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ORIGINAL SCIENTIFIC PAPER

Dynamic Capabilities and Performance of Indonesian Women Entrepreneurs: The Mediating Roles of Innovation and Digital Transformation



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A B S T R A C T

The success of women entrepreneurs in the current rapidly evolving business landscape increasingly depends on the group's ability to develop dynamic capabilities, particularly the capacities to sense, seize, and reconfigure opportunities, which enable innovation and digital transformation. Accordingly, this study aims to examine the relationship between dynamic capabilities and the performance of women entrepreneurs, both directly and indirectly, through the mediating roles of innovation and digital transformation. The study was conducted in East Java Province, Indonesia, between June and August 2025 and included 570 women entrepreneurs operating in the service, trade, and manufacturing sectors. Data were collected through questionnaires, and the analysis adopted Partial Least Squares Structural Equation Modeling (PLS-SEM) using SmartPLS software

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to assess the structural relationships among the proposed constructs. The obtained results showed that dynamic capabilities did not have a significant direct effect on the performance of women entrepreneurs. However, the factor reflected a significant indirect relationship with performance through innovation and digital transformation. In the service sector, digital transformation was the stronger mediating variable, while in the trade and manufacturing sectors, innovation showed a stronger association with entrepreneurial performance. These findings contribute to theory and practice by providing insights for women entrepreneurs on how to strengthen their respective strategic approaches and by offering guidance to policymakers in designing supportive interventions that promote innovation and digital transformation.

KEYWORDS: *dynamic capabilities, innovation, digital transformation, performance, women entrepreneurs*

Introduction

Women entrepreneurs continue to experience limited participation in entrepreneurial activities despite the growing recognition of their potential (Srividhya & Paramasivam, 2022). According to the Global Entrepreneurship Monitor (2024), only one in ten women initiates new businesses compared to one in eight men. Similarly, entrepreneurial intentions remain significantly lower among women, with an average of 16.9 percent compared to 20 percent for men. In the Indonesian context, these structural challenges are further compounded by unequal access to information technology, as women in both rural and urban areas encounter more obstacles than men (Central Bureau of Statistics, 2024).

Previous studies reported that dynamic capabilities, reflected in sensing, seizing, and reconfiguring capacities, were positively associated with innovation (Burton & Dickinger, 2025). These capabilities also facilitate the adoption of digital transformation in small and medium enterprises (SMEs) (Soluk et al., 2023). Moreover, SMEs have leveraged sensing, seizing, and reconfiguring capacities to mitigate the impact of the COVID-19 pandemic (Zahoor et al., 2022). Empirical evidence further showed that these capabilities contribute to organizational resilience and improved business performance in SMEs (Van Tran et al., 2024). Collectively, these findings suggest the need for further investigation into how dynamic capabilities relate to innovation and digital transformation as mechanisms for enhancing business performance.

Although the literature on this strategic approach is extensive, most studies have focused on large enterprises, offering limited insight into how SMEs utilize digitalization to enhance performance. The present study addresses this gap by examining the mediating roles of innovation and digital transformation in the relationship between dynamic capabilities and SME performance, particularly among women-led SMEs. Prior explorations have proposed performance models for SMEs across service, trade, and manufacturing sectors, as well as within specific sectors. However, comparative analyses across these sectors remain scarce. The present study contributes to the existing body of literature by acknowledging how each sector possesses distinct characteristics that shape entrepreneurial outcomes.

Against this background, the central question addressed in this study includes whether dynamic capabilities are associated with the performance of women entrepreneurs directly or indirectly through the mediating roles of innovation and digital transformation. In response to this question, the study develops a performance model for women entrepreneurs grounded in the dynamic capabilities perspective.

Literature Review

Dynamic Capabilities and Business Performance

The present study adopts the dynamic capabilities framework, drawing on the Dynamic Capabilities Theory developed by (Teece, 2009). Dynamic capabilities refer to a firm's capacity to effectively integrate, build, and reconfigure internal and external competencies in response to rapid environmental shifts. A growing body of evidence highlights the importance of dynamic capabilities in improving business performance. For instance, in Vietnam, learning, integration, and reconfiguration capabilities were found to enhance entrepreneurial outcomes (Van Tran et al., 2024). Similarly, SMEs in China were observed to depend on dynamic capabilities to strengthen competitiveness in the digital economy (Wang, Niu, et al., 2024; Wang, Mansor, et al., 2024). Among women entrepreneurs, dynamic capabilities such as education, managerial experience, and leadership contribute to financial growth in Ireland (Costin et al., 2021), while in Malaysia they support competitive advantage, business survival, and success in dynamic environments (Kanapathipillai et al., 2022). Based on these considerations, the first hypothesis is formulated as follows.

H1: Dynamic capabilities are positively associated with the performance of women entrepreneurs.

Dynamic Capabilities, Innovation, and Business Performance

Innovation is widely regarded as a cornerstone of economic activity and an essential driver of business performance. Fontana (2015) defined this concept as the social and economic success that originates from introducing new methods or novel combinations of existing methods for transforming inputs into outputs, thereby producing a substantial shift in the perceived value-to-price ratio for buyers and users. Previous studies have shown that dynamic capabilities are strongly associated with innovation outcomes across various sectors. For example, in the service sector, dynamic capabilities were reported to positively support innovation in banking (Abdurrahman et al., 2024) and hospitality industries (Burton & Dickinger, 2025). For international firms, these capabilities accelerated innovation and supported internationalization (Hadi & Ali, 2025; Hagen et al., 2024). Among women entrepreneurs in Sri Lanka, dynamic capabilities comprising sensing, learning, integration, reconfiguration, and knowledge sharing supported innovation in turbulent environments (Sriyani et al., 2022). Similarly, women entrepreneurs in India leveraged networking, resilience, and entrepreneurial orientation to develop innovative products during the COVID-19 crisis (Sahi et al., 2023). Based on the reviewed evidence, the second hypothesis is proposed as follows.

H2: Dynamic capabilities are positively associated with women entrepreneurs' innovation.

Innovation is strongly associated with business performance, particularly in increasingly competitive digital markets. Previous studies have shown that innovation enhances the growth of SMEs in Europe (Scuotto et al., 2021), while digital business model innovation improved performance in South Africa and the Netherlands through the adoption of digital technology (van Tonder et al., 2023). Within women-owned businesses, innovation was observed to be positively associated with entrepreneurial performance in China (Huang et al., 2022), entrepreneurial proactiveness and company performance in Greece (Karali et al., 2024), collaborative innovation practices in Vietnam (Lai, 2025), and internationalization among women entrepreneurs in Europe as well as

Central Asia (Machado et al., 2025). Based on these findings, the third and fourth hypotheses are proposed as follows.

H3: Innovation is positively associated with the performance of women entrepreneurs.

H4: Dynamic capabilities are indirectly associated with the performance of women entrepreneurs through innovation.

Dynamic Capabilities, Digital Transformation, and Business Performance

Digital transformation is reshaping economies and societies at an unprecedented scale. Bounfour (2016) defined digital transformation as a new phase in the application of digital artifacts, systems, and symbols within and around organizations. Dynamic capabilities play an important role in enabling digital transformation. Previous studies confirmed that these capabilities support digital transformation and digital adoption in SMEs across various industries (Matarazzo et al., 2021; Soluk et al., 2023; Prakasa & Jumani, 2024). In the context of women entrepreneurs, Kelly & McAdam (2022) found that women actively contributed to digital transformation through the development of new knowledge, skills, and relationships. Building on these insights, the fifth hypothesis is proposed as follows.

H5: Dynamic capabilities are positively associated with women entrepreneurs' digital transformation.

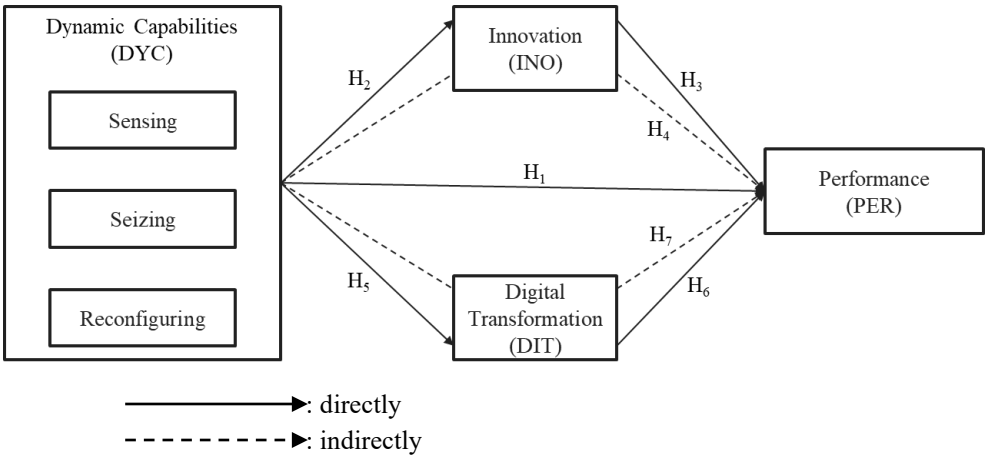
Previous studies have identified digital transformation as an important factor associated with SMEs' performance (Abdurrahman et al., 2024). By helping firms overcome resource constraints and adapt to market changes, digital transformation enhances resilience, flexibility, service quality, and financial performance (Prakasa & Jumani, 2024). Among women entrepreneurs, digital transformation has also been associated with improved entrepreneurial performance in China (Huang et al., 2025). A study conducted in the Czech Republic, Slovakia, Poland, and Hungary further found that digitalization-related knowledge capabilities serve as important indicators of digital transformation for the sustainable development of SMEs. (Belas et al., 2025). On the basis of these considerations, the sixth and seventh hypotheses are proposed as follows.

H6: Digital transformation is positively associated with the performance of women entrepreneurs**.**

H7: Dynamic capabilities are indirectly associated with the performance of women entrepreneurs through digital transformation.

Although dynamic capabilities, innovation, and digital transformation are conceptually related, each construct represents a distinct organizational phenomenon. In the present study, dynamic capabilities are positioned as higher-order strategic capacities that enable innovation and digital transformation to function as operational mechanisms associated with business performance. The conceptual model of this study, grounded in theoretical and empirical literature, is presented in Figure 1.

Figure 1: Conceptual framework model of the study



Source: processed by researchers (2025)

Methods

A quantitative study design was adopted in this study using an associative cross-sectional approach to examine the relationships among dynamic capabilities, innovation, digital transformation, and business performance. The study was conducted in East Java Province, Indonesia. The study focused on women entrepreneurs registered with the Department of Cooperatives and SMEs across thirty-eight regencies and cities in East Java Province. Purposive sampling was applied, and respondents were selected based on the criterion that they had implemented digital marketing in their businesses. Fifteen women entrepreneurs were selected from each

regency and city, representing the service, trade, and manufacturing sectors. This procedure resulted in a total sample of 570 respondents, comprising 190 participants from each sector. Considering the cross-sectional nature of the data, the findings should be interpreted as signifying associative rather than causal relationships.

Data were collected using a structured questionnaire based on a five-point Likert scale in which 1 represented strongly disagree and 5 represented strongly agree. The measurement items were adapted from previously validated studies and refined to suit the context of women entrepreneurs operating SMEs. Dynamic capabilities were treated as an exogenous variable and measured using indicators of sensing, seizing, and reconfiguring adapted from Teece (2009). Innovation, digital transformation, and business performance were specified as endogenous variables. Accordingly, innovation was measured using product, process, and organizational indicators adapted from Feranita et al. (2020). Digital transformation was measured using indicators of digitization, data utilization, networks, customer interfaces, and information exchange adapted from Malewska et al. (2024) while business performance was measured using market share, sales, and profit indicators adapted from Feranita et al. (2020). Several dimensions within the digital transformation and business performance constructs were measured using two-item indicators due to considerations related to questionnaire length and respondent accessibility. Table 1 presents the results of the validity and reliability tests for the study variables.

Table 1: The validity and reliability test results

Variable	Indicator	No. of items	Cronbach alpha (α) coefficient	Item-total correlation ranges
Dynamic Capabilities (DYC)	Sensing (DYC1)	4	0.898	0.864 – 0.904
	Seizing (DYC2)	5	0.933	0.843 – 0.935
	Reconfiguring (DYC3)	5	0.908	0.827 – 0.899
Innovation (INO)	Product (INO1)	4	0.923	0.883 – 0.917
	Process (INO2)	4	0.946	0.917 – 0.947
	Organizational (INO3)	4	0.966	0.909 – 0.980
Digital Transformation	Digitization (DIT1)	2	0.838	0.920 – 0.938
	Data (DIT2)	2	0.905	0.952 – 0.962

Variable	Indicator	No. of items	Cronbach alpha (α) coefficient	Item-total correlation ranges
(DIT)	Networks (DIT3)	2	0.898	0.949 – 0.957
	Customer interfaces (DIT4)	2	0.919	0.960 – 0.964
	Information exchange (DIT5)	2	0.872	0.938 – 0.946
Business Performance (PER)	Market share (PER1)	2	0.894	0.949 – 0.952
	Sales (PER2)	2	0.908	0.953 – 0.968
	Profits (PER3)	2	0.931	0.965 – 0.974

Source: processed by researchers (2025)

Instrument validity was assessed through correlation analysis by examining p-values for each item. The results confirmed that all items achieved correlation values with p-values below the significance threshold of 0.05, establishing the validity of each item. Reliability was subsequently assessed using Cronbach's alpha coefficient, with all indicators obtaining values above 0.70, thereby satisfying the recommended reliability threshold. Data collection was carried out between June and August 2025 through questionnaires distributed to respondents via local SME networks and business communities. The collected data were subsequently analyzed using PLS-SEM with SmartPLS 4.0 software.

Results

The present study adopted two forms of descriptive analysis, covering respondent characteristics and variable descriptions. The respondent characteristics examined included business subsector, marital status, entrepreneur age, highest level of education, company age, and business size, from which six primary observations were drawn. First, regarding business subsectors, the service sector was largely concentrated in beauty businesses at 24.7 percent, the trade sector was predominantly represented by grocery stores at 40 percent, and the manufacturing sector was dominated by food and soft drink enterprises at 43.2 percent. Second, married women constituted the overwhelming majority of respondents across all sectors, accounting for 86.8 percent of the sample. Third, most entrepreneurs were between 31 and 40 years of age, representing 29.8 percent of respondents.

Fourth, in terms of educational attainment, senior and vocational high school graduates dominated the sample at 57.7 percent. Fifth, more than a quarter of respondents (26.3 percent) had operated their respective businesses for four to six years. Sixth, micro-sized enterprises were the most prevalent, comprising 78.1 percent of the businesses surveyed. Variable descriptions were analyzed to present the mean scores of each construct. Innovation recorded a moderate mean value across all sectors, while the remaining variables recorded good mean values.

The study applied PLS-SEM to test the formulated hypotheses. Following the guidelines of Hair Jr. et al. (2022), the analysis required evaluation of both the outer model and the inner model. The outer model was assessed as a reflective measurement model, while the inner model was evaluated as a structural model. The reflective measurement model was assessed in four stages. The first stage examined indicator reliability through outer loading values. The second stage assessed internal consistency reliability using Cronbach's alpha and composite reliability. The third stage evaluated convergent validity through the average variance extracted. The fourth stage examined discriminant validity using the heterotrait-monotrait (HTMT) ratio, with the maximum shared squared variance and average shared squared variance compared against the average variance extracted values (Hair Jr. et al., 2022). The results of these assessments are presented in Table 2.

Table 2: Evaluation results of the reflective measurement model

Variable	Indicator	Outer loading	Cronbach's alpha	Composite reliability	AVE	MSV	ASV
Dynamic capabilities (DYC)	DYC1	0.875	0.883	0.885	0.810	0.468	0.435
	DYC2	0.927					
	DYC3	0.898					
Innovation (INO)	INO1	0.898	0.869	0.874	0.792	0.506	0.435
	INO2	0.914					
	INO3	0.857					
Digital transformation (DIT)	DIT1	0.859	0.913	0.913	0.741	0.507	0.436
	DIT2	0.871					
	DIT3	0.867					
	DIT4	0.864					
	DIT5	0.842					

Variable	Indicator	Outer loading	Cronbach's alpha	Composite reliability	AVE	MSV	ASV
Business performance (PER)	PER1	0.932	0.922	0.923	0.866	0.507	0.461
	PER2	0.936					
	PER3	0.923					

Source: processed by researchers (2025)

The evaluation of the reflective measurement model confirmed that all outer loading values exceeded 0.708, satisfying the required standard. Cronbach's alpha and composite reliability values both exceeded 0.70, indicating high levels of reliability as recommended by (Hair Jr. et al., 2022). Average variance extracted values above 0.50 further confirmed that each construct accounted for more than half of the variance in its indicators.

The recommended HTMT ratio threshold is 0.85 or below for acceptable discriminant validity (Hair Jr. et al., 2022). Discriminant validity was further assessed by comparing the maximum shared squared variance and average shared squared variance values against the average variance extracted, where shared variance is defined as the squared correlation coefficient of the latent variables (Fornell & Larcker, 1981). Discriminant validity is established when the average variance extracted exceeds both the maximum shared squared variance and the average shared squared variance (Hair Jr. et al., 2022). As presented in Table 2, the average variance extracted for all constructs exceeded both shared variance measures, and Table 3 confirms that all HTMT ratio values fell below the 0.85 threshold, satisfying the criterion for discriminant validity.

Table 3: Evaluation results of the discriminant validity

	DIT	DYC	INO	PER
DIT				
DYC	0.761			
INO	0.647	0.778		
PER	0.775	0.674	0.794	

Source: processed by researchers (2025)

The structural model was evaluated across four stages. The first stage examined collinearity using the variance inflation factor. As shown in Table 4, all variance inflation factor values were below 5, indicating that

collinearity did not present a significant concern in the model. The second stage assessed the relationships among constructs through estimated path coefficients and their corresponding significance levels. Standardized path coefficient values ranging from negative one to positive one reflected the strength and direction of the hypothesized relationships. Statistical significance was determined using empirical t values and p values, where results at the five percent significance level were considered significant when the empirical t value exceeded 1.96 or the p value fell below 0.05. The path coefficient estimates and their significance values are presented in Table 4.

Table 4: VIF, path coefficient values, and significance values

Hypothesis		VIF	Path coefficient value			Significance value (p)			Hypothesis testing
			Service	Trade	Manu-facturing	Service	Trade	Manu-facturing	
H1	DYC→PER	2.453	0.062	0.004	0.010	0.399	0.891	0.962	Rejected
H2	DYC→INO	1.000	0.611	0.702	0.720	0.000	0.000	0.000	Accepted
H3	INO→PER	1.957	0.425	0.420	0.522	0.000	0.000	0.000	Accepted
H4	DYC→INO → PER	-	0.260	0.295	0.376	0.000	0.000	0.000	Accepted
H5	DYC→DIT	1.000	0.697	0.685	0.677	0.000	0.000	0.000	Accepted
H6	DYC→PER	1.966	0.537	0.422	0.428	0.000	0.000	0.000	Accepted
H7	DYC→DIT → PER	-	0.374	0.289	0.289	0.000	0.000	0.000	Accepted

Source: processed by researchers (2025)

Based on the results in Table 4, all variables in the model recorded positive path coefficient values across the service, trade, and manufacturing sectors. The significance testing yielded consistent patterns across all three sectors, indicating that six of the seven proposed hypotheses were supported. The structural relationship analysis revealed that only the hypothesized direct relationship between dynamic capabilities and business performance was not statistically significant, resulting in the rejection of H1. The remaining direct hypotheses, H2, H3, H5, and H6, were all supported. The mediation analysis further confirmed that both proposed mediation pathways, H4 and H7, were statistically significant. These results indicate that dynamic capabilities are associated with business performance primarily through the mediating roles of innovation and digital transformation rather than through a direct relationship. The results of the total association analysis for each sector are presented in Table 5.

Table 5: Total association results

Sector	Association	DYC→PER	DYC→INO→PER	DYC→DIT→PER
Service	Direct	0.062		
	Indirect		0.260	0.374
	Total		0.322	0.436
	Percentage		32.2	43.6
Trade	Direct	0.004		
	Indirect		0.295	0.289
	Total		0.299	0.293
	Percentage		29.9	29.3
Manufacturing	Direct	0.010		
	Indirect		0.376	0.289
	Total		0.386	0.299
	Percentage		38.6	29.9

Source: processed by researchers (2025)

From a total-association perspective, digital transformation showed a relatively stronger mediating association than innovation in the service sector. However, in the trade and manufacturing sectors, innovation reflected a relatively stronger mediating association than digital transformation. Following confirmation that the model was free of collinearity issues and that the hypothesized paths were meaningful, the explanatory power of the model was assessed using the R^2, adjusted R^2, and F^2 values presented in Table 6.

Table 6: Evaluation results of the model's explanatory power

Construct	R^2	Adjusted R^2	f^2 effect size
DYC → PER			0.000
DYC → INO			0.873
INO → PER			0.302
DYC → DIT			0.881
DIT → PER			0.300
DIT	0.468	0.468	
INO	0.466	0.465	
PER	0.642	0.641	

Source: processed by researchers (2025)

The R^2 value measures the extent to which exogenous constructs explain the variance of endogenous constructs. According to Hair Jr. et al. (2022), R^2 values of 0.75, 0.50, and 0.25 indicate substantial, moderate, and weak explanatory power, respectively. In the present study, the R^2 values for digital transformation (0.468) and innovation (0.466) indicated moderate explanatory power, while the R2 value for performance (0.642) suggested relatively substantial explanatory power of the structural model. The close correspondence between the R^2 and adjusted R^2 values further indicated that the model demonstrated stable explanatory capability with minimal overfitting. The f-squared value assesses the contribution of each predictor to the variance of the endogenous construct, with effect sizes defined as 0.02 for small, 0.15 for medium, and 0.35 for large (Hair Jr. et al., 2022). The results indicated that dynamic capabilities demonstrated significant associations with innovation and digital transformation, while their association with performance was not statistically significant. Structurally, the relationship between dynamic capabilities and performance appeared to operate indirectly through innovation and digital transformation, which is consistent with H4 and H7.

Table 7: Evaluation results of the model's predictive power

Construct	Q^2 Predict	RMSE PLS-SEM	RMSE LM
INO	0.390	2.959	2.975
	0.412	3.029	3.040
	0.299	3.439	3.448
DIT	0.369	1.476	1.483
	0.381	1.533	1.540
	0.344	1.525	1.531
	0.329	1.380	1.384
	0.299	1.494	1.500
PER	0.325	1.437	1.439
	0.327	1.457	1.458
	0.304	1.508	1.512

Source: processed by researchers (2025)

The final step includes assessing the model's predictive power using the Q-squared value and comparing the root mean squared error of the PLS-SEM with that of the linear regression model (Hair Jr. et al., 2022). The Q-squared values for all endogenous constructs exceeded zero, confirming that the model possessed relevant predictive ability. The PLSpredict results were

further supported by comparing the root mean squared error values of both models, with Table 7 showing that the root mean squared error of the PLS-SEM across all indicators was lower than that of the linear regression model, which is consistent with strong predictive ability (Hair Jr. et al., 2022).

Model fit in PLS-SEM was evaluated using the standardized root mean squared residual, d_ULS, d_G, and the normed fit index (NFI) (Garson, 2016). A model is considered to have a good fit when the standardized root mean squared residual is below 0.08 and the NFI exceeds 0.90. The d_ULS and d_G values signal a significant difference between the covariance matrix of the empirical factor model and that of the composite factor model. As presented in Table 8, the standardized root mean squared residual, d_ULS, d_G, and NFI values collectively confirmed an acceptable model fit.

Table 8: Model fit values

Model Fit	Estimated Model
SRMR	0.053
d_ULS	0.293
d_G	0.139
NFI	0.926

Source: processed by researchers (2025)

Discussion

This study examined the associations between dynamic capabilities and the performance of women entrepreneurs through the mediating roles of innovation and digital transformation across the service, trade, and manufacturing sectors. The results showed that dynamic capabilities were not significantly associated directly with business performance but reflected significant indirect associations through innovation and digital transformation. These findings further suggested that dynamic capabilities functioned more as strategic capacities enabling women entrepreneurs to respond effectively to environmental changes through operational mechanisms such as innovation and digital transformation. It also strengthened the argument that dynamic capabilities often operate through mediating mechanisms, particularly processes, before producing measurable

performance outcomes. Conceptually, these results are consistent with the dynamic capabilities framework proposed by Teece (2009), which emphasized that the value of dynamic capabilities becomes evident when an organization translates sensing, seizing, and reconfiguring capacities into concrete activities.

The observations made in this study offer a different perspective from many previous studies that established a direct relationship between dynamic capabilities and business performance in SMEs. For example, a study of SMEs in Vietnam found that dynamic capabilities were positively associated with business performance by enabling organizations to learn and reconfigure resources (Van Tran et al., 2024). Another study conducted in China similarly showed that dynamic capabilities enhanced competitive advantage and impacted business performance (Wang et al., 2024). In the context of women entrepreneurs, however, this relationship was not direct, consistent with the results of the present study. This difference may be attributed to the nature of microenterprise-dominated businesses with limited resources, which rendered dynamic capabilities insufficient to generate performance impacts without the support of operational mechanisms.

The present study further strengthened the argument that dynamic capabilities were strongly associated with innovation, which in turn positively influenced business performance. Its findings are consistent with previous explorations showing that dynamic capabilities served as an organizational mechanism for identifying opportunities and fostering innovation. For instance, a study conducted in the European hospitality sector reported that sensing and seizing capabilities drove firms to develop innovative products and services (Burton & Dickinger, 2025). Another study of international companies additionally reported how dynamic capabilities accelerated innovation and enhanced organizational competitiveness (Hadi & Ali, 2025). The results of the present study confirmed that innovation represented one of the primary pathways connecting dynamic capabilities to improved business performance.

Beyond innovation, the study found that dynamic capabilities were significantly associated with digital transformation, which was also positively associated with improved business performance. This finding was consistent with prior studies, which observed that dynamic capabilities played an essential role in the adoption and implementation of digital transformation in SMEs. A study of SMEs in Italy reported that dynamic

capabilities supported by organizational learning accelerated digital transformation (Matarazzo et al., 2021). Another study equally found that an organization's ability to integrate resources and utilize digital technology contributed to increased flexibility and business performance (Prakasa & Jumani, 2024). The results of the present study, therefore, reinforced the view that digital transformation served as an important organizational mechanism through which firms leveraged dynamic capabilities in an increasingly digitalized business environment.

The cross-sector analysis provided additional insights into how the performance mechanisms of women entrepreneurs differed across sectors. In the service sector, digital transformation showed a stronger mediating role between dynamic capabilities and business performance, reflecting the sector's reliance on customer interaction, service experience, and digital technology to improve accessibility, efficiency, and customer value (Verhoef et al., 2021). Within this context, digital transformation functioned as a strategic mechanism connecting dynamic capabilities with business performance (Kraus et al., 2018). In the trade and manufacturing sectors, innovation showed a stronger mediating role than digital transformation. These sectors depended more heavily on product development, process efficiency, and adaptation of business models and production technologies to maintain competitiveness. Accordingly, innovation represented the primary mechanism through which dynamic capabilities were associated with business performance in the observed sectors (Nambisan et al., 2017).

From a gender perspective, the observations made an important contribution to the literature on women's entrepreneurship. As stated in a prior exploration, women entrepreneurs often faced various structural barriers such as limited access to capital, business networks, and digital technology Srividhya & Paramasivam, 2022). The present study expanded this perspective by showing how improving women's business performance depended not only on reducing structural barriers but also on the ability of women entrepreneurs to develop dynamic capabilities that enabled the group to effectively leverage innovation and digital transformation. Accordingly, the study positioned women not only as a group facing limitations in entrepreneurship but as strategic actors capable of developing dynamic capabilities to drive improved business performance.

Conclusion

In conclusion, this study examined the associations between dynamic capabilities and the performance of women entrepreneurs through the mediating roles of innovation and digital transformation across the service, trade, and manufacturing sectors in East Java Province, Indonesia. The obtained results showed that dynamic capabilities did not have a significant direct effect on business performance but were significantly associated with performance outcomes through innovation and digital transformation. These observations suggested that dynamic capabilities functioned as higher-order strategic capacities enabling women entrepreneurs to generate measurable performance improvements through operational mechanisms rather than through direct influence. The cross-sector analysis further reflected that digital transformation served as a stronger mediating pathway in the service sector, while innovation was found to be the stronger mediating mechanism in the trade and manufacturing sectors, signifying the distinct characteristics and competitive demands of each sector.

The findings carried several practical implications for women entrepreneurs and policymakers. For women entrepreneurs, strengthening both innovation and digital transformation was found to be important for improving business performance. Dynamic capabilities were associated with stronger innovation and digital transformation outcomes through the development of new business models, digital marketing strategies, and enhanced customer interaction. For policymakers, the findings emphasized the importance of designing sector-specific entrepreneurship policies. Given the stronger association between digital transformation and business performance in the service sector, supportive policies should prioritize the development of digital capabilities, improved access to digital technologies, and the effective utilization of digital platforms. In the trade and manufacturing sectors, where innovation showed stronger associations with performance, programs emphasizing product, process, and organizational innovation are needed to strengthen long-term competitiveness and business sustainability. These implications should primarily be interpreted within the context of women-owned SMEs in East Java, Indonesia.

The present study is subject to several limitations that should be acknowledged. First, including women entrepreneurs from diverse business subsectors may have introduced heterogeneity into the results. Second, the cross-sectional study design did not allow for the observation of long-term

changes in dynamic capabilities, innovation, and digital transformation, and the findings should hence be interpreted as reflecting associative rather than causal relationships. Third, the geographic focus on East Java Province limited the generalizability of the findings to other institutional, cultural, and economic contexts. Future studies are encouraged to examine specific sectors in greater depth, adopt longitudinal designs, and broaden the geographical scope through national or cross-country comparisons. Additionally, several constructs were measured using only two-item indicators, particularly within the digital transformation and business performance dimensions. Although all reliability and validity thresholds were satisfied, future studies should adopt broader multi-item measurement scales to enhance measurement stability and construct coverage.

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References

[1] **Abdurrahman, A., Gustomo, A., & Prasetio, E. A.** (2024). Impact of dynamic capabilities on digital transformation and innovation to improve banking performance: A TOE framework study. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(1), 100215. https://doi.org/10.1016/j.joitmc.2024.100215

[2] **Belas, J., Kliestik, T., Dvorsky, J., & Streimikiene, D.** (2025). Exploring gender-based disparities in the digital transformation and sustainable development of SMEs in V4 countries. *Journal of Innovation and Knowledge*, *10*(2), 100681. https://doi.org/10.1016/j.jik.2025.100681

[3] **Bounfour, A.** (2016). *Digital Futures, Digital Transformation: From Lean Production to Acceluction*. Springer International Publishing.

[4] **Burton, A. M., & Dickinger, A.** (2025). Innovation in Crisis. The role of leadership and dynamic capabilities for a more innovative hospitality industry. *International Journal of Hospitality Management*, *124*, 103946. https://doi.org/10.1016/j.ijhm.2024.103946

[5] **Central Bureau of Statistics.** (2024). *Women and Men in Indonesia 2024*.

[6] **Costin, Y., Igoe, J., Flynn, A., & Birdthistle, N.** (2021). Human capabilities and firm growth; an investigation of women-owned established micro and small firms in Ireland. *Small Enterprise Research*, *28*(2), 134–152. https://doi.org/10.1080/13215906.2021.1944902

[7] **Damanpour, F., & Aravind, D.** (2012). Managerial Innovation: Conceptions, Processes and Antecedents. *Management and Organization Review*, *8*(2), 423–454. https://doi.org/10.1111/j.1740-8784.2011.00233.x

[8] **Feranita, N. V., Nugraha, A., & Sukoco, S. A.** (2020). Effect of transformational and transactional leadership on SMEs in Indonesia. *Problems and Perspectives in Management*, *18*(3), 415–425. https://doi.org/10.21511/ppm.18(3).2020.34

[9] **Fontana, A.** (2015). *Innovate We Can: Innovation Management and Value Creation for Individuals, Organizations, and Society*. Gramedia Widiasarana Indonesia.

[10] **Fornell, C., & Larcker, D. F.** (1981). Structural Equation Models With Unobservable Variables and Measurement Error: Algebra and Statistics. *Journal of Marketing Research*, *18*(3), 382–388.

[11] **Garson, D.** (2016). *Partial least squares : Regression & Structural Equation Models*. Statistical Publishing Associates.

[12] **Global Entrepreneurship Monitor.** (2024). *2023/24 Women's Entrepreneurship Report Reshaping Economies and Communities*.

[13] **Hadi, N. U., & Ali, I.** (2025). Exploring the unknowns of international open innovation and international dynamic capabilities on the speed of innovation and firm international performance: A strategic view. *Journal of Innovation and Knowledge*, *10*(2), 100683. https://doi.org/10.1016/j.jik.2025.100683

[14] **Hagen, B., Tarantino, B., Liesch, P. W., Zucchella, A., & Weerawardena, J.** (2024). Context-dependence of dynamic capabilities in small, entrepreneurial firm internationalization. *International Business Review*, *33*(5), 102304. https://doi.org/10.1016/j.ibusrev.2024.102304

[15] **Hair Jr., J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M.** (2022). A Primer on Partial Least Squares Structural Equation Modeling (PLS-SEM). In *Angewandte Chemie International Edition, 6(11), 951–952.* (Third Edit, Vol. 3, Issue 1). SAGE Publications, Inc.

[16] **Huang, Y., Li, P., Wang, J., & Li, K.** (2022). Innovativeness and entrepreneurial performance of female entrepreneurs. *Journal of Innovation & Knowledge*, *7*(4), 100257. https://doi.org/10.1016/j.jik.2022.100257

[17] **Huang, Y., Yuan, Y., Yu, S., Shou, Y., & Wang, J.** (2025). Unraveling key factors enhancing female entrepreneurial performance in China: a pls-sem and fsqca analysis. *Humanities and Social Sciences Communications*, *12*(121), 1–13. https://doi.org/10.1057/s41599-024-04192-x

[18] **Kanapathipillai, K., Kumaran, S., & Narayanan, S.** (2022). The Mediating Effect of Entrepreneurial Marketing Strategy between Dynamic

Capabilities and Competitive Advantage in the Women-Owned Enterprises in Malaysia. *European Journal of Management and Marketing Studies*, *7*(3), 1–35. https://doi.org/10.46827/ejmms.v7i3.1255

[19] **Karali, N., Livas, C., & Theofanidis, F.** (2024). Perceived Technological Innovativeness, Entrepreneurial Proactiveness, and Performance in Established Women-Led Companies. *Journal of Women's Entrepreneurship and Education*, (1–2), 207–226. https://doi.org/10.28934/jwee24.12.pp207-226

[20] **Kelly, D. G., & McAdam, M.** (2022). Scaffolding liminality: The lived experience of women entrepreneurs in digital spaces. *Technovation*, *118*, 102537. https://doi.org/10.1016/j.technovation.2022.102537

[21] **Kraus, S., Palmer, C., Kailer, N., Kallinger, F. L., & Spitzer, J.** (2018). Digital entrepreneurship: A research agenda on new business models for the twenty-first century. *International Journal of Entrepreneurial Behavior & Research*, *25*(2), 353–375. https://doi.org/10.1108/IJEBR-06-2018-0425

[22] **Lai, T. N.** (2025). Empowering Female Leadership for Enhanced Innovation Performance of Companies in Vietnam. *Journal of Women's Entrepreneurship and Education*, (1–2), 107–128. https://doi.org/10.28934/jwee25.12.pp107-128

[23] **Machado, D., Correia, A., Braga, A., Salamzadeh, A., & Braga, V.** (2025). Business Innovation and Internationalisation in Female-Owned Businesses: A Fuzzy-set QCA Approach. *Journal of the Knowledge Economy*, *16*, 16725–16753. https://doi.org/10.1007/s13132-024-02344-7

[24] **Malewska, K., Cyfert, S., Chwiłkowska-Kubala, A., Mierzejewska, K., & Szumowski, W.** (2024). The missing link between digital transformation and business model innovation in energy SMEs: The role of digital organisational culture. *Energy Policy*, *192*. https://doi.org/10.1016/j.enpol.2024.114254

[25] **Matarazzo, M., Penco, L., Profumo, G., & Quaglia, R.** (2021). Digital transformation and customer value creation in Made in Italy SMEs: A dynamic capabilities perspective. *Journal of Business Research*, *123*, 642–656. https://doi.org/10.1016/j.jbusres.2020.10.033

[26] **Ministry of SMEs of the Republic of Indonesia.** (2025). *MSMEs in Numbers*. https://umkm.go.id/umkm-dalam-angka/?type=indikator-umkm&sub=2

[27] **Nambisan, S., Lyytinen, K., Majchrzak, A., & Song, M.** (2017). Digital Innovation Management: Reinventing Innovation Management Research in a Digital World. *Management Information Systems Quarterly*, *41*(1), 223–238. https://doi.org/10.25300/MISQ/2017/41:1.03

[28] **Prakasa, Y., & Jumani, Z. A.** (2024). Linking digital capability to small business performance: the mediating role of digital business transformation.

Cogent Business and Management, *11*(1), 2342486. https://doi.org/10.1080/23311975.2024.2342486

[29] **Sahi, G. K., Modi, P., & Mantok, S.** (2023). New product innovations in times of crisis: How did women entrepreneurs survive the COVID-19 crisis? *Industrial Marketing Management*, *111*, 19–29. https://doi.org/10.1016/j.indmarman.2023.03.004

[30] **Scuotto, V., Nicotra, M., Del Giudice, M., Krueger, N., & Gregori, G. L.** (2021). A microfoundational perspective on SMEs' growth in the digital transformation era. *Journal of Business Research*, *129*, 382–392. https://doi.org/10.1016/j.jbusres.2021.01.045

[31] **Soluk, J., Decker-Lange, C., & Hack, A.** (2023). Small steps for the big hit: A dynamic capabilities perspective on business networks and non-disruptive digital technologies in SMEs. *Technological Forecasting and Social Change*, *191*, 122490. https://doi.org/10.1016/j.techfore.2023.122490

[32] **Srividhya, M., & Paramasivam, J.** (2022). A Study on Perception Towards Women Entrepreneurship in Digital Marketing. *Journal of Positive School Psychology*, *6*(4), 9265–9271.

[33] **Sriyani, G. T. W., Fairoz, F. M., & Munasinghe, A.** (2022). Dynamic Capabilities and Innovative Orientation Towards Business Success in Turbulent Business Environments : The Experience of a Successful Woman Entrepreneur in Sri Lanka. *Journal of Business and Technology*, *6*(2), 16–36.

[34] **Teece, D. J.** (2009). *Dynamic Capabilities and Strategic Management*. Oxford University Press.

[35] **van Tonder, C., Bossink, B., Schachtebeck, C., & Nieuwenhuizen, C.** (2023). The effect of digitally-driven business model innovation on business performance. *Journal of Small Business and Entrepreneurship*, *36*(6), 944–977. https://doi.org/10.1080/08276331.2023.2239039

[36] **Van Tran, D., Van Nguyen, P., Dinh, N. T. T., Huynh, T. N., & Van Ma, K.** (2024). Exploring the impact of social capital on business performance: The role of dynamic capabilities, open innovation and government support. *Journal of Open Innovation: Technology, Market, and Complexity*, *10*(4), 100416. https://doi.org/10.1016/j.joitmc.2024.100416

[37] **Verhoef, P. C., Broekhuizen, T., Bart, Y., Bhattacharya, A., Dong, J. Q., Fabian, N., & Haenlein, M.** (2021). Digital transformation: A multidisciplinary reflection and research agenda. *Journal of Business Research*, *122*, 889–901.

[38] **Wang, G., Mansor, Z. D., & Leong, Y. C.** (2024). Linking digital leadership and employee digital performance in SMEs in China: The chain-mediating role of high-involvement human resource management practice and employee dynamic capability. *Heliyon*, *10*(16), e36026. https://doi.org/10.1016/j.heliyon.2024.e36026

[39] **Wang, G., Niu, Y., Mansor, Z. D., Leong, Y. C., & Yan, Z.** (2024). Unlocking digital potential: Exploring the drivers of employee dynamic capability on employee digital performance in Chinese SMEs-moderation effect of competitive climate. *Heliyon*, *10*(4), e25583. https://doi.org/10.1016/j.heliyon.2024.e25583

[40] **Zahoor, N., Golgeci, I., Haapanen, L., Ali, I., & Arslan, A.** (2022). The role of dynamic capabilities and strategic agility of B2B high-tech small and medium-sized enterprises during COVID-19 pandemic: Exploratory case studies from Finland. *Industrial Marketing Management*, *105*, 502–514. https://doi.org/10.1016/j.indmarman.2022.07.006

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