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Digital Adoption and Knowledge Sharing for Sustainable MSME Performance: A Marketing Capability Perspective from Bali, Indonesia

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Abstract

Digitalization and knowledge sharing are important for MSMEs. This study examines relationships among knowledge sharing, digital adoption, innovation, government regulation, and sustainable MSME performance from a marketing capability perspective. Data from 103 MSME respondents in Bali, Indonesia, were analyzed using ordinary least squares regression and bootstrap tests with 10,000 resamples. Knowledge sharing ($\beta = .431$, $p = .001$) and digital adoption ($\beta = .338$, $p = .009$) positively predicted innovation, explaining 54.8% of its variance. Knowledge sharing ($\beta = .462$, $p < .001$), digital adoption ($\beta = .228$, $p = .019$), and government regulation ($\beta = .236$, $p = .010$) were significantly associated with performance. Innovation was not a significant predictor ($\beta = .022$, $p = .786$), and government regulation did not moderate the innovation-performance relationship ($\beta = .005$, $p = .935$). Bootstrap tests found no evidence of mediation. These findings highlight direct pathways linking knowledge sharing, digital adoption, and institutional support with MSME performance. The study advances a marketing capability perspective while acknowledging that the measure captures economic continuity rather than the full social and environmental dimensions of sustainability.

Keywords knowledge sharing, digital adoption, marketing capabilities, sustainable MSME performance, MSMEs.

1. Introduction

MSMEs face a dual strategic challenge: they must remain financially viable while continuously sustaining customer relevance in markets characterized by changing expectations, platform-based competition, and rapid digitalization. This makes marketing more than a promotional function. For resource-constrained firms, marketing is a capability system through which customer information is acquired, value propositions are communicated, relationships are maintained, and market opportunities are converted into revenue continuity. A sustainability perspective adds a longer time horizon to this logic. Sustainable marketing emphasizes enduring value creation for customers and stakeholders rather than short-term transaction maximization, while the present dataset captures the economic continuity dimension of that broader

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sustainability agenda through sustainable financial performance.

Recent research strengthens the case for connecting digital capability with marketing and sustainability. Wu et al. (2024) show that digital marketing strategy is linked to SME performance through organizational and managerial capabilities, while Bruce et al. (2023) demonstrate that social-media integration can improve SME performance and support business sustainability by extending customer interaction and market reach. Sustainable marketing research likewise indicates that integrating sustainability into marketing orientation can improve small-firm sustainability performance (Setini et al., 2026; Cuevas-Vargas et al., 2022). At a broader level, Costa Melo et al. (2023) emphasize that SME digital transformation should be evaluated beyond technology adoption alone and connected to sustainability outcomes. These studies suggest that digitalization creates value when firms convert technology into market access, customer engagement, information quality, and durable business relationships.

Knowledge sharing is central to this conversion process. In a marketing context, useful knowledge includes customer preferences, competitor moves, supplier information, pricing experience, channel performance, service problems, and lessons from previous campaigns. When such knowledge circulates across owners, employees, partners, and networks, MSMEs can respond more quickly to customer needs and reduce repeated decision errors. The knowledge-based view therefore provides a strong foundation for understanding knowledge sharing not only as an innovation input but also as a market-learning capability. Prior Bali evidence shows that knowledge sharing supports innovation culture, performance, and sustainable competitive advantage among SMEs (Putra et al., 2026; Arsawan et al., 2020), while broader SME research highlights the value of collaboration and knowledge exchange for innovation and performance (Tsai et al., 2022; Audretsch et al., 2023).

Digital adoption represents the second capability pathway. For MSMEs, digital technologies can support both back-office efficiency and customer-facing marketing activities through social media, online marketplaces, messaging platforms, digital payments, customer databases, online reviews, content distribution, and basic analytics. These applications reduce transaction frictions and can widen customer access at relatively low marginal cost. Indonesian evidence links technology adaptation and digital capabilities with sustainable MSME outcomes (Kurniawan et al., 2023; Nugraheni et al., 2025; Maryanti et al., 2026), and Bali-specific research also reports performance benefits associated with technology adoption (Lasmi & Putra, 2025). From a marketing capability perspective, the critical issue is therefore not digitalization per se, but whether firms can use digital tools to improve customer reach, market sensing, communication, and revenue capture.

Innovation is commonly positioned as the mechanism through which knowledge and technology create business value, but this assumption deserves empirical testing. Marketing value can emerge without a separately identifiable innovation outcome. Better customer information may improve pricing and service decisions; digital channels may increase reach and conversion; and digital payments or records may improve cash-flow visibility. These direct benefits can strengthen sustainable financial performance even when the firm does not launch

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a new product, process, or business model. This possibility is particularly relevant for MSMEs because formal innovation can require scarce resources and may generate returns only after commercialization delays. The present study therefore distinguishes direct capability effects from innovation-mediated effects rather than presuming that innovation is the only route to sustainable performance.

Government regulation adds an institutional dimension to sustainable market participation. Regulation can affect MSME marketing and performance through licensing certainty, digital infrastructure, consumer protection, payment systems, marketplace rules, financing access, standards, and public support program (Putra et al., 2026)s. A supportive regulatory environment can lower uncertainty and make market transactions more predictable, while burdensome or unclear requirements can increase compliance costs. The study therefore evaluates government regulation both as a direct predictor of sustainable financial performance and as a possible moderator of the innovation-performance relationship.

Using empirical data from 103 MSME respondents in Bali, this study asks whether knowledge sharing and digital adoption predict innovation; whether knowledge sharing, digital adoption, innovation, and government regulation explain sustainable financial performance; whether government regulation strengthens the innovation-performance relationship; and whether innovation mediates capability-to-performance effects (Madiarsa et al., 2026). The contribution is threefold. First, the study reframes knowledge sharing and digital adoption as capabilities with direct marketing relevance, especially for market learning, customer access, and relationship continuity. Second, it links these capabilities to the economic dimension of MSME sustainability while explicitly avoiding the unsupported claim that the available measure represents the full triple bottom line. Third, it shows that null mediation and moderation results can be theoretically informative by identifying a direct capability architecture in which knowledge, digitalization, and institutional support contribute to performance without innovation serving as the dominant transmission mechanism.

2. Literature Review

2.1 Knowledge sharing as a market-learning capability and innovation

Knowledge sharing is the process through which individuals and organizational units exchange information, experience, routines, and problem-solving knowledge for organizational use. The knowledge-based view treats this integration process as a source of advantage because strategically relevant knowledge is dispersed among people and networks (Grant, 1996). From a marketing capability perspective, the value of sharing becomes particularly visible when customer feedback, competitor intelligence, supplier knowledge, channel experience, and service lessons are converted into coordinated responses. In resource-constrained MSMEs, this circulation of market-relevant knowledge can reduce duplicated learning, accelerate problem identification, and expand the range of ideas available for product, service, communication, and channel experimentation.

Empirical SME research supports this logic. Arsawan et al. (2020) found that knowledge

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sharing was associated with innovation culture among Bali export SMEs, while Audretsch et al. (2023) show that collaboration with customers, suppliers, universities, and other partners contributes to SME innovation performance. Tsai et al. (2022) similarly emphasize knowledge exchange as a mechanism connecting open innovation and SME performance. When firms share customer and market knowledge more effectively, they enlarge the information base from which innovative responses can be developed. Accordingly:

H1. Knowledge sharing positively affects innovation.

2.2 Digital adoption as a customer-facing capability and innovation

Digital adoption refers to the organizational use of digital technologies for transactions, communication, information processing, customer interfaces, operational coordination, and managerial decision making. Dynamic capabilities theory suggests that technology creates value when firms use it to sense opportunities, combine resources, and reconfigure routines (Teece et al., 1997). In marketing, this includes the ability to use digital channels for customer acquisition, engagement, e-commerce, service interaction, marketplace participation, payment, and data-supported decisions. Wu et al. (2024) show that digital marketing strategy is closely tied to SME performance, and Bruce et al. (2023) demonstrate that social-media integration can support customer interaction, firm performance, and sustainability.

Evidence from Indonesia also indicates that technology adoption is increasingly connected to MSME performance and innovation. Kurniawan et al. (2023) found that technology adaptation supported sustainable performance, while Aisjah et al. (2023) linked technology adoption and collaborative knowledge creation to innovation and business performance. Bali-based evidence likewise points to financial-performance benefits from technology adoption (Lasmi & Putra, 2025). Digital tools can therefore lower the cost of experimentation, shorten customer-feedback cycles, and make market testing more accessible to small firms. Therefore:

H2. Digital adoption positively affects innovation.

2.3 Innovation and sustainable financial performance as an economic sustainability outcome

Innovation can strengthen sustainable financial performance when new products, services, processes, or business models improve differentiation, productivity, customer retention, pricing power, or cost efficiency. This logic is compatible with dynamic capabilities because innovation represents one route through which reconfigured resources are translated into market outcomes. Marketing research also treats innovativeness as an important contributor to digital marketing strategy and performance (Wu et al., 2024), while entrepreneurial marketing research links innovative market behavior with sustainable firm performance (Tolossa et al., 2024).

However, the present study uses sustainable financial performance as its outcome, which represents the economic continuity dimension of sustainability rather than a full environmental-social-economic measure. Innovation may not immediately improve this outcome because commercialization requires time, customer acceptance, complementary marketing capabilities, and the ability to appropriate returns. The innovation-performance relationship is therefore

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tested directly rather than assumed.

H3. Innovation positively affects sustainable financial performance.

2.4 Direct market-facing effects of knowledge sharing and digital adoption on sustainable financial performance

Knowledge sharing may contribute to sustainable financial performance independently of innovation. Shared market knowledge can improve pricing decisions, customer response, supplier negotiation, service recovery, promotion planning, financial control, and coordination. These mechanisms can raise customer retention and transaction quality without necessarily producing a formally observable innovation. The strong market-learning logic is consistent with evidence that knowledge mechanisms can influence both innovation and performance in Bali and other SME settings (Arsawan et al., 2020; Tsai et al., 2022).

Digital adoption may likewise influence financial outcomes through direct marketing and transaction mechanisms. Social media and marketplace participation can widen reach; digital communication can reduce response time; digital payment can lower transaction friction; customer databases can improve follow-up; and simple analytics can strengthen demand and cash-flow visibility. Prior evidence shows that digital marketing strategy is associated with SME performance (Wu et al., 2024), while social-media integration can support both performance and sustainability (Bruce et al., 2023). Indonesian studies similarly report direct links between technology adaptation, digital business capability, and MSME performance (Kurniawan et al., 2023; Nugraheni et al., 2025; Maryanti et al., 2026).

H4. Knowledge sharing positively affects sustainable financial performance.

H5. Digital adoption positively affects sustainable financial performance.

2.5 Government regulation as institutional support for sustainable market participation

Government regulation shapes the institutional conditions under which MSMEs reach customers, transact digitally, access finance, comply with standards, and build market trust. Regulation can create direct economic value through legal certainty, business formalization, digital public services, consumer protection, infrastructure, financing schemes, and clearer market rules. From an institutional perspective, these arrangements can reduce uncertainty and improve the reliability of resources required for business continuity. Indonesian evidence suggests that policy-related support and perceived policy effectiveness can enhance sustainable MSME performance (Kurniawan et al., 2023).

Regulation may also condition whether innovation becomes commercially valuable. Innovation should generate stronger returns when firms operate with clear standards, digital infrastructure, market access, financing channels, intellectual-property protection, and effective implementation support. Conversely, regulatory ambiguity can slow commercialization or raise compliance costs. This possibility motivates a moderation hypothesis in addition to the direct regulatory effect.

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H6. Government regulation positively affects sustainable financial performance.

H7. Government regulation positively moderates the effect of innovation on sustainable financial performance.

2.6 Innovation as a potential marketing-to-performance transmission mechanism

If knowledge sharing improves market learning and digital adoption expands customer-facing capability, both resources may increase innovation. If innovation then improves sustainable financial performance, it should transmit part of their effects to the outcome. This mediated sequence is theoretically plausible, but it is not the only mechanism. Digital reach, customer communication, operational information, and pricing or transaction improvements can generate direct financial value. The study therefore evaluates mediation empirically rather than treating it as a theoretical certainty.

H8. Innovation mediates the relationship between knowledge sharing and sustainable financial performance.

H9. Innovation mediates the relationship between digital adoption and sustainable financial performance.

The empirical framework retains the original five constructs. Knowledge sharing and digital adoption operate as capability antecedents; innovation is a potential mediating mechanism; sustainable financial performance is the measured economic-sustainability outcome; and government regulation acts as both a direct institutional predictor and a proposed moderator of the innovation-performance path. The marketing perspective is interpretive rather than a relabeling of the constructs. Specifically, knowledge sharing is interpreted as supporting market learning, while digital adoption is interpreted as enabling customer, channel, communication, transaction, and information capabilities. This preserves measurement validity while allowing the model to speak more directly to sustainable MSME marketing and long-term market viability.

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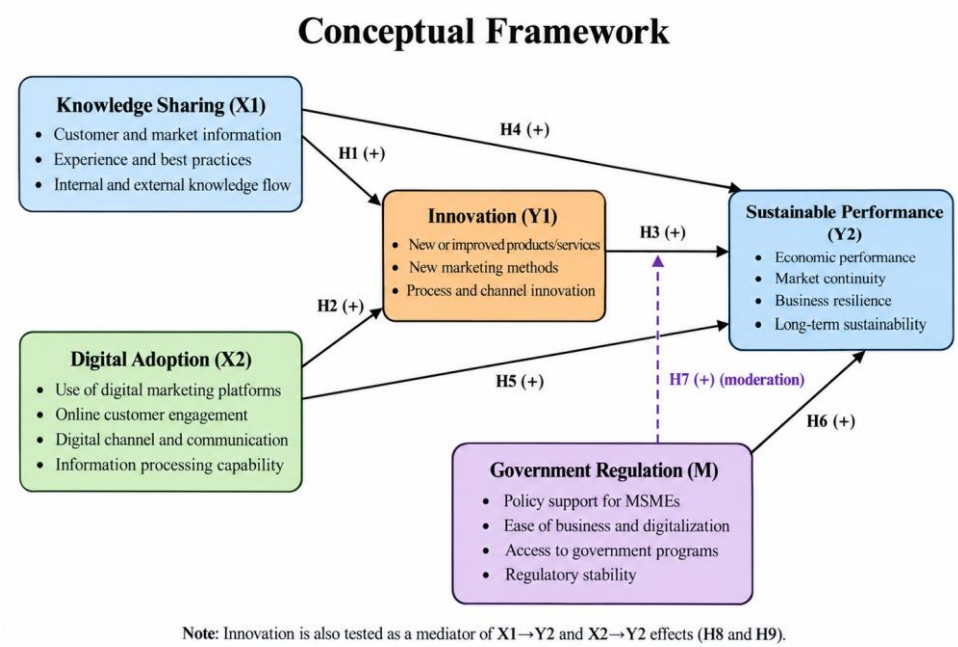

Figure 1. Conceptual framework of the study: Digital adoption and knowledge sharing for sustainable MSME performance from a marketing capability perspective.

3. Research Method

Research design and empirical setting. The study uses a quantitative, cross-sectional explanatory design. The empirical setting is Bali, Indonesia, and the unit of analysis is the MSME respondent. The supplied raw dataset contains 103 complete observations. The marketing-oriented revision does not rename or reconstruct the original latent variables. Instead, it interprets the existing knowledge-sharing and digital-adoption constructs through market-learning and customer-facing mechanisms supported by prior literature. Because the data file does not contain respondent-demographic columns, this manuscript does not fabricate sectoral, gender, age, firm-size, or respondent-role distributions. These characteristics should be inserted from the fieldwork record before journal submission if they were collected.

Measures and data structure. The raw dataset consists of 25 item-level indicators organized into five constructs, with five indicators for each construct: knowledge sharing (x1.1-x1.5), digital adoption (x2.1-x2.5), innovation (y1.1-y1.5), sustainable financial performance (y2.1-y2.5), and government regulation (m1-m5). Responses are coded on a 1-5 scale. Construct scores were calculated as the sum of their respective five items. The dataset also contains the innovation composite (YY), government-regulation composite (MM), standardized versions of these two variables (ZYY and ZM), and a standardized interaction term (INTERAKSI_Y1_M). No item-level missing values were identified in the 103 observations. Importantly, no separate sustainable-marketing-orientation, customer-engagement, brand-equity, environmental-performance, or social-performance construct is available in the supplied data; conclusions are therefore limited to the measured capability and sustainable-financial-performance variables.

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Reliability and collinearity diagnostics. Internal consistency was evaluated using Cronbach's alpha calculated from the raw item data. All five constructs exceeded .80, indicating satisfactory scale consistency for the present analysis. The supplied indicator-level regression files were used to inspect variance inflation factors (VIF). Across the 25 indicators, VIF values ranged from 1.515 to 3.639. At the construct level in the financial-performance regression, VIF values ranged from 1.353 to 4.251. These values remain below the commonly used threshold of 5.0. The auxiliary indicator regressions in the supplied SPSS output report $R^2 = 1.000$ because each construct total was regressed on the same indicators from which that total was arithmetically formed. Those perfect-fit values are therefore mechanical and are not interpreted as substantive model explanatory power; only the collinearity diagnostics from those auxiliary regressions are retained.

Statistical analysis. Two regression stages were estimated. First, innovation was regressed on knowledge sharing and digital adoption. Second, sustainable financial performance was regressed on knowledge sharing, digital adoption, innovation, government regulation, and the innovation × government-regulation interaction supplied in the dataset. The second-stage model corresponds to the SPSS output provided by the author. Coefficients are reported as unstandardized B and standardized β, with t statistics, p values, and 95% confidence intervals where available. The interaction contribution was evaluated through its coefficient and change in R^2 relative to the model without the interaction term. To evaluate mediation, 10,000 nonparametric bootstrap resamples were drawn from the raw dataset. The indirect effect was calculated as the product of the relevant first-stage coefficient (knowledge sharing or digital adoption → innovation) and the innovation coefficient in the sustainable-financial-performance equation excluding the interaction term but retaining government regulation. An indirect effect was treated as statistically supported only when the 95% percentile bootstrap interval excluded zero.

4. Finding and Discussion

Descriptive statistics and reliability. The five construct scores were concentrated around 20-21 on a possible five-item total range of 5-25, with standard deviations between 2.70 and 2.92. Internal consistency was satisfactory across all measures. Table 1 presents the descriptive statistics and Cronbach's alpha values derived from the raw respondent dataset.

Table 1. Descriptive statistics and reliability (N = 103)

Construct	Mean	SD	Cronbach's α	No. of items
Knowledge Sharing	20.56	2.700	0.832	5
Digital Adoption	20.83	2.915	0.895	5
Innovation	20.51	2.859	0.878	5
Sustainable Financial	20.80	2.774	0.851	5

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Performance				
Government Regulation	20.48	2.893	0.896	5

Correlations. The constructs were positively correlated. Knowledge sharing showed the strongest bivariate association with sustainable financial performance (r = .852), followed by digital adoption (r = .814) and government regulation (r = .783). Innovation correlated with sustainable financial performance at r = .695. These correlations indicate substantial shared variance, making multicollinearity diagnostics important. The construct-level VIF values in the multivariate model nevertheless remained below 5.

Table 2. Pearson correlations among study constructs

Construct	1	2	3	4	5
1. Knowledge Sharing	—				
2. Digital Adoption	0.847	—			
3. Innovation	0.718	0.704	—		
4. Government Regulation	0.774	0.764	0.771	—	
5. Sustainable Financial Performance	0.852	0.814	0.695	0.783	—

Predictors of innovation. The first regression model was significant, $F(2, 100) = 60.542$, $p < .001$, and explained 54.8% of the variance in innovation (adjusted $R^2 = 0.539$). Knowledge sharing had a positive effect on innovation ($B = 0.457$, $\beta = 0.431$, $t = 3.405$, $p = 0.001$). Digital adoption also had a positive effect ($B = 0.332$, $\beta = 0.338$, $t = 2.673$, $p = 0.009$). Thus, H1 and H2 were supported.

Table 3. Regression predicting innovation. Model $R^2 = 0.548$; adjusted $R^2 = 0.539$

Predictor	B	SE	β	t	p	95% CI for B
Knowledge Sharing	0.457	0.134	0.431	3.405	0.001	[0.191, 0.723]
Digital Adoption	0.332	0.124	0.338	2.673	0.009	[0.086, 0.578]

Sustainable financial performance model. The full sustainable-financial-performance regression was significant, $F(5, 97) = 67.991$, $p < .001$, with $R = 0.882$, $R^2 = 0.778$, and adjusted $R^2 = 0.767$. The standard error of estimate was 1.340, and the supplied SPSS output reported a Durbin-Watson statistic of 1.898. Together, the predictors explained 77.8% of the variance in sustainable financial performance. Knowledge sharing was the strongest standardized predictor ($B = .475$, $\beta = .462$, $t = 4.687$, $p < .001$), supporting H4. Digital adoption was also significant ($B = .217$, $\beta = .228$, $t = 2.380$, $p = .019$), supporting H5. Government regulation showed a positive direct effect ($B = .226$, $\beta = .236$, $t = 2.627$, $p = .010$), supporting H6. By contrast, innovation was not significant after the other predictors were controlled ($B = .021$, $\beta = .022$, t

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= .272, p = .786), so H3 was not supported. The innovation × government-regulation interaction was not significant (B = .005, β = .005, t = .082, p = .935). Adding the interaction increased R^2 by only 0.00002 ($\Delta R^2 \approx 0.002\%$); the corresponding change test was F(1, 97) = 0.007, p = 0.935. Therefore, H7 was not supported. This result indicates that, within this sample and operationalization, government regulation behaved as a direct predictor rather than as a boundary condition on the innovation-performance relationship.

Table 4. Multiple regression predicting sustainable financial performance (N = 103). $R^2 = 0.778$; adjusted $R^2 = 0.767$

Predictor	B	SE	β	t	p	95% CI	VIF	Decision
Knowledge Sharing	0.475	0.101	0.462	4.687	<.001	[0.274, 0.676]	4.251	H4 supported
Digital Adoption	0.217	0.091	0.228	2.380	0.019	[0.036, 0.399]	4.026	H5 supported
Innovation	0.021	0.077	0.022	0.272	0.786	[-0.132, 0.174]	2.771	H3 not supported
Government Regulation	0.226	0.086	0.236	2.627	0.010	[0.055, 0.398]	3.532	H6 supported
Innovation × Government Regulation	0.005	0.065	0.005	0.082	0.935	[-0.124, 0.135]	1.353	H7 not supported

Mediation tests. The bootstrapped indirect effect of knowledge sharing on sustainable financial performance through innovation was 0.009, with a 95% percentile bootstrap interval from -0.111 to 0.110. The interval included zero, so H8 was not supported. The corresponding indirect effect for digital adoption was 0.007, with a 95% bootstrap interval from -0.063 to 0.106; H9 was also not supported. These results are consistent with the second-stage regression, where innovation became statistically negligible after knowledge sharing, digital adoption, and government regulation were controlled. The empirical pattern therefore favors direct capability effects over the hypothesized innovation-transmission mechanism.

Table 5. Summary of hypothesis testing

Hypothesis	Relationship	Statistical evidence	Outcome
H1	Knowledge Sharing → Innovation	β = .431, p = .001	Supported
H2	Digital Adoption → Innovation	β = .338, p = .009	Supported
H3	Innovation → Sustainable Financial Performance	β = .022, p = .786	Not supported

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H4	Knowledge Sharing → Sustainable Financial Performance	β = .462, p < .001	Supported
H5	Digital Adoption → Sustainable Financial Performance	β = .228, p = .019	Supported
H6	Government Regulation → Sustainable Financial Performance	β = .236, p = .010	Supported
H7	Innovation × Government Regulation → Sustainable Financial Performance	β = .005, p = .935	Not supported
H8	Knowledge Sharing → Innovation → Sustainable Financial Performance	Indirect = 0.009; 95% CI [-0.111, 0.110]	Not supported
H9	Digital Adoption → Innovation → Sustainable Financial Performance	Indirect = 0.007; 95% CI [-0.063, 0.106]	Not supported

The results reveal a direct capability structure that is especially meaningful when viewed through a sustainable marketing lens. Knowledge sharing and digital adoption both support innovation, yet innovation does not carry their financial-performance effects. Instead, knowledge sharing and digital adoption remain significant direct predictors of sustainable financial performance, while government regulation contributes directly and its interaction with innovation is statistically negligible. This pattern suggests that MSMEs can generate durable economic value from better market knowledge, digital customer and channel access, and a more supportive institutional environment without requiring all benefits to pass through a distinct innovation outcome.

Knowledge sharing is the strongest standardized predictor of sustainable financial performance. From a marketing perspective, this finding highlights the value of market-learning routines. Bali MSMEs often operate in customer-intensive and networked markets where information about preferences, demand shifts, pricing, suppliers, visitor behavior, and platform trends can change quickly. Sharing such knowledge can improve customer response, service consistency, promotion decisions, and resource allocation. The result is consistent with Arsawan et al. (2020), who show that knowledge sharing contributes to innovation culture and business outcomes among Bali export SMEs, and with broader research emphasizing knowledge

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collaboration and stakeholder relationships in SME innovation and performance (Tsai et al., 2022; Audretsch et al., 2023).

Digital adoption also significantly predicts innovation and sustainable financial performance. The marketing interpretation is important because digital technologies can connect operational efficiency with customer-facing value. Social media, messaging, online marketplaces, digital payments, customer databases, and basic analytics can reduce the cost of customer acquisition and service, shorten feedback cycles, and increase transaction visibility. Wu et al. (2024) find that digital marketing strategy contributes to SME performance, while Bruce et al. (2023) show that social-media integration supports firm performance and sustainability through improved interaction and reach. The Bali result therefore supports the view that digital adoption should be evaluated not simply by the number of technologies installed, but by the extent to which those technologies improve market access, customer relationships, and revenue continuity.

Innovation, however, does not explain sustainable financial performance after knowledge sharing, digital adoption, and government regulation are controlled. This does not mean that innovation lacks strategic value. Innovation remains strongly correlated with sustainable financial performance ($r = .695$), and knowledge sharing plus digital adoption explain 54.8% of innovation variance. The multivariate result instead suggests that innovation shares substantial variance with the broader capabilities that enable it. For MSMEs, the financial contribution of digitalization and knowledge may arise directly through better customer decisions, communication, transactions, service, and coordination before or even without a separately identifiable innovation outcome.

The null mediation results reinforce this interpretation. The 10,000-resample bootstrap intervals for both indirect effects include zero, so the data do not support a sequence in which knowledge sharing and digital adoption must first create innovation before contributing to financial sustainability. The marketing implication is that capability value can be realized through parallel routes. A firm may use customer information to improve targeting or pricing, or use digital platforms to widen reach and strengthen retention, without those actions being perceived as innovation. This finding qualifies innovation-centered models and supports a more plural view of how marketing-related capabilities generate sustainable economic outcomes.

Government regulation shows a significant positive direct association with sustainable financial performance. In marketing terms, supportive institutions can reduce frictions that surround market participation, including licensing, payments, digital infrastructure, consumer trust, financing, standards, and access to formal marketplaces. This is consistent with institutional arguments and Indonesian evidence that policy support matters for sustainable MSME performance (Kurniawan et al., 2023). For Bali MSMEs, policy quality may therefore contribute to sustainability by improving the general conditions under which firms reach customers and conduct transactions rather than only by increasing the returns from innovation.

The moderation result is clearly null. The innovation × government-regulation coefficient is .005 with $p = .935$, and its incremental explanatory contribution is practically zero. Government regulation therefore behaves as a direct enabling condition rather than a boundary

condition on the innovation-performance path in this sample. Future research should test more specific regulatory dimensions that are closer to marketing commercialization, such as marketplace governance, digital-payment support, consumer-data rules, product certification, tourism-linked procurement, advertising standards, intellectual-property protection, and targeted financing incentives.

Taken together, the findings support what can be termed a direct sustainable marketing capability architecture. Knowledge sharing supplies market intelligence and organizational learning; digital adoption enables customer, channel, transaction, and information connectivity; and government regulation provides institutional predictability. These factors are associated directly with sustainable financial performance. This interpretation is consistent with recent sustainable marketing research showing that marketing practices and orientations can contribute to longer-term SME performance (Cuevas-Vargas et al., 2022; Tolossa et al., 2024). At the same time, the present study remains empirically narrower than full sustainable marketing research because the supplied data measure economic continuity, not environmental and social outcomes.

Theoretical Implications. First, the study extends the knowledge-based and dynamic-capabilities perspectives into a marketing capability interpretation. Knowledge sharing and digital adoption are not only internal resources for innovation; they also support market sensing, customer interaction, channel access, transaction quality, and relationship continuity. This helps explain why both variables retain significant direct relationships with sustainable financial performance even when innovation is controlled. The result is consistent with digital marketing research that treats digital strategy as a capability configuration rather than a stand-alone technology investment (Wu et al., 2024). Second, the findings refine the sustainability interpretation of MSME performance. Sustainable marketing literature increasingly emphasizes economic, social, and environmental value and shows that sustainable marketing orientation can improve small-firm sustainability performance (Cuevas-Vargas et al., 2022). The current study contributes to this conversation only on the economic dimension because the available dependent variable is sustainable financial performance. This boundary is analytically useful: it distinguishes evidence for long-term economic viability from broader claims about triple-bottom-line sustainability and identifies a clear agenda for future measurement. Third, the study identifies two theoretical boundary conditions. Innovation is not an inevitable mediator between capability and sustainable performance, and government regulation is not necessarily a moderator of innovation returns. Instead, the data support parallel direct effects. This pattern suggests that SME marketing and sustainability models should compare alternative transmission mechanisms, such as market orientation, customer engagement, digital marketing capability, brand equity, relationship quality, and market performance, rather than imposing innovation as the default pathway. It also suggests that institutional quality may create broad market value directly while innovation-specific policy instruments are required to alter the marginal return to innovation.

Managerial and Policy Implications. For MSME managers, the strongest practical message is to treat knowledge sharing as a market-learning routine. Customer complaints, reviews, repeat-

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purchase patterns, competitor activity, supplier information, pricing experience, and campaign results should be discussed systematically rather than remaining with individual owners or employees. Even simple weekly reviews, shared customer notes, sales debriefs, and supplier-feedback logs can make market knowledge reusable. The statistical dominance of knowledge sharing in the performance model suggests that better circulation of usable information can support both innovation and financial continuity. Digital adoption should similarly be managed as an integrated customer and market capability. Priority should be given to technologies that improve customer reach and conversion, such as social media, online marketplaces, messaging applications, digital payment, customer databases, simple CRM tools, online review management, and basic analytics. The objective is not digitalization for its own sake. Managers should connect each tool to a measurable customer or market outcome such as response time, lead generation, repeat purchase, transaction completion, customer retention, or cash-flow visibility. This approach is consistent with evidence that digital marketing strategy and social-media integration can support SME performance and sustainability (Wu et al., 2024; Bruce et al., 2023). Sustainability should also shape how value is communicated. Bali MSMEs can strengthen long-term customer relationships by aligning marketing claims with actual business practices, avoiding unsupported environmental or social claims, and communicating local, cultural, community, or resource-efficiency value transparently where these attributes genuinely exist. Policymakers can support this transition through regulatory simplification, digital public services, marketplace and payment infrastructure, financing access, certification support, data and consumer-protection guidance, and practical digital-marketing training. Because the moderation effect is not supported, broad regulation should not be assumed to increase innovation returns automatically. Targeted commercialization and market-access policies may be more effective for that purpose.

Limitations and Future Research. The study has several limitations. First, the dataset contains 103 observations and is cross-sectional, so the results should be interpreted as associations rather than definitive causal effects. Longitudinal or panel designs would better identify whether knowledge sharing and digital adoption precede changes in customer outcomes, innovation, and sustainable financial performance. Second, the supplied data file does not include demographic or firm-characteristic variables. The manuscript therefore cannot assess heterogeneity by sector, firm age, firm size, owner-manager characteristics, tourism exposure, business-to-business versus business-to-consumer orientation, or level of digital maturity. These distinctions are especially important for a marketing-focused interpretation because digital channels and customer relationships differ substantially across creative, tourism-related, trade, manufacturing, and service MSMEs in Bali. Third, the present revision deliberately does not relabel the measured constructs as digital marketing capability or sustainable marketing performance. The questionnaire contains general digital-adoption and sustainable-financial-performance constructs, and the available data do not include direct measures of social-media capability, customer engagement, market orientation, customer retention, brand equity, market share, environmental performance, or social performance. Future studies should add these variables explicitly. A stronger sustainable marketing model could combine customer-based

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outcomes with environmental and social indicators so that economic continuity can be evaluated alongside broader stakeholder value. Fourth, the government-regulation measure is broad. The null moderation result may reflect construct breadth rather than the absence of all institutional contingencies. Future research should disaggregate regulation into licensing simplicity, advertising and consumer-protection rules, digital infrastructure, marketplace governance, tax and credit incentives, certification, data governance, intellectual-property protection, and innovation-specific support. Future models could also test sustainable marketing orientation or digital marketing capability as mediators between digital adoption and multidimensional sustainability performance.

5. Conclusion

This study examines how knowledge sharing, digital adoption, innovation, and government regulation are associated with sustainable financial performance among 103 MSME respondents in Bali and reinterprets the empirical model through a sustainable marketing capability perspective. Knowledge sharing and digital adoption significantly predict innovation, but innovation does not significantly predict sustainable financial performance after the other capabilities are controlled. Knowledge sharing, digital adoption, and government regulation have significant direct effects, while the innovation × government-regulation interaction is not significant. Bootstrap tests also show that innovation does not mediate the effects of knowledge sharing or digital adoption.

The central implication is that sustainable economic performance in this sample is linked more strongly to direct capability and institutional pathways than to an innovation-mediated mechanism. From a marketing perspective, knowledge sharing can strengthen market learning, digital adoption can expand customer and channel connectivity, and regulation can improve the conditions for market participation. These mechanisms can create financial value even when they do not culminate in a separately observable innovation outcome. The article therefore positions digital and knowledge capabilities as foundations for sustainable market participation while maintaining an important empirical boundary: the current evidence concerns sustainable financial performance, not the full environmental and social dimensions of sustainability.

Research Novelty Statement. The novelty of this study lies in combining empirical fidelity with a marketing-oriented sustainability interpretation. Rather than renaming the original constructs, the study demonstrates how knowledge sharing and digital adoption can be understood as market-relevant capabilities that support customer access, market learning, transaction quality, and long-term economic viability. Empirically, the model identifies a direct capability architecture: knowledge sharing and digital adoption significantly support innovation, yet their relationships with sustainable financial performance remain direct rather than innovation-mediated. Government regulation also operates as a direct performance factor rather than as a moderator. The study therefore contributes a boundary-condition argument to sustainable marketing and SME capability research: digital and knowledge resources may create sustainable economic value through direct market and operational mechanisms, while innovation is only one possible transmission pathway. This framing creates a clear next-step

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agenda for research that explicitly measures sustainable marketing orientation, digital marketing capability, customer-based market outcomes, and the environmental and social pillars of sustainability.

Data Provenance and Analytical Traceability. The numerical results in Sections 4-5 were reconstructed from the uploaded respondent dataset and SPSS output files. The raw data contain 103 observations and five five-item constructs. The reported final regression values reproduce the supplied SPSS results: R = .882, R^2 = .778, adjusted R^2 = .767, F = 67.991, Durbin-Watson = 1.898; Knowledge Sharing B = .475; Digital Adoption B = .217; Innovation B = .021; Government Regulation B = .226; and Innovation × Government Regulation B = .005. Reliability coefficients, the innovation-stage regression, and bootstrap indirect-effect intervals were calculated directly from the uploaded raw dataset.

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