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Beyond capital and diversification: Resources, management training, and profit in village-owned enterprises

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ABSTRACT

Village-owned enterprises (BUMDes) are expected to transform local resources into sustainable economic value. However, many continue to struggle to generate profits despite having access to capital, business diversification, and management development programs. This study examines whether Business Capital, Business Units, and Management Training influence BUMDes Profit and whether Management Training mediates the effects of organizational resources on financial performance. A quantitative cross-sectional census was conducted involving all 68 registered BUMDes in Sidenreng Rappang Regency, Indonesia. Business Capital and Profit were measured using actual monetary values, while Business Units and Management Training were measured as observed counts. The hypothesized relationships were analyzed using partial least squares path modeling with 10,000 bootstrap resamples. The results show that Business Units significantly increased participation in Management Training ($\beta = 0.393$, $p < 0.001$), indicating that greater organizational complexity creates a stronger demand for managerial development. However, Business Units, Business Capital, and Management Training did not significantly predict Profit. Management Training also did not mediate the effects of either Business Capital or Business Units on Profit. The model explained 15.9% of the variance in Management Training and 7.8% in Profit. These findings suggest that capital, diversification, and training participation are enabling conditions rather than automatic drivers of financial performance. Therefore, BUMDes development should prioritize effective resource utilization, strategically coherent diversification, training quality, and the application of managerial learning in business practice.

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1. Introduction

Village-owned enterprises (BUMDes) have become key institutions for converting village resources into local economic growth. In Indonesia, BUMDes are intended as rural economic empowerment bodies that utilize local resources, foster entrepreneurship, and enhance community involvement in economic activities (Kania et al., 2021; Sofianto and Risandewi, 2021). Recent research frames BUMDes within a broader rural development system where village funds, enterprise initiatives, and local income interact to promote development outcomes (Hilmawan et al., 2023; Ikram et al., 2025). Serving as both commercial and social entities, village enterprises aim not only to earn income but also to offer services and generate value from local assets and traditional economic strengths (Kusumastuti et al., 2022). Evidence from BUMDes engaged in tourism and trade shows their potential to boost village employment, regional economic growth, and poverty alleviation (Wulandari and Wardani, 2024). However, these development roles depend on BUMDes's ability to transform their resource base into sustainable, profitable businesses.

Profit remains a major unresolved challenge for many BUMDes despite access to public capital and expanding business opportunities. Studies of BUMDes implementation show that rural enterprises continue to face constraints related to managerial capacity, qualified human resources, stakeholder

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coordination, and the ability to translate local resources into effective business activity (Fitriani et al., 2024; Ikram et al., 2025; Kania et al., 2021). Accountability research likewise documents a mismatch between expectations for financial returns and the actual multidimensional performance of BUMDes, with many enterprises remaining dependent on government support (Fitriani et al., 2024; Hilmawan et al., 2023; Kusumastuti et al., 2022). This challenge is visible in the present study, where 60.3% of the 68 BUMDes recorded zero profit, while a further 4.4% recorded losses. Research on BUMDes performance suggests that stronger outcomes are associated with organizational orientations and mechanisms such as entrepreneurial orientation and open innovation, rather than with the simple possession of local business potential (Wulandari and Wardani, 2024). This persistent profit gap therefore raises a more fundamental question about whether capital accumulation and business expansion are sufficient strategies on their own.

Business capital and diversification are vital resources, but their value depends on effective deployment. In SME studies, the profit of product and market diversification hinges on a firm's dynamic capabilities, meaning outcomes vary based on how well a company manages and leverages diversification (Miocevic, 2021). Similarly, evidence from village-owned enterprises shows that survival is linked to the strategic approach and direction of diversification rather than mere expansion (Fitriani et al., 2024; Sulistyorini et al., 2024; Yaya et al., 2024). Rural development research also highlights that financial resources and village enterprises create development value through institutional mechanisms that transform village funding into productive economic activity (Hilmawan et al., 2023). Additionally, open innovation mediates the link between entrepreneurial orientation and the financial success of BUMDes, emphasizing that organizational processes determine whether resources lead to better results (Wulandari and Wardani, 2024). This perspective suggests that management training could be a key factor in turning capital and diversification into profit.

Management training is a plausible mechanism through which BUMDes can transform financial and organizational resources into improved business performance. Research on SMEs shows that the accessibility and content of managerial training can significantly strengthen managerial effectiveness, underscoring the importance of training quality in capability development (Atiase et al., 2023). Large-scale evidence from more than 15,000 UK SME owner-managers also identifies a positive relationship between training and business performance, with both on-the-job and off-the-job training associated with better outcomes (Idris et al., 2023). More recent causal evidence from Flemish SMEs shows that support for on-the-job training can improve employment, value added, wages, and productivity, particularly when training develops business-related skills in smaller firms (Konings and Putseys, 2026). Related SME research further demonstrates that firm performance may depend on capability-building mechanisms that mediate the effects of leadership and organizational resources on outcomes (Quansah et al., 2022). However, whether management training performs this specific resource-conversion role within BUMDes has not been sufficiently established.

Current literature has yet to conclusively determine if management training serves as the missing link connecting BUMDes resources and profit. Recent studies on BUMDes have focused on rural entrepreneurship and capacity building (Kania et al., 2021), indigenous innovation and village-enterprise knowledge structures (Kusumastuti et al., 2022), and innovation-driven diversification for organizational survival (Yaya et al., 2024). Other research has addressed accountability and the conflict between social and commercial expectations within BUMDes (Fitriani et al., 2024). Studies on financial and social performance have also explored open innovation as a mediator of entrepreneurial orientation, highlighting the importance of examining organizational mechanisms in BUMDes performance models (Wulandari and Wardani, 2024). Additionally, the broader SME literature links management training to managerial effectiveness and firm performance (Atiase et al., 2023; Idris et al., 2023), while capability research suggests that performance impacts may occur through mediating processes (Quansah et al., 2022). Collectively, these streams reveal a specific empirical gap regarding whether management training mediates the influence of business capital and diversification on BUMDes profit.

This study investigates how management training links BUMDes resource endowments to profit. It specifically examines the direct effects of business capital, the number of business units, and management training on profit. Additionally, it explores indirect pathways from business capital and units to profit through management training. By doing so, the research adds to the evidence that managerial training enhances effectiveness and improves SME performance by situating training within a resource-to-performance framework in village-owned enterprises (Atiase et al., 2023; Idris et al., 2023). It also complements existing BUMDes studies that show organizational mechanisms can influence financial results, emphasizing human capital development rather than innovation as the key mediating factor (Wulandari and Wardani, 2024).

Practically, this perspective indicates that capital investments and diversification should be paired with systematic development of managerial skills, aligning with recent findings that business-focused training can improve company outcomes (Konings and Putseys, 2026). Ultimately, the literature review builds the theoretical basis for these relationships and formulates the hypotheses to be tested in the empirical model.

2. Literature review

2.1. BUMDes profit and rural enterprise performance

Profit is a key economic indicator showing whether BUMDes can turn their economic role into lasting value for rural communities. Recent Indonesian research indicates that village-owned enterprises are part of a broader rural development system where village funds, enterprise activities, and local income work together to influence development outcomes (Hilmawan et al., 2023). From an accountability standpoint, BUMDes performance is linked to governance quality, as the mix of commercial and social goals creates challenges for accountability, reporting, and evaluating enterprise results (Fitriani et al., 2024). Therefore, profit serves as a crucial financial indicator of whether governance and operational efficiencies are sufficient to convert resources into economic returns that support reinvestment and continuity. Evidence also shows that entrepreneurial orientation and open innovation can boost both financial and social performance, while adaptive diversification strategies help enterprises survive amid economic shifts (Wulandari and Wardani, 2024; Yaya et al., 2024). Overall, these studies imply that BUMDes profit depends not only on available resources but also on how they are governed, organized, and utilized, aligning with the Resource-Based View for analyzing business capitals and units.

2.2. Resource-based view: Business capital and business units

The Resource-Based View (RBV) considers business capital and units as organizational resources whose value depends on their effective utilization. Recent RBV studies on SMEs show that performance variations arise not only from resource ownership but also from differences in the resources and capabilities needed to combine and use them effectively (Lukovszki et al., 2021). For BUMDes, village funds and enterprise-generated revenues are vital for economic activities, but their influence on rural development depends on how these resources are transformed into productive outcomes (Hilmawan et al., 2023). Business units offer various opportunities, yet research on village-owned enterprises shows that diversification success hinges on strategic setup and the capacity to adapt activities to economic shifts (Yaya et al., 2024). Similarly, SME studies suggest that organizational capabilities mediate the relationship between diversification and profit; simply expanding product lines or markets does not necessarily lead to better financial results (Miocevic, 2021). Thus, RBV supports examining the direct impact of business units and capital on profit, emphasizing that managerial skills may determine whether these resources generate economic value.

H1: Business units influence BUMDes profit.

H2: Business capital influences BUMDes profit.

2.3. Human capital theory and management training

Human Capital Theory views managerial knowledge, skills, and competencies as productive human assets that can strengthen organizational performance. Drawing explicitly on Human Capital Theory, Atiase et al. (2023) found that managerial training contributes to SME managerial effectiveness, particularly when training is accessible and relevant to managerial needs. Importantly, their findings also indicate that training frequency alone is not necessarily sufficient, suggesting that training effectiveness depends on the quality, accessibility, and relevance of learning experiences as well as participation itself. Evidence from UK SMEs similarly shows that owner-manager training involving leadership, decision-making, communication, technical, and teamwork skills is associated with stronger business performance and can shape firms' internal systems, structures, and processes (Idris et al., 2023). Research on human resource development further demonstrates that SMEs differ in their capacity to invest in human capital and mobilize training resources, with training participation being associated with perceived benefits, participation barriers, and organizational learning culture (Deschênes, 2023). These arguments establish management training as a potentially important determinant of profit and lead to consideration of the organizational conditions that encourage BUMDes managers to participate in such training.

H3: Management training influences BUMDes profit.

2.4. Capital, business complexity, and training participation

Training participation reflects an organizational response influenced by available resources and rising managerial complexity. Deschênes (2023) highlighted that SMEs vary significantly in their ability to mobilize resources for training and human capital development, with participation patterns shaped by perceived barriers, benefits, and learning culture. In the BUMDes context, this suggests that increased business capital can provide financial flexibility to absorb both direct and opportunity costs of management development, making training more accessible. Managing a larger portfolio of business units also demands greater coordination across markets, operations, financial flows, and strategic decisions. Research on village-owned enterprises shows that successful diversification requires strategic adaptation, not just expansion (Yaya et al., 2024). Evidence from growth-focused small-firm management programs shows that training influences managers' strategic focus, highlighting the role of managerial development when firms face growth and strategic shifts (Wickstrøm and Bager, 2023). Therefore, business

capital may enhance organizational capacity for training participation, while a higher number of business units may increase managerial training needs, establishing the primary relationships for the subsequent mediation process.

H4: Business capital influences management training.
H5: Business units influence management training.

2.5. Management training as a mediating mechanism

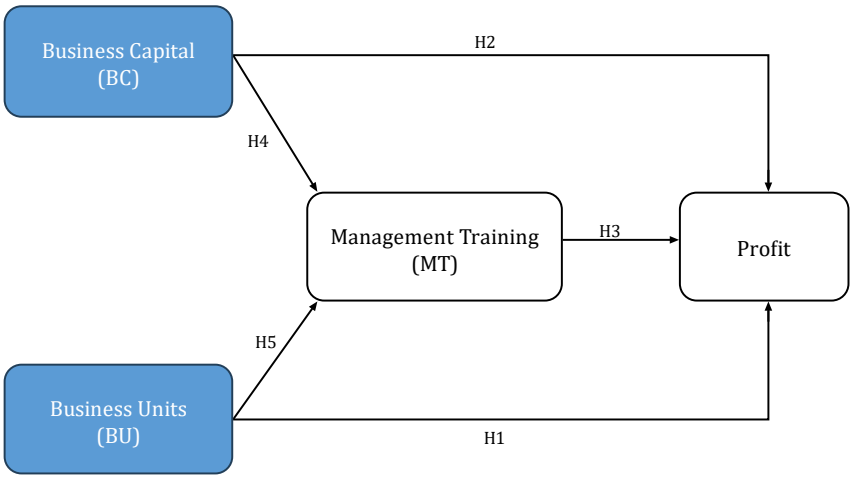
Management training can serve as a capability-building mechanism through which BUMDes transform organizational resources into economically productive managerial actions. Appropriately designed managerial training strengthens managerial effectiveness by developing the capabilities required to perform managerial tasks and respond to organizational challenges (Atiase et al., 2023).

Management training can shape internal systems, structures, processes, and strategies, providing a plausible pathway through which managerial learning translates into improved financial performance (Idris et al., 2023). From an RBV perspective, this pathway matters because returns from organizational resources and diversification depend on the capabilities through which managers combine, coordinate, and exploit those resources, not on resource possession alone (Lukovszki et al., 2021; Miocevic, 2021).

Within the BUMDes context, evidence that open innovation mediates the relationship between entrepreneurial orientation and enterprise performance demonstrates more broadly that resources and strategic orientations can influence financial outcomes through intervening organizational mechanisms, although the mediator examined in that study differs from management training (Idris et al., 2023; Konings and Putseys, 2026; Wulandari and Wardani, 2024). Accordingly, this study proposes management training as the human-capital mechanism through which business capital and business-unit diversification are transformed into profit, completing the theoretical framework for the empirical model tested in the subsequent section.

H6: Management training mediates the relationship between business capital and BUMDes profit.
H7: Management training mediates the relationship between business units and BUMDes profit.

Fig. 1 presents the proposed research model illustrating the hypothesized relationships among Business Capital, Business Units, Management Training, and BUMDes Profit. The model includes both direct effects and the mediating role of Management Training in linking organizational resources to profit.



BC = Business Capital; BU = Business Units; MT = Management Training; H6 and H7 represent the respective indirect effects through MT

Fig. 1: Proposed research model of BUMDes profit

3. Methodology

3.1. Research design and sample

This study used a quantitative cross-sectional approach to explore the direct and indirect links among Business Capital, Business Units, Management Training, and BUMDes Profit. Conducted in Sidenreng Rappang Regency, South Sulawesi, Indonesia, from January to March 2025, the research included all 68 registered village-owned enterprises (BUMDes) in the region via a census method, since the population was small, identifiable, and accessible. The analysis focused on BUMDes as the unit of analysis, with respondents being administrators involved in management, such as chairpersons, secretaries, treasurers, and business unit managers.

The dataset mainly comprised factual administrative data like initial business capital in Rupiah, the number of operating units, management training participation, and profit or loss reported in financial records. Using the entire population allowed for comprehensive analysis of variation across all registered BUMDes, rather than relying on a sample.

3.2. Measurement of variables

All variables are defined as observed indicators, not latent multi-item constructs, as seen in Table 1. Business Capital (BC) was measured by the actual initial capital invested in each BUMDes, expressed in Indonesian Rupiah (IDR). Business Units (BU) indicated the number of active units operated by each BUMDes and was treated as a count variable. Management Training (MT) reflected the actual number of training sessions attended by BUMDes administrators; the original administrative coding was converted to the number of sessions (0 to 4). Profit was measured as the net earnings reported by each BUMDes in IDR, including positive, zero, and negative values to indicate profit, break-even, or losses. As a result, Business Capital and Profit were analyzed as monetary variables, while Business Units and Management Training were analyzed as count variables, preserving detailed information rather than categorizing values into arbitrary ordinal groups.

Table 1: Operational definitions and measurement of study variables

Variable	Operational definition	Measurement	Measurement type	Data source
Profit	Net earnings generated by each BUMDes as reported in its financial records	Actual profit/loss in IDR; zero indicates no reported profit, whereas negative values indicate financial loss	Monetary metric	Financial statements and administrative financial records
MT	Number of management-related training sessions attended by BUMDes administrators	Actual number of training sessions attended, ranging from 0 to 4	Count	Training certificates and administrative records
BC	Initial financial capital allocated to establish and operate the BUMDes	Actual initial capital in IDR	Monetary metric	Establishment documents and financial records
BU	Number of active business activities operated by each BUMDes	Actual number of operating business units	Count	Business-activity reports and administrative records

3.3. Measurement validity and reliability

Internal-consistency reliability was not assessed because the variables were factual single-item indicators rather than reflective multi-item constructs. Consequently, statistics such as Cronbach's alpha, composite reliability, average variance extracted, and discriminant validity were not applicable to this measurement structure. Instead, measurement validity was strengthened through documentary verification and cross-checking across available data sources. Reported profits and capital were checked against financial records, business units against business-activity reports, and management-training participation against training certificates or other supporting documentation. This approach aligns with the principle that measurement-model criteria should match the indicators' specification and nature rather than be applied mechanically to every PLS model (Hair et al., 2024; Sarstedt et al., 2022).

3.4. Supporting interviews and document verification

Interviews and document analysis acted as supporting verification methods rather than standalone qualitative parts of the study. BUMDes administrators were interviewed to clarify financial figures, confirm operational status and the number of business units, and verify participation in management-training activities. Document verification included examining financial statements, capital-allocation records, business reports, administrative documents, and management-training certificates. Data from interviews were cross-checked with documentary evidence to identify and fix inconsistencies before finalizing the quantitative dataset. Because these procedures focused on data verification and triangulation, the interview data were not analyzed thematically or presented in a separate qualitative results section.

3.5. Data analysis

The hypothesized relationships were examined using partial least squares path modelling in SmartPLS 4. PLS was chosen since the study aims to explain both direct and indirect relationships within a small dataset and does not depend on multivariate normality as a strict assumption (Richter et al., 2022; Ringle et al., 2023). Business Capital and Profit were entered using their actual monetary values, while Business Units and Management Training were entered using their actual observed counts. Descriptive analysis included the mean, standard deviation, median, minimum, maximum, skewness, and kurtosis to characterize the distributions and identify potential asymmetry and influential observations. Because the Profit variable contained zero, positive, and negative values and exhibited substantial positive skewness, statistical inference relied on nonparametric bootstrapping rather than normal-theory significance tests.

The structural model comprised two equations. Management Training was first modeled as a function of Business Capital and Business Units:

$$MT = \beta_4 BC + \beta_5 BU + \varepsilon_1$$

BUMDes Profit was subsequently modeled as a function of Business Units, Business Capital, and Management Training:

$$Profit = \beta_1 BU + \beta_2 BC + \beta_3 MT + \varepsilon_2$$

The specific indirect effects representing the two mediation hypotheses were estimated as:

$$IE_{BC} = \beta_{BC \to MT} \times \beta_{MT \to Profit}$$

$$IE_{BU} = \beta_{BU \to MT} \times \beta_{MT \to Profit}$$

where, β is the standardized path coefficient and ε is the residual/error term.

We assessed the statistical significance of the direct and indirect effects using 10,000 bootstrap resamples, two-tailed tests, and a significance level of $p < 0.05$. We reported 95% bootstrap confidence intervals for all structural paths, and an effect was considered statistically significant if its interval did not include zero. Structural model assessment included R^2 and adjusted R^2 for the endogenous variables, f^2 effect sizes for individual structural relationships, and Q^2predict to assess predictive relevance. SRMR and NFI were also reported for completeness but were interpreted cautiously because the model consists of single-item observed variables and is saturated in covariance terms. Model evaluation therefore emphasized explanatory power, predictive relevance, effect sizes, and bootstrapped structural-path estimates rather than relying primarily on global fit indices, consistent with contemporary PLS-SEM reporting recommendations (Hair et al., 2024; Sarstedt et al., 2022).

4. Results

4.1. Descriptive characteristics of the study variables

Complete observations were available for all 68 BUMDes included in the analysis. The enterprises operated an average of 2.69 business units (SD = 1.45), with a median of two units and a range of 1 to 10 units. Average initial Business Capital was IDR 276.01 million (SD = IDR 170.73 million), ranging from IDR 40.49 million to IDR 954.84 million. Management Training participation remained relatively limited, averaging 1.03 sessions (SD = 1.26), with a median of zero and a maximum of four sessions.

Mean Profit was IDR 22.89 million (SD = IDR 51.20 million), although the median was zero, reflecting a substantial concentration of BUMDes without reported profit. Specifically, 41 BUMDes (60.3%) recorded zero profit, 3 (4.4%) reported financial losses, and 24 (35.3%) generated positive profit. Table 2 presents descriptive statistics for the four variables.

Table 2: Descriptive statistics and distribution of study variables

Variable	Mean	SD	Median	Minimum	Maximum	Skewness	Kurtosis
BU	2.69	1.45	2.00	1	10	2.295	8.937
BC	276,007,486.93	170,726,885.78	257,500,000	40,489,000	954,836,425	1.325	2.772
MT	1.03	1.26	0.00	0	4	0.871	−0.500
Profit	22,888,400.47	51,200,115.04	0.00	−8,268,736	206,586,544	2.469	5.293

BC and Profit are expressed in Indonesian Rupiah (IDR), whereas BU and MT are count variables; MT represents the number of management-training sessions attended (N = 68)

The distributional diagnostics revealed substantial positive skewness in Business Units and Profit, particularly because most BUMDes operated relatively few business units and a large proportion reported zero profit. Business Capital also showed moderate positive skewness, whereas Management Training exhibited a comparatively less asymmetric distribution. These statistics were used to characterize the data rather than to impose a normality requirement on the structural model. Given the observed non-normality, particularly for Profit, statistical inference for the structural paths was based on nonparametric bootstrapping with 10,000 resamples.

4.2. Structural model assessment

The structural model was first evaluated for explanatory power, predictive relevance, and effect sizes before interpreting individual structural relationships. Business Capital and Business Units jointly explained 15.9% of the variance in Management Training (R^2 = 0.159; adjusted R^2 = 0.133). Business Units, Business Capital, and Management Training together explained 7.8% of the variance in BUMDes Profit (R^2 = 0.078; adjusted R^2 = 0.035), indicating relatively limited explanatory power for financial performance. The Q^2predict values were positive for both Management Training (Q^2predict = 0.078) and Profit (Q^2predict = 0.013), suggesting that the model retained some predictive information beyond the naïve benchmark, although the predictive relevance for Profit was modest. Table 3 summarizes the structural-model assessment.

Overall, the modest R^2 for Profit suggests that BUMDes financial performance is affected by other organizational, market, governance, and managerial factors not captured in this model. Consequently, subsequent hypothesis testing examined the direction, size, statistical significance, and practical impact of each structural relationship.

4.3. Direct effects and hypothesis testing

The direct relationships among Business Capital, Business Units, Management Training, and Profit were assessed using standardized path coefficients and nonparametric bootstrapping with 10,000 resamples. Statistical significance was determined using two-tailed tests at $p < 0.05$ and 95% percentile bootstrap confidence intervals. Table 4 presents the results for H1–H5.

The hypothesis tests indicate that only the link between Business Units and Management Training was statistically significant. Business Units positively influenced Management Training (β = 0.393, t = 4.656, p < 0.001, 95% CI [0.237, 0.571]), thus supporting H5. The effect size was f^2 = 0.176,

suggesting that the number of operating business units substantially explained variation in management-training participation. This suggests that BUMDes with a larger portfolio of activities tend to participate more frequently in management training.

Table 3: Structural model explanatory, predictive, and fit assessment

Criterion	Management training	BUMDes profit	Overall model	Interpretation
R^2	0.159	0.078	—	15.9% of MT variance and 7.8% of profit variance explained
Adjusted R^2	0.133	0.035	—	Adjusted explanatory power
Q^2predict	0.078	0.013	—	Positive but limited predictive relevance
SRMR	—	—	0.000*	Saturated model; not diagnostically informative
NFI	—	—	1.000*	Saturated model; not diagnostically informative

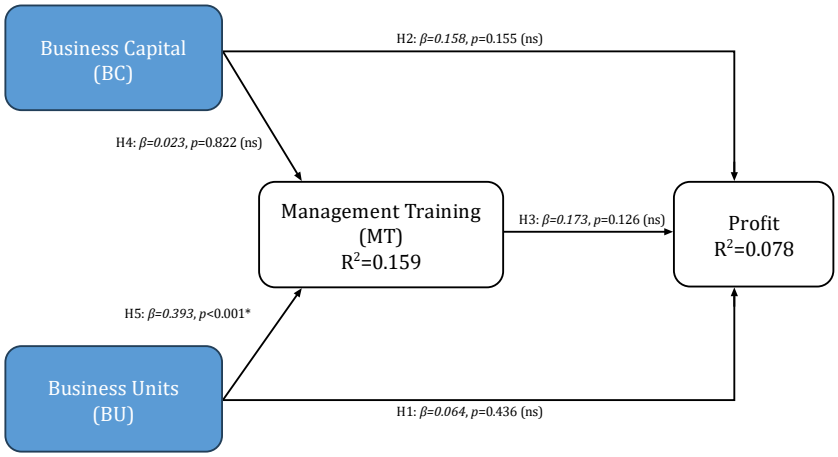
R^2 = coefficient of determination; Q^2predict = out-of-sample predictive relevance; SRMR = standardized root mean square residual; NFI = normed fit index; Positive Q^2predict values indicate predictive relevance; *: SRMR and NFI values arise mechanically because the model is saturated and should not be interpreted as evidence of superior model fit

Table 4: Structural path estimates and hypothesis testing

Hypothesis	Structural path	β	Bootstrapped SE	t-value	p-value	95% CI	f^2	Decision
H1	BU → Profit	0.064	0.083	0.779	0.436	[−0.092, 0.232]	0.004	Not supported
H2	BC → Profit	0.158	0.111	1.422	0.155	[−0.035, 0.396]	0.026	Not supported
H3	MT → Profit	0.173	0.113	1.528	0.126	[−0.048, 0.395]	0.027	Not supported
H4	BC → MT	0.023	0.103	0.225	0.822	[−0.171, 0.236]	0.001	Not supported
H5	BU → MT	0.393	0.085	4.656	< 0.001	[0.237, 0.571]	0.176	Supported

β = standardized path coefficient; SE = bootstrap standard error; CI = percentile bootstrap confidence interval; f^2 = effect size; Results are based on 10,000 bootstrap resamples and two-tailed tests at $p < 0.05$

Conversely, Business Units did not significantly impact Profit (β = 0.064, p = 0.436), with a negligible effect size (f^2 = 0.004); therefore, H1 was not supported. Business Capital demonstrated a positive but nonsignificant direct relationship with Profit (β = 0.158, p = 0.155, f^2 = 0.026), leading to the rejection of H2. Management Training also showed a positive but nonsignificant association with Profit (β = 0.173, p = 0.126, f^2 = 0.027), so H3 was not supported. Finally, Business Capital had almost no relationship with Management Training (β = 0.023, p = 0.822, f^2 = 0.001), providing no support for H4. Fig. 2 presents the structural model showing standardized path coefficients, significance levels, and R^2 values.



β = standardized path coefficient; R^2 = coefficient of determination; *: $p < 0.05$; ns = not significant

Fig. 2: Structural model showing standardized path coefficients, significance levels, and R^2 values

Fig. 2 presents the structural model based on the actual financial and count data, showing the standardized path coefficients, significance levels, and R^2 values for the endogenous variables. Fig. 2 indicates that Business Units → Management Training was the only statistically significant structural path, whereas the remaining direct effects did not reach the 5% significance level.

4.4. Mediation analysis

We evaluated the mediating role of Management Training using specific indirect effects, as shown in Table 5. H6 tested whether Management Training mediated the relationship between Business Capital and Profit, whereas H7 evaluated the indirect pathway linking Business Units to Profit through Management Training. We considered an indirect effect statistically significant when its 95% bootstrap confidence interval excluded zero.

The mediation analysis found no evidence that Management Training transmitted the effects of Business Capital or Business Units to BUMDes Profit. The indirect effect of Business Capital through Management Training was close to zero and statistically nonsignificant (β = 0.004, t = 0.187, p = 0.852, 95% CI [−0.032, 0.059]), so H6 was not supported. Similarly, although the indirect effect of Business Units through Management Training was positive (β = 0.068), it was not statistically significant (t = 1.381, p = 0.167, 95% CI [−0.020, 0.173]).

Therefore, H7 was not supported. Because both bootstrap confidence intervals included zero, neither relationship can be interpreted as a mediation effect.

5. Discussion

This study shows that the economic performance of village-owned enterprises cannot be explained simply by the amount of capital they possess, the number of businesses they operate, or how often their managers attend training. Of the seven hypothesized relationships, only the effect of Business Units on Management Training was statistically significant, whereas Business Units, Business Capital, and Management Training did not directly predict BUMDes Profit. The two proposed indirect effects through Management Training were also unsupported. These findings suggest that organizational resources may create opportunities and managerial demands, but they do not automatically generate financial returns. More importantly, the results distinguish between possessing resources, participating in managerial development, and actually developing capabilities that improve business performance.

The nonsignificant relationship between Business Units and Profit challenges the assumption that business diversification inherently improves BUMDes performance. A larger portfolio of business activities may broaden revenue opportunities and reduce dependence on a single market, but it also increases coordination requirements, managerial attention, financial control, and operational complexity. The benefits of diversification in village-owned enterprises depend on their strategic direction rather than merely the number of activities undertaken (Chinyamurindi et al., 2025; Xiao et al., 2025; Yaya et al., 2024). SME evidence also indicates that the profit effects of diversification depend on firms' capabilities to reorganize and exploit their business portfolios effectively (Gleißner et al., 2022; Miocevic, 2021; Suntraruk, 2023). Accordingly, the weak BU → Profit relationship suggests that the strategic coherence and managerial quality of diversification may be more important than diversification intensity itself. BUMDes that operate several poorly coordinated units may therefore perform no better financially than those concentrating resources on fewer but more viable businesses.

Table 5: Specific indirect effects and mediation assessment

Hypothesis	Indirect path	Indirect β	Bootstrapped SE	t-value	p-value	95% CI	Mediation type
H6	BC → MT → Profit	0.004	0.022	0.187	0.852	[−0.032, 0.059]	No mediation
H7	BU → MT → Profit	0.068	0.049	1.381	0.167	[−0.020, 0.173]	No mediation

β = standardized specific indirect effect; SE = bootstrap standard error; CI = percentile bootstrap confidence interval; An indirect effect is significant when its 95% CI excludes zero

The absence of a significant Business Capital → Profit relationship further supports this capability-based interpretation. Capital is necessary to acquire assets, finance operations, and support business expansion, but Resource-Based View arguments do not imply that resource ownership alone generates superior performance. Recent resource-orchestration research shows that SME performance depends on the ability to structure, bundle, and leverage available resources through strategic managerial action (Matloob et al., 2025). This distinction is particularly relevant to BUMDes, where capital may serve both commercial and community-development objectives. Consequently, larger financial resources may not immediately generate higher profit if capital allocation is inefficient, directed toward low-return activities, or constrained by managerial and market limitations. The nonsignificant H2 result therefore does not imply that capital is irrelevant; rather, capital should be understood as an enabling resource whose value depends on how effectively it is deployed.

Management Training was also positively but nonsignificantly associated with Profit. This result is theoretically important because the present study measures training as the number of sessions attended rather than the knowledge, skills, or competencies acquired and subsequently applied. Training accessibility and content contribute to managerial effectiveness, whereas training frequency alone does not necessarily generate stronger outcomes (Atiase et al., 2023). Human Capital Theory predicts performance improvements when learning creates productive knowledge and competencies, not simply when managers attend training programs. The present findings therefore suggest that training participation should not be equated with managerial capability. For BUMDes, the financial value of training likely depends on whether it addresses relevant needs such as financial planning, market analysis, pricing, business-unit evaluation, risk management, and strategic decision-making.

This interpretation is reinforced by research on training transfer. Workplace training produces stronger organizational outcomes when acquired knowledge is transferred into daily practice and supported within the organization (Mehner et al., 2025). Formal training may therefore have limited financial consequences when managers return to their organizations without follow-up support, opportunities to apply learning, or mechanisms to change existing business routines. A BUMDes manager may participate in multiple training programs without altering financial management, marketing practices, or operational decisions. Thus, the nonsignificant MT → Profit relationship should not be interpreted as evidence that managerial development is ineffective. Instead, it indicates that training exposure is an insufficient indicator of training effectiveness and highlights the need to distinguish participation, learning outcomes, training

transfer, and managerial capability in future BUMDes research.

The strongest empirical finding is the positive relationship between Business Units and Management Training. BUMDes operating more business units tended to participate more frequently in management training, suggesting that training demand may be driven by organizational complexity. Managing multiple business activities requires greater coordination across financial flows, markets, inventories, human resources, and operational processes. As organizational complexity increases, managerial capability gaps may become more apparent, prompting administrators to seek additional learning opportunities. This finding implies that diversification creates a need for capability development, even when diversification itself does not directly improve financial performance. In other words, business expansion appears to trigger demand for managerial development before that development translates into measurable profit.

By contrast, Business Capital had virtually no relationship with Management Training. Greater financial capacity therefore does not necessarily lead BUMDes to invest more intensively in managerial learning. One plausible explanation is that training participation may depend more on externally provided opportunities from government agencies, universities, or development programs than on BUMDes' own financial resources. Another explanation is that managers may prioritize physical investment, working capital, or business expansion over human-capital development. These findings reinforce the distinction between resource availability and capability investment: greater capital provides financial potential, but managerial development depends on organizational priorities, institutional support, and perceived training needs.

The nonsignificant mediation effects provide an important refinement to the proposed theoretical model. Management Training did not mediate either the Business Capital → Profit or Business Units → Profit relationships, indicating that training frequency was not the expected mechanism by which organizational resources were converted into financial outcomes. This finding aligns with research suggesting that learning affects performance through intermediate organizational capabilities rather than directly. Continuous learning can influence SME performance through resilient dynamic capabilities (Quansah et al., 2025). A more realistic mechanism for BUMDes may therefore involve a longer sequence: resources → training → learning and competence → managerial capability → business performance. The absence of mediation in the present study highlights this missing capability layer and suggests that future models should directly measure what managers learn and how that learning translates into business practice.

The relatively limited variance explained in Profit further indicates that BUMDes performance is determined by a wider set of organizational and environmental factors. Market demand, managerial experience, governance quality, accounting practices, innovation capability, digital adoption, stakeholder networks, business age, and sector characteristics are plausible additional determinants. Moreover, the substantial concentration of BUMDes reporting zero profit suggests considerable heterogeneity in commercial maturity. Future studies should therefore distinguish between commercially established BUMDes and enterprises that remain formative, socially oriented, or dependent on public support. Where reliable data are available, absolute profit should also be complemented with relative measures such as profit margin, return on assets, or profit growth to capture financial performance more comprehensively.

The findings have direct implications for BUMDes policy and development programs. Performance should not be evaluated primarily through input indicators such as the amount of capital distributed, the number of business units established, or the number of training sessions attended. Before expanding business portfolios, BUMDes should assess market feasibility, portfolio coherence, operating costs, and the performance of existing units. Management-development programs should similarly shift from generic, attendance-based training to needs-based, application-oriented interventions that combine financial management, market analysis, portfolio management, mentoring, and post-training implementation. Training evaluation should assess changes in managerial behavior and business practices rather than merely recording participation.

This study has several limitations that should be considered when interpreting the findings. First, the cross-sectional design involving 68 BUMDes in a single regency limits causal inference and the broader generalizability of the results, although the census approach provides complete coverage of the study population in Sidenreng Rappang. Second, Management Training was measured using the number of training sessions attended, which captures training exposure but not training quality, relevance, knowledge acquisition, competency improvement, or the transfer of learning into managerial practice. Third, Profit was measured using actual monetary values that were highly heterogeneous and strongly skewed, with many BUMDes reporting zero profit, suggesting that future studies should complement absolute profit with relative indicators such as profit margin, return on assets, or profit growth. Fourth, the relatively modest explained variance in Profit indicates that other factors, including governance quality, managerial experience, entrepreneurial orientation, market access, innovation capability, digital adoption, accounting practices, and stakeholder support, may also play important roles in BUMDes performance. Future research should therefore employ longitudinal and multi-regional designs, incorporate broader organizational and environmental determinants, and develop a more

detailed sequential mechanism linking resources, training participation, knowledge and skill acquisition, managerial capability, operational improvement, and financial performance.

6. Conclusion

This study shows that Business Capital, the number of Business Units, and Management Training do not directly determine BUMDes Profit, and that Management Training does not mediate the effects of capital or business-unit expansion on financial performance. The only significant relationship was the positive effect of Business Units on Management Training, indicating that greater organizational complexity increases the demand for managerial development, although this increased training participation does not automatically translate into higher profit. These findings suggest that financial resources, diversification, and training exposure should be viewed as enabling conditions rather than direct drivers of enterprise performance. The results therefore refine the Resource-Based View and Human Capital Theory in the context of village-owned enterprises by emphasizing that resources create value only when they are converted into effective managerial and organizational capabilities. In practical terms, BUMDes development policies should move beyond increasing capital, expanding business portfolios, or counting training participation and instead prioritize the strategic utilization of resources, the quality and transfer of managerial learning, and the development of capabilities that improve operational and financial performance.

List of abbreviations

BC	Business capital
BU	Business units
BUMDes	Village-owned enterprises
CI	Confidence interval
f^2	Effect size
IDR	Indonesian rupiah
MT	Management training
N	Number of observations
NFI	Normed fit index
PLS	Partial least squares
Q^2predict	Predictive relevance
R^2	Coefficient of determination
RBV	Resource-based view
SD	Standard deviation
SE	Standard error
SMEs	Small and medium-sized enterprises
SRMR	Standardized root mean square residual
β	Standardized path coefficient
ε	Residual/error term

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Compliance with ethical standards

Ethical considerations

This study was conducted in accordance with ethical principles for social science research. Prior to data collection, permission was obtained from the relevant local authorities and BUMDes administrators. All respondents were informed about the purpose of the study, the voluntary nature of their participation, the confidentiality of their responses, and their right to withdraw at any time. The researchers obtained informed consent from all participants before data collection. The data were used solely for academic research purposes and were analyzed anonymously. Ethical approval was obtained from the Research Ethics Committee, Universitas Muhammadiyah Sidenreng Rappang, Indonesia (approval number: 114/Kep/LP3M/UMSR/2024).

Conflict of interest

The author(s) declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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