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Gender Innovation as Strategic Dynamic Capability Integrating Intellectual Capital, Cost Management, and FinTech for MSME Sustainability

Etty Harya Ningsi[1], Putri Wahyuni[2]
[1]Universitas Battuta, Indonesia, [2]Sekolah Tinggi Ilmu Ekonomi Eka Prasetya, Indonesia
Correspondence: ettysumadin@gmail.com[1]

Abstract

This study examines the role of Gender Innovation as a strategic dynamic capability integrating Intellectual Capital, Strategic Cost Management, and Financial Technology (FinTech) to enhance MSME sustainability. Drawing on Dynamic Capability Theory and the Resource-Based View, the study conceptualizes Gender Innovation as an organizational capability that enables firms to sense emerging opportunities through diverse perspectives, seize these opportunities by integrating inclusive knowledge resources into strategic decisions, and transform organizational practices through adaptive managerial and technological innovation. Using a quantitative approach, data were collected from 100 MSMEs in Medan City, Indonesia, and analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The results show that FinTech adoption significantly influences MSME sustainability, highlighting digital financial integration as a key mechanism for long-term business viability. Gender Innovation significantly strengthens Intellectual Capital and Strategic Cost Management, indicating its role as a higher-order dynamic capability. In this study, Gender Innovation is conceptualized as a second-order construct integrating inclusive managerial practices and innovation orientation through a hierarchical component model. However, Intellectual Capital does not directly influence sustainability, suggesting that intangible resources require digital financial mechanisms to generate measurable outcomes. Strategic Cost Management contributes indirectly by facilitating FinTech adoption. This study contributes to the dynamic capability literature by positioning Gender Innovation as an integrative capability linking inclusivity, knowledge resources, cost efficiency, and digital finance to sustainable MSME performance.

KEYWORDS

gender innovation, dynamic capability, intellectual capital, strategic cost management, fintech.

Introduction

(ESG) principles have significantly altered how organizations design strategies to achieve long-term financial sustainability (Schaltegger & Burritt, 2018) (Akhtar et al., 2025; Bebbington et al., 2020). In this evolving environment, management accounting practices are no longer confined to cost reporting and control functions but are increasingly expected to support strategic decision-making, behavioral governance, and sustainable value creation (Chenhall & Moers, 2015). For micro, small, and medium enterprises (MSMEs), these challenges are particularly salient due to limited resources, high environmental uncertainty, and rapid technological change (Faizulayev, 2026; Kaur & Negi, 2025).

Prior studies emphasize the importance of financial technology adoption, intellectual capital development, and strategic cost management in improving MSME performance and resilience ;

(Davis, 1989; Nazaruddin & others, 2026; Setiawan & others, 2022; Yusliza & others, 2020).

However, empirical findings reveal that the outcomes of such initiatives are often inconsistent across firms. This suggests that technological infrastructure and accounting systems alone are insufficient to ensure sustainable performance (Asiaei & Jusoh, 2021; Bashir & Alsaeed, 2026). Emerging research in behavioral accounting highlights that sustainability-oriented decisions are deeply influenced by managerial cognition, values, and social dynamics embedded within organizations (Ajzen, 1991; Birnberg, 2011; Podsakoff & others, 2012). These behavioral perspectives emphasize that strategic organizational outcomes are often shaped by the interaction between individual cognition and collective organizational processes. Nevertheless, limited attention has been given to the role of gender-related innovation in shaping these strategic and behavioral mechanisms within sustainability-oriented MSME management.

While prior studies have widely examined gender diversity and inclusive leadership as determinants of organizational performance and innovation, these perspectives primarily emphasize demographic representation or leadership style rather than the capability of organizations to transform diversity into strategic innovation processes. In this study, the concept of Gender Innovation extends beyond traditional gender diversity by conceptualizing gender-related inclusivity as an organizational capability that mobilizes diverse perspectives to generate innovative managerial practices and strategic decisions.

Accordingly, Gender Innovation is positioned not merely as demographic diversity or inclusive leadership behavior but as a dynamic organizational capability that enables firms to integrate inclusive knowledge resources, adapt managerial processes, and support innovation-driven sustainability (Bass & Avolio, 2019). By framing gender innovation within the dynamic capability perspective, this study draws on the theoretical foundation of Dynamic Capability Theory, which emphasizes firms' ability to sense opportunities, seize emerging technologies, and transform organizational resources in response to environmental change (Teece, 2018; Teece & others, 1997). Through this perspective, gender inclusivity is reconceptualized as a strategic mechanism that strengthens intellectual capital development, cost management practices, and digital financial adoption within MSMEs (Lubis & others, 2024).

Gender innovation has predominantly been examined from a demographic or social inclusion perspective, focusing on representation and equality outcomes (Noland & others, 2016; Terjesen & others, 2016). While this perspective is important, it underestimates the strategic role of gender-related innovation in influencing managerial behavior, knowledge integration, and organizational adaptability (Alsos et al., 2019; Di Berardino & Antenozio, 2026; Hoobler & others, 2018). From a dynamic capability viewpoint, gender innovation may function as an adaptive organizational capability that enables firms to sense emerging opportunities, seize digital and financial innovations, and transform management accounting practices in response to ESG-driven environmental change (Teece, 2018; Teece & others, 1997). However, prior studies have largely examined these constructs in isolation, leaving limited empirical understanding of how gender innovation operates as a dynamic capability that integrates intellectual capital, strategic cost management, and financial technology to drive MSME sustainability (Sirmon & others, 2011).

Despite the growing literature on intellectual capital, strategic cost management, and financial technology in SME development, these factors are often examined independently in explaining organizational performance and sustainability outcomes (Haqqani & others, 2026). Research on intellectual capital highlights the role of intangible resources in enhancing competitiveness and innovation (Bontis, 1998), while strategic cost management studies emphasize the importance of cost structures and value-chain analysis in supporting strategic decision-making (Chenhall, 2007; Shank & Govindarajan, 1993). Similarly, financial technology research focuses on how digital financial tools improve access to finance, transparency, and operational efficiency for small businesses (Davis, 1989; OECD, 2019). However, previous studies rarely explain how managerial capabilities integrate these resources to support sustainable performance in MSMEs (Asiaei & Jusoh, 2021; Yusliza & others, 2020). In particular, gender innovation has largely been discussed from a social inclusion or diversity perspective rather than as a strategic organizational capability that shapes managerial behavior, decision-making processes, and resource orchestration (Alsos et al., 2019; Hoobler & others, 2018; Terjesen & others, 2016).

This limitation creates an important research gap. While intellectual capital and strategic cost management provide valuable organizational resources, their effectiveness in improving sustainability may depend on managerial capabilities that enable firms to integrate knowledge resources, financial discipline, and digital technologies (Dinh & others, 2026). From the perspective of dynamic capability theory, organizations require adaptive managerial capabilities to sense opportunities, seize emerging technologies, and transform internal processes in response to environmental change (Teece, 2018; Teece & others, 1997). Without such integrative capabilities, investments in intellectual capital or technological systems may not translate into sustainable organizational outcomes.

Therefore, this study conceptualizes gender innovation as a strategic dynamic capability that facilitates the integration of intellectual capital, strategic cost management, and financial technology to enhance MSME sustainability. By incorporating gender-inclusive managerial practices into the dynamic capability framework, this study extends prior research that primarily treats gender diversity as a demographic variable rather than a strategic organizational capability influencing resource reconfiguration and knowledge integration (Di Berardino & Antenozio, 2026; Hoobler & others, 2018).

The study focuses on MSMEs in Medan City, Indonesia, a context characterized by rapid digital transformation and increasing adoption of financial technology among small businesses, yet still facing managerial capability constraints and resource limitations. MSMEs in emerging economies often experience difficulties in integrating knowledge resources, financial management practices, and digital technologies simultaneously (Nazaruddin & others, 2026; Setiawan & others, 2022). By examining this setting, the research aims to explain how inclusive managerial innovation can strengthen resource integration and support sustainable business performance.

Unlike previous studies that examine gender diversity, intellectual capital, or financial technology independently, this research proposes an integrative framework that links gender innovation with knowledge resources, cost management capability, and digital financial adoption within a unified dynamic capability perspective. In doing so, the study provides a systematic extension of prior literature by demonstrating how gender-inclusive managerial practices can function as a capability that orchestrates organizational resources and technological adoption to support MSME sustainability.

Gender Innovation as Strategic Dynamic Capability

Gender innovation refers to the ability of organizations to leverage gender-related diversity, inclusion, and innovation in managerial roles and decision-making processes to enhance organizational outcomes (Terjesen & others, 2016). In MSME contexts, gender innovation extends beyond demographic representation and reflects adaptive managerial behaviors,

cognitive diversity, and inclusive leadership practices that influence strategic choices (Goleman & others, 2018).

From the dynamic capability perspective, gender innovation can be conceptualized as an organizational capability that enables firms to sense opportunities, seize resources, and transform internal processes in response to environmental change (Teece, 2018; Teece & others, 1997). Gender-diverse leadership has been associated with improved problem-solving, ethical awareness, and innovation orientation, which are critical for managing uncertainty in digital and ESG-driven environments. Therefore, gender innovation functions as a strategic dynamic capability that facilitates resource reconfiguration and sustainable value creation.

Intellectual Capital

Intellectual capital represents intangible organizational resources comprising human capital, structural capital, and relational capital (Bontis, 1998). Human capital reflects knowledge, skills, and competencies; structural capital includes systems, procedures, and organizational routines; while relational capital captures relationships with stakeholders.

In MSMEs, intellectual capital plays a pivotal role in enhancing competitiveness and sustainability, particularly when financial and physical resources are limited. Prior studies suggest that effective utilization of intellectual capital improves managerial decision-making, innovation capability, and long-term performance (Yusliza & others, 2020). Within a dynamic capability framework, intellectual capital serves as a critical resource base that can be reconfigured through strategic managerial actions, including gender innovation.

Strategic Cost Management

Strategic cost management refers to the use of cost information and control mechanisms to support strategic decision-making, efficiency, and competitive positioning (Shank & Govindarajan, 1993). Unlike traditional cost accounting, strategic cost management emphasizes value-chain analysis, cost drivers, and long-term sustainability considerations.

In MSMEs, strategic cost management enables managers to allocate resources efficiently, control operational risks, and support sustainability-oriented strategies. When integrated with behavioral and organizational capabilities, strategic cost management contributes not only to cost efficiency but also to strategic flexibility and performance sustainability (Chenhall, 2007).

Financial Technology (FinTech)

Financial technology encompasses digital financial tools and platforms that enhance financial transactions, reporting, access to finance, and decision-making processes (Davis, 1989). For MSMEs, FinTech adoption facilitates transparency, efficiency, and financial inclusion, particularly in resource-constrained environments (Senyo & others, 2022).

However, FinTech effectiveness depends on managerial capabilities and organizational readiness. Without adequate internal capabilities, FinTech adoption may fail to generate sustainable performance outcomes. Therefore, FinTech acts as an enabling mechanism that complements intellectual capital and strategic cost management when supported by dynamic organizational capabilities.

MSME Sustainability

MSME sustainability refers to the ability of enterprises to maintain financial viability, operational resilience, and long-term value creation amid economic, technological, and environmental challenges (Schaltegger & Burritt, 2018). Financial sustainability remains a core dimension, particularly for MSMEs operating in competitive and uncertain environments.

Sustainable MSME performance requires the integration of internal resources, management accounting practices, and digital technologies, supported by adaptive managerial capabilities such as gender innovation.

Research Hypothesis

Prior studies suggest that gender-diverse and inclusive managerial practices enhance knowledge sharing, learning processes, and organizational innovation (Noland & others, 2016; Terjesen & others, 2016). In MSMEs, where human and relational resources are critical, gender innovation may strengthen the development and utilization of intellectual capital by fostering diverse perspectives, ethical awareness, and collaborative decision-making. From a dynamic capability perspective, inclusive managerial practices enable firms to reconfigure intangible resources to adapt to environmental change (Teece, 2018; Teece & others, 1997). Therefore, gender innovation is expected to positively influence intellectual capital in MSMEs.

H1: Gender innovation as a strategic dynamic capability has a positive effect on intellectual capital in MSMEs.

Beyond intellectual capital, gender-inclusive leadership has been associated with more transparent, participatory, and forward-looking management practices, including budgeting and cost control (Birnberg, 2011; Chenhall, 2007). In resource-constrained MSMEs, gender innovation may improve strategic cost management by enhancing behavioral control, ethical considerations, and long-term orientation in cost-related decisions. These behavioral attributes are essential for transforming cost management from a purely operational tool into a strategic management accounting mechanism.

H2: Gender innovation as a strategic dynamic capability has a positive effect on strategic cost management practices in MSMEs.

Intellectual capital has been widely recognized as a key driver of organizational performance and sustainability, particularly in knowledge-intensive and dynamic environments (Bontis, 1998). Empirical studies indicate that MSMEs with stronger human, structural, and relational capital are better positioned to achieve financial sustainability through innovation, efficiency, and stakeholder engagement (Setiawan & others, 2022; Yusliza & others, 2020). As intellectual capital enhances firms' ability to generate value beyond physical assets, it is expected to contribute positively to MSME sustainability.

H3: Intellectual capital has a positive effect on MSME sustainability.

Strategic cost management enables firms to align cost structures with competitive strategies and long-term objectives (Shank & Govindarajan, 1993). In MSMEs, effective cost management supports financial discipline, resource efficiency, and risk mitigation factors that are crucial for sustainability in uncertain economic conditions. Prior research suggests that strategic cost management practices improve organizational resilience and financial performance when integrated with strategic planning and behavioral control mechanisms (Chenhall, 2007; Manurung & Ningsi, 2023).

H4: Strategic cost management has a positive effect on MSME sustainability.

Financial technology adoption has transformed how

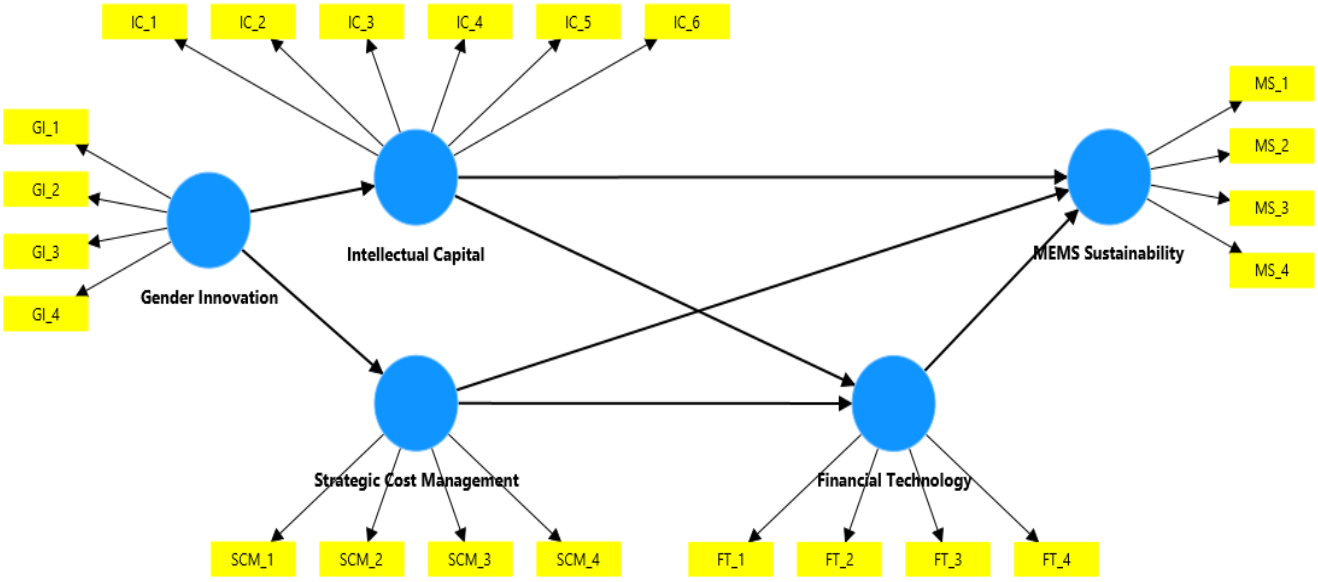

Figure 1. Framework Conceptual

MSMEs access finance, manage transactions, and process financial information. Studies grounded in the Technology Acceptance Model highlight that perceived usefulness and ease of use influence the successful adoption of digital financial tools (Davis, 1989). Empirical evidence shows that FinTech adoption enhances transparency, efficiency, and financial inclusion, thereby supporting MSME sustainability (OECD, 2019). Accordingly, FinTech is expected to have a direct positive effect on MSME sustainability.

H5: Financial technology adoption has a positive effect on MSME sustainability.

While intellectual capital and strategic cost management contribute to sustainability, their effectiveness increasingly depends on digital support systems. Financial technology can amplify the value of intellectual capital by enabling better data analytics, knowledge sharing, and decision-making processes. Similarly, FinTech enhances strategic cost management by improving real-time monitoring, budgeting accuracy, and cost control. Prior studies suggest that digital technologies strengthen the performance impact of management accounting practices (Chenhall & Moers, 2015).

H6: Financial technology strengthens the relationship between intellectual capital and MSME sustainability.

H7: Financial technology strengthens the relationship between strategic cost management and MSME sustainability.

This study develops a conceptual framework grounded in dynamic capability theory, positioning gender innovation as a strategic dynamic capability that enables MSMEs to integrate key internal and external resources. Gender innovation is proposed to influence intellectual capital and strategic cost management directly, reflecting its role in shaping inclusive managerial behavior, cognitive diversity, and adaptive decision-making processes. Furthermore, intellectual capital and strategic cost management are expected to enhance MSME sustainability by improving efficiency, innovation capability, and long-term value creation. Financial technology is incorporated both as a direct driver of sustainability and as a moderating mechanism that strengthens the impact of intellectual capital and strategic cost management on sustainability outcomes (Atashi Asemanjerdi & others, 2025). This framework emphasizes that MSME sustainability is not driven by technology or accounting systems alone, but by the interaction between behavioral capabilities, intangible resources, and digital financial infrastructure (see Figure 1).

Methods

This investigation adopted a quantitative orientation, gathering single-period survey data to statistically evaluate the interrelationships proposed within the study's theoretical structure. The quantitative approach was selected to examine relationships among gender innovation, intellectual capital, strategic cost management, financial technology adoption, and MSME sustainability within a dynamic capability perspective. A cross-sectional design was considered appropriate given the study's objective to capture current managerial practices and technological adoption patterns among MSMEs in a dynamic business environment.

However, because the data were collected at a single point in time, the study cannot establish strict causal relationships among variables; therefore, the findings should be interpreted as associational relationships rather than definitive causal effects. In this study, dynamic capability is inferred from respondents' perceptions of organizational practices related to gender-inclusive innovation, knowledge management, cost strategy, and financial technology adoption. While these perceptions provide useful insights into how MSMEs integrate resources and managerial practices, the cross-sectional design limits the ability to fully capture the evolutionary and process-based nature of dynamic capabilities. Consequently, the results should be interpreted with caution, and future studies are encouraged to employ longitudinal or time-lagged designs to better observe capability development over time (Hair & others, 2022; Teece, 2018).

Data were analyzed using Structural Equation Modeling–Partial Least Squares (SEM-PLS), which is suitable for theory development, complex research models with moderating effects, and relatively small sample sizes commonly found in MSME research contexts (Krejcie & Morgan, 1970; Ringle & others, 2020).

The population of this study comprised micro, small, and medium enterprise (MSME) owners and managers operating in Medan City, Indonesia. MSMEs were selected as the unit of analysis due to their strategic importance in the Indonesian economy and their vulnerability to digital, financial, and managerial constraints.

The participant selection process followed a judgment-based sampling approach, in which respondents were

Table 1. Operational Definitions and Measurement of Variables

Variable	Dimension	Measurement Indicators
Gender Innovation (GI)	Inclusive Leadership	Management encourages equal participation of men and women in strategic decision-making
		Gender diversity contributes to more innovative and ethical business decisions
	Adaptive Capability	Gender-inclusive practices help the firm adapt to digital and ESG-related changes
		Gender diversity improves problem-solving and strategic flexibility
Intellectual Capital (IC)	Human Capital	Employees possess adequate skills and knowledge to support business sustainability
		Continuous learning and skill development are encouraged in the business
	Structural Capital	The business has clear procedures and systems to support operations
		Accounting and information systems support managerial decision-making
	Relational Capital	The business maintains strong relationships with customers and suppliers
		External stakeholder relationships support long-term business growth
Strategic Cost Management (SCM)	Cost Planning	Cost information is used for long-term strategic planning
		Budgeting processes are aligned with business strategy
	Cost Control	Cost control practices help improve operational efficiency
		Cost analysis supports competitive pricing decisions
Financial Technology (FT)	Perceived Usefulness	FinTech improves efficiency in financial transactions
		Digital financial tools enhance financial transparency
	Ease of Use	FinTech applications are easy to learn and use
	Integration	FinTech is integrated with accounting and financial management systems
MSME Sustainability (MS)	Financial Sustainability	The business is financially stable in the long term
		The business can manage financial risks effectively
	Operational Resilience	The business can adapt to market and technological changes
		The business is able to sustain operations during economic uncertainty

deliberately selected based on their relevance to the research objectives and their ability to provide informed responses regarding managerial practices and digital financial adoption. This approach was considered appropriate because the study required respondents who possess direct knowledge of strategic decision-making, financial management, and technology utilization within MSMEs. In the context of small business research, owners and managers often act as the primary decision-makers; therefore, their perspectives provide the most reliable information regarding organizational capabilities and innovation practices. Consequently, the findings of this study should be interpreted within the boundary of MSMEs that meet the specified criteria in Medan City rather than generalized to all MSMEs in Indonesia.

The participant selection process followed a judgment-based sampling approach, whereby individuals were deliberately recruited according to clearly defined qualification parameters.

1. The respondent is the owner or manager directly involved in strategic and financial decision-making.
2. The MSME has been operating for at least two years, ensuring organizational stability.
3. The enterprise has experience using basic digital financial tools, such as mobile banking, e-wallets, accounting software, or digital payment platforms.

Based on these criteria, 100 MSMEs were selected as the final sample. This sample size satisfies the minimum requirements for SEM-PLS analysis, particularly for models involving multiple latent constructs and moderation effects.

Data were collected through a structured questionnaire distributed to MSME owners and managers. The survey was administered using both online and offline distribution methods to improve accessibility and response participation. Online questionnaires were distributed through digital platforms commonly used by MSME communities, while printed questionnaires were delivered directly to several MSME business locations in Medan City. Respondents included business owners and managerial personnel involved in financial and operational decision-making within their enterprises (Chen & others, 2025).

The study was conducted in Medan City, Indonesia, a region characterized by rapid MSME growth, increasing digital financial adoption, and diverse entrepreneurial structures. This context provides a relevant setting for examining the integration of gender innovation, management accounting practices, and financial technology in supporting MSME sustainability.

Empirical information was gathered through a survey instrument designed in alignment with relevant conceptual frameworks and prior validated studies. The measurement items were rated on a five-level response format indicating

degrees of agreement. The specification of constructs and their associated indicators is summarized in Table 1.

Because the data relied on self-reported responses collected through a single survey instrument, the study acknowledges the potential risk of common method bias. To minimize this risk, several procedural remedies were implemented during the data collection process. Respondent anonymity was assured to reduce social desirability bias, and the questionnaire items representing different constructs were organized into separate sections to reduce response consistency patterns. These procedural approaches help mitigate potential bias associated with self-reported survey data.

The study relied on firsthand data obtained from questionnaires distributed to MSME proprietors and managerial personnel. Prior to completing the survey, participants received a clear explanation of the research objectives and were informed that their involvement was entirely optional. Questionnaires were distributed both online and offline to accommodate respondents' accessibility and preferences.

Result and Discussion

The empirical model was examined using Partial Least Squares Structural Equation Modeling (PLS-SEM) supported by SmartPLS software. The evaluation process was implemented in two sequential stages. In the first stage, the adequacy of the measurement model was verified by examining the reliability of indicators through their loading values, testing internal consistency via Cronbach's alpha and composite reliability coefficients, assessing convergent validity using the Average Variance Extracted (AVE), and confirming discriminant validity through both the Fornell–Larcker approach and the Heterotrait–Monotrait (HTMT) ratio.

In the subsequent stage, the structural relationships among constructs were analyzed by estimating the path coefficients and performing hypothesis testing using bootstrapping resampling techniques. The model's predictive capacity was examined through the coefficient of determination (R^2), complemented by the evaluation of effect sizes (f^2) and predictive relevance (Q^2) to determine the magnitude and forecasting ability of the model. Furthermore, an interaction analysis was carried out to investigate whether financial technology enhances the influence of intellectual capital and strategic cost management on MSME sustainability.

Table 2 presents the descriptive statistics of the research variables. Overall, the mean values indicate that MSMEs in Medan City demonstrate moderate to high levels of gender innovation, intellectual capital utilization, strategic cost management practices, and financial technology adoption. The relatively low standard deviation values suggest limited variability among respondents, indicating a relatively homogeneous perception across MSMEs regarding sustainability-oriented managerial practices.

Measurement model evaluation was conducted to assess indicator reliability, internal consistency reliability, convergent validity, and discriminant validity.

evaluation. All indicator loadings exceed the recommended threshold of 0.70, indicating satisfactory indicator reliability. Convergent validity was assessed using the Average Variance Extracted (AVE), where values above 0.50 indicate that the construct explains more than half of the variance of its indicators. All AVE values reported in Table 3 exceed this threshold, confirming adequate convergent validity. Composite reliability (CR) values are also above the recommended benchmark of 0.70, demonstrating satisfactory internal consistency among the indicators.

To ensure reporting accuracy, the AVE and composite reliability values were rechecked directly using SmartPLS output. The recalculated AVE for MSME Sustainability is 0.675, which is above the recommended threshold of 0.50, confirming adequate convergent validity. Similarly, the composite reliability value exceeds 0.70, indicating satisfactory internal consistency.

Table 3 presents the results of the measurement model

It is important to note that Gender Innovation is conceptualized as a higher-order construct. Therefore, reliability and validity were primarily assessed at the first-order construct level before proceeding to the structural model evaluation.

Discriminant validity was examined using two complementary approaches: the Fornell–Larcker criterion and the Heterotrait–Monotrait (HTMT) ratio. The Fornell–Larcker results presented in Table 4 indicate that the square root of the AVE for each construct is greater than its correlations with other constructs, suggesting that each construct shares more variance with its own indicators than with other latent variables.

Furthermore, the HTMT values reported in Table 5 range between 0.58 and 0.83, which are below the conservative threshold of 0.85 (Henseler & others, 2015). This result confirms that all constructs are empirically distinct and that discriminant validity is established.

The structural relationships were subsequently examined to evaluate the proposed hypotheses. This assessment involved analyzing the estimated path coefficients along with their corresponding t-values and significance levels derived from bootstrapping resampling procedures.

Table 6 presents the results of the structural model and hypothesis testing. The findings indicate that gender innovation has a positive and statistically significant effect on both intellectual capital ($\beta = 0.819$, $p < 0.001$) and strategic cost management ($\beta = 0.583$, $p < 0.001$). These results suggest that gender-related innovative capabilities contribute to strengthening internal knowledge resources and improving cost management practices within MSMEs.

The results further show that intellectual capital and strategic cost management significantly influence financial technology adoption. Intellectual capital positively affects financial technology ($\beta = 0.316$, $p < 0.001$), while strategic cost management also demonstrates a significant positive relationship with financial technology ($\beta = 0.559$, $p < 0.001$). These findings indicate that both organizational knowledge resources and strategic cost management

Table 2. Descriptive Statistics of Research Variables

Descriptive Statistics					
	N	Minimum	Maximum	Mean	Std. Deviation
Gender_Innovation	100	4	20	15.44	3.373
Intellectual Capital	100	6	30	23.28	4.899
Strategic Cost Management	100	7	20	15.73	3.190
Finansial Technology	100	7	20	16.25	3.096
MSME_Sustainability	100	4	20	15.75	3.710
Valid N (listwise)	100				

Table 3. Outer Loadings, AVE, and Composite Reliability

Construct	Indicator	Outer Loading	AVE	CR
Gender Innovation	GI_1	0.830	0.747	0.887
	GI_2	0.796		
	GI_3	0.845		
	GI_4	0.717		
Intellectual Capital	IC_1	0.834	0.698	0.911
	IC_2	0.897		
	IC_3	0.872		
	IC_4	0.852		
	IC_5	0.828		
	IC_6	0.851		
Strategic Cost Management	SCM_1	0.898	0.675	0.838
	SCM_2	0.888		
	SCM_3	0.859		
	SCM_4	0.768		
Financial Technology	FT_1	0.904	0.638	0.809
	FT_2	0.912		
	FT_3	0.912		
	FT_4	0.922		
MSME Sustainability	MS_1	0.729	0.675	0.901
	MS_2	0.817		
	MS_3	0.873		
	MS_4	0.859		

Table 4. Fornell–Larcker Criterion

	Financial Technology	Gender Innovation	Intellectual Capital	MSME Sustainability	Strategic Cost Management
Financial Technology	0.799				
Gender Innovation	0.676	0.864			
Intellectual Capital	0.618	0.819	0.835		
Msme Sustainability	0.633	0.521	0.438	0.912	
Strategic Cost Management	0.730	0.583	0.540	0.364	0.822

practices support the adoption of digital financial technologies among MSMEs.

Regarding MSME sustainability, financial technology adoption shows a strong and statistically significant positive effect ($\beta = 0.734$, $p < 0.001$). However, the direct effect of intellectual capital on MSME sustainability is not statistically significant ($\beta = 0.109$, $p = 0.350$). Similarly, strategic cost management shows a negative coefficient and is not statistically significant at the 5% level ($\beta = -0.230$, $p = 0.075$). These results suggest that intellectual capital and strategic cost management do not directly determine MSME sustainability within the proposed model.

The findings instead indicate that the contribution of intellectual capital and strategic cost management to MSME sustainability may operate indirectly through financial technology adoption. This pattern suggests that financial technology functions as an important mechanism through which organizational knowledge resources and strategic cost practices translate into sustainability outcomes.

Regarding the moderating role of financial technology, the current analysis focuses on the structural relationships among the constructs. Because explicit interaction terms between financial technology and the predictor constructs are not included in the reported model, the moderation effect cannot be confirmed within the present analysis. Therefore, the results should be interpreted primarily in terms of direct structural relationships rather than moderation effects.

The coefficient of determination (R^2) shown in Table 7 suggests that the model provides substantial predictive power in explaining MSME sustainability outcomes. The Adjusted R^2 results indicate that the structural model demonstrates adequate explanatory power. Financial Technology shows an Adjusted R^2 value of 0.595, indicating that 59.5% of its variance is explained by Intellectual Capital and Strategic Cost Management. This value reflects moderate to strong predictive capability. Intellectual Capital has an Adjusted R^2 of 0.668, suggesting that Gender Innovation explains 66.8% of its variance, indicating strong explanatory power. MSME Sustainability presents an Adjusted R^2 of 0.411, meaning that 41.1% of its variance is explained by Financial Technology, Intellectual Capital, and Strategic Cost Management. This value is considered moderate. Strategic Cost Management records an Adjusted R^2 of 0.333, indicating that 33.3% of its variance is explained by Gender Innovation, reflecting moderate explanatory strength.

The empirical results indicate that Financial Technology (FinTech) has a positive and statistically significant effect on MSME Sustainability ($p = 0.000$). This finding confirms that digital financial solutions play a central role in strengthening long-term business viability. The adoption of FinTech enhances liquidity management, reduces transaction costs, expands access to credit, and increases operational transparency. From the perspective of Dynamic Capability Theory, FinTech represents a reconfiguration mechanism that enables firms to adapt to technological and market turbulence (Asad & others, 2025; Teece, 2018). MSMEs operating within digital ecosystems are more resilient because digital financial platforms reduce resource constraints and improve financial inclusion (Gomber & others, 2018). Empirical studies also demonstrate that digital financial inclusion significantly improves firm performance and sustainability outcomes(Huang & others, 2022). Thus, FinTech functions not merely as a technological tool, but as a strategic enabler transforming organizational capabilities into sustainable competitive advantage.

The results reveal that Gender Innovation significantly influences both Intellectual Capital ($p = 0.000$) and Strategic Cost Management ($p = 0.000$). These findings suggest that gender-based innovation operates as a higher-order dynamic capability that orchestrates knowledge assets and financial management strategies. The empirical evidence indicates that gender innovation strengthens organizational knowledge resources through its strong relationship with intellectual capital, while simultaneously improving financial discipline and cost efficiency through its significant effect on strategic cost management. This dual influence demonstrates that gender-inclusive managerial practices do not only promote diversity in representation but also enhance the firm's ability to coordinate knowledge assets and financial strategies in a complementary manner. Within the Resource-Based View (RBV), intellectual capital is a critical intangible asset that contributes to competitive advantage (Barney, 1991; Pedro & others, 2018). Gender-inclusive innovation fosters diversity in cognitive perspectives, which enhances knowledge integration and strategic adaptability

Table 5. HTMT Ratio

Constructs	Financial Technology	Gender Innovation	Intellectual Capital	MSME Sustainability	Strategic Cost Management
Financial Technology					
Gender Innovation	0.78				
Intellectual Capital	0.74	0.83			
MSME Sustainability	0.76	0.69	0.61		
Strategic Cost Management	0.81	0.72	0.68	0.58	

Table 6. Structural Model Results and Hypothesis Testing

	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics	P Values
Financial Technology -> MSME Sustainability	0.734	0.734	0.150	4.879	0.000
Gender Innovation -> Intellectual Capital	0.819	0.818	0.042	19.312	0.000
Gender Innovation -> Strategic Cost Management	0.583	0.581	0.071	8.178	0.000
Intellectual Capital -> Financial Technology	0.316	0.319	0.080	3.943	0.000
Intellectual Capital -> MSME Sustainability	0.109	0.107	0.117	0.934	0.350
Strategic Cost Management -> Financial Technology	0.559	0.557	0.081	6.883	0.000
Strategic Cost Management -> MSME Sustainability	-0.230	-0.230	0.129	1.779	0.075

Table 7. R-square and Adjusted R-square

	R-square	Adjusted R-square
Financial Technology	0.603	0.595
Intellectual Capital	0.671	0.668
MSME Sustainability	0.429	0.411
Strategic Cost Management	0.340	0.333

(Hoobler & others, 2018). Research also indicates that inclusive leadership and gender-diverse innovation practices improve organizational performance and strategic decision quality (Alsos et al., 2019).

Furthermore, the significant effect on Strategic Cost Management indicates that gender innovation enhances financial discipline and resource allocation efficiency. Diverse managerial perspectives often result in more balanced risk assessment and long-term financial planning. From a dynamic capability perspective, these results support the interpretation that gender innovation functions as a resource orchestration mechanism that enables firms to mobilize diverse knowledge, coordinate managerial resources, and align financial strategies in response to technological and market changes. Therefore, Gender Innovation acts as a dynamic orchestrator, aligning human capital and cost strategies to strengthen organizational readiness for digital transformation (Kurniawan & others, 2025).

Intellectual Capital significantly affects Financial Technology adoption (p = 0.000), indicating that knowledge-based resources are prerequisites for digital integration. MSMEs with stronger human capital and structured organizational knowledge are more capable of adopting digital financial platforms (Ningsi & others, 2025a). This finding aligns with research demonstrating that intellectual capital strengthens digital transformation capabilities (Asiaei & Jusoh, 2021). According to (Teece, 2018), sensing and seizing opportunities depend heavily on knowledge-based assets. Intellectual capital enhances firms' ability to recognize technological opportunities and integrate digital financial tools effectively. However, Intellectual Capital does not have a direct significant effect on MSME Sustainability (p = 0.350). This suggests that knowledge resources alone are insufficient to generate sustainable outcomes unless activated through operational or technological mechanisms. As (Pedro & others, 2018) argue, intellectual capital requires value conversion processes to influence financial and sustainability performance. In this model, FinTech appears to function as a mediating mechanism transforming intellectual capital into measurable sustainability impact (Masdupi & others, 2025; Ningsi & others, 2025b).

Strategic Cost Management significantly influences Financial Technology adoption (p = 0.000), but shows only a marginal effect on MSME Sustainability (p = 0.075). This indicates that cost efficiency enhances digital investment readiness but does not independently guarantee sustainability. Traditional strategic management emphasizes cost advantage as a competitive tool (Porter, 1985). However, in digitally driven economies, innovation capability often outweighs pure cost efficiency(Teece, 2018). Strategic Cost Management contributes indirectly by providing financial slack and resource flexibility necessary for digital adoption (Sirmon & others, 2011). Thus, cost management plays a supporting role in enabling technological transformation rather than directly driving sustainability.

This study contributes to Dynamic Capability Theory by conceptualizing Gender Innovation as a higher-order dynamic capability that orchestrates intellectual capital and cost management to enable digital transformation. Unlike traditional models that treat knowledge and cost efficiency as direct predictors of sustainability, this study demonstrates that digital financial integration is the primary pathway toward MSME sustainability. Furthermore, the findings challenge deterministic assumptions that intellectual capital directly ensures sustainability. Instead, conversion mechanisms particularly FinTech are necessary to translate intangible assets into sustainable performance outcomes.

Conclusion

This study examines how gender innovation functions as a strategic dynamic capability integrating intellectual capital, strategic cost management, and financial technology to support MSME sustainability. The empirical results show that financial technology is the strongest direct predictor of sustainability, indicating that digital financial integration plays a critical role in supporting the long-term viability of MSMEs.

The findings also reveal that gender innovation significantly strengthens intellectual capital and strategic cost management. However, intellectual capital does not directly influence sustainability, suggesting that knowledge resources require technological mechanisms such as FinTech to translate into measurable performance outcomes. Strategic cost management contributes indirectly by facilitating digital financial adoption rather than directly determining sustainability outcomes. These results extend the theoretical assumptions of Dynamic Capability Theory by demonstrating that gender-inclusive innovation can function as a higher-order managerial capability that orchestrates knowledge resources, financial management practices, and digital technologies to achieve sustainable organizational performance (Kotter, 2021). In this sense, gender innovation is not merely a demographic attribute but a strategic capability that enables MSMEs to sense emerging opportunities, coordinate diverse knowledge resources, and transform internal processes in response to digital and sustainability-oriented environments.

From a practical perspective, MSME owners should prioritize digital financial integration while strengthening internal knowledge capabilities and cost management practices under inclusive managerial approaches. Operationally, this may involve encouraging gender-inclusive decision-making structures, promoting collaborative knowledge sharing among employees, and integrating diverse perspectives into financial planning and innovation processes. Policymakers may support these efforts by promoting gender-inclusive innovation ecosystems and strengthening digital financial infrastructure for MSMEs. Specific policy initiatives may include capacity-building programs for women-led entrepreneurship, digital financial literacy training, and institutional support for inclusive innovation networks that connect MSMEs with financial technology providers and innovation hubs (Al-Edenat, 2026).

This study has several limitations. The use of cross-sectional data and judgment sampling restricts generalizability and causal interpretation. Future research may employ longitudinal designs, multi-source data, and explicit mediation analysis to further examine the mechanisms linking gender innovation, resource integration, and MSME sustainability (Faraz & others, 2025).

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