reported item- and scale-level indices were 0.92 and 0.95, respectively. Third, cognitive interviews with 10 women micro-entrepreneurs in Surabaya assessed readability and contextual clarity, leading to minor wording revisions. Fourth,

a pilot involving 30 eligible women entrepreneurs, excluded from the final sample, yielded Cronbach's alpha values of 0.89 for digital literacy, 0.87 for trust, and 0.91 for sustainability. All items were retained in Table 1.

Table 1.

Measurement items of research constructs

Construct	Indicator	Measurement item
Digital literacy (adapted from (Ng, 2012; Van Deursen et al., 2014))	DL1	I am able to use digital platforms and applications to support my business activities.
	DL2	I am capable of searching, managing, and evaluating online business information effectively.
	DL3	I understand digital security and online transaction protection mechanisms.
	DL4	I can utilize social media and marketplace platforms to develop my business.
	DL5	I can easily adapt to new digital technologies and business applications.
Trust (adapted from (McKnight et al., 2002; Mayer et al., 1995))	TR1	I believe that e-commerce platforms provide secure online transactions.
	TR2	I trust that customer and personal data are adequately protected by digital platforms.
	TR3	I consider digital marketplace platforms to be credible and reliable.
	TR4	I believe online payment systems are safe and dependable.
E-Commerce sustainability (adapted from Ye & Kulathunga, 2019)	ECS1	My online business is able to survive in a competitive digital market.
	ECS2	My customers tend to make repeat purchases through online platforms.
	ECS3	I continuously implement digital innovation in my business operations.
	ECS4	My online business experiences continuous sales growth.
	ECS5	My business is able to adapt to changes in the digital market environment.

Source: Author's work (2026)

Conceptual framework

The framework draws on complementary insights from the Technology Acceptance Model, the Theory of Planned Behaviour, and Trust Theory. It specifies digital literacy as directly related to trust (H1) and e-commerce sustainability (H2), trust as related to sustainability (H3), and trust as a mediator of the literacy–sustainability relationship (H4). Figure 1 presents these pathways.

Data analysis

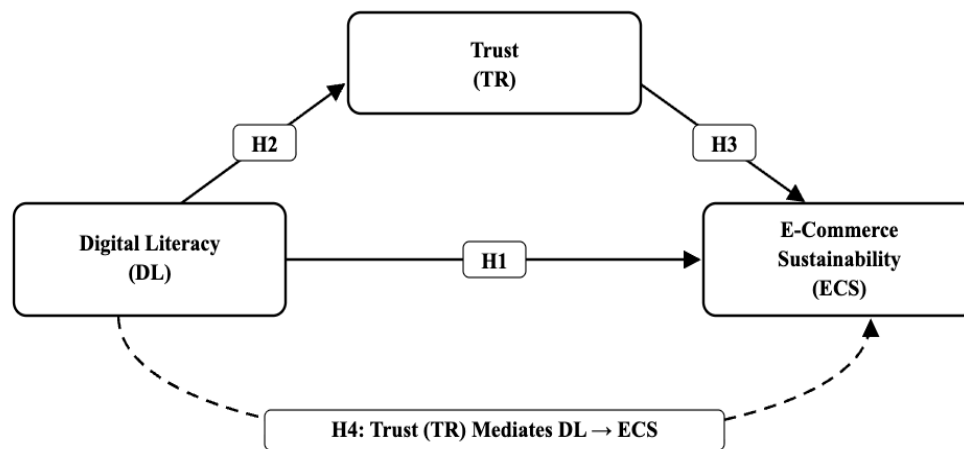
PLS-SEM was conducted in SmartPLS 4 to estimate direct and mediated relationships and assess explained variance (Hair et al., 2019; Henseler et al.,

2015). Preliminary screening and descriptive analysis used SPSS 25; the retained dataset contained no missing values.

Analysis followed a two-stage procedure: assessment of measurement reliability and validity, followed by structural-model evaluation and hypothesis testing (Hair et al., 2019). Bootstrapping with 5,000 resamples assessed path coefficients and indirect effects at the 5% significance level. For two-tailed tests, statistical significance was evaluated using $t > 1.96$ and $p < 0.05$ (Hair et al., 2019).

Figure 1.

Conceptual framework



Source: Author's work (2026)

Common method bias

Potential common method bias was addressed through procedural safeguards, including anonymity and confidentiality assurances, clear wording, separate questionnaire sections, and attention checks (Podsakoff et al., 2012). Harman's single-factor test was conducted in SPSS to examine whether one factor dominated the measurement variance (Podsakoff et al., 2003). Inner-model VIF values were examined separately as predictor-collinearity diagnostics and were not treated as equivalent to the full-collinearity assessment proposed by (Kock, N. 2015).

Results

The sample comprised 350 women entrepreneurs operating micro (67%) and small enterprises (33%) in Indonesia (Appendix 1). Most were aged 26–35 (42%) or 36–45 years (33%), with bachelor's degrees and senior high school qualifications predominating. Businesses were concentrated in fashion and culinary activities, and a slight majority had operated for more than three years. Respondents were primarily based in Java (62%), with the remainder

distributed across other Indonesian regions (38%). WhatsApp Business, Instagram, Shopee, and TikTok Shop were the most widely used digital channels, reflecting multi-platform engagement.

Measurement model analysis

The measurement model assessed indicator reliability, convergent validity, and discriminant validity for Digital Literacy (DL), Trust (TR), and E-Commerce Sustainability (ECS). TR5 was removed before structural re-estimation because its focus on business continuity overlapped with ECS1. The refined Trust construct comprised four reflective indicators covering platform credibility, transaction security, data privacy, and payment reliability (Appendix 2). All indicator loadings exceeded 0.70, ranging from 0.901–0.913 for DL, 0.873–0.885 for TR, and 0.896–0.913 for ECS. AVE values also exceeded the 0.50 criterion reaching 0.822, 0.780, and 0.817, respectively, supporting convergent validity. All constructs satisfied the Fornell–Larcker criterion (Appendix 3). HTMT values ranged from 0.792 to 0.819, below the conservative threshold of 0.85 (Henseler et al., 2015). Their 95% bias-corrected bootstrap confidence intervals, based on 5,000 resamples, excluded 1.00 (Appendix 4), providing further support for discriminant validity in the refined model.

Structural model analysis

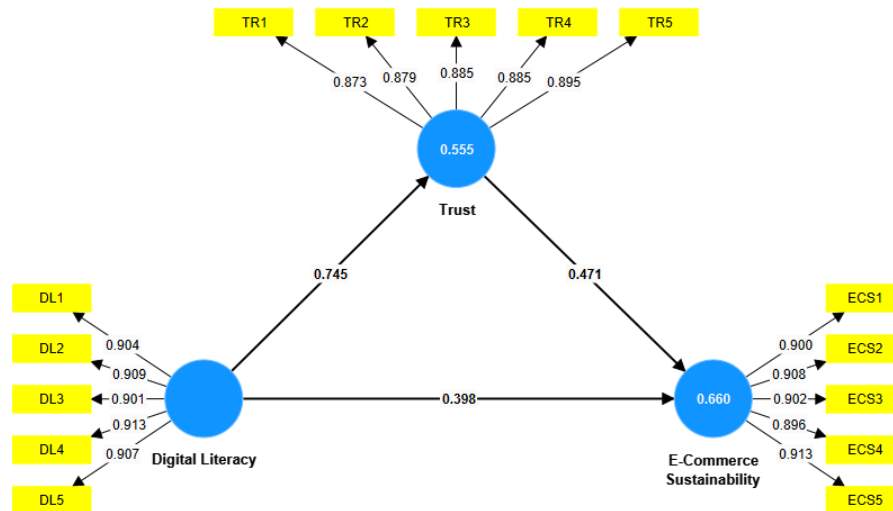
After confirming the adequacy of the measurement model, the structural model analysis was conducted to examine the relationships among the latent constructs. This stage focused on evaluating the model's explanatory power, predictive capability, and the significance of the hypothesized relationships.

The structural model generated using SmartPLS 4 is presented in Figure 2. The figure illustrates the relationships among Digital Literacy, Trust, and E-Commerce Sustainability, including the path coefficients and R-squared values for the endogenous constructs. As illustrated in Figure 2, Digital Literacy positively influenced Trust and E-Commerce Sustainability, while Trust also demonstrated a positive relationship with E-Commerce Sustainability. The model further indicates that Trust serves as a mediating construct in the relationship between Digital Literacy and E-Commerce Sustainability. The structural model assessment included evaluation of R-square values and model fit indices, as presented in Appendix 5 and Appendix 6.

Appendix 5 indicates that Digital Literacy explained 55.5% of the variance in Trust, while Digital Literacy and Trust jointly explained 66.0% of the variance in E-Commerce Sustainability. Furthermore, Appendix 6 shows that the SRMR value of 0.030 and NFI value of 0.961 indicate a good model fit.

Figure 2.

Structural model results



Note: DL = Digital Literacy; TR = Trust; ECS = E-Commerce Sustainability
Source: Author's work (2026)

The coefficient of determination (R-square) was used to assess the explanatory power of the endogenous constructs. According to (Hair et al., 2019), R-square values of 0.75, 0.50, and 0.25 are considered substantial, moderate, and weak, respectively. The results revealed that the R-square value for Trust was 0.555, indicating that Digital Literacy explained approximately 55.5% of the variance in Trust. This suggests a moderate explanatory power.

Meanwhile, the R-square value for E-Commerce Sustainability was 0.660, indicating that Digital Literacy and Trust jointly explained 66.0% of the variance in E-Commerce Sustainability. This finding demonstrates that the structural model possessed relatively strong predictive capability in explaining sustainable e-commerce practices among women entrepreneurs.

Model fit was also assessed using the Standardized Root Mean Square Residual (SRMR) and Normed Fit Index (NFI). (Hair et al. 2019) suggested that SRMR values below 0.08 indicate good model fit. The SRMR value obtained in this study was 0.030, confirming an excellent model fit. In addition, the NFI value reached 0.961, exceeding the recommended threshold of 0.90 and indicating that the proposed model demonstrated strong overall fit.

Structural model assessment

To evaluate the structural model, inner VIF values, path coefficients (β), t-statistics, p-values, 95% bias-corrected confidence intervals, effect sizes (f^2), and coefficients of determination (R^2) were examined (Hair et al., 2019).

Structural collinearity, hypothesis testing, and effect sizes

As shown in Appendix 7, all inner VIF values were well below the conservative threshold of 3.3 (1.000 and 2.249), confirming the absence of

structural multicollinearity. Digital Literacy showed a significant positive effect on Trust ($\beta = 0.745$, $t = 32.377$, $p < 0.001$) and E-Commerce Sustainability ($\beta = 0.749$, $t = 33.085$, $p < 0.001$). Furthermore, Trust had a significant influence on E-Commerce Sustainability ($\beta = 0.471$, $t = 10.694$, $p < 0.001$). The effect sizes (f^2) indicated medium to large contributions across structural paths ($f^2 = 0.207$ for Digital Literacy $\rightarrow$ E-Commerce Sustainability; $f^2 = 0.290$ for Trust $\rightarrow$ E-Commerce Sustainability).

Mediation analysis (indirect effects)

The mediating role of Trust was evaluated using bootstrapping with 5,000 subsamples. The specific indirect effect of Digital Literacy on E-Commerce Sustainability through Trust was statistically significant ($\beta = 0.351$, $t = 10.019$, $p < 0.001$). Because both direct ($\beta = 0.749$, $p < 0.001$) and indirect ($\beta = 0.351$, $p < 0.001$) effects were significant and shared the same positive direction, Trust serves as a complementary partial mediator in the relationship.

Explanatory and out-of-sample predictive power (r^2 and $pls\text{predict}$)

The model explained 55.5% of the variance in Trust ($R^2 = 0.555$, $R^2_{\text{adjusted}} = 0.554$) and 66.0% of the variance in E-Commerce Sustainability ($R^2 = 0.660$, $R^2_{\text{adjusted}} = 0.658$), indicating strong explanatory power. To evaluate out-of-sample predictive capability, a PLSpredict analysis was conducted with 10 folds and 10 repetitions (Shmueli et al., 2019). All $Q^2\text{predict}$ values for the indicator variables exceeded 0 (ranging from 0.403 to 0.517), confirming predictive relevance. Furthermore, comparing RMSE values between the PLS-SEM model and the Linear Model (LM) benchmark revealed that PLS-SEM yielded lower RMSE values for most endogenous indicators (e.g., ECS1: 0.732 vs. 0.735; ECS4: 0.764 vs. 0.773; TR2: 0.736 vs. 0.742). This demonstrates high out-of-sample predictive power.

Based on Appendix 8, the PLSpredict assessment, the model demonstrates high out-of-sample predictive power, as all indicators for the endogenous constructs of E-Commerce Sustainability (ECS1–ECS5) and Trust (TR1–TR4) yield $Q^2\text{predict}$ values strictly greater than zero, ranging from 0.403 to 0.517. Furthermore, an evaluation of prediction errors using the Root Mean Square Error (RMSE) metric reveals that nearly all indicator items—except TR1, which shows equivalent performance—yield lower error values under the PLS-SEM model than the naive linear model (LM) benchmark. Consequently, the proposed structural model is not only conceptually robust in explaining the direct and indirect relationships among variables, but also exhibits superior predictive accuracy when applied to novel data samples within the e-commerce context.

Hypothesis testing

Hypothesis testing was conducted using the bootstrapping procedure with 5,000 subsamples. The significance of the relationships among constructs was assessed using path coefficients (β), t-statistics, and p-values.

The structural model results are summarized in Appendix 7. Digital Literacy significantly influenced Trust ($\beta = 0.745$, $t = 32.377$, $p < 0.001$) and E-Commerce Sustainability ($\beta = 0.398$, $t = 9.171$, $p < 0.001$), supporting H1 and H2. Trust significantly influenced E-Commerce Sustainability ($\beta = 0.471$, $t = 10.694$, $p < 0.001$), supporting H3. Finally, the indirect effect of Digital Literacy on E-Commerce Sustainability via Trust remained statistically significant ($\beta = 0.351$, $t = 10.019$, $p < 0.001$), confirming partial mediation (H4).

Table 2.

Hypothesis testing results

Hypothesis	Relationship	β	t-Statistic	p-Value	Result
H1	DL $\rightarrow$ TR	0.745	32.377	0.000	Supported
H2	DL $\rightarrow$ ECS	0.398	9.171	0.000	Supported
H3	TR $\rightarrow$ ECS	0.471	10.694	0.000	Supported

Note: β = path coefficient

Source: Author's work (2026)

The results of the hypothesis testing are summarized in Table 2. The first hypothesis (H1) proposed that Digital Literacy positively influences Trust among women entrepreneurs. The results showed that the relationship between Digital Literacy and Trust was positive and statistically significant ($\beta = 0.745$, $t = 32.377$, $p < 0.001$). Therefore, H1 was supported. This finding indicates that women entrepreneurs with higher digital literacy tend to exhibit greater trust in digital platforms, online transactions, and e-commerce systems.

The strong relationship between Digital Literacy and Trust supports the Technology Acceptance Model (TAM), which suggests that technological understanding and perceived ease of use increase users' confidence in digital systems. Women entrepreneurs with stronger digital competencies are better able to understand online security mechanisms, evaluate digital information, and use digital business tools effectively. Consequently, these capabilities foster stronger trust toward digital business environments.

The second hypothesis (H2) examined the direct influence of Digital Literacy on E-Commerce Sustainability. The results demonstrated a positive and significant relationship between the two constructs ($\beta = 0.398$, $t = 9.171$, $p < 0.001$). Thus, H2 was supported.

This finding suggests that digital literacy directly contributes to the sustainability of e-commerce businesses. Women entrepreneurs with stronger digital skills are more adaptable to technological change, more capable of

implementing digital innovations, and more effective at managing online business operations. As a result, these competencies contribute to long-term business continuity and customer retention.

The third hypothesis (H3) proposed that Trust positively influences E-Commerce Sustainability. The findings confirmed a significant positive relationship between Trust and E-Commerce Sustainability ($\beta = 0.471$, $t = 10.694$, $p < 0.001$). Therefore, H3 was accepted.

This result indicates that trust plays a crucial role in sustaining e-commerce activities among women entrepreneurs. Greater trust in digital platforms, payment systems, and transaction security encourages business continuity, customer loyalty, and sustainable digital engagement. These findings are also consistent with Trust Theory, which emphasizes that trust is a fundamental mechanism in reducing uncertainty within online business environments.

Mediation analysis

The mediating role of Trust in the relationship between Digital Literacy and E-Commerce Sustainability was assessed using a bootstrapping indirect-effect analysis. According to (Hair et al. 2019), mediation is considered significant when the indirect effect demonstrates a t-statistic greater than 1.96 and a p-value below 0.05. The mediation analysis results are presented in Table 3.

Table 3.

Indirect effect analysis

Relationship	β	t-Statistic	p-Value	Result
DL $\rightarrow$ TR $\rightarrow$ ECS	0.351	10.019	0.000	Supported

Note: β = path coefficient

Source: Author's work (2026)

Table 3 demonstrates that Trust significantly mediates the relationship between Digital Literacy and E-Commerce Sustainability. Since both the direct and indirect effects were significant, the mediation is categorized as partial. The results indicated that the indirect effect of Digital Literacy on E-Commerce Sustainability through Trust was positive and statistically significant ($\beta = 0.351$, $t = 10.019$, $p < 0.001$). Therefore, H4 was supported.

The findings demonstrate that Trust partially mediates the relationship between Digital Literacy and E-Commerce Sustainability. Partial mediation occurs because both the direct effect of Digital Literacy on E-Commerce Sustainability and the indirect effect through Trust remained statistically significant.

This result suggests that digital literacy not only directly strengthens business sustainability but also indirectly enhances it by increasing trust in digital platforms and online transactions. Women entrepreneurs with strong digital competencies are more likely to trust e-commerce systems, which subsequently contributes to long-term business resilience and sustainable digital business practices.

From a theoretical perspective, these findings reinforce the integration of the Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM), and Trust Theory. Digital literacy functions as an enabling capability that shapes behavioural confidence and technology acceptance, while trust serves as a psychological mechanism that facilitates sustainable engagement in digital commerce.

In practice, the findings imply that improving women entrepreneurs' digital literacy should be a strategic priority for governments, educational institutions, and digital platform providers. Programs focusing on digital training, cybersecurity awareness, and platform transparency may significantly strengthen trust and improve the sustainability of women-owned online businesses.

Discussion

The role of digital literacy in building trust among women entrepreneurs

Digital literacy was positively associated with trust among women entrepreneurs in Indonesia. Greater digital competence may help entrepreneurs understand platform functions, assess payment security, and evaluate transaction procedures, making online business environments appear more manageable. These capabilities offer a plausible explanation for the observed association, although the study did not directly test changes in risk perception or exposure to fraud.

This interpretation draws on TAM's emphasis on perceived ease of use and usefulness in technology acceptance (Davis, 1989). Digital literacy may support these evaluations by reducing technical ambiguity, while Trust Theory provides a complementary explanation centred on knowledge, experience, and perceived reliability. The findings therefore position digital literacy as a cognitive resource associated with platform confidence, rather than evidence that competence necessarily guarantees security or eliminates structural barriers facing women entrepreneurs.

Digital literacy as a driver of e-commerce sustainability

Digital literacy was also directly associated with e-commerce sustainability. Within this study, sustainability concerns economic and operational continuity, including business survival, customer retention,

innovation, sales growth, and adaptability. The relationship suggests that digital competence remains relevant to these outcomes beyond its indirect association through trust.

Practical competencies may support marketplace management, social commerce, customer-information analysis, and responses to changing demand. These activities provide plausible operational pathways connecting literacy with sustainability, although their individual contributions were not separately estimated. Digital literacy can thus be understood as a business capability that supports the strategic use of digital channels.

This interpretation is compatible with TAM and TPB perspectives on technology engagement and perceived capability (Cheng, 2019). It also aligns with (Omri, 2026), who links digital competencies with entrepreneurial adaptability and resilience. The present findings extend this discussion to perceived business sustainability among women entrepreneurs, while leaving the temporal development of these relationships open to further investigation.

The influence of trust on e-commerce sustainability

Trust was positively associated with e-commerce sustainability. The refined measure captures entrepreneurs' confidence in platform credibility, transaction security, data protection, and payment reliability. It therefore concerns platform trust rather than customers' trust in individual sellers.

Confidence in these systems may make continued platform investment and operational engagement more acceptable under uncertainty. Reliable payments, accessible support, and credible governance are potential sources of reassurance, although the study did not evaluate their objective effectiveness or estimate their separate contributions. The observed relationship concerns entrepreneurs' perceptions of the transaction environment.

Trust-based perspectives similarly emphasise confidence under uncertainty in digital and financial relationships (Jalil et al., 2024; Mayer, 2008). Here, platform trust offers a psychological explanation for sustained engagement alongside digital competence. However, the findings do not establish that trust reduces actual transaction risk or leads to business formalisation.

The mediating role of trust in the relationship between digital literacy and e-commerce sustainability

Trust partially mediated the relationship between digital literacy and e-commerce sustainability, with significant direct and indirect associations. This pattern suggests that digital competence and platform confidence provide complementary explanations of perceived sustainability. Digital literacy may support informed assessments of platform credibility, security, and payment procedures, while trust may encourage entrepreneurs to maintain their

commitment to digital operations. This interpretation connects cognitive capability with psychological assurance without assuming that technical knowledge alone ensures continued participation. Risk reduction, resource investment, and behavioural commitment remain plausible explanations rather than separately tested mechanisms. The cross-sectional evidence supports an indirect statistical relationship, not a demonstrated sequence in which literacy first builds trust and subsequently improves sustainability. Reverse relationships are also possible: successful platform experience may strengthen both trust and perceived digital competence. Longitudinal evidence would be needed to distinguish these explanations.

Theoretical implications

The study brings complementary insights from TAM, TPB, and Trust Theory into a framework linking digital literacy, platform trust, and business sustainability. Its contribution lies in examining capability and confidence together in relation to continued entrepreneurial activity, extending attention beyond initial platform adoption. For TAM, digital literacy broadens attention from immediate evaluations of technology use to competencies relevant to ongoing business operations. TPB offers a complementary interpretation through perceived capability and sustained engagement. However, perceived usefulness, ease of use, and behavioural control were not directly measured, so the findings inform these perspectives rather than constitute a comprehensive test of their integration. For Trust Theory, the mediation results position platform confidence as an intervening correlate between digital capability and perceived sustainability. This distinction separates entrepreneurs' internal competencies from their evaluations of external digital systems. The contribution is bounded to women entrepreneurs in the sampled Indonesian businesses and to economic and operational sustainability.

Practical and policy implications

Platform operators should make protective arrangements visible and understandable through clear data-protection information, reliable payment procedures, accessible seller support, and transparent dispute resolution. The association between trust and sustainability suggests that these features warrant attention alongside platform usability, although their effectiveness requires direct evaluation. Capacity-building programmes should combine business applications with practical security skills, including identifying suspicious transactions, evaluating payment channels, protecting data, and verifying platform information. Training can connect these competencies to routine marketplace management and customer engagement rather than concentrating solely on onboarding. Public agencies, educational institutions, platforms, and business associations could jointly develop tailored training, affordable digital

tools, and continuing mentorship for women micro-entrepreneurs. Programme evaluation should assess whether these interventions improve practical competence, informed platform trust, and business continuity across different enterprise sizes and regions.

Conclusion, limitation, and future research

This study examined the relationships among digital literacy, platform trust, and e-commerce business sustainability among women entrepreneurs in Indonesia. Digital literacy was positively associated with trust and sustainability, while trust was positively associated with sustainability and partially mediated the literacy–sustainability relationship. These findings suggest that digital competence and platform confidence provide complementary explanations of economic and operational sustainability in women-led digital enterprises.

The cross-sectional design limits causal inference and temporal ordering, while purposive sampling precludes nationally representative conclusions. Self-reported measures also introduce potential reporting and common-method biases. Future research should use longitudinal designs and multiple data sources, incorporate digital financial literacy, platform quality, and social support, and distinguish economic sustainability from environmental and social outcomes. Comparisons across genders, ASEAN countries, enterprise sizes, and Java versus non-Java regions could clarify the contextual boundaries of these relationships.

Author contribution

Wenti Krisnawati: Conceptualisation and Research Design, Data Collection, Methodology, Writing Original Draft. **Tri Siwi Agustina:** Supervision, Validation, Writing Review and Editing. **I Gusti Ngurah Widya Hadi Saputra:** Data Collection and Analysis, Formal Analysis, Visualization, Editing and Layouting.

Declaration of interest

The authors declare that have no known competing financial interests or personal relationships that could have influenced the work reported in this paper.

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References

- AbdulKareem, A. K., & Oladimeji, K. A. (2024). Cultivating the digital citizen: Trust, digital literacy and e-government adoption. *Transforming Government: People, Process and Policy*, 18(2), 270–286. <https://doi.org/10.1108/TG-11-2023-0196>.
- Ahmed, H., Bajwa, S. U., Nasir, S., Khan, W., Mahmood, K., & Ishaque, S. (2026). Digital empowerment: Exploring the role of digitalization in enhancing opportunities for women entrepreneurs. *Journal of the Knowledge Economy*, 17(1), 466–497. <https://doi.org/10.1007/s13132-025-02658-0>.
- Ahmetaj, B., Kruja, A. D., & Hysa, E. (2023). Women entrepreneurship: Challenges and perspectives of an emerging economy. *Administrative Sciences*, 13(4), 1–20. <https://doi.org/10.3390/admsci13040111>.
- Albshaier, L., Almarri, S., & Hafizur Rahman, M. M. (2024). A review of blockchain's role in E-Commerce transactions: Open challenges, and future research directions. *Computers*, 13(1), 1–42. <https://doi.org/10.3390/computers13010027>.
- Alifiana, M. A., Hanafi, M. M., & Setiyono, B. (2025). Digital Entrepreneurship and Financial Performance: Innovation Adoption in Women-Led Indonesian MSMEs. In *Gender in Digital Entrepreneurship: Recent Issues in Emerging Countries*, 273–289. Springer. https://doi.org/10.1007/978-981-95-1148-8_18.
- Amornkitvikai, Y., Tham, S. Y., Harvie, C., & Buachoom, W. W. (2022). Barriers and factors affecting the e-commerce sustainability of Thai micro-, small-and medium-sized enterprises (MSMEs). *Sustainability*, 14(14), 1–28. <https://doi.org/10.3390/su14148476>.
- Chavarnakul, T., Xu, L. D., Bi, Z., Shankar, A., Dhiman, G., Viriyasitavat, W., & Hoonsopon, D. (2025). A Systematic Literature Review on Resilient Digital Transformation, Examining How Organizations Sustain Digital Capabilities. *HighTech and Innovation Journal*, 6(2), 687–722. <https://doi.org/10.28991/HIJ-2025-06-02-021>.
- Cheng, E. W. (2019). Choosing between the theory of planned behavior (TPB) and the technology acceptance model (TAM). *Educational Technology Research and Development*, 67(1), 21–37. <https://doi.org/10.1007/s11423-018-9598-6>.
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 13(3), 319–340. <https://doi.org/10.2307/249008>.
- Farida, U., Hermawan, I., & Hasyim, F. (2022). Pengaruh orientasi kewirausahaan terhadap kinerja inovasi dengan pembelajaran organisasi sebagai variabel mediasi (Studi kasus pada bisnis online di Jawa Tengah). *Business Management Analysis Journal (BMAJ)*, 5(1), 92–109. <https://doi.org/10.24176/bmaj.v5i1.6824>.
- Fjaeran, L., & Aven, T. (2021). Creating conditions for critical trust—How an uncertainty-based risk perspective relates to dimensions and types of trust. *Safety Science*, 133, 1–12. <https://doi.org/10.1016/j.ssci.2020.105008>.
- Gao, J., Siddik, A. B., Khawar Abbas, S., Hamayun, M., Masukujjaman, M.,

- & Alam, S. S. (2023). Impact of E-commerce and digital marketing adoption on the financial and sustainability performance of MSMEs during the COVID-19 pandemic: An empirical study. *Sustainability*, 15(2), 1–21. <https://doi.org/10.3390/su15021594t>.
- Hagger, M. S., Cheung, M. W.-L., Ajzen, I., & Hamilton, K. (2022). Perceived behavioral control moderating effects in the theory of planned behavior: A meta-analysis. *Health Psychology*, 41(2), 710–718. <https://doi.org/10.1037/hea0001151>.
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review*, 31(1), 2–24. <https://doi.org/10.1108/EBR-11-2018-0203>.
- Handoyo, S. (2024). Purchasing in the digital age: A meta-analytical perspective on trust, risk, security, and e-WOM in e-commerce. *Heliyon*, 10(8), 1–23. <https://doi.org/10.1016/j.heliyon.2024.e29714>.
- Henseler, J., Ringle, C. M., & Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science*, 43(1), 115–135. <https://doi.org/10.1007/s11747-014-0403-8>.
- International Finance Corporation (IFC). (2021). Women and E-commerce in Southeast Asia. IFC & London School of Economics. <https://www.ifc.org/en/insights-reports/2021/women-and-ecommerce-sea>.
- Jalil, F., Yang, J., Al-Okaily, M., & Rehman, S. U. (2024). E-commerce for a sustainable future: Integrating trust, green supply chain management and online shopping satisfaction. *Asia Pacific Journal of Marketing and Logistics*, 36(10), 2354–2370. <https://doi.org/10.1108/APJML-12-2023-1188>.
- Kevane, M., Ratan, A. L., & Dhar, D. (2024). Women-led small-and medium-sized enterprises during COVID-19: Examining barriers and opportunities. *Feminist Economics*, 30(1), 244–277. <https://doi.org/10.1080/13545701.2023.2283477>.
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration*, 11(4), 1–10. <https://doi.org/10.4018/ijec.2015100101>.
- Linh, T. T., & Huyen, N. T. T. (2025). An extension of Trust and TAM model with TPB in the adoption of digital payment: An empirical study in Vietnam. *FI000Research*, 14, 1–41. <https://doi.org/10.12688/fi000research.157763.3>.
- Marsan, G. A., Litania, A., Sabrina, L. M., & Sanders, A. (2022). Empowering women entrepreneurs in Eastern Indonesia. *Economic Research Institute for ASEAN and East Asia, ERIA Research Project Report FY2022*, (13). <https://www.eria.org/uploads/media/Research-Project-Report/RPR-2022-13/Empowering-Women-Entrepreneurs-in-Eastern-Indonesia.pdf>.
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709–734. <https://doi.org/10.5465/amr.1995.9508080335>.
- Mayer, C. (2008). Trust in financial markets. *European Financial Management*, 14(4), 617–632. <https://doi.org/10.1111/j.1468->

036X.2008.00454.x.

- McKnight, D. H., Choudhury, V., & Kacmar, C. (2002). The impact of initial consumer trust on intentions to transact with a web site: A trust building model. *The Journal of Strategic Information Systems*, 11(3–4), 297–323. <https://www.sciencedirect.com/science/article/pii/S0963868702000203>.
- MSMES, O. W.L. (2023). *Multi-country study on women-led MSMEs, with a focus on microenterprises*. <https://www.v4w.org/uploads/documents/Multicountry-MSME-Study-June-2023.pdf>.
- Mudzakkir, M. F., Pujiyanto, W. E., Al-Mekhlafi, A. B. A., Fernandez, D., & Paraswati, A. D. (2026). Modeling digital capability as a game changer to enhance SME's performance. *BISMA (Bisnis dan Manajemen)*, 18(2), 252–281. <https://doi.org/10.26740/bisma.v18n2.p252-281>.
- Mufidah, E., & Eliyana, A. (2021). Improving MSMEs performance through entrepreneurial marketing, entrepreneurial networking, and product innovation. *BISMA (Bisnis dan Manajemen)*, 13(2), 108–120. <https://doi.org/10.26740/bisma.v13n2.p108-120>.
- Ng, W. (2012). Can we teach digital natives digital literacy? *Computers & education*, 59(3), 1065–1078. <https://www.sciencedirect.com/science/article/pii/S0360131512001005>.
- Ogbari, M. E., Folorunso, F., Simon-Ilogho, B., Adebayo, O., Olanrewaju, K., Efegbudu, J., & Omeregbe, M. (2024). Social empowerment and its effect on poverty alleviation for sustainable development among women entrepreneurs in the Nigerian agricultural sector. *Sustainability*, 16(6), 1–19. <https://doi.org/10.3390/su16062225>.
- Omri, A. (2026). How digital skills and IT capabilities drive SMEs' performance: The mediating role of entrepreneurial resilience. *Journal of the International Council for Small Business*, 1–22. <https://doi.org/10.1080/26437015.2025.2606368>.
- Palmié, M., Miehé, L., Oghazi, P., Parida, V., & Wincent, J. (2022). The evolution of the digital service ecosystem and digital business model innovation in retail: The emergence of meta-ecosystems and the value of physical interactions. *Technological Forecasting and Social Change*, 177, 1–10. <https://doi.org/10.1016/j.techfore.2022.121496>.
- Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 1–31. <https://doi.org/10.1037/0021-9010.88.5.879>.
- Podsakoff, P. M., MacKenzie, S. B., & Podsakoff, N. P. (2012). Sources of method bias in social science research and recommendations on how to control it. *Annual Review of Psychology*, 63(1), 539–569. <https://doi.org/10.1146/annurev-psych-120710-100452>.
- Raman, R., Subramaniam, N., Nair, V. K., Shivdas, A., Achuthan, K., & Nedungadi, P. (2022). Women entrepreneurship and sustainable development: bibliometric analysis and emerging research trends. *Sustainability*, 14(15), 1–31. <https://doi.org/10.3390/su14159160>.
- Salamzadeh, A., Salamzadeh, Y., & Hadizadeh, M. (2026). Digital

- empowerment of women entrepreneurs in emerging markets: Bridging the gender gap for environmental sustainability. *International Journal of Organizational Analysis*, 34(4), 1468–1494. <https://doi.org/10.1108/IJOA-01-2025-5120>.
- Setyonaluri, D., Nasution, G., Ayunisa, F., Kharistiyanti, A., & Sulistya, F. (2021). Social norms and women's economic participation in Indonesia. *Jakarta: Lembaga Demografi Faculty of Economics and Business Universitas Indonesia*. <https://investinginwomen.asia/wp-content/uploads/2023/05/Lembaga-Demografi-Faculty-of-Economics-and-Business-Universitas-Indonesia-Social-Norms-and-Womens-Economic-Participation.pdf>.
- Shatila, K., Aranega, A. Y., Soga, L. R., & Hernández-Lara, A. B. (2025). Digital literacy, digital accessibility, human capital, and entrepreneurial resilience: A case for dynamic business ecosystems. *Journal of Innovation & Knowledge*, 10(3), 1–12. <https://doi.org/10.1016/j.jik.2025.100709>.
- Sitaridis, I., & Kitsios, F. (2024). Digital entrepreneurship and entrepreneurship education: A review of the literature. *International Journal of Entrepreneurial Behavior & Research*, 30(2–3), 277–304. <https://doi.org/10.1108/IJEBR-01-2023-0053>.
- Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J.-H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing*, 53(11), 2322–2347. <https://doi.org/10.1108/EJM-02-2019-0189>.
- Tao, D., Fu, P., Wang, Y., Zhang, T., & Qu, X. (2022). Key characteristics in designing massive open online courses (MOOCs) for user acceptance: An application of the extended technology acceptance model. *Interactive Learning Environments*, 30(5), 882–895. <https://doi.org/10.1080/10494820.2019.1695214>.
- Ullah, M. S., Khan, M. K., Oglu, G. R. A., & Yasmin, T. (2025). The influence of digital literacy on consumer perceptions and e-commerce engagement. *Policy Research Journal*, 3(1), 92–104.
- UNCTAD. (2021). *COVID-19 and e-Commerce: A Global Review*. United Nations Conference on Trade and Development. https://unctad.org/system/files/officialdocument/dtlstict2020d13_en.pdf
- van Deursen, A. J. A. M., Helsper, E., & Eynon, R. (2014). Measuring digital skills: From digital skills to tangible outcomes project report. https://ris.utwente.nl/ws/portalfiles/portal/5139522/Measuring_Digital_Skills.pdf.
- World Bank. (2021). *Beyond Unicorns: Harnessing Digital Technologies for Inclusion in Indonesia*. World Bank Group. <https://hdl.handle.net/10986/35887>.
- Ye, J., & Kulathunga, K. M. M. C. B. (2019). How does financial literacy promote sustainability in SMEs? A developing country perspective. *Sustainability*, 11(10), 1–21. <https://doi.org/10.3390/su11102990>.
- Young, R., Wahlberg, L., Davis, E., & Abhari, K. (2020). Towards a theory of

digital entrepreneurship mindset: The role of digital learning aptitude and digital literacy. *MCIS 2020 Proceedings*. 7.
https://aisel.aisnet.org/amcis2020/culture_in_is/culture_in_is/7.

Zhao, L., Ye, J., & Shao, K. (2025). Digital empowerment and economic equity: Exploring the impact of household digital capability on income inequality. *Telecommunications Policy*, 49(2025), 1–16.
<https://doi.org/10.1016/j.telpol.2025.103038>.

Appendix 1.

Demographic profile of respondents (N = 350)

Variable	Category	Frequency (n)	Percentage (%)
Age	< 25 years	52	15%
	26–35 years	147	42%
	36–45 years	115	33%
	> 45 years	36	10%
Education level	Senior high school	105	30%
	Diploma / postgraduate	42	12%
	Bachelor degree	203	58%
Business sector	Fashion	119	34%
	Culinary	98	28%
	Beauty & cosmetics	63	18%
	Handicrafts	42	12%
	Other online retail	28	8%
Business size	Micro enterprise	235	67%
	Small enterprise	115	33%
Digital platform used	Whatsapp business	287	82%
	Instagram	266	76%
	Shopee	248	71%
	Tiktok shop	224	64%
Business experience	> 3 years	193	55%
	≤ 3 years	157	45%
Region	Java	217	62%
	Sumatra	63	18%
	Kalimantan	35	10%
	Sulawesi	21	6%
	Others	14	4%

Note: The table presents the demographic characteristics of respondents participating in the study

Source: Author's work (2026)

Appendix 2.

Reliability and convergent validity

Construct/item	Loading	Cronbach's Alpha	CR	AVE
Digital Literacy		0.946	0.959	0.822
DL1	0.904			
DL2	0.909			
DL3	0.901			
DL4	0.913			
DL5	0.907			

Trust		0.930	0.947	0.780
TR1	0.873			
TR2	0.879			
TR3	0.885			
TR4	0.885			
E-Commerce sustainability		0.944	0.957	0.817
ECS1	0.900			
ECS2	0.908			
ECS3	0.902			
ECS4	0.896			
ECS5	0.913			

Note: CR = Composite Reliability; AVE = Average Variance Extracted

Source: Author's work (2026)

Appendix 3.

Discriminant validity – Fornell-Larcker criterion

Construct	DL	ECS	TR
Digital literacy	0.907		
E-commerce sustainability	0.749	0.904	
Trust	0.745	0.768	0.883

Note: Diagonal values represent the square root of AVE

Source: Author's work (2026)

Appendix 4.

Discriminant Validity – HTMT ratio and bootstrap confidence intervals

Construct	HTMT value	95% Bootstrap confidence interval
E-commerce sustainability ↔ digital literacy	0.792	[0.725, 0.848]
Trust ↔ digital literacy	0.794	[0.718, 0.841]
Trust ↔ E-commerce sustainability	0.819	[0.749, 0.866]

Note: Heterotrait-Monotrait Ratio

Source: Author's work (2026)

Appendix 5.

R-square and model fit

Construct	R ²	Adjusted R ²
Trust	0.555	0.554
E-commerce sustainability	0.660	0.658

Note: R² = coefficient of determination

Source: Author's work (2026)

Appendix 6.

Model fit

Indicator	Value
SRMR	0.030
NFI	0.961

Note: SRMR = Standardized Root Mean Square Residual; NFI = Normed Fit Index.

Source: Author's work (2026)

Appendix 7.

Structural model results (direct effects)

Hypothesis / path	Path Coeff (β)	Sample mean (M)	STDEV
H1: Digital literacy -> Trust	0.745	0.746	0.023
H2: Digital literacy -> e-commerce sustainability	0.749	0.749	0.023
H3: Trust -> e- commerce sustainability	0.471	0.472	0.044

Note: Inner VIF values: Digital Literacy -> Trust = 1.000; Digital Literacy & Trust -> E-Commerce Sustainability = 2.249. f^2 for the single-predictor construct (Digital Literacy -> Trust) is not computed by SmartPLS as Trust has only one direct predictor

Source: Author's work (2026)

Appendix 8.

PLSpredict assessment results

Item	Q ² predict	PLS-SEM RMSE	LM RMSE	PLS- SEM MAE	LM MAE	Prediction error comparison
ECS1	0.452	0.732	0.735	0.591	0.590	PLS-SEM < LM
ECS2	0.421	0.783	0.788	0.634	0.634	PLS-SEM < LM
ECS3	0.457	0.748	0.751	0.611	0.612	PLS-SEM < LM
ECS4	0.427	0.764	0.773	0.616	0.621	PLS-SEM < LM
ECS5	0.517	0.736	0.740	0.602	0.604	PLS-SEM < LM
TR1	0.403	0.705	0.705	0.566	0.565	PLS-SEM = LM
TR2	0.411	0.736	0.742	0.580	0.583	PLS-SEM < LM
TR3	0.473	0.654	0.661	0.532	0.538	PLS-SEM < LM
TR4	0.434	0.698	0.706	0.549	0.553	PLS-SEM < LM

Source: Author's work (2026)