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Investigation of the Contribution of Entrepreneurial Orientation, Entrepreneurial Leadership, and Strategic Innovation to Firm Growth Using PLS-SEM Approach

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ABSTRACT

The bottled water industry in Indonesia has experienced significant growth driven by increasing health awareness and demand for safe drinking water. Despite this growth, the industry is characterized by low entry barriers, leading to intense competition, product homogeneity, and price sensitivity. As a result, many firms can enter the market easily but struggle to sustain long-term growth. This study addresses the challenge of achieving sustainable firm growth in such a competitive environment. This research integrates Entrepreneurial Orientation (EO), Entrepreneurial Leadership (EL), and Strategic Innovation (SI) as key determinants of firm growth. EO reflects a firm's innovativeness, proactiveness, and risk-taking behavior, while EL ensures effective execution and organizational alignment. SI acts as a transformational mechanism that translates entrepreneurial intent into measurable performance outcomes. A quantitative, explanatory, and cross-sectional approach was employed, with data collected from bottled water SMEs in South Sulawesi. The analysis used Partial Least Squares Structural Equation Modeling (PLS-SEM) to examine direct, mediating, and moderating relationships among variables. The findings indicate that EO alone is insufficient to drive sustainable growth without being supported by SI. SI plays a crucial mediating role in converting entrepreneurial behavior into operational efficiency and market differentiation. Furthermore, EL strengthens the relationship between EO and SI by enhancing execution capability and organizational readiness although the influence is not that strong. The interaction among these variables provides a more comprehensive explanation of firm growth than direct effects alone.

INTRODUCTION

The bottled water industry has become one of the fastest growing sectors in Indonesia's fast moving consumer goods (FMCG) landscape over the past few decades, driven by increasing public awareness of the importance of consuming drinking water that is hygienic, practical, and safe. Historically, the industry began to expand rapidly in the early 2000s following the privatization of water distribution and the rising demand for hygienic drinking water among urban populations. According to *The Jakarta Post* (2015), national bottled water sales increased from 12.8 billion liters in 2009 to 23.1 billion liters in 2014, reflecting an average annual growth rate of approximately 12.5%. This consistent expansion has positioned

Indonesia as one of the largest bottled water markets in Southeast Asia (*The Jakarta Post*, 2015).

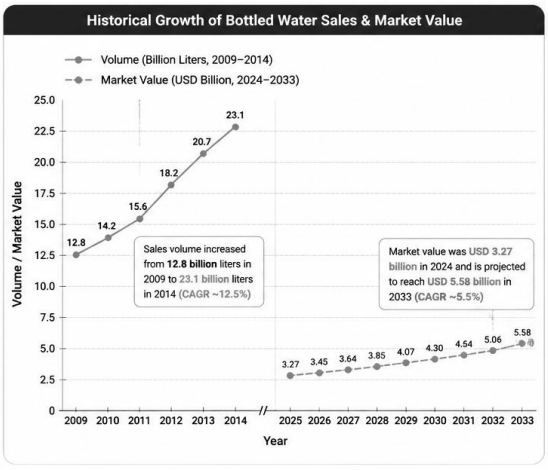

Figure I. 1 Historical Growth of Bottled Water Sales (2009–2024)
Source: The Jakarta Post (2015) for 2009 - 2014 volumes and IMARC Group (2024) for projected market value to 2033

Over the past decade, Indonesia's bottled water industry has maintained a robust growth trajectory, fueled by rising health consciousness, urbanization, and enhanced distribution infrastructure. Market projections underscore this substantial potential, with the industry valued at 3.27 billion USD in 2024 and expected to reach 5.58 billion USD by 2033, reflecting a steady CAGR of 5.5%. This promising outlook has catalyzed intense interest from both major conglomerates and local entrepreneurs, who recognize that, unlike trend-driven food and beverage sectors, bottled water serves as a non-substitutable fundamental necessity. With the still water segment dominating the majority of national consumption, the industry represents a resilient and essential commodity market that remains consistently relevant regardless of shifting consumer preferences.

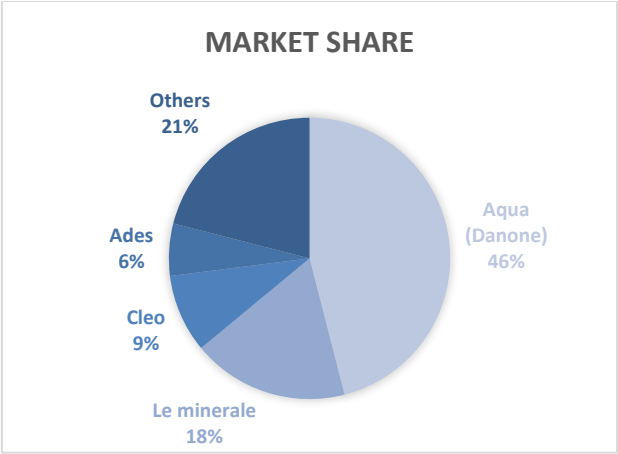

Figure I. 2 Market Share of Leading Bottled-Water Brands in Indonesia
Source: *Mordor Intelligence (2024)* and *IMARC Group (2024)*

The Indonesian bottled water industry is characterized by a dualistic structure where dominant national players, led by Aqua with a 46% market share, coexist with a thriving sector of regional firms that target localized segments within the remaining 21% of the market. Despite this concentration, the industry remains highly attractive and resilient due to its classification as a fast-moving consumer good (FMCG) with low demand elasticity, ensuring consistent consumption patterns even during economic fluctuations. This inherent stability, coupled with advancements in production technology and standardized quality control, allows smaller firms to maintain profitability alongside corporate giants. Consequently, the industry continues to expand as firms leverage modern distribution efficiencies to meet the growing public demand for essential, health-linked hydration products across diverse geographical markets (Grant, 2019).

The bottled drinking water industry in South Sulawesi has a different level of competition compared to the national market. On the national scale, cottage industries are consolidated under larger brands like Aqua, Le Minerale and Cleo while in South Sulawesi many more small or medium-sized firms are active in smaller market areas, with locally-based distribution networks. These companies usually battle to the same level price efficiency, distribution simple access and tight relations with local Dealers and Brokers. Unlike the national market in South Sulawesi, the bottled water industry tends to be less concentrated due to brand dominance or large-scale distribution systems. Zero Minasatene, JS, Voda, Wahdah Water, AirQita, Jabal Nur and Aerpe with Celebes and 2S as local brands that compete locally in the distribution area. This is the usual, which usually focuses more on South Sulawesi market segments, by relying on proximity strategy and flexible distribution line to the final consumers.

Despite substantial growth opportunities, the bottled water industry faces structural challenges due to low barriers to entry and limited product differentiation, which intensify competition and pressure on customer loyalty (Porter, 2008; Mordor Intelligence, 2024). To navigate this environment, firms often adopt an entrepreneurial orientation (EO) characterized by innovativeness, proactiveness, and risk-taking (Covin and Slevin, 1989; Lumpkin and Dess, 1996), enabling them to identify new opportunities and maintain relevance (Wiklund and Shepherd, 2003). However, the impact of EO on firm performance is contingent upon the organization's ability to translate such behaviors into strategic innovation (Markides, 1997; Teece, 2007; Cillo et al., 2019). This transformational process is further strengthened by entrepreneurial leadership (EL), which fosters an innovative culture and enhances organizational readiness to act on opportunities (Thornberry, 2006; Renko et al., 2015). Ultimately, strategic innovation serves as the critical dynamic capability that senses and reconfigures resources to convert internal potential into sustainable growth and market expansion (Delmar, Davidsson, and Gartner, 2003; Teece, 2007). While prior literature often positions EO as a direct determinant of growth, empirical evidence suggests that its impact is contextual and depends heavily on specific organizational mechanisms and leadership capacity (Rosenbusch, Rauch, and Bausch, 2013).

This study addresses a significant research gap by integrating entrepreneurial orientation, entrepreneurial leadership, and strategic innovation into a unified organizational framework to explain firm growth mechanisms within the highly competitive bottled water industry. While existing literature often treats leadership and orientation in isolation, this research posits that their synergy creates the strategic alignment necessary to navigate an

environment characterized by low barriers to entry and minimal product differentiation. By repositioning strategic innovation not merely as an outcome, but as a critical transformational mechanism, the study examines how firms can move beyond mere operational capacity toward effective strategy execution. Ultimately, this holistic approach seeks to determine how internal capabilities such as distribution innovation and operational efficiency can be leveraged to convert entrepreneurial intent into sustainable competitive advantage and long-term business continuity.

Analyzing this issue is essential to identify the strategic mechanisms that explain the direct effect of entrepreneurial orientation on firm growth, the effect of entrepreneurial orientation on firm growth, as well as the indirect effects of both through leadership the role of strategic innovation, including the potential interaction between entrepreneurial orientation and entrepreneurial leadership in strengthening firm growth.

This study aims to examine and analyze the empirical relationships between key strategic constructs within bottled water SMEs in South Sulawesi, specifically focusing on how Entrepreneurial Orientation (EO) influences Strategic Innovation (SI) and subsequent Firm Growth (FG). Furthermore, the research objective extends to evaluating the mediating role of Strategic Innovation in bridging entrepreneurial intent with organizational outcomes, while simultaneously investigating how Entrepreneurial Leadership (EL) serves as a moderating mechanism that strengthens the impact of EO on innovation. By addressing these interconnected objectives, the study seeks to provide a comprehensive understanding of the causal pathways and boundary conditions that drive sustainable growth in a highly competitive regional industry.

METHOD

This study employs a quantitative explanatory research design with a cross-sectional approach grounded in positivist epistemology to empirically examine the causal relationships between Entrepreneurial Orientation (EO), Strategic Innovation (SI), Firm Growth (FG), and the moderating influence of Entrepreneurial Leadership (EL). Focused on the bottled water industry in South Sulawesi, data were gathered via structured questionnaires from a purposive sample of 43 firm owners or senior managers. The analysis is conducted using Partial Least Squares Structural Equation Modeling (PLS-SEM), involving a two-stage evaluation: the measurement model (outer model) to ensure instrument reliability and validity, and the structural model (inner model) to test hypotheses through bootstrapping procedures. This methodological framework is selected for its robustness in handling complex structural paths and predictive modeling within small to medium-sized sample contexts, effectively capturing the mediation and moderation mechanisms essential to understanding organizational growth.

RESULT AND DISCUSSION

Preliminary Data Examination

(1) Assessment of Missing Value

Before testing the measurement model and structural model using the PLS SEM approach, a preliminary assessment of data quality was conducted. This step aims to ensure that the data are suitable for further analysis.

The first stage involves examining missing values across all research indicators. Based on the evaluation results presented in Table IV.2, no missing values were identified, indicating that all respondent data can be used in the analysis without the need for data removal.

(2) Skewness and Kurtosis Assessment

Table IV. 1 Skewness and Kurtosis Results

Name	Excess kurtosis	Skewness
EO1	0.255	-1.119
EO2	-0.491	0.178
EO3	0.416	-0.446
EO4	0.633	-0.719
EO5	-0.342	0.094
EO7	-0.682	-0.658
EO9	0.133	-0.596
EO10	-0.270	0.151
EO11	-0.176	-0.033
EO12	-0.047	-0.159
EL1	-0.627	0.385
EL3	-0.306	-0.876
EL5	0.069	-0.253
EL6	0.069	-0.253
SI6	-0.342	-0.263
SI7	0.127	-0.175
SI8	-0.179	-0.187
SI12	1.020	-0.483
SI13	0.124	-0.315
SI16	-0.236	-0.186
SI17	-1.065	0.074
FG2	0.418	-0.549
FG3	-0.909	-0.290
FG4	-1.194	-0.295
FG5	1.363	-0.819
FG6	-1.194	-0.295

Data distribution analysis was conducted by examining the skewness and excess kurtosis values for each indicator to identify the degree of asymmetry and peakedness of the data distribution. Overall, skewness values for all indicators ranged from -1.119 to 0.385, while excess kurtosis values ranged from -1.194 to 1.363. Based on general criteria, data are considered normally distributed if skewness and kurtosis values fall within the range of plus or minus 2. Therefore, it can be concluded that all indicators in this study fall within an acceptable range of normality.

Based on skewness values, most indicators show negative figures, indicating that the data distribution is slightly left-skewed. This implies that the majority of respondents tended to provide higher ratings (particularly in the 4 and 5 range), which aligns with the earlier descriptive analysis. However, a few indicators (such as EO2, EO5, EO10, EL1, and SI17)

exhibit positive skewness values, indicating a slightly right-skewed distribution. Nevertheless, these values are relatively small and remain within an acceptable normal range.

Meanwhile, excess kurtosis values reveal variations in the shape of the data distribution, ranging from flatter distributions to those with sharper peaks. Indicators with positive kurtosis values, such as SI12 (1.020) and FG5 (1.363), show distributions that are more concentrated around specific values. Conversely, indicators with negative kurtosis values, such as FG4 (-1.194) and SI17 (-1.065), indicate more dispersed distributions. These variations reflect differences in the level of response concentration across the various indicators.

Overall, despite variations in skewness and kurtosis values, all indicators remain within acceptable thresholds for normality. This indicates that the data distribution behaves reasonably well and does not exhibit extreme deviations. Therefore, the data is considered suitable for further analysis using the PLS-SEM method, which is also relatively robust regarding normality assumptions.

(3) Full Collinearity Assessment

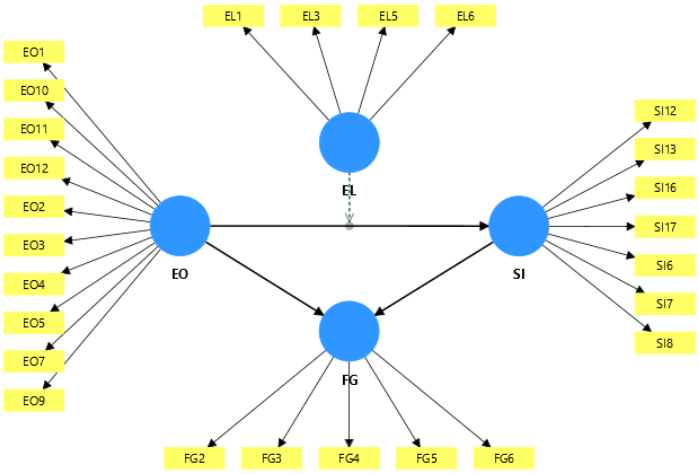

Figure IV. 1 PLS-SEM Model

A full collinearity assessment was conducted using the model presented in Figure IV.1 to ensure the research model was free from common method bias (CMB). Based on the results, the relationship between Entrepreneurial Leadership (EL) and Strategic Innovation (SI) showed a VIF value of 3.927, while the interaction effect between EL and Entrepreneurial Orientation (EO) on SI yielded a VIF value of 1.192. The very low VIF value for this interaction variable indicates the absence of collinearity issues regarding the moderation effect within the model. Furthermore, the relationship between Entrepreneurial Orientation (EO) and Strategic Innovation (SI) showed a VIF value of 4.069, which remains within the acceptable tolerance threshold.

Additionally, the relationships between Entrepreneurial Orientation (EO) and Firm Growth (FG), as well as between Strategic Innovation (SI) and Firm Growth (FG), each exhibited a VIF value of 4.973. Although this value approaches the recommended upper limit, it remains below the threshold of 5 suggested by Hair et al. (2022), indicating the absence of serious multicollinearity issues in the structural model.

However, based on the stricter criteria proposed by Kock (2015), VIF values exceeding 3.3 may indicate potential common method bias. This is understandable given that the data

were collected using a single method (questionnaires) and from a single source; thus, the possibility of common method bias warrants conceptual consideration, even though the statistical values remain within acceptable limits.

Overall, the results of the full collinearity assessment indicate that the research model does not suffer from multicollinearity issues that could distort the estimation of relationships between variables. Although there are indications of potential common method bias based on more conservative criteria, the VIF values remaining below the threshold of 5 suggest that the model is suitable for proceeding to the next stage of analysis: the evaluation of the structural model (inner model) and hypothesis testing.

Table IV. 2 Full Collinearity Assessment Results (VIF Values)

Collinearity Statistics (VIF)	
EL → SI	3.927
EL x EO → SI	1.192
EO → FG	4.973
EO → SI	4.069
SI → FG	4.973

I.1.2 Measurement Model Evaluation (Outer Model)

(1) Indicator Reliability

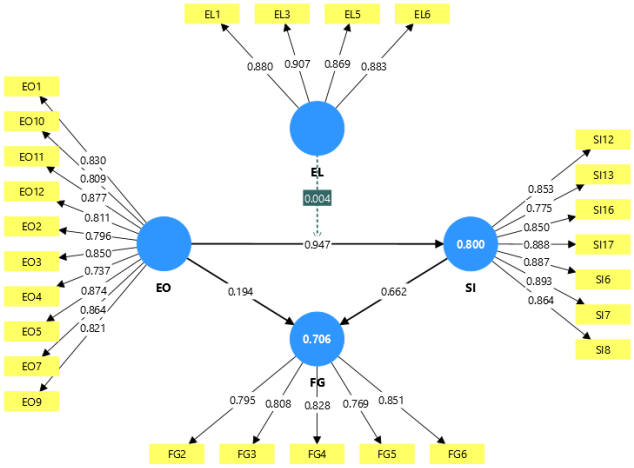

Figure IV. 2 Results of external loading factor test

These results indicate that all EO indicators contribute strongly to reflecting the entrepreneurial orientation construct. The highest outer loading value was observed for indicator EO11, while even the lowest value exceeded the required threshold, thereby confirming the validity of all indicators. All indicators in this study exhibited outer loading values above 0.70, leading to the conclusion that the construct meets the criteria for convergent validity. Consequently, this measurement model is considered valid and suitable for proceeding to the next stage of evaluation.

(2) Internal Consistency Reliability

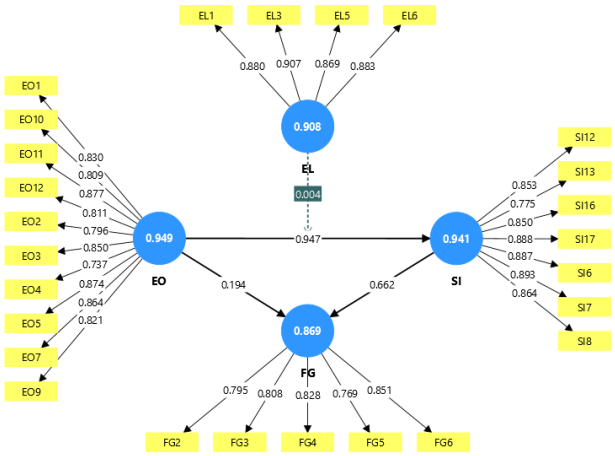

Figure IV. 3 Cronbach's Alpha Test Results

Based on the internal consistency reliability test results using Cronbach's Alpha, all constructs in this study exhibited values exceeding the minimum threshold of 0.70. Thus, it can be concluded that the research instrument meets basic reliability criteria and is capable of yielding stable and consistent measurement results.

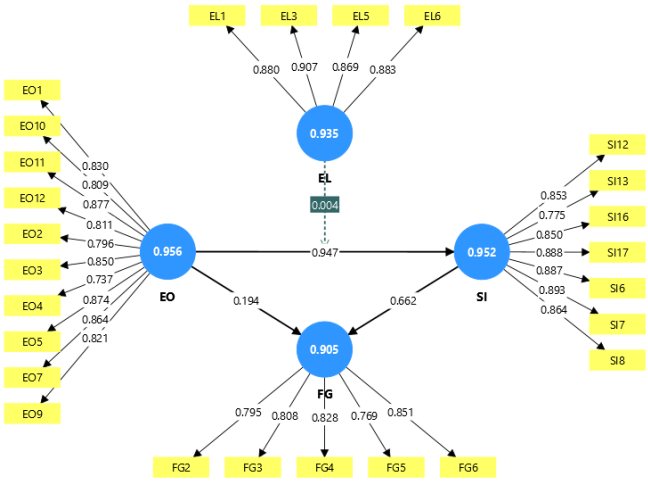

Figure IV. 4 Composite Reliability Test Results (rho_c)

Construct reliability was assessed using Composite Reliability (rho_c), which is considered more accurate than Cronbach's Alpha for measuring internal consistency in the context of PLS-SEM. The analysis results show that all constructs exhibited very high Composite Reliability values: Entrepreneurial Orientation (EO) at 0.956, Entrepreneurial Leadership (EL) at 0.935, Strategic Innovation (SI) at 0.952, and Firm Growth (FG) at 0.905.

Based on the criteria established by Hair et al. (2022), Composite Reliability values above 0.70 are considered acceptable; therefore, all constructs in this study demonstrate a very strong level of reliability. Values approaching 1 also indicate that the indicators within each

construct possess a very high level of consistency in measuring the latent variables. Consequently, the measurement model is deemed reliable and suitable for further analysis.

Based on the Cronbach's Alpha and Composite Reliability test results, it can be concluded that all constructs in this study meet the criteria for internal consistency reliability. Thus, the measurement model is considered reliable and ready to proceed to the next stage (assessing convergent and discriminant validity) prior to the evaluation of the structural model.

(3) Convergent Validity

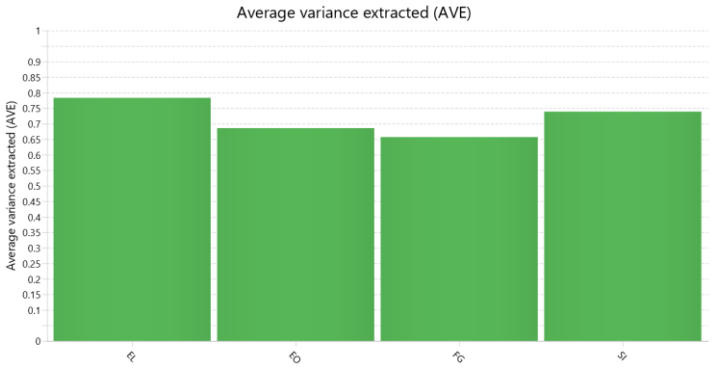

Figure IV. 5 Average variance extracted (AVE) test results

Based on the analysis results, all variables show AVE values above the minimum threshold of 0.50: Entrepreneurial Leadership (EL) at 0.78, Entrepreneurial Orientation (EO) at 0.68, Firm Growth (FG) at 0.65, and Strategic Innovation (SI) at 0.74.

Based on the criteria established by Hair et al. (2022), an AVE value exceeding 0.50 indicates that the construct explains more than 50 percent of the variance in its indicators, thereby satisfying the criterion for convergent validity. Consequently, it can be concluded that all constructs in this study demonstrate good convergent validity and are suitable for further analysis.

(4) Discriminant Validity

Table IV. 3 Discriminant Validity Results

	EL	EO	FG	SI	EL x EO
EL					
EO	**0.931**				
FG	**0.766**	**0.860**			
SI	**0.817**	**0.944**	**0.922**		
EL x EO	**0.373**	**0.415**	**0.320**	**0.366**	

Based on the analysis results, most HTMT values fall below the recommended threshold. The relationship between Entrepreneurial Leadership (EL) and Firm Growth (FG) is 0.766, while the relationship between EL and Strategic Innovation (SI) is 0.817; this indicates that the constructs possess good discriminant validity. Furthermore, the EL and EO interaction variable exhibits low HTMT values relative to all other constructs (ranging from 0.320 to 0.415), indicating that the moderating variable presents no discriminant validity issues.

However, several construct pairs exhibited HTMT values approaching or slightly exceeding the 0.90 threshold. These pairs include the relationship between Entrepreneurial Orientation (EO) and Entrepreneurial Leadership (EL) at 0.931, the relationship between Strategic Innovation (SI) and Entrepreneurial Orientation (EO) at 0.944, and the relationship involving Firm Growth (FG) at 0.922. These values indicate relatively strong relationships among the constructs.

Conceptually, these high HTMT values can be explained by the close interconnections among entrepreneurial orientation, leadership, and strategic innovation within the context of bottled water companies. Firms with a strong entrepreneurial orientation tend to be supported by active leadership and robust innovation capabilities, resulting in closely interrelated constructs. According to Gold et al. (2001), a high degree of similarity between variables is acceptable if those variables share a strong theoretical link. Given that all questionnaire items demonstrated strong loadings exceeding 0.70, there is no need to remove any indicators; forcing the removal of items could risk distorting or diminishing the original meaning of the constructs.

I.1.3 Model Fit Evaluation

Table IV. 4 Model Fit Evaluation Results

	Saturated model	Estimated model
SRMR	0.065	0.065
d_ULS	1.497	1.497
d_G	3.404	3.406
Chi-square	494.377	494.257
NFI	0.644	0.644

Based on the analysis results, the SRMR value for the model is 0.065, applicable to both the saturated model and the estimated model. According to the criteria established by Hair et al. (2022), an SRMR value below 0.08 indicates a good model fit. This suggests that the difference between the observed correlation matrix and the model-predicted matrix is relatively small, implying an adequate level of model fit.

Furthermore, the d_ULS value of 1.497 and the d_G value of 3.406 reflect the discrepancy between the empirical matrix and the matrix implied by the model. Although there are no strict threshold values for these metrics—unlike for SRMR—they serve as additional measures for evaluating model fit; the lower the d_ULS and d_G values, the better the model fits the data.

The Chi-square value of 494.257 reflects the degree of discrepancy between the model and the data. However, in the context of PLS-SEM, this metric is not the primary focus, as the method is oriented more towards prediction than towards the covariance-based model fit.

Furthermore, the Normed Fit Index (NFI) value of 0.644 indicates a moderate level of model fit. Although an ideal NFI value typically approaches 0.90, in PLS-SEM, this index is not the primary criterion for determining model adequacy.

Overall, based on the SRMR value meeting the good fit criteria (supported by other indicators) it can be concluded that the research model demonstrates an adequate level of fit and is suitable for further analysis, particularly for hypothesis testing.

I.1.4 Structural Model Evaluation (Inner Model)

(1) Collinearity Assessment

Table IV. 5 Collinearity Statistics (VIF) of Inner Model

	EL	EO	FG	SI	EL x EO
EL				**3.927**	
EO			**4.973**	**4.069**	
FG					
SI			**4.973**		
EL x EO				**1.192**	

Based on the analysis results, the VIF values in the model range from 1.192 to 4.973. The relationship between Entrepreneurial Leadership (EL) and Strategic Innovation (SI) shows a VIF value of 3.927, while the relationship between Entrepreneurial Orientation (EO) and Strategic Innovation (SI) is 4.069. Furthermore, the relationships between Entrepreneurial Orientation (EO) and Firm Growth (FG), as well as between Strategic Innovation (SI) and Firm Growth (FG), each exhibit a VIF value of 4.973.

The relatively high VIF values for certain relationships indicate strong inter-variable associations within the model, which can be conceptually explained by the close links between entrepreneurial orientation, strategic innovation, and firm growth. However, all VIF values remain below the threshold of 5, indicating the absence of multicollinearity issues that could distort model estimates.

Meanwhile, the moderating variable—represented by the interaction between Entrepreneurial Leadership (EL) and EO regarding Strategic Innovation (SI)—has a VIF value of 1.192. This indicates no collinearity issues with the interaction term, confirming the stability of the moderation model in this study.

Overall, the collinearity assessment results demonstrate that the research model is free from serious multicollinearity issues and is suitable for proceeding to the next stage of analysis: the evaluation of path coefficients and hypothesis testing using the bootstrapping method.

(2) Path Coefficients & Hypothesis Testing

Table IV. 6 Path Coefficients Table

	Original sample (O)	Sample mean (M)	Standard deviation (STDEV)	T statistics	P values
EL → SI	**-0.060**	**-0.083**	**0.137**	**0.438**	**0.661**
EL x EO → SI	**0.004**	**0.016**	**0.089**	**0.046**	**0.963**
EO → FG	**0.194**	**0.202**	**0.176**	**1.102**	**0.271**
EO → SI	**0.947**	**0.973**	**0.131**	**7.214**	**0.000**
SI → FG	**0.662**	**0.657**	**0.183**	**3.618**	**0.000**

This indicates that EO has a positive and significant influence on SI; therefore, the hypothesis stating that EO influences SI is accepted.

Furthermore, the relationship between Strategic Innovation (SI) and Firm Growth (FG) shows a path coefficient of 0.662, with a t-statistic of 3.618 and a p-value of 0.000. These results indicate that SI has a positive and significant influence on FG; thus, the hypothesis stating that SI influences FG is accepted.

However, the relationship between Entrepreneurial Orientation (EO) and Firm Growth (FG) shows a path coefficient of 0.194, with a t-statistic of 1.102 and a p-value of 0.271. This indicates that the influence of EO on FG is not significant; consequently, the hypothesis stating that EO has a direct influence on FG is rejected.

Additionally, the relationship between Entrepreneurial Leadership (EL) and Strategic Innovation (SI) shows a path coefficient of -0.060, with a t-statistic of 0.438 and a p-value of 0.661. These results indicate that EL does not have a significant influence on SI, leading to the rejection of the relevant hypothesis.

Furthermore, the moderation test shows that the interaction between Entrepreneurial Leadership (EL) and Entrepreneurial Orientation (EO) regarding Strategic Innovation (SI) has a coefficient of 0.004, with a t-statistic of 0.046 and a p-value of 0.963. This indicates that the moderation effect is not significant, meaning that Entrepreneurial Leadership does not moderate the relationship between EO and SI.

Overall, the research results show that among the relationships tested, only the influences of EO on SI and SI on FG are statistically significant. This suggests that Strategic Innovation plays a key mediating role in linking entrepreneurial orientation to firm growth, whereas the direct influence of EO on growth is not empirically supported.

(3) Coefficient of Determination (R^2)

Table IV. 7 Coefficient of Determination (R^2) Results

	R-square	R-square adjusted
FG	**0.706**	**0.691**
SI	**0.800**	**0.784**

Based on the analysis results, the Strategic Innovation (SI) variable has an R^2 value of 0.800 and an adjusted R^2 of 0.784. This indicates that 80 percent of the variance in SI can be explained by Entrepreneurial Orientation (EO), Entrepreneurial Leadership (EL), and the interaction between the two. This value falls into the strong category, indicating that the model possesses high explanatory power regarding strategic innovation.

Furthermore, the Firm Growth (FG) variable has an R^2 value of 0.706 and an adjusted R^2 of 0.691. This means that 70.6 percent of the variance in FG can be explained by Entrepreneurial Orientation (EO) and Strategic Innovation (SI). This value is also categorized as strong, demonstrating that the model has high explanatory power regarding firm growth.

The relatively small difference between R^2 and adjusted R^2 for both variables indicates that the model does not suffer from overfitting and remains stable, even when accounting for the number of variables included in the model.

Overall, the coefficients of determination indicate that the research model possesses strong predictive capability in explaining the endogenous variables, specifically Strategic Innovation and Firm Growth. Therefore, the model can be considered of good quality and suitable for further analysis, including the evaluation of effect sizes and predictive relevance.

(4) Effect Size (F^2)

Table IV. 8 F-Square Effect Size Results

	EL	EO	FG	SI	EL x EO
EL				**0.005**	
EO			0.026	**1.102**	
FG					
SI			**0.299**		
EL x EO				**0.000**	

Based on the analysis results, the influence of Entrepreneurial Orientation (EO) on Strategic Innovation (SI) yielded an F^2 value of 1.102, falling into the category of a large effect. This indicates that EO makes a very strong contribution to explaining the SI variable within the research model.

Furthermore, the influence of Strategic Innovation (SI) on Firm Growth (FG) showed an F^2 value of 0.299, categorized as a medium effect. This demonstrates that SI makes a significant contribution to enhancing firm growth.

Meanwhile, the influence of Entrepreneurial Orientation (EO) on Firm Growth (FG) resulted in an F^2 value of 0.026, falling into the category of a small effect. This is consistent with previous findings indicating that the direct influence of EO on FG is not significant.

On the other hand, the influence of Entrepreneurial Leadership (EL) on Strategic Innovation (SI) yielded an F^2 value of 0.005, indicating a very small and negligible effect. Additionally, the moderating effect of EL and EO on Strategic Innovation (SI) showed an F^2 value of 0.000, indicating that this moderating effect does not contribute meaningfully to the research model.

Overall, the effect size analysis reveals that the most dominant variables in this research model are Entrepreneurial Orientation in influencing Strategic Innovation, and Strategic Innovation in influencing Firm Growth. These findings reinforce the role of strategic innovation as a key variable bridging the relationship between entrepreneurial orientation and firm growth.

(5) Predictive Relevance (Q^2)

Table IV. 9 Q^2 Predict Tables

	Q^2 predict
SI	0.758
FG	0.570

Based on the analysis results, the Strategic Innovation (SI) variable has a Q^2_predict value of 0.758, while the Firm Growth (FG) variable has a value of 0.570. Both values are well above zero, indicating that the model possesses a high level of predictive relevance.

According to the criteria established by Hair et al. (2022), a Q^2_predict value exceeding 0.35 indicates substantial predictive relevance. Consequently, the Q^2_predict values for both SI and FG in this study fall into the substantial category, with Strategic Innovation demonstrating even stronger predictive capability.

Overall, these results indicate that the research model not only possesses strong explanatory power in capturing the relationships between variables but also demonstrates excellent predictive capability regarding the endogenous variables. This further reinforces the overall quality of the structural model developed in this study.

(6) Hypothesis Testing Analysis

Based on the empirical analysis using PLS-SEM, the five proposed hypotheses were evaluated to examine the relationships among Entrepreneurial Orientation, Strategic Innovation, Entrepreneurial Leadership, and Firm Growth in bottled water SMEs in South Sulawesi.

The research results indicate that Entrepreneurial Orientation (EO) has a positive and significant influence on Strategic Innovation (SI). This is supported by a path coefficient of 0.947, a t-statistic of 7.214, and a p-value of 0.000. These findings suggest that firms exhibiting higher levels of innovativeness, proactiveness, and risk-taking behavior are better able to develop strategic innovations. Therefore, the first hypothesis is accepted.

Furthermore, Strategic Innovation (SI) was found to have a positive and significant influence on Firm Growth (FG). The path coefficient was recorded at 0.662, with a t-statistic of 3.618 and a p-value of 0.000. This demonstrates that firms successfully implementing innovations in operational processes and market strategies are more likely to achieve sustainable growth. Thus, the second hypothesis is accepted.

Mediation analysis confirms that Strategic Innovation (SI) mediates the relationship between Entrepreneurial Orientation (EO) and Firm Growth (FG). The direct effect of EO on FG was not significant, with a path coefficient of 0.194, a t-statistic of 1.102, and a p-value of 0.271. This indicates that entrepreneurial orientation does not directly lead to firm growth unless it is translated into concrete strategic innovations. Consequently, the third hypothesis is accepted, with full mediation identified in the model.

Conversely, Entrepreneurial Leadership (EL) does not have a significant moderating effect on the relationship between Entrepreneurial Orientation (EO) and Strategic Innovation (SI). The interaction term between EL and EO showed a path coefficient of 0.004, a t-statistic of 0.046, and a p-value of 0.963. These results indicate that leadership neither strengthens nor influences the relationship between entrepreneurial orientation and innovation. Therefore, the fourth hypothesis is rejected.

Furthermore, Entrepreneurial Orientation does not have a significant direct effect on Firm Growth. The path coefficient is 0.194, with a t-statistic of 1.102 and a p-value of 0.271. These findings reinforce the notion that entrepreneurial orientation alone is insufficient to directly drive firm growth. Consequently, the fifth hypothesis is rejected.

Overall, the findings indicate that Strategic Innovation serves as the primary mechanism linking Entrepreneurial Orientation to Firm Growth. Entrepreneurial orientation acts as a driver

that motivates firms to explore opportunities and take strategic actions; however, these actions contribute to growth only when implemented through innovation. Meanwhile, Entrepreneurial Leadership does not play a significant role in this model, indicating that firm growth within the context of bottled water SMEs relies more on innovation capabilities than on leadership influence.

Therefore, the final empirical model can be summarized as follows: Entrepreneurial Orientation influences Strategic Innovation, and Strategic Innovation influences Firm Growth. This demonstrates that firm growth is achieved through the effective transformation of entrepreneurial behavior into strategic innovation.

I.2 Business Research Analysis

Empirical analysis reveals an indirect causal relationship in which Strategic Innovation (SI) acts as a full mediator linking Entrepreneurial Orientation (EO) to Firm Growth (FG). These findings indicate that the primary challenge facing bottled water companies in South Sulawesi is not a lack of entrepreneurial orientation, but rather an inability to translate that orientation into concrete strategic innovations. While many companies demonstrate risk-taking behavior, market expansion, and long-term vision, they struggle to convert these attributes into operational strategies that directly drive business growth. Furthermore, the research results show that Entrepreneurial Leadership (EL) does not play a significant moderating role. This reinforces the conclusion that the core issue lies not with the leader, but with the business systems and mechanisms capable of consistently executing innovation.

Therefore, business solutions should focus on bridging the gap between entrepreneurial orientation and firm growth by strengthening operationally driven strategic innovation.

I.2.1 Strategic Framework for Water Bottled Industry MSMEs

The strategic framework developed in this study not only illustrates the linear relationships between variables but also explains the value transformation mechanism that converts entrepreneurial mindset into tangible business growth. Based on empirical findings, Entrepreneurial Orientation (EO) does not lead directly to Firm Growth (FG); rather, it must operate through Strategic Innovation (SI) as its primary conversion mechanism. This framework is illustrated in Figure IV.6.

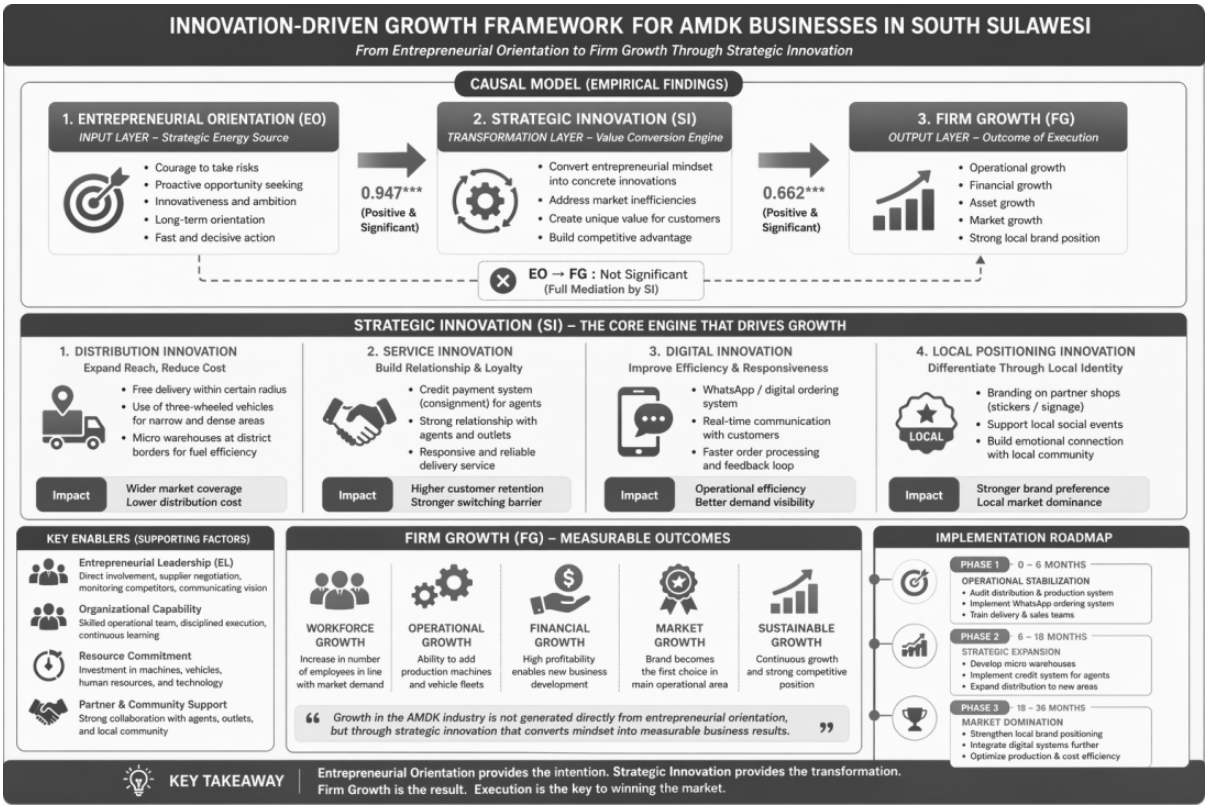

Figure IV. 6 Business Solution Model

Figure IV.6 illustrates that firm growth does not occur directly as a result of entrepreneurial orientation but rather through a strategic conversion process mediated by innovation. The Innovation-Driven Growth Framework described above depicts how a company transforms entrepreneurial orientation into measurable business growth through strategic innovation. This framework highlights that growth is the outcome of a structured transformation process, wherein innovation serves as the primary mechanism linking an entrepreneurial mindset to tangible performance results.

The second layer, Strategic Innovation (SI), forms the core of this framework and acts as a value-conversion engine. At this stage, entrepreneurial orientation is translated into concrete actions that generate added value for the company. Strategic Innovation comprises four key pillars: distribution innovation, service innovation, digital innovation, and local positioning innovation. Distribution innovation focuses on expanding market reach and enhancing cost efficiency through strategies such as the use of three-wheeled vehicles and the establishment of strategically located warehouses. Service innovation aims to boost customer loyalty through credit systems and responsive service. Digital innovation leverages simple technologies, such as WhatsApp, to improve transaction efficiency. Meanwhile, local positioning innovation strengthens emotional bonds with consumers through region-based branding. These four pillars demonstrate that effective innovation need not be complex; rather, it must be relevant and capable of addressing the specific needs of the local market.

The third layer is Firm Growth (FG), serving as the output layer that represents the results of implementing strategic innovation. Within this framework, growth is reflected not only in increased sales but also encompasses operational expansion, asset growth, improved profitability, and a strengthened brand position in the local market. This indicates that growth

is the cumulative outcome of operational efficiency, market expansion, and enhanced customer loyalty.

The framework also emphasizes a strong cause-and-effect relationship wherein Entrepreneurial Orientation (EO) does not directly influence Firm Growth (FG); rather, it operates through Strategic Innovation (SI) as a mediator. In other words, entrepreneurial orientation acts as the trigger, strategic innovation serves as the core mechanism, and growth represents the final outcome. Without strategic innovation, entrepreneurial orientation alone would not yield a significant economic impact.

Furthermore, the framework highlights that competitive advantage in the bottled water industry stems not primarily from product differentiation, but rather from the strength of distribution systems, operational efficiency, and customer relationships. Consequently, companies capable of optimizing innovation in these areas stand a better chance of achieving sustainable growth.

Overall, this figure illustrates that success in the bottled water business relies heavily on a company's ability to transform an entrepreneurial mindset into concrete, contextually relevant innovative strategies. The framework is both conceptual and practical, making it applicable as a strategic guide for business practitioners seeking to enhance competitiveness and improve overall business performance.

CONCLUSION

This study analyzes the relationships among Entrepreneurial Orientation (EO), Strategic Innovation (SI), Entrepreneurial Leadership (EL), and Firm Growth (FG) within MSMEs in the bottled drinking water sector in South Sulawesi. The findings indicate that to achieve sustainable growth, firms need to possess an entrepreneurial orientation that translates into strategic innovation as the primary driver; meanwhile, entrepreneurial leadership serves merely as a supporting factor without exerting a significant influence.

Entrepreneurial Orientation has a positive and significant influence on strategic innovation. Therefore, it can be concluded that companies that are more innovative, proactive, and willing to take risks are more likely to create strategic innovation. In the context of the bottled water industry in South Sulawesi, this entrepreneurial orientation can be seen in the willingness of companies to expand their distribution areas, invest in increasing production capacity, develop new marketing methods, and explore market opportunities that may be unreachable by competitors. These findings indicate that Entrepreneurial Orientation plays a crucial role as a trigger for companies to renew their business strategies.

Strategic innovation has a positive and significant effect on firm growth. Based on this finding, it can be concluded that the growth of bottled water companies in South Sulawesi is determined by the strategic innovations they use to achieve that growth. In this industry with a low level of differentiation, most brands offer products that have relatively similar benefits (only different brands). Therefore, competitive advantage in this industry is mostly determined by operational efficiency, distribution speed, agent/seller network, the ability to reach unserved markets, and an emotional approach to customers. In other words, company growth is mostly determined by the innovations made to the business model and distribution system rather than the innovation of the product itself.

Strategic innovation acts as a mediator in the relationship between entrepreneurial orientation and firm growth. Based on these findings, it can be concluded that entrepreneurial orientation does not directly generate growth. A company's proactive attitude in exploring new opportunities, courage in taking risks, and innovative orientation will only generate growth if converted into strategic innovation. This phenomenon proves that not all companies with a strong entrepreneurial spirit are able to outperform their competitors. Because growth can only be achieved when there are real and measurable actions, such as developing more effective distribution methods, optimizing operational processes, expanding markets, and utilizing technology that supports business efficiency. Thus, strategic innovation is the main driver connecting entrepreneurial orientation and firm growth.

Entrepreneurial leadership did not significantly moderate the relationship between entrepreneurial orientation and strategic innovation. These findings demonstrate that entrepreneurial leadership is not the primary catalyst for the transformation from entrepreneurial orientation to strategic innovation. This phenomenon is interesting because companies in industries still dominated by MSMEs typically have simple organizational structures, where managers and key decision-makers being the business owners. In this context, innovation is more likely to be generated in response to market pressures, price competition, distribution needs, and day-to-day operational demands than through formal leadership intervention. Therefore, leadership is not the primary driver of strategic innovation.

Based on the research findings, this study disclose a significant phenomenon in the competitiveness of the bottled water MSME industry in South Sulawesi. In this case, we found that company growth is not based on production capacity, size, or willingness to take risks. Instead, sustainable growth will only be reached when companies can translate their entrepreneurial orientation into strategic innovation that is relevant and aligned with market needs. In this low-differentiation industry, competitive advantage is built on operational efficiency, distribution effectiveness, local relationship, and the ability to respond quickly to customer needs. Therefore, strategic innovation has come up as a foundation mechanism activate companies to keep their competitiveness and achieve sustainable growth.

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