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# Knowledge Assets, I-Market Platform Utilization, and Consumer Satisfaction of Micro and Small Enterprises in Indonesia

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### Abstract

This study analyzes the influence of knowledge assets and I-Market platform utilization on consumer satisfaction of Micro and Small Enterprises (MSEs) in Indonesia. Data were collected through a survey of 140 MSE owners in Indonesia using a 1–5 Likert scale and analyzed using SEM- PLS (WarpPLS). The results show that knowledge assets and I-Market platform utilization have a positive and statistically significant effect on consumer satisfaction. The model explains 64% of the variance in consumer satisfaction, with I-Market utilization demonstrating a more dominant influence compared to knowledge assets. These findings emphasize the importance of a holistic approach that aligns human resource competency development with the acceleration of digital inclusion to build sustainable consumer loyalty within the digital economic ecosystem.

**Keywords:** knowledge assets, I-Market platform utilization, consumer satisfaction, Micro And Small Enterprises

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### INTRODUCTION

Micro and Small Enterprises (MSEs) are widely recognized as a fundamental pillar of economic development, particularly in developing countries (Ayalu et al., 2023; HAYATI & FATARIB, 2022; Teka, 2022). This sector plays a crucial role in creating jobs, alleviating poverty, and fostering dynamic entrepreneurial activity (Majeed et al., 2024; Wei & Duan, 2024). In Indonesia, the dominance of MSMEs in the business landscape contributes substantially to national economic growth (Fahrati et al., 2024; Hidayat et al., 2025). Nevertheless, many micro and small-scale business entities still face obstacles in achieving sustainable performance due to limited managerial capabilities and suboptimal resource management practices.

Within the Resource-Based View (RBV) framework, competitive advantage and superior organizational performance stem from the ownership of valuable, rare, difficult-to-imitate, and well-organized assets (Ayoub & Sopuru, 2026; Balcioğlu & Altındağ, 2026; Mielcarek & Dymitrowski, 2022). In the digital era, the focus of business strategy has shifted from physical assets toward the utilization of knowledge assets as the primary strategic instrument (Mele et al., 2024; Sandu et al., 2023; Trequattrini et al., 2022; Xu et al., 2024; Yaqub & Alsabban, 2023a). Knowledge assets, which encompass human capital and structural capital, have become critically important for SMEs as they serve as the cognitive foundation for understanding market needs and effectively managing customer interactions. Without adequate management of knowledge assets, SMEs will face difficulties in innovating their services, leading to a decline in customer satisfaction levels (Chaithanapat et al., 2022; K, 2026; Mustafa et al., 2026).

The importance of knowledge assets becomes increasingly evident when linked to efforts to enhance

customer satisfaction in a competitive digital market (Homburg & Wielgos, 2022; Martínez-Peláez et al., 2023; Miguel et al., 2022). Well-managed knowledge enables business owners to provide transparent product information, respond to complaints effectively, and build loyalty through personalized service. Customer satisfaction in the SME sector is not merely the result of a one-time transaction, but a reflection of entrepreneurs' ability to translate knowledge into tangible value perceived by customers (Chen & Liu, 2024). Therefore, strengthening intellectual capacity is an absolute prerequisite for SMEs to maintain their reputational capital amid the uncertainties of the digital market.

Alongside the strengthening of internal assets, the adoption of digital marketplace platforms or I-Market has significantly transformed SME operational practices in Indonesia (Almeman, 2024; Indra Gunawan et al., 2024). The utilization of digital platforms offers various strategic advantages, ranging from transaction efficiency, market reach expansion, to enhanced operational transparency (Y. Yang et al., 2023; Yaqub & Alsabban, 2023b). However, the effectiveness of using I-Market platforms in improving customer satisfaction is often hindered by technological resistance or the inability of business owners to integrate these digital tools into their core business processes (Thanigan et al., 2025). The ability of digital platforms to provide accurate transaction data, which, if managed properly, can support more consumer-oriented strategic decision-making (Nevi et al., 2025; Salah & Alzghoul, 2024; Thaichon & Quach, 2022).

Although the urgency of digitalization is increasing, previous literature tends to examine aspects of cognitive capabilities and technological infrastructure in a fragmented manner, where studies focusing on intellectual capital often overlook the crucial role of the I-Market platform as a strategic execution instrument (Ireland, 2024). Conversely, research on the adoption of financial technology and digital payment systems generally emphasizes system acceptance factors and technical barriers without integrating organizational knowledge assets as fundamental supporting determinants. The lack of simultaneous testing of the relationship between knowledge assets and the use of digital platforms creates a significant gap in the literature regarding how the complementary interaction of these two factors can optimize consumer satisfaction in the SME sector amid the dynamics of a developing economy. Research analyzing the combined influence of intellectual capital and digital transaction practices on marketing outcomes in developing economies remains scarce. Therefore, this study aims to investigate the influence of knowledge assets and the use of the I-Market platform on SME consumer satisfaction in Indonesia using a Partial Least Squares-Structural Equation Modeling (PLS-SEM) approach.

## **METHOD**

### **Research Subjects and Characteristics**

The subjects of this study are owners of Micro and Small Enterprises (MSEs) in Indonesia who actively operate their businesses and are directly involved in asset management and customer interactions. MSEs were selected as subjects because they are key actors in the digital ecosystem yet face significant challenges in managing intellectual capital and optimizing digital marketplace platforms. These characteristics make MSEs highly relevant for testing the relationship between knowledge assets, the utilization of I-Market platforms, and consumer satisfaction. The unit of analysis in this study is the business owner or manager, as these individuals play a central role in strategic decision-making and operational control of the company.

### **Research Approach and Design**

This study adopts a quantitative approach with an explanatory research design aimed at testing the causal relationship between knowledge assets, I-Market platform utilization, and MSME customer satisfaction. The explanatory design is considered appropriate because this study seeks to empirically validate hypotheses derived from the Resource-Based View (RBV) theoretical framework and previous empirical research.

### **Sampling Technique and Sample Size**

This study employs a non-probability sampling method using purposive sampling. This technique was chosen because the research does not aim to make statistical generalizations about a specific population, but rather to test theoretical relationships between variables based on respondents who meet

criteria relevant to the study's objectives. The criteria for selecting respondents are as follows:

- (1) The business has been in operation for at least one year.
- (2) The owner or manager is directly involved in asset management and business strategy.
- (3) The business has actively utilized digital marketplace platforms (I-Market) such as Shopee, Tokopedia, or TikTok Shop.

The sample size was determined based on methodological recommendations for Partial Least Squares–Structural Equation Modeling (PLS-SEM). According to (Hair & Alamer, 2022), sample size requirements in PLS-SEM depend on model complexity and the number of indicators. Given that the research model consists of two exogenous constructs and one endogenous construct with a reflective indicator, a sample size in the range of 100–150 respondents is considered sufficient to produce stable and reliable model estimates.

### Variables and Measurement

This study involves three latent constructs: knowledge assets, I-Market platform utilization, and MSME customer satisfaction. All constructs were measured using a five-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree). The measurement indicators were adapted from previous empirical studies and tailored to the context of MSMEs in Indonesia.

Table 1. Measurement of Research Variables

| Variable                             | Code | Indicator                                                                      | Source                                                    |
|--------------------------------------|------|--------------------------------------------------------------------------------|-----------------------------------------------------------|
| <b>Knowledge Assets</b>              | KA1  | Owner's understanding of intellectual assets and internal business potential.  | (Dinu et al., 2023; Hanifah et al., 2022)                 |
|                                      | KA2  | Ability to transform information into service innovation.                      |                                                           |
|                                      | KA3  | Effectiveness of human and structural capital management.                      |                                                           |
|                                      | KA4  | Utilization of knowledge assets to support strategic decision-making.          |                                                           |
| <b>I-Market Platform Utilization</b> | IM1  | Optimal utilization of digital platform features for sales activities.         | (Hayashi & Arai, 2024; H. Yang et al., 2026)              |
|                                      | IM2  | Intensity of customer interaction via digital marketplace platforms.           |                                                           |
|                                      | IM3  | Utilization of platform transaction data for business performance evaluation.  |                                                           |
|                                      | IM4  | Efficiency of product communication and distribution through digital channels. |                                                           |
| <b>Consumer Satisfaction</b>         | CS1  | Consumers demonstrate repurchase intention through the digital platform.       | (Dandis et al., 2026; Kim & Yum, 2024; Miao et al., 2022) |
|                                      | CS2  | Consumers provide positive reviews and constructive feedback.                  |                                                           |
|                                      | CS3  | Digital services meet or exceed consumer expectations.                         |                                                           |
|                                      | CS4  | Maintenance of reputation capital and consumer trust in online environments.   |                                                           |

Source: Adapted from prior empirical studies and adjusted to the context of micro and small enterprises.

Based on the theoretical framework and prior empirical studies, the conceptual model illustrating the relationships among financial literacy, cashless payment usage, and financial performance is presented in Figure 1

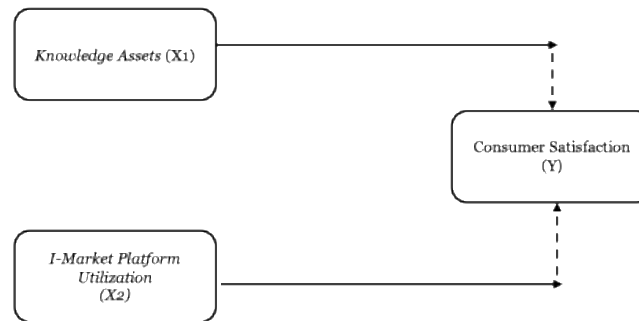


Figure 1. Conceptual Framework

### Data Collection and Analysis Technique

Data was collected via an online questionnaire distributed to MSME owners who are members of entrepreneurship communities and MSME networks actively involved in digital platform practices. Respondents were asked to provide responses based on their actual experiences in operating their businesses. Data analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS software. PLS-SEM was selected due to its suitability for analyzing complex relationships among latent variables, minimal requirements regarding data normality, and its applicability to studies with moderate sample sizes. The data analysis procedure consisted of two main stages:

1. Evaluation of the Measurement Model (Outer Model) by assessing indicator reliability, internal consistency reliability, convergent validity, and discriminant validity using criteria such as outer loadings, average variance extracted (AVE), and composite reliability (CR).
2. Evaluation of the Structural Model (Inner Model) by testing the hypothesized relationships between constructs by analyzing path coefficients, t-statistics, and p-values obtained through the bootstrapping procedure.

Model quality was further assessed using  $R^2$ ,  $Q^2$ , and  $f^2$  values to evaluate the model's predictive power and the contribution of each construct to the explanation of consumer satisfaction.

### RESULTS AND DISCUSSION

This study involved 140 owners of micro and small enterprises (MSEs) in Indonesia who are actively engaged in managing their business operations and digital strategy. In alignment with the study's objective to provide robust estimations, demographic characteristics were recorded and utilized as control variables within the structural model to ensure that the observed effects of Knowledge Assets and I-Market Utilization remain consistent across different organizational backgrounds. The detailed profile of the 140 respondents is presented in Table 2.

Table 2. Respondents' Characteristics

| Characteristics   | Category    | Frequency | Percentage |
|-------------------|-------------|-----------|------------|
| Gender            | Male        | 79        | 56.4%      |
|                   | Female      | 61        | 43.6%      |
| Age               | < 30 years  | 46        | 32.9%      |
|                   | 30–39 years | 59        | 42.1%      |
|                   | ≥ 40 years  | 35        | 25.0%      |
| Business Duration | 1–3 years   | 54        | 38.6%      |
|                   | 4–6 years   | 48        | 34.3%      |
|                   | > 6 years   | 38        | 27.1%      |
| Business Sector   | Trade       | 42        | 30.0%      |
|                   | Culinary    | 51        | 36.4%      |
|                   | Services    | 33        | 23.6%      |
|                   | Others      | 14        | 10.0%      |

Source: primary data (2026).

Overall, the respondents' profile reflects a wide diversity of business backgrounds in terms of age, experience, and industry sector. This research sample has a fairly balanced gender distribution and is dominated by entrepreneurs in the productive age range of 30–39 years with established business operations lasting between one and six years. Significant representation from the culinary and retail sectors, coupled with contributions from the service sector and other categories, ensures that the collected data captures the real dynamics of the MSME landscape in Indonesia. This inherent diversity strengthens the relevance and robustness of the analysis's findings in positioning knowledge assets and the utilization of the I-Market platform as crucial determinants of consumer satisfaction across various entrepreneurial contexts.

The measurement model was evaluated to establish indicator reliability and convergent validity. Based on the criteria established by Hair et al. (2019), indicators with outer loadings above 0.70 are considered reliable. Additionally, all constructs met the requirements for Average Variance Extracted (AVE > 0.50) and Composite Reliability (CR > 0.70).

Table 3. Measurement Model Results

| Variable              | Indicator | Outer Loading | Cronbach's Alpha | CR   | AVE  |
|-----------------------|-----------|---------------|------------------|------|------|
| Knowledge Assets      | KA1       | 0.81          | 0.84             | 0.89 | 0.67 |
|                       | KA2       | 0.79          |                  |      |      |
|                       | KA3       | 0.85          |                  |      |      |
|                       | KA4       | 0.82          |                  |      |      |
| I-Market Utilization  | IM1       | 0.86          | 0.83             | 0.88 | 0.65 |
|                       | IM2       | 0.77          |                  |      |      |
|                       | IM3       | 0.83          |                  |      |      |
|                       | IM4       | 0.80          |                  |      |      |
| Consumer Satisfaction | CS1       | 0.88          | 0.86             | 0.91 | 0.71 |
|                       | CS2       | 0.84          |                  |      |      |
|                       | CS3       | 0.81          |                  |      |      |
|                       | CS4       | 0.79          |                  |      |      |

Source: SmartPLS output (2026).

The empirical assessment of the measurement model confirms that all item loadings exceed the conservative threshold of 0.70, which signifies high indicator reliability. Moreover, the internal consistency of the constructs is well-established, as both Cronbach's Alpha and Composite Reliability (CR) values are significantly above the recommended 0.70 level. The convergent validity is further substantiated by Average Variance Extracted (AVE) values that consistently surpass the 0.50 requirement. Collectively, these statistical results demonstrate that the measurement model adheres to the rigorous criteria for both reliability and convergent validity.

Table 4. Fornell–Larcker Criterion

| Construct             | Knowledge Assets | I-Market Utilization | Consumer Satisfaction |
|-----------------------|------------------|----------------------|-----------------------|
| Knowledge Assets      | 0.82             |                      |                       |
| I-Market Utilization  | 0.65             | 0.81                 |                       |
| Consumer Satisfaction | 0.70             | 0.72                 | 0.84                  |

Source: SmartPLS output (2026).

The assessment of discriminant validity, as evidenced by the Fornell–Larcker criterion, indicates that the square root of the AVE for each latent variable (the diagonal elements) is consistently superior to the correlation coefficients between that construct and others in the model. This statistical alignment confirms that the constructs are sufficiently distinct and that the measurement model possesses satisfactory discriminant validity.

Table 5. HTMT Results

| Construct Pair                               | HTMT Value |
|----------------------------------------------|------------|
| Knowledge Assets – I-Market Utilization      | 0.76       |
| Knowledge Assets – Consumer Satisfaction     | 0.81       |
| I-Market Utilization – Consumer Satisfaction | 0.85       |

Source: SmartPLS output (2026).

All HTMT values are below the threshold of 0.90, confirming discriminant validity.

Table 6. R-square ( $R^2$ )

| Endogenous Variable   | R-square | R-square Adjusted |
|-----------------------|----------|-------------------|
| Consumer Satisfaction | 0.64     | 0.63              |

Source: SmartPLS output (2026).

The  $R^2$  value of 0.64 indicates that Knowledge Assets and I-Market Platform Utilization together explain 64% of the variance in the Consumer Satisfaction variable among SMEs in Indonesia. Based on the criteria of Hair et al. (2019), these results indicate that the model has moderate to substantial predictive power, while the remaining 36% is influenced by other factors outside the scope of this study.

Table 7. Effect Size ( $f^2$ )

| Relationship                                | f-square |
|---------------------------------------------|----------|
| Knowledge Assets → Consumer Satisfaction    | 0.28     |
| -Market Utilization → Consumer Satisfaction | 0.41     |

Source: SmartPLS output (2026).

The effect size results suggest that I-Market platform utilization has a large effect on consumer satisfaction, while knowledge assets have a moderate effect. Hypothesis testing was conducted using the bootstrapping procedure with 5,000 subsamples at a 5% significance level. The results are presented in Table 8.

Table 8. Hypothesis Testing Results

| Hypothesis | Relationship                                 | $\beta$ | T-statistic | P-value | Decision  |
|------------|----------------------------------------------|---------|-------------|---------|-----------|
| H1         | Knowledge Assets → Consumer Satisfaction     | 0.32    | 3.45        | 0.001   | Supported |
| H2         | I-Market Utilization → Consumer Satisfaction | 0.51    | 6.12        | 0.000   | Supported |

Source: SmartPLS output (2026).

The results indicate that both knowledge assets and I-Market platform utilization have positive and statistically significant effects on the consumer satisfaction of micro and small enterprises.

This study provides substantial empirical confirmation of the crucial role of synergy between intellectual capital and digital infrastructure in optimizing customer satisfaction in the Micro and Small Enterprise (MSE) sector in Indonesia. Data analysis results indicate that knowledge assets and the utilization of the I-Market platform simultaneously have a positive and significant influence on consumer satisfaction; this model explains 64% of the variance in consumer satisfaction, indicating strong predictive power within the context of Indonesia's digital economy. Theoretically, these findings validate the integration of the Resource-Based View (RBV) framework which positions knowledge as a valuable and difficult-to-imitate internal strategic asset for achieving competitive advantage and the Technology Acceptance Model (TAM), which explains how the utility of digital platforms enhances the effectiveness of business interactions through perceptions of ease of use and usefulness (Davis & Granić, 2024; Hossain et al., 2023).

Analysis of knowledge assets reveals a significant positive influence on consumer satisfaction. For the study population consisting of 140 SME owners dominated by those in the productive age group of 30–39 years and operating in the culinary and retail sectors knowledge assets serve as a cognitive foundation for transforming information into service innovations that meet customer expectations. These findings are strongly supported by previous studies confirming that knowledge management capabilities and problem-solving skills are key pillars of organizational performance in the SME sector (Al Koliby et al., 2025; Appietu-Ankrah et al., 2024; Migdadi, 2022; Rošulj et al., 2024). However, from a broader perspective, findings indicate that the impact of knowledge assets is often limited or moderated if not accompanied by adequate access to formal financing, which remains a major constraint for business actors, particularly in developing countries (Abdallah et al., 2025; Mertzanis & Houcine, 2024; Qader et al., 2022; Rashid et al., 2025).

Knowledge assets, which encompass human capital and structural capital, enable business owners to provide professional solutions that enhance perceived value in the eyes of consumers (AlQershhi et al., 2022; Yumazida et al., 2025). Entrepreneurs with a deep understanding of their internal potential tend to be more consistent in maintaining service quality and building customer trust through the provision of

transparent product information (Charisma et al., 2025). This study also indicates that the effectiveness of knowledge assets is closely linked to business owners' ability to manage transaction data to support consumer-oriented decision-making. The presence of strong knowledge assets helps MSMEs mitigate operational risks that often arise due to limitations in formal managerial infrastructure. Thus, knowledge acts as "cognitive capital" that bridges the gap between limited resource capacity and high market demands.

However, from a broader perspective, the impact of knowledge assets is often limited or constrained if not accompanied by adequate access to formal financing (Mertzanis & Houcine, 2024). In developing countries such as Indonesia, capital constraints remain a major structural barrier that can prevent entrepreneurs from translating service innovations derived from their intellectual capital into concrete operational practices (Fariz & Winarsih, 2025; Susanto et al., 2024; Tjahjadi et al., 2024). This aligns with findings indicating that even though entrepreneurs possess high financial literacy or knowledge, their business growth remains dependent on support from the external financial ecosystem. Without capital support, cognitive potential often stalls at the conceptual stage and fails to create a sustainable impact on customer satisfaction at a broader level (Demir & Demir, 2025; Rahardjo et al., 2024). Therefore, the effectiveness of knowledge assets cannot be separated from the availability of physical and financial resources as catalysts for innovation (Baig et al., 2025; Purnamawati et al., 2022; Shehzad et al., 2022; Vignieri & Santoni, 2025).

The use of the I-Market platform had a more dominant influence in this study. For MSMEs in Indonesia, the active use of digital marketplace platforms such as Shopee, Tokopedia, and TikTok Shop directly enhances transaction transparency and product communication efficiency. These findings align with the global literature, which emphasizes digitalization as a key driver of economic growth through expanded market reach and operational transparency (Kuzior et al., 2022; Reischauer et al., 2024; Turcan et al., 2023). The use of digital platforms allows SMEs to operate with lower transaction costs while providing convenient access for consumers. The dominance of this variable indicates that in today's digital economic ecosystem, the presence of digital platforms is no longer merely an option but a primary operational mechanism for achieving market satisfaction. The effectiveness of I-Market in enhancing consumer satisfaction also stems from its ability to reduce information asymmetry between sellers and buyers (Hong et al., 2026; Singha et al., 2026; C. Yang et al., 2022). The digital footprint generated by the platform facilitates real-time monitoring of customer feedback, allowing SMEs to make instant service improvements. The use of digital platforms also helps entrepreneurs manage inventory more accurately, thereby minimizing consumer disappointment due to product stock unavailability (Suali et al., 2024). In this context, digital platforms serve as "strategic execution tools" that facilitate the direct delivery of value to customers. The future sustainability of small businesses will depend heavily on how deeply they integrate these technological features into their core business processes.

Nevertheless, these findings regarding the dominance of digital platforms contradict research conducted in (Ebhotu et al., 2024) which reported that the use of certain digital innovations does not correlate significantly with business performance unless integrated with comprehensive financial management. This discrepancy is likely due to the maturity of Indonesia's digital market ecosystem, which is already more integrated with logistics and cashless payment systems. However, research findings from (Yadav et al., 2025) actually support this conclusion by stating that digital experience and skills are significant catalysts for the adoption of modern transaction systems. These regional contradictions underscore that the impact of technology is often contextual and depends on the readiness of supporting infrastructure in each economic region. This comparison offers insights that digitalization policies must account for the unique consumer behavior and readiness of local businesses.

On the other hand, the effectiveness of digital platforms in Indonesia is still hampered by resistance to innovation among some traditional businesses that have not yet fully adopted digital features (Kurniasari et al., 2023; Prasetyo, 2024). Some small business owners tend to use digital platforms merely as a formality without truly addressing consumer digital needs in a professional manner. Technical barriers, low digital literacy, and concerns about data security remain factors hindering the optimization of consumer satisfaction through digital channels (Joseph et al., 2025). This resistance often results in inconsistent consumer experiences, where the sophistication of the platform is not matched by prompt human response. Therefore, the acceleration of technology adoption must be accompanied by a shift in

the entrepreneurs' mindset to view technology as a long-term investment, not an operational burden. In an integrated and practical manner, this study emphasizes that consumer satisfaction within the SME digital ecosystem cannot be achieved in isolation but requires a complementary role between cognitive capacity and technological infrastructure. Knowledge assets provide entrepreneurs with the ability to interpret consumer data, while the I-Market platform provides the technical means to execute responsive and personalized service strategies (Games et al., 2024).

From an integrative and practical perspective, this study emphasizes that consumer satisfaction within the SME digital ecosystem cannot be achieved in isolation but requires a complementary interplay between cognitive capacity and technological infrastructure. Knowledge assets empower entrepreneurs to interpret consumer data, while the I-Market platform provides the technical means to execute responsive and personalized service strategies (Almeman, 2024; Yolcu, 2025). This synergy demonstrates that the benefits of digital technology will only reach their optimal point if business owners possess sufficient intellectual capital to manage the information generated by these platforms. Therefore, for the SME population in Indonesia, enhancing consumer satisfaction requires a holistic approach that aligns human competency development with the optimization of digital technology features to create superior and sustainable customer experiences. This synergy demonstrates that the benefits of digital technology will only reach their full potential if business owners possess sufficient intellectual capital to manage the information generated by these platforms. Therefore, for Indonesia's MSME sector, improving customer satisfaction requires a holistic approach that aligns the development of human competencies with the optimization of digital technology features to create superior and sustainable customer experiences.

Efforts to improve customer satisfaction must involve aligning the development of human competencies (knowledge assets) with the optimization of digital technology features (I-Market) (Larisang et al., 2025; Li et al., 2026). Entrepreneurs must begin to view knowledge management and the adoption of digital platforms as part of an integrated marketing strategy. For policymakers, digital inclusion promotion programs will be far more impactful when combined with initiatives to strengthen managerial literacy and provide broader access to funding for micro-entrepreneurs. Through this integrated strategy, MSMEs in Indonesia are expected to create superior, sustainable customer experiences and be able to compete in an increasingly digitized global market.

## CONCLUSION

This study concludes that strengthening knowledge assets and optimizing the use of digital marketplace platforms are fundamental factors in improving customer satisfaction in the micro and small business sector in Indonesia. Knowledge assets have proven to be a cognitive foundation that enables business owners to transform strategic information into service innovations that are more responsive to customer needs. Meanwhile, the use of the I-Market platform provides the critical technological infrastructure needed to create transactional efficiency, expand market reach, and enhance operational transparency all of which are highly valued by consumers in the digital age. These findings underscore that these two factors play complementary roles; the adoption of digital technology will not yield optimal results unless supported by business owners' intellectual capacity to manage data and make accurate managerial decisions. Therefore, the operational success of SMEs heavily depends on a holistic approach that aligns human resource competency development with the acceleration of digital inclusion to build stable consumer loyalty within the digital economic ecosystem. As a limitation, this study used a cross-sectional survey design and was limited to the Makassar region, so generalization of the results requires caution. Future research is recommended to test the model in cross-regional or cross-disciplinary contexts, using a longitudinal design, and incorporating contextual factors such as institutional support, a green campus climate, or access to incubation to enhance the model's explanatory power. Although this study makes a significant contribution, it has limitations due to the use of a cross-sectional research design, which restricts the ability to observe changes in technology adoption behavior and fluctuations in consumer satisfaction over a longer period of time.

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