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Digital and Entrepreneurial Drivers of Financial Performance: Evidence From Food and Beverage MSNEs in Jakarta

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Abstract: Micro, small, and medium enterprises (MSMEs) in the food and beverage sector play a vital role in Jakarta's economy, yet the number of active business units has fluctuated sharply amid limited digital adoption, constrained raw-material management, and heavy dependence on personal capital. Prior studies have generally examined digital transformation, information and communication technology (ICT) capabilities, financial bootstrapping, entrepreneur competency, and innovation separately in relation to financial performance, producing inconsistent findings and rarely integrating all five factors within a single model, leaving a gap in the understanding of their combined influence. This study analyzes the effect of these five variables on the financial performance of food and beverage MSMEs in Jakarta. A quantitative survey was distributed to 100 MSME owners selected through purposive sampling, and the data were analyzed using Structural Equation Modeling with a Partial Least Squares approach. The results show that digital transformation, ICT capabilities, entrepreneur competency, and innovation have a positive effect on financial performance, whereas financial bootstrapping shows no significant effect. These findings indicate that technological and managerial capabilities meaningfully strengthen operational effectiveness and competitiveness, while reliance on internal funding alone remains insufficient without external financial support, offering an integrated perspective that has rarely been addressed in prior MSME research.

Keywords: Digital Transformation, ICT Capabilities, Financial Bootstrapping, Entrepreneur Competency, Innovation, Financial Performance

INTRODUCTION

Micro, small, and medium enterprises (MSMEs) form the backbone of Indonesia's economy, having evolved historically from home-based and community-centered trade into a dominant economic force. MSMEs account for 99.9% of total employment units, contribute 96.9% of the national workforce, and generate 60.5% of national GDP, with micro-enterprises alone comprising 99.62% of all business units (Kemenkop UKM, 2023). As the capital and primary economic center of Indonesia, Jakarta plays a strategic role in this landscape (Hertadiani & Lestari, 2021), yet it ranks only fourth nationally in the number of MSME units.

The total number of MSMEs in Jakarta rose from 55,163 units in 2022 to 79,992 units in 2023, an increase of 45.01%, before contracting by 11.18% to 71,049 units in 2024, reflecting an unstable business environment that forces many units to cease operating (Badan Pusat Statistik, 2024).

The food and beverage sub-sector illustrates this volatility even more sharply, with the number of units in Jakarta rising from 26,149 in 2022 to 78,328 in 2023 (an increase of 199.54%) before falling by 46.96% to 41,544 units in 2024 (Badan Pusat Statistik, 2024). Several factors contribute to this decline, including limited market reach since roughly 90% of customers are local residents who are rarely served through digital marketing, difficulties in raw-material access experienced by 68% of MSMEs, and a heavy reliance on personal capital reported by 90% of business owners (Badan Pusat Statistik, 2024). These conditions indicate that food and beverage MSMEs require a more strategic approach to sales growth, capital management, entrepreneurial competency development, and supply-chain efficiency, with financial performance serving as a key indicator for guiding such strategic planning (Fahmi, 2012).

Five strategic aspects are examined in this study as determinants of MSME financial performance: digital transformation, information and communication technology (ICT) capabilities, financial bootstrapping, entrepreneur competency, and innovation. Digital transformation is included because the utilization of digital technology to support marketing and operational activities among MSME actors remains suboptimal, potentially limiting market expansion (Rahmadani & Subroto, 2022). The success of digital transformation is further shaped by the ICT capabilities that business owners possess, since the ability to optimize information and communication technology is essential for effective decision-making, operational management, and supply-chain integration (Subekti et al., 2024). Financial bootstrapping is considered because most MSMEs continue to rely on self-funding to operate their businesses, requiring efficient management of internal financial resources to sustain operations and strengthen financial performance (Santosa et al., 2024). Entrepreneur competency is examined because owners' capability in decision-making, risk management, leadership, and opportunity recognition is believed to determine business success (Nurul et al., 2024). Meanwhile, innovation is included because the capacity of MSMEs to create, develop, and renew products or business processes is a potential driver of competitive advantage under intensifying competition (Batoebara, 2021).

Findings from previous research on these determinants remain inconsistent. Valdez-Juárez et al. (2024) reported that digital transformation positively affects financial performance, whereas Ahmad et al. (2023) found no such effect. Rutainurwa et al. (2024) found ICT capabilities to have a positive effect on financial performance, while Arifin and Anshari (2026) found no significant relationship. Rita and Nastiti (2024) demonstrated a positive effect of financial bootstrapping on financial performance, in contrast to Miao et al. (2021), who found no effect. Esubalew and Raghurama (2020) reported no significant influence of entrepreneur competency on financial performance, whereas Padi et al. (2025) found a positive effect. Rosyidiana and Narsa (2024) confirmed a strong positive effect of innovation on financial performance, while Osiyevskyy et al. (2026) found no such influence.

Although numerous studies have investigated the determinants of MSME financial performance, most focus on a single variable in isolation, and research that comprehensively integrates digital transformation, ICT capabilities, financial bootstrapping, entrepreneur competency, and innovation within one model remains limited, particularly in the context of the food and beverage sector. This research gap motivates the present study, which offers novelty by combining technological factors (digital transformation and ICT capabilities) with managerial and internal-resource factors (financial bootstrapping, entrepreneur competency,

and innovation) within a single integrated model, an approach seldom applied in prior MSME literature, especially within developing-economy contexts such as Indonesia.

Based on this background, the present study addresses the following research questions:

1. Does digital transformation influence the financial performance of food and beverage MSMEs?
2. Does ICT capabilities influence the financial performance of food and beverage MSMEs?
3. Does financial bootstrapping influence the financial performance of food and beverage MSMEs?
4. Does entrepreneur competency influence the financial performance of food and beverage MSMEs?
5. Does innovation influence the financial performance of food and beverage MSMEs?

The objectives of this study are, accordingly, to examine the effect of digital transformation, ICT capabilities, financial bootstrapping, entrepreneur competency, and innovation on the financial performance of food and beverage MSMEs in Jakarta, and the findings are expected to be discussed in the following sections and answered in the conclusion.

METHOD

This study employs a quantitative approach with an explanatory (causal) research design aimed at examining and proving the cause-and-effect relationships between the independent variables—digital transformation, ICT capabilities, financial bootstrapping, entrepreneur competency, and innovation—and the dependent variable, financial performance, among food and beverage MSMEs in Jakarta. The study adopts a cross-sectional time horizon, in which data were collected at a single point in time without repeated measurement of the same respondents (Sugiyono, 2023).

The population consists of food and beverage MSMEs operating in Jakarta. Because the exact population size is unknown, the minimum sample size was determined using the Lemeshow formula with a 95% confidence level ($Z = 1.96$), maximum estimated proportion ($P = 0.5$), and a 10% margin of error ($d = 0.10$), yielding a minimum requirement of approximately 96 respondents, which was rounded up to 100 respondents for ease of data processing. This sample size also satisfies the minimum requirement for Partial Least Squares Structural Equation Modeling (PLS-SEM) analysis involving five exogenous variables. Respondents were selected using a non-probability purposive sampling technique, based on the following criteria: (1) the MSME is actively operating in the food and beverage sector in Jakarta; (2) it uses information and communication technology to manage its raw-material supply chain; (3) it uses digital technology in its daily business operations; and (4) it relies on personal funds as business capital.

Data were collected through an online questionnaire (Google Form) using a four-point Likert scale, ranging from Strongly Disagree (1) to Strongly Agree (4), covering all indicators of digital transformation, ICT capabilities, financial bootstrapping, entrepreneur competency, innovation, and financial performance (Sugiyono, 2023).

Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with the assistance of SmartPLS 4.0. PLS-SEM was selected because it does not require the strict assumptions of multivariate normality demanded by ordinary least squares regression and remains robust in the presence of potential multicollinearity among exogenous variables (Ghozali, 2023). The analysis follows two stages: evaluation of the measurement model (outer model), consisting of convergent validity (outer loading and Average Variance Extracted), discriminant validity (Fornell–Larcker criterion), and reliability (Composite Reliability and

Cronbach's Alpha); and evaluation of the structural model (inner model), consisting of R-Square (R^2), Effect Size (f^2), Predictive Relevance (Q^2), and path coefficients, with significance determined through bootstrapping at a 5% significance level (t-statistic > 1.96).

Based on the phenomena, research gap, and novelty outlined above, the conceptual framework developed for this study is presented below.

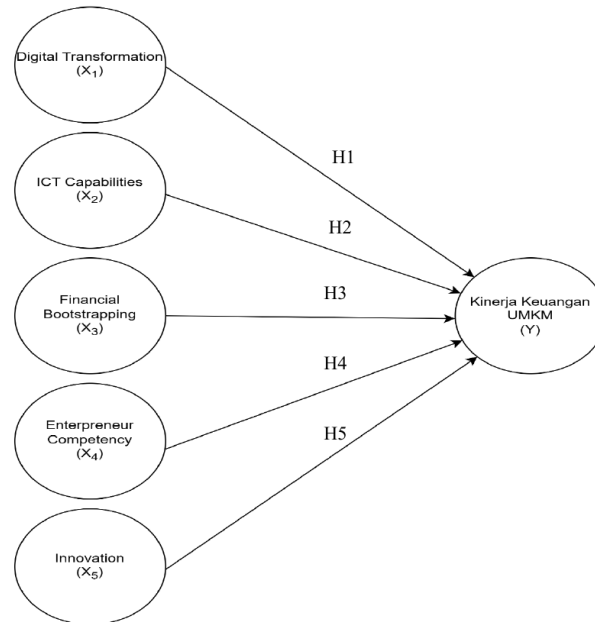


Figure 1. Conceptual Framework

Source: Erwin et al. (2023); Syahrul Anwar (2025); Anwar et al. (2023); Iswadi et al. (2025)

RESULTS AND DISCUSSION

Result

Respondent Overview

A total of 100 respondents from food and beverage MSMEs in Jakarta participated in this study. Respondent distribution by region is presented in Table 1.

Table 1. Respondent Distribution by Region

Region	Number	Percentage
South Jakarta	31	31%
East Jakarta	28	28%
Central Jakarta	17	17%
West Jakarta	11	11%
North Jakarta	13	13%
Total	100	100%

Source: Primary data, processed (2026).

As shown in Table 1, the largest proportion of respondents came from South Jakarta (31%), consistent with the region's status as one of the most economically active areas with a dense concentration of culinary trade centers, which increases the likelihood of encountering eligible food and beverage MSMEs.

Measurement Model (Outer Model)

Prior to testing the structural relationships among constructs, the measurement model (outer model) was evaluated to assess the extent to which indicators reflect their respective latent variables. Referring to Hair et al.'s convergent validity criterion as applied in this study,

an indicator is considered valid when its outer loading exceeds 0.70. The initial estimation showed that one indicator, ICTC1 (ability to use digital applications), recorded an outer loading of 0.622, below the required threshold, and was therefore removed before the model was re-estimated. The results after re-estimation are presented in Figure 2.

As shown in Figure 2, all remaining indicators recorded outer loadings above 0.70, confirming that they are valid representations of their respective constructs. The complete convergent-validity results, together with the reliability estimates, are summarized in Table 2.

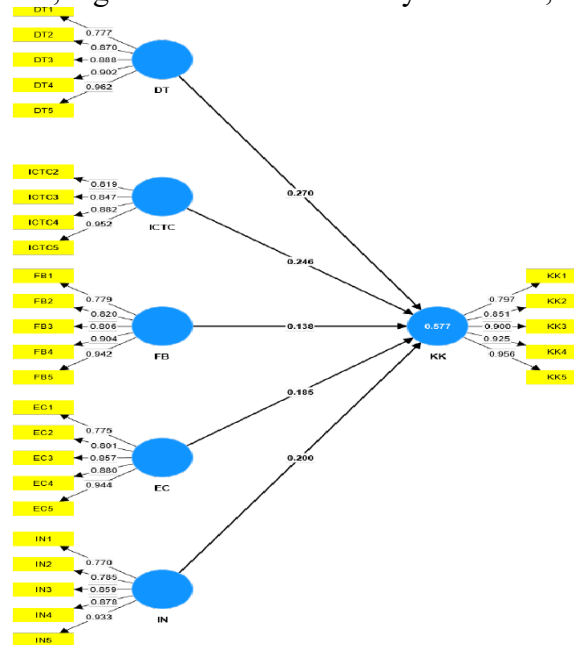


Figure 2. Outer Model Results After Re-estimation

Source: SmartPLS 4 Output, processed data (2026).

Table 2. Outer Loading, Average Variance Extracted (AVE), Composite Reliability (CR), and Cronbach's Alpha (CA)

Variable	Indicator	Outer Loading	AVE	CR	CA
Digital Transformation	DT1	0.777	0.778	0.946	0.928
	DT2	0.870			
	DT3	0.888			
	DT4	0.902			
	DT5	0.962			
ICT Capabilities	ICTC2	0.819	0.768	0.930	0.899
	ICTC3	0.847			
	ICTC4	0.882			
	ICTC5	0.952			
	ICTC6	0.962			
Financial Bootstrapping	FB1	0.779	0.727	0.930	0.906
	FB2	0.820			
	FB3	0.806			
	FB4	0.904			
	FB5	0.942			
Entrepreneur Competency	EC1	0.775	0.728	0.930	0.906
	EC2	0.801			
	EC3	0.857			

Innovation	EC4	0.880	0.718	0.927	0.900
	EC5	0.944			
	IN1	0.770			
	IN2	0.785			
	IN3	0.859			
	IN4	0.878			
Financial Performance	IN5	0.933	0.788	0.949	0.932
	KK1	0.797			
	KK2	0.851			
	KK3	0.900			
	KK4	0.925			
	KK5	0.956			

Source: SmartPLS 4 Output, processed data (2026).

Table 2 shows that all outer loadings exceed the 0.70 threshold and that the Average Variance Extracted (AVE) for every construct exceeds 0.50, confirming that convergent validity is satisfied. Composite Reliability and Cronbach's Alpha values for all constructs likewise exceed 0.70, indicating that the internal consistency of the measurement instruments is well established.

Discriminant Validity

Discriminant validity was assessed using the Fornell–Larcker criterion, which requires the square root of the AVE for each construct to exceed its correlation with any other construct in the model. The results, presented in Table 3, show that the square root of AVE for every construct (diagonal values) is higher than its correlation with other constructs, confirming that discriminant validity is achieved and that each construct is empirically distinct from the others.

Table 3. Fornell–Larcker Criterion

	DT	EC	FB	ICTC	IN	KK
DT	0.882					
EC	0.347	0.853				
FB	0.506	0.454	0.853			
ICTC	0.490	0.295	0.385	0.825		
IN	0.423	0.360	0.503	0.372	0.847	
KK	0.607	0.487	0.552	0.557	0.547	0.888

Source: SmartPLS 4 Output, processed data (2026).

Structural Model (Inner Model)

Following confirmation of the measurement model, the structural model (inner model) was evaluated through R-Square, Effect Size, and Predictive Relevance, summarized in Table 4.

Table 4. R-Square, Effect Size (f^2), and Predictive Relevance (Q^2)

Variable	R-Square	R-Square Adjusted	Effect Size (f^2)	Predictive Relevance (Q^2)
Digital Transformation	-	-	0.105	0.659
ICT Capabilities	-	-	0.062	0.591
Financial Bootstrapping	-	-	0.025	0.590
Entrepreneur Competency	-	-	0.098	0.534

Innovation	-	-	0.070	0.570
Financial Performance	0.577	0.555	-	0.673

Source: SmartPLS 4 Output, processed data (2026).

The R-Square value for financial performance is 0.577, indicating that digital transformation, ICT capabilities, financial bootstrapping, entrepreneur competency, and innovation jointly explain 57.7% of the variance in financial performance, while the remaining variance is explained by factors outside the model. The Effect Size (f^2) values for all five exogenous variables fall within the 0.02–0.14 range, indicating a small but positive practical contribution of each variable to financial performance. All Predictive Relevance (Q^2) values exceed 0.35, confirming that the model possesses strong predictive capability for the observed data.

Hypothesis Testing

Hypothesis testing was conducted through bootstrapping, with significance evaluated at the 5% level (t -statistic > 1.96 ; $p < 0.05$). The results of the path coefficient and hypothesis testing are summarized in Table 5.

As shown in Table 5, digital transformation ($p = 0.001$), ICT capabilities ($p = 0.002$), entrepreneur competency ($p = 0.015$), and innovation ($p = 0.018$) each show a statistically significant positive effect on financial performance, supporting H1, H2, H4, and H5. Financial bootstrapping ($p = 0.091$) does not show a statistically significant effect on financial performance, and H3 is therefore not supported.

Table 5. Path Coefficient and Hypothesis Testing Results

Hypothesis	Path	Original Sample (O)	T Statistics	P Values	Decision
H1	DT -> Financial Performance	0.270	3.256	0.001	Supported
H2	ICTC -> Financial Performance	0.246	3.036	0.002	Supported
H3	FB -> Financial Performance	0.138	1.688	0.091	Not Supported
H4	EC -> Financial Performance	0.185	2.435	0.015	Supported
H5	IN -> Financial Performance	0.200	2.358	0.018	Supported

Source: SmartPLS 4 Output, processed data (2026).

Discussion

Based on the hypothesis-testing results, the following discussion addresses each relationship examined in this study.

1. The Effect of Digital Transformation on Financial Performance

The results confirm that digital transformation has a positive and significant effect on the financial performance of food and beverage MSMEs, supporting H1. This finding indicates that the adoption of digital tools for marketing, daily operations, and customer service enables MSMEs to reach a wider and more diverse customer base, thereby driving sales growth that ultimately strengthens financial performance. This result is consistent with Valdez-Juárez et al. (2024), who found a positive effect of digital transformation on financial performance, but differs from Ahmad et al. (2023), who reported no significant relationship, suggesting that the

impact of digitalization may depend on the depth and consistency of its implementation across different MSME contexts.

2. The Effect of ICT Capabilities on Financial Performance

ICT capabilities are found to have a positive and significant effect on financial performance, supporting H2. Adequate ICT infrastructure and the ability to integrate technology into raw-material supply-chain management enable smoother production and distribution processes, reduce operational costs, and ultimately contribute to stronger financial performance. This finding aligns with Rutainurwa et al. (2024), who reported a similar positive relationship, but contrasts with Arifin and Anshari (2026), indicating that the benefits of ICT capabilities may be more pronounced in operationally intensive sectors such as food and beverage.

3. The Effect of Financial Bootstrapping on Financial Performance

Financial bootstrapping shows no significant effect on financial performance, and H3 is not supported. This suggests that the current practice of maximizing internal resources, such as personal assets and profit reinvestment, has not yet been sufficient to optimally strengthen financial performance, implying that food and beverage MSMEs still require external financing support to develop their businesses further. This finding contrasts with Rita and Nastiti (2024), who found a positive effect of financial bootstrapping, but is consistent with Miao et al. (2021), who likewise found no significant relationship, suggesting that the effectiveness of bootstrapping strategies may vary considerably across business contexts and funding constraints.

4. The Effect of Entrepreneur Competency on Financial Performance

Entrepreneur competency shows a positive and significant effect on financial performance, supporting H4. High entrepreneurial competency enables MSME owners to communicate more effectively, lead more confidently, and formulate more targeted business strategies, which in turn accelerates financial performance improvement. This result differs from Esubalew and Raghurama (2020), who found no significant effect, but is consistent with Padi et al. (2025), who reported a positive relationship, suggesting that the role of entrepreneurial competency may be more salient in highly competitive, customer-facing sectors such as food and beverage.

5. The Effect of Innovation on Financial Performance

Innovation shows a positive and significant effect on financial performance, supporting H5. The ability of MSMEs to diversify products, add value, and improve product quality provides a positive stimulus for sales growth, which subsequently strengthens financial performance. This finding is consistent with Rosyidiana and Narsa (2024), who reported a strong positive effect of innovation on financial performance, but contrasts with Osiyevskyy et al. (2026), who found no significant relationship, indicating that the financial returns of innovation may depend on how effectively new products or processes are matched to market demand.

Overall, the novelty of this study lies in demonstrating, within a single integrated model, that technological capabilities (digital transformation and ICT capabilities) together with managerial and internal-resource capabilities (entrepreneur competency and innovation) consistently and significantly strengthen the financial performance of food and beverage MSMEs, whereas financial bootstrapping alone does not. This finding suggests that internal-resource optimization needs to be complemented by external financing support and offers an integrated technological–managerial perspective on MSME financial performance that has

rarely been examined jointly in prior literature, particularly within Indonesia's food and beverage sector.

CONCLUSIONS AND RECOMMENDATIONS

Conclusion

Based on the analysis and discussion presented above, the following conclusions can be drawn:

1. Digital transformation has a positive and significant effect on the financial performance of food and beverage MSMEs in Jakarta.
2. ICT capabilities have a positive and significant effect on the financial performance of food and beverage MSMEs in Jakarta.
3. Financial bootstrapping does not have a significant effect on the financial performance of food and beverage MSMEs in Jakarta.
4. Entrepreneur competency has a positive and significant effect on the financial performance of food and beverage MSMEs in Jakarta.
5. Innovation has a positive and significant effect on the financial performance of food and beverage MSMEs in Jakarta.

Limitations

This study has several limitations. First, it was conducted only on food and beverage MSMEs in Jakarta, so the findings cannot yet be generalized to other regions or business sectors. Second, the study examined only five variables in explaining financial performance, while other potentially relevant factors were not included in the model. Third, the use of a cross-sectional questionnaire-based approach means that the study captures respondents' perceptions at a single point in time and does not explore longer-term changes in financial performance.

Recommendations

For MSME owners, it is recommended to continue expanding the use of digital technology across marketing, sales, customer service, and financial administration, while further strengthening ICT capabilities through better mastery of digital devices, information systems, and supply-chain integration. Although financial bootstrapping was not found to significantly affect financial performance, MSME owners are still advised to manage internal resources efficiently through prudent capital use, profit reinvestment, and cost control, while also considering appropriate external financing options—such as government-backed MSME credit programs or cooperative financing—so that business development is not solely dependent on personal capital. Continued development of entrepreneurial competency through training, mentoring, and capacity-building programs, along with sustained product, process, and marketing innovation, is also recommended to strengthen competitiveness and long-term financial performance. For future researchers, it is recommended to broaden the geographic scope and diversify the business sectors studied, increase the sample size, and incorporate additional relevant variables such as financial literacy, digital marketing, market orientation, or access to finance. Future studies may also examine innovation or other constructs as mediating or moderating variables and further investigate why financial bootstrapping did not significantly affect financial performance in this study, using different respondent characteristics, sectors, or regions.

Author Contributions

The first author was primarily responsible for research conceptualization, data collection, data analysis, and manuscript drafting. The second author contributed to the development of

the theoretical framework, supervision of the research process, interpretation of results, and critical review of the manuscript. Both authors have read and approved the final version of the article submitted for publication.

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