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Freshness Handling and Distribution Capability in Sustaining Duck Egg Enterprises

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Abstract

Duck egg enterprises in Jembrana Regency operate in a distinctive local agribusiness context where demand is influenced by household consumption, culinary needs, and sociocultural practices. This study examines the effects of business strategy and marketing strategy on business sustainability, with freshness handling and distribution capability as a mediating variable. A quantitative explanatory approach was used by surveying 44 duck egg entrepreneurs in Jembrana Regency. Data were analyzed using descriptive statistics and Structural Equation Modeling-Partial Least Squares with SmartPLS 4.0. The results show that business strategy and marketing strategy positively affect business sustainability. Business strategy also has a strong effect on freshness handling and distribution capability, while marketing strategy has a weaker effect. Freshness handling and distribution capability positively affects business sustainability and mediates the relationships between strategic variables and sustainability. The findings indicate that the sustainability of duck egg enterprises depends not only on strategic planning and market orientation, but also on operational capability to maintain freshness and ensure reliable distribution. This study contributes to small agribusiness sustainability literature by emphasizing the role of freshness handling and distribution capability as an operational mechanism linking strategy and sustainability in perishable local food enterprises.

Keywords: business strategy, marketing strategy, distribution capability, business sustainability
JEL Classification: M10, M31, Q13, L26

INTRODUCTION

Agribusiness sustainability is an important issue in local economic development because small agricultural enterprises contribute to household income, food availability, employment, and rural economic resilience. In the poultry subsector, eggs are strategic food commodities because they provide affordable animal protein and have relatively broad household and commercial demand. However, poultry-based enterprises also face several managerial and operational challenges, including feed price fluctuation, production uncertainty, market competition, product perishability, and supply chain efficiency. These

challenges require small agribusiness actors to strengthen not only production capacity, but also strategic management, marketing orientation, and distribution capability, particularly when dealing with perishable food products (Trienekens & van der Vorst, 2010; Van der Vorst et al., 2009).

Duck egg enterprises have distinctive characteristics compared with other egg-based businesses. Duck eggs are not only consumed as food products, but are also used as raw materials for processed products and specific local needs. In Bali, duck eggs have additional sociocultural value because they are used in religious and traditional ceremonies. This cultural function creates a specific demand pattern that differs from ordinary daily consumption. Demand may increase significantly before ritual periods and decrease outside those periods. As a result, duck egg entrepreneurs face market uncertainty while still having to bear operational costs such as feed, labor, electricity, water, and other production expenses. This condition makes sustainability a critical issue for duck egg enterprises, especially in regions where cultural demand strongly influences market dynamics (Handayati et al., 2015; Mardika, 2024; Widianti & Widana, 2022).

Jembrana Regency is a relevant context for examining the sustainability of duck egg enterprises. The region has a strong agrarian character, and agriculture, livestock, and local food production remain important components of the regional economy. The agricultural sector contributes substantially to the economy of Jembrana Regency, while duck farming is spread across several subdistricts, particularly Mendoyo, Jembrana, and Negara. Duck egg enterprises in this area are generally managed by individual business units and farmer groups, many of which are still closely connected to local rural economic systems. This shows that duck egg enterprises are not merely household-scale activities, but part of a local agribusiness structure that supports food supply, community income, and regional economic activity.

Table 1. Duck Population Distribution in Jembrana Regency

No.	Subdistrict	Duck Population	Percentage
1	Mendoyo	11,493	56.21
2	Jembrana	4,504	22.03
3	Negara	3,203	15.66
4	Other subdistricts	1,248	6.10
	Total	**20,448**	**100.00**

Source: Processed from Jembrana Regency sectoral statistics, 2024.

The sustainability problem becomes more complex because duck eggs are perishable products. Product freshness affects customer trust, market acceptance, and the ability of entrepreneurs to maintain stable relationships with buyers. In perishable food supply chains, product value can decline rapidly when handling, storage, packaging, and distribution are not properly managed. Therefore, the sustainability of duck egg enterprises cannot be explained only by business planning or marketing activities. It also depends on how entrepreneurs maintain freshness and distribute products reliably. Freshness handling and distribution capability becomes an important operational capability that links strategic decisions with market performance.

Business strategy is one of the key factors that may improve enterprise sustainability. From the competitive strategy perspective, enterprises need clear strategic choices to create value, reduce cost pressure, and strengthen competitive advantage (Porter, 1985). In small agribusiness, business strategy can be reflected in production planning, market orientation, cost efficiency, process innovation, and partnership development. The Resource-Based View also argues that enterprises can achieve sustainable advantage when they are able to use valuable, rare, inimitable, and well-organized resources (Barney, 1991). In the context of duck egg enterprises, local production experience, customer trust, knowledge of market cycles, and relationships with buyers can become strategic resources that support business continuity.

Marketing strategy is also important because duck eggs are often perceived as relatively homogeneous products. Without effective marketing, entrepreneurs may compete mainly through price and may fail to communicate the value of freshness, quality, and reliability. Marketing strategy helps enterprises create customer value, manage product attributes, determine pricing decisions, develop distribution channels, and build customer relationships (Kotler & Keller, 2016; Armstrong et al., 2020). In the case of duck egg enterprises, marketing strategy is not limited to promotion. It also includes product differentiation, quality assurance, access to customers, and the ability to respond to specific market segments such as household consumers, culinary businesses, traders, and ritual-related demand.

Nevertheless, strategy formulation alone is not sufficient to ensure sustainability. Business strategy and marketing strategy must be translated into operational capability. Freshness handling and distribution capability refers to the ability of entrepreneurs to maintain egg freshness, conduct sorting and cleaning, manage packaging and storage, regulate delivery frequency, and coordinate logistics with buyers. For perishable products, these capabilities are essential because customer satisfaction and product value depend on freshness and timely delivery (Christopher, 2016; Trienekens & van der Vorst, 2010). A business strategy that emphasizes efficiency and quality will have limited impact if the enterprise cannot maintain product freshness. Similarly, a marketing strategy that promises quality and freshness will not be credible without reliable handling and distribution.

This study is grounded in Dynamic Capabilities Theory, which emphasizes the ability of enterprises to integrate, build, and reconfigure internal and external competencies in response to changing environments (Teece et al., 1997; Teece, 2007). This perspective is relevant because duck egg entrepreneurs operate in a changing and seasonal market environment. They must sense changes in demand, seize market opportunities, and transform internal practices to maintain competitiveness. Business strategy and marketing strategy represent strategic responses to market dynamics, while freshness handling and distribution capability represents the operational capability that enables entrepreneurs to translate strategic orientation into sustainable business outcomes.

Previous studies on perishable food supply chains have emphasized the importance of supply chain efficiency, product quality, and market responsiveness (Van der Vorst et al., 2009; Trienekens & van der Vorst, 2010). Studies in strategic management and marketing also highlight the role of competitive strategy, internal resources, customer value, and distribution channels in improving business

performance (Porter, 1985; Barney, 1991; Kotler & Keller, 2016; Christopher, 2016). However, limited attention has been given to the mediating role of freshness handling and distribution capability in explaining how business strategy and marketing strategy affect business sustainability, particularly in culturally embedded local agribusiness enterprises. This gap is important because duck egg enterprises operate in a market shaped not only by economic demand, but also by sociocultural and seasonal needs.

Based on this gap, this study offers novelty by positioning freshness handling and distribution capability as a mediating variable in the relationship between business strategy, marketing strategy, and business sustainability. The novelty lies in explaining sustainability not only as a direct result of strategic and marketing orientation, but also as an outcome of operational capability in maintaining freshness and distribution reliability. Therefore, this study aims to examine the direct effects of business strategy and marketing strategy on the sustainability of duck egg enterprises in Jembrana Regency and to analyze the mediating role of freshness handling and distribution capability in these relationships. The findings are expected to contribute to the literature on small agribusiness sustainability, local economic development, and perishable food supply chain management, while also providing practical implications for duck egg entrepreneurs and local government.

METHOD

Research Design

This study used a quantitative explanatory research design to examine the direct and indirect effects of business strategy and marketing strategy on business sustainability through freshness handling and distribution capability. A quantitative approach was considered appropriate because the study tested causal relationships among latent variables using survey data. The explanatory design was used to explain how strategic and operational factors influence the sustainability of duck egg enterprises.

The study was conducted in Jembrana Regency, Bali, Indonesia. The unit of analysis was duck egg entrepreneurs operating in the region. The population consisted of 44 duck egg entrepreneurs, and all members of the population were included as respondents. Therefore, this study used a census approach. Primary data were collected using a structured questionnaire distributed to duck egg entrepreneurs. The questionnaire measured respondents' perceptions of business strategy, marketing strategy, freshness handling and distribution capability, and business sustainability. Each statement was measured using a five-point Likert scale, ranging from strongly disagree to strongly agree.

Variables and Measurement

This study used four latent variables: business strategy, marketing strategy, freshness handling and distribution capability, and business sustainability. Business strategy and marketing strategy were treated as exogenous variables. Freshness handling and distribution capability was treated as a mediating variable, while business sustainability was treated as an endogenous variable. The use of a mediating variable is relevant because mediation explains the mechanism through

which an independent variable affects a dependent variable (Baron & Kenny, 1986; Preacher & Hayes, 2004; Hayes, 2022).

Business strategy was measured through planning and market orientation, production process innovation, cost efficiency, and business partnership. These indicators reflect the strategic management perspective that emphasizes competitive advantage, resource utilization, efficiency, and collaboration (Porter, 1985; Barney, 1991; Dyer & Singh, 1998; David & David, 2017; Teece, 2018). Marketing strategy was measured through product quality, product variation, competitive pricing, discount policy, distribution access, distribution channels, market coverage, promotion and communication, and customer orientation. These indicators are consistent with marketing management and market-oriented strategy, which emphasize customer value, product attributes, pricing, distribution, promotion, and relationship building (Monroe, 2003; Kotler & Keller, 2016; Christopher, 2016; Chaffey & Ellis-Chadwick, 2019; Armstrong et al., 2020).

Freshness handling and distribution capability was measured through the ability to maintain freshness, handle products properly, manage packaging and storage, deliver products quickly, ensure distribution reliability, and coordinate logistics with buyers. These indicators are relevant for perishable products because product quality depends on handling, storage, and distribution performance (Van der Vorst et al., 2009; Trienekens & van der Vorst, 2010; Christopher, 2016). Business sustainability was measured through business continuity, income stability, customer retention, adaptability, and long-term growth orientation. These indicators reflect the ability of an enterprise to continue operating, maintain market relationships, and adapt to changes in the business environment (Barney, 1991; Teece, 2007; Bansal & DesJardine, 2014).

Table 2. Variables and Indicators *(Tabel 4.1 pada tesis)*

Variable	Code	Indicators	Main References
Business Strategy	X1	Planning and market orientation; production process innovation; cost efficiency; business partnership	Porter (1985); Barney (1991); Dyer & Singh (1998); David & David (2017); Teece (2018)
Marketing Strategy	X2	Product quality and attributes; product variation; competitive pricing; discount policy; distribution accessibility; distribution channel; market coverage; promotion and communication; customer orientation	Monroe (2003); Kotler & Keller (2016); Christopher (2016); Chaffey & Ellis-Chadwick (2019); Armstrong et al. (2020)
Freshness Handling and Distribution Capability	M	Freshness maintenance; product handling; packaging; storage; delivery speed; distribution reliability; logistics coordination	Van der Vorst et al. (2009); Trienekens & van der Vorst (2010); Christopher (2016)
Business Sustainability	Y	Business continuity; income stability; customer retention; adaptability; long-term growth orientation	Barney (1991); Teece (2007); Bansal & DesJardine (2014)

Source: Developed from literature review

Research Model and Data Analysis

The research model examined the relationship between business strategy, marketing strategy, freshness handling and distribution capability, and business sustainability. Business strategy and marketing strategy were positioned as predictors of business sustainability. Freshness handling and distribution capability was positioned as a mediating variable that explains how strategic orientation is translated into sustainable business outcomes. The research model is presented in Figure 1.

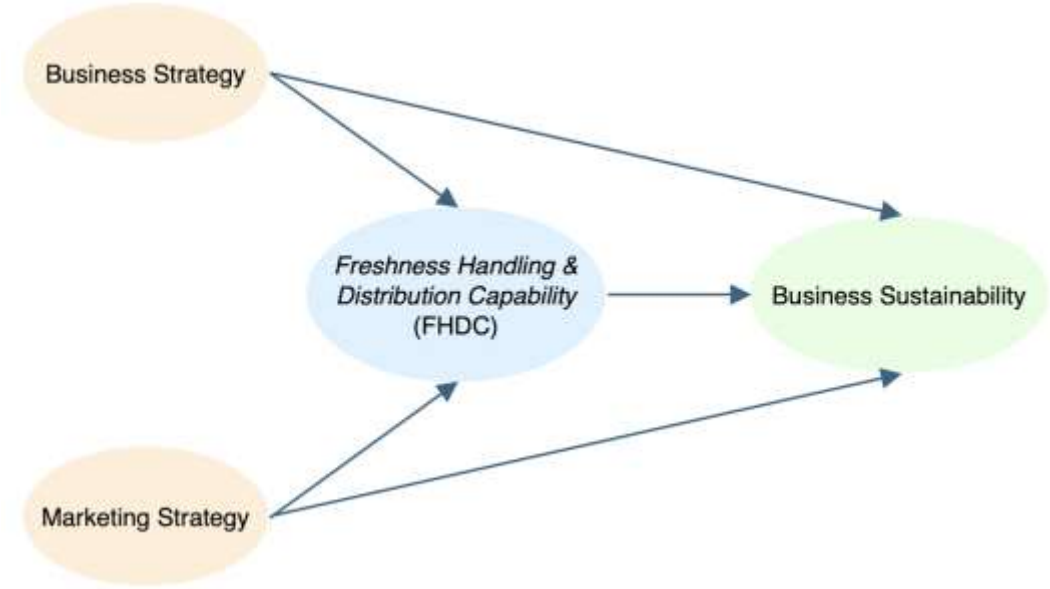

Figure 1. Research Conceptual Framework

Data were analyzed using descriptive statistics and Structural Equation Modeling-Partial Least Squares (SEM-PLS) with SmartPLS 4.0. Descriptive statistics were used to describe respondent characteristics and response tendencies for each variable. SEM-PLS was used because this study involved latent variables, multiple structural relationships, mediation testing, and a relatively small sample size. PLS-SEM is appropriate for prediction-oriented models and studies involving complex relationships among constructs (Hair et al., 2019).

The SEM-PLS analysis consisted of measurement model evaluation and structural model evaluation. The measurement model was evaluated using convergent validity, discriminant validity, and construct reliability. Convergent validity was assessed using outer loading and Average Variance Extracted. Discriminant validity was assessed using the Fornell-Larcker criterion. Construct reliability was examined using Cronbach's alpha and composite reliability. The structural model was evaluated using path coefficients, t-statistics, p-values, coefficient of determination, and indirect effects. Mediation was tested using bootstrapping to examine the significance of indirect effects.

In addition to SEM-PLS, this study used Importance-Performance Map Analysis to identify priority variables and indicators affecting freshness handling and distribution capability and business sustainability. Importance-Performance Map Analysis combines the importance of a construct or indicator in explaining the target variable with its performance level. Therefore, it helps identify which

strategic and operational factors should be maintained or improved by duck egg entrepreneurs.

RESULTS AND DISCUSSION

This section presents the empirical findings and discussion of the study. The analysis begins with respondent characteristics, followed by descriptive results, measurement model evaluation, structural model testing, mediation analysis, and importance-performance map analysis. The discussion is integrated with the results to explain how business strategy, marketing strategy, and freshness handling and distribution capability contribute to the sustainability of duck egg enterprises.

Respondent Characteristics

The characteristics of respondents provide an overview of the demographic and business background of duck egg entrepreneurs involved in this study. As shown in Table 3, most respondents were male, aged above 55 years, had senior high school education, and had one to five years of farming experience. This profile indicates that duck egg enterprises in Jembrana Regency are mainly managed by older male entrepreneurs with middle-level formal education and relatively early to medium business experience.

Table 3. Respondent Characteristics

No.	Description	Frequency	Percentage
1	Gender: Male	41	93.2
	Gender: Female	3	6.8
2	Age: 26–35 years	4	9.1
	Age: 36–45 years	2	4.5
	Age: 46–55 years	13	29.5
	Age: Above 55 years	25	56.8
3	Education: Did not complete elementary school	8	18.2
	Education: Elementary school	3	6.8
	Education: Junior high school	4	9.1
	Education: Senior high school	22	50.0
	Education: Diploma	2	4.5
	Education: Bachelor degree	5	11.4
4	Farming experience: Less than 1 year	4	9.1
	Farming experience: 1–5 years	30	68.2
	Farming experience: 6–10 years	8	18.2
	Farming experience: 10–20 years	1	2.3
	Farming experience: More than 20 years	1	2.3

Source: Processed primary data, 2026

The dominance of male respondents suggests that duck egg enterprises are still closely associated with household-based livestock activities that require physical labor and operational involvement. The age distribution shows that most entrepreneurs were above 55 years old, indicating that this enterprise is strongly

supported by practical experience. However, the relatively low participation of younger entrepreneurs may also indicate a regeneration challenge in the long term. In terms of education, half of the respondents had senior high school education, suggesting that most entrepreneurs had sufficient basic capacity to manage daily operations, although improvement may still be needed in strategic management, digital marketing, and supply chain practices. Meanwhile, most respondents had one to five years of farming experience, indicating that many enterprises were still in an early-to-medium development stage.

Descriptive Results of Results Variables

Descriptive analysis was conducted to identify the general tendency of respondents' answers for each research variable. The interpretation of mean scores used five categories: very poor, poor, moderate, good, and very good. As presented in Table 4, all research variables were perceived positively by respondents, with mean scores ranging from good to very good. Freshness handling and distribution capability had the highest mean score, followed by business sustainability, business strategy, and marketing strategy.

Table 4. Descriptive Results of Research Variables

No.	Variable	Mean	Category
1	Business Strategy	4.05	Good
2	Marketing Strategy	3.82	Good
3	Business Sustainability	4.19	Good
4	Freshness Handling and Distribution Capability	4.32	Very Good

Source: Processed primary data, 2026

The results indicate that duck egg entrepreneurs had relatively strong perceptions of their strategic, marketing, operational, and sustainability practices. The highest score was found in freshness handling and distribution capability, indicating that respondents perceived freshness maintenance, product handling, packaging, sorting, delivery routines, and logistics coordination as well-managed practices. This finding is relevant because duck eggs are perishable products whose market value depends strongly on freshness and timely distribution. The relatively lower mean score of marketing strategy suggests that marketing practices still require improvement, particularly in product variation, market coverage, promotion, and the use of broader distribution channels. Therefore, while operational handling was perceived as strong, market expansion and promotional capability remain important areas for strengthening business sustainability.

Measurement Model Evaluation

The measurement model was evaluated to ensure that all constructs met the criteria of validity and reliability. The evaluation included convergent validity, discriminant validity, and construct reliability. Convergent validity was assessed using outer loading and Average Variance Extracted. Discriminant validity was examined using the Fornell-Larcker criterion, while construct reliability was evaluated using Cronbach's alpha and composite reliability. In SEM-PLS, construct reliability and validity are important to ensure that the indicators consistently represent their latent variables (Hair et al., 2019; Hair et al., 2022).

Table 5. Measurement Model Evaluation

Construct	Loading Range	AVE	Cronbach's Alpha	Composite Reliability	Result
Business Strategy	> 0.50	0.677	0.841	0.893	Valid and reliable
Marketing Strategy	> 0.50	0.526	0.865	0.893	Valid and reliable
Freshness Handling and Distribution Capability	> 0.50	0.555	0.730	0.831	Valid and reliable
Business Sustainability	> 0.50	0.597	0.771	0.854	Valid and reliable

Source: Processed primary data, 2026

The results show that all constructs had outer loading values above 0.50, indicating that the indicators met the convergent validity criterion. The AVE values ranged from 0.526 to 0.677, exceeding the minimum threshold of 0.50. This indicates that each construct was able to explain more than half of the variance of its indicators. The Cronbach's alpha values ranged from 0.730 to 0.865, while the composite reliability values ranged from 0.831 to 0.893. These values indicate that all constructs had acceptable internal consistency.

Discriminant validity was also fulfilled. The Fornell-Larcker results showed that the square root of AVE for each construct was higher than its correlations with other constructs. This indicates that business strategy, marketing strategy, freshness handling and distribution capability, and business sustainability were empirically distinct from one another. Therefore, the measurement model was considered valid and reliable, and the analysis could proceed to the structural model evaluation.

Structural Model and Hypothesis Testing

The structural model was evaluated to examine the direct and indirect relationships among the constructs. The results show that business strategy, marketing strategy, and freshness handling and distribution capability had positive effects on business sustainability. Business strategy had the strongest direct effect on business sustainability, followed by freshness handling and distribution capability and marketing strategy. The results also show that both business strategy and marketing strategy positively affected freshness handling and distribution capability.

Table 6. Structural Model and Hypothesis Testing

Hypothesis	Relationship	Path Coefficient	T-Statistics	P-Values	Result
H1	Business Strategy → Business Sustainability	0.371	3.058	0.002	Supported
H2	Marketing Strategy → Business Sustainability	0.259	2.190	0.029	Supported
H3	Business Strategy → FHDC	0.295	2.302	0.021	Supported
H4	Marketing Strategy → FHDC	0.351	2.798	0.005	Supported
H5	FHDC → Business Sustainability	0.303	2.445	0.015	Supported

Hypothesis	Relationship	Path Coefficient	T-Statistics	P-Values	Result
H6	Business Strategy → FHDC → Business Sustainability	0.089	1.700	0.089	Not supported
H7	Marketing Strategy → FHDC → Business Sustainability	0.186	1.666	0.096	Not supported

Source: Processed primary data, 2026

The direct effect of business strategy on business sustainability was positive and significant. This means that better business planning, market orientation, production process innovation, cost efficiency, and partnership development contribute to stronger business sustainability. This finding is consistent with strategic management theory, which argues that competitive advantage and resource-based capabilities support long-term business performance (Porter, 1985; Barney, 1991; Teece, 2007). In duck egg enterprises, business strategy is important because entrepreneurs must manage fluctuating demand, production costs, and market relationships.

Marketing strategy also had a positive and significant effect on business sustainability. This result indicates that product quality, pricing, distribution access, promotion, and customer orientation help entrepreneurs maintain customer relationships and market continuity. This supports the view that marketing strategy strengthens customer value and market responsiveness (Kotler & Keller, 2016; Armstrong et al., 2020). For duck egg enterprises, marketing strategy becomes relevant because the product is often perceived as homogeneous, so entrepreneurs need to communicate freshness, quality, and reliability to customers.

The effect of business strategy on freshness handling and distribution capability was positive and significant. This indicates that strategic orientation improves the operational ability of entrepreneurs to maintain freshness, handle products, and manage distribution. Marketing strategy also had a positive and significant effect on freshness handling and distribution capability. This suggests that market-oriented practices encourage entrepreneurs to improve product handling and distribution reliability. These findings confirm that strategic and marketing orientations must be supported by operational capability, particularly in perishable food supply chains (Christopher, 2016; Trienekens & van der Vorst, 2010).

Freshness handling and distribution capability had a positive and significant effect on business sustainability. This result confirms that the ability to maintain product freshness, reduce damage, ensure proper packaging, and deliver products reliably is crucial for sustaining duck egg enterprises. Since duck eggs are perishable products, operational capability becomes a key factor in maintaining customer trust and business continuity.

The mediation results show that the indirect effects of business strategy and marketing strategy on business sustainability through freshness handling and distribution capability were positive but not statistically significant at the 5 percent level. The indirect effect of business strategy was 0.089 with a p-value of 0.089, while the indirect effect of marketing strategy was 0.186 with a p-value of 0.096. These results indicate that freshness handling and distribution capability does not

fully mediate the relationship between strategic variables and business sustainability. However, because the indirect effects were positive and close to the 10 percent significance level, freshness handling and distribution capability can still be interpreted as an operational mechanism that strengthens the strategic path toward sustainability.

The coefficient of determination indicates that the model had adequate explanatory power. Freshness handling and distribution capability was explained by business strategy and marketing strategy, while business sustainability was explained by business strategy, marketing strategy, and freshness handling and distribution capability. These findings suggest that the sustainability of duck egg enterprises is determined not only by strategic and marketing orientation, but also by operational capability in maintaining freshness and distribution reliability.

Importance-Performance Map Analysis

Importance-Performance Map Analysis was conducted to identify strategic priorities for improving freshness handling and distribution capability and business sustainability. This analysis combines the importance of each variable in explaining the target construct with its performance level. Therefore, IPMA helps determine which variables should be maintained and which variables require managerial improvement (Martilla & James, 1977; Hair et al., 2019).

Table 7. Importance-Performance Map Analysis Results

No.	Target Construct	Predictor	Importance	Performance	Priority Interpretation
1	Freshness Handling and Distribution Capability	Business Strategy	Low	High	Maintain operational consistency
2	Freshness Handling and Distribution Capability	Marketing Strategy	High	Low	Main priority for improvement
3	Business Sustainability	Business Strategy	High	High	Maintain as key strength
4	Business Sustainability	Freshness Handling and Distribution Capability	Low	Low	Improve selectively
5	Business Sustainability	Marketing Strategy	Low	Low	Improve selectively

Source: Processed primary data, 2026

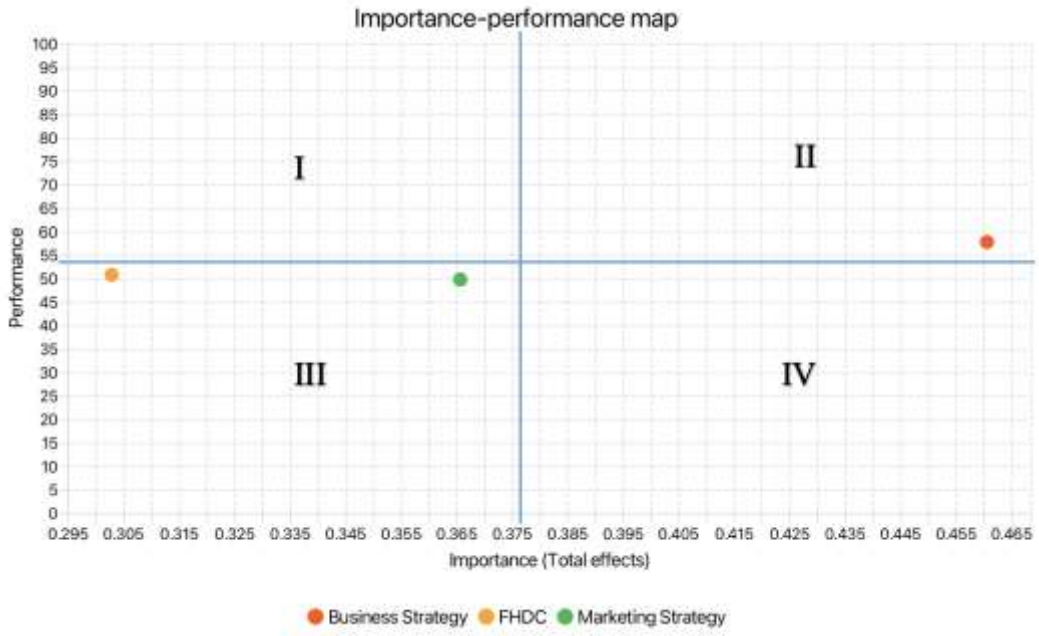

Figure 2. Importance-Performance Map for Business Sustainability
Source: Processed primary data, 2026.

The IPMA results show that business strategy had high performance but relatively low importance in explaining freshness handling and distribution capability. This means that duck egg entrepreneurs have implemented business planning, production efficiency, and partnership practices relatively well, but these aspects are not the most urgent drivers of improvement in freshness handling and distribution capability. Therefore, business strategy should be maintained as an operational foundation.

Marketing strategy showed high importance but low performance in explaining freshness handling and distribution capability. This finding indicates that marketing strategy is the main priority for improvement. Duck egg entrepreneurs need to strengthen product differentiation, promotion, market coverage, customer communication, and distribution access. Since marketing promises related to freshness and quality must be supported by reliable handling and delivery, weak marketing performance may limit the ability of enterprises to expand markets and improve customer trust.

For business sustainability, business strategy was positioned as a key strength because it had both high importance and high performance. This result confirms that strategic planning, cost efficiency, production innovation, and business partnerships are central to maintaining the continuity of duck egg enterprises. Entrepreneurs should therefore maintain business strategy as the main basis for sustaining their enterprises in a fluctuating and culturally influenced market.

Freshness handling and distribution capability and marketing strategy showed relatively low importance and low performance in relation to business sustainability. This does not mean that both variables are unimportant, but rather that their contribution still needs to be strengthened through more consistent operational and marketing practices. Improvements can be directed toward better product handling, packaging, delivery reliability, customer segmentation, and

market communication. Overall, the IPMA results suggest that duck egg enterprises should maintain business strategy as their main strength while prioritizing marketing improvement to support freshness handling, distribution reliability, and long-term sustainability.

Discussion

The findings show that business strategy has a positive and significant effect on the sustainability of duck egg enterprises. This result indicates that entrepreneurs who are able to strengthen planning, market orientation, production process innovation, cost efficiency, and business partnerships tend to have better business continuity. In the context of duck egg enterprises, business strategy is not only related to formal planning but also to the ability to manage daily operations, anticipate demand fluctuation, and maintain relationships with buyers. This finding supports the strategic management perspective that competitive advantage is built through clear strategic positioning, efficient resource allocation, and the ability to use internal resources effectively (Porter, 1985; Barney, 1991). For small agribusiness enterprises, business strategy becomes important because entrepreneurs often face limited resources, unstable markets, and pressure from production costs.

Marketing strategy also has a positive and significant effect on business sustainability. This finding confirms that product quality, pricing decisions, distribution access, promotion, and customer orientation are important for maintaining market relationships. Duck eggs are often perceived as relatively homogeneous products; therefore, entrepreneurs need to differentiate their products through freshness, reliability, and customer trust. Marketing strategy helps entrepreneurs communicate product value and maintain customer loyalty. This result is in line with marketing management theory, which emphasizes that customer value, product attributes, distribution channels, and market communication are central to business performance (Kotler & Keller, 2016; Armstrong et al., 2020). In Jembrana Regency, marketing strategy becomes more relevant because duck egg demand is influenced not only by household consumption but also by culinary and sociocultural needs.

Freshness handling and distribution capability also has a positive and significant effect on business sustainability. This result shows that operational capability is crucial in perishable local food enterprises. Duck eggs require proper handling, storage, packaging, sorting, and timely delivery to maintain product quality. If entrepreneurs fail to maintain freshness, customer trust may decline and business continuity may be weakened. This finding supports the supply chain perspective that product quality and market responsiveness in perishable food systems depend on handling and distribution performance (Van der Vorst et al., 2009; Trienekens & van der Vorst, 2010; Christopher, 2016). Therefore, freshness handling and distribution capability can be viewed as an operational capability that connects production activities with market expectations.

The results also show that business strategy and marketing strategy significantly affect freshness handling and distribution capability. This indicates that operational capability does not stand alone but is shaped by strategic and market-oriented decisions. Business strategy encourages entrepreneurs to improve operational efficiency, product handling, and cooperation with buyers. Marketing

strategy encourages entrepreneurs to maintain product quality and delivery reliability because customer satisfaction depends on the fulfillment of market promises. This finding is consistent with Dynamic Capabilities Theory, which argues that enterprises must integrate and reconfigure internal and external competencies to respond to changing environments (Teece et al., 1997; Teece, 2007). In this study, business strategy and marketing strategy represent strategic responses, while freshness handling and distribution capability represents the operational transformation needed to sustain the enterprise.

However, the mediation results show that the indirect effects of business strategy and marketing strategy on business sustainability through freshness handling and distribution capability are positive but not statistically significant at the 5 percent level. This means that freshness handling and distribution capability does not fully mediate the relationship between strategic variables and business sustainability. Business strategy and marketing strategy still have direct roles in sustaining the enterprise. Nevertheless, the positive indirect effects indicate that freshness handling and distribution capability remains an important operational mechanism, especially for strengthening the practical implementation of strategy. In small agribusiness enterprises, mediation may be weaker because entrepreneurs often combine strategic, marketing, and operational activities simultaneously rather than managing them as separate managerial functions.

The IPMA results provide additional practical insight. Business strategy appears as the main strength in supporting business sustainability because it has high importance and high performance. This means that entrepreneurs should maintain strategic practices such as production planning, cost efficiency, market orientation, and partnerships. Meanwhile, marketing strategy requires more attention because its performance is still relatively lower. Entrepreneurs need to improve promotion, product differentiation, market coverage, customer communication, and distribution access. Although freshness handling and distribution capability has a significant effect on sustainability, its practical contribution can still be strengthened through more systematic handling, packaging, storage, and delivery practices.

Overall, the findings indicate that the sustainability of duck egg enterprises in Jembrana Regency is determined by the integration of strategic, marketing, and operational capabilities. Business strategy provides the foundation for continuity, marketing strategy strengthens customer value and market relationships, while freshness handling and distribution capability ensures that product quality is maintained until it reaches customers. This study contributes to small agribusiness sustainability literature by showing that perishable local food enterprises require not only competitive and marketing strategies, but also operational capability to maintain freshness and distribution reliability. Practically, duck egg entrepreneurs should maintain business strategy as their main strength while improving marketing capability and strengthening freshness handling practices to support long-term sustainability.

CONCLUSION

This study examined the effects of business strategy and marketing strategy on the sustainability of duck egg enterprises in Jembrana Regency, with freshness

handling and distribution capability as a mediating variable. The results show that business strategy has a positive and significant effect on business sustainability. This indicates that planning, market orientation, production process innovation, cost efficiency, and business partnerships are important factors in maintaining the continuity of duck egg enterprises. Marketing strategy also has a positive and significant effect on business sustainability, showing that product quality, pricing, distribution access, promotion, and customer orientation contribute to customer retention and market continuity.

Freshness handling and distribution capability has a positive and significant effect on business sustainability. This finding confirms that the ability to maintain freshness, handle products properly, manage packaging and storage, and deliver products reliably is essential for perishable agribusiness enterprises. Business strategy and marketing strategy also significantly affect freshness handling and distribution capability, indicating that operational capability is shaped by strategic and market-oriented decisions.

The mediation results show that the indirect effects of business strategy and marketing strategy on business sustainability through freshness handling and distribution capability are positive but not statistically significant at the 5 percent level. Therefore, freshness handling and distribution capability does not fully mediate these relationships. However, it remains an important operational mechanism because it helps translate strategic and marketing orientation into product quality and distribution reliability. The IPMA results further indicate that business strategy should be maintained as the main strength, while marketing strategy requires improvement, especially in product differentiation, promotion, market coverage, and customer communication.

The practical implication of this study is that duck egg entrepreneurs should not rely only on production activities. They need to strengthen business planning, improve marketing practices, maintain product freshness, and develop more reliable distribution systems. Local government and related institutions can support this effort through training, market facilitation, packaging improvement, and logistics support for small agribusiness enterprises.

This study is limited to duck egg entrepreneurs in Jembrana Regency with a relatively small number of respondents. Future studies may expand the research location, compare different poultry or perishable food enterprises, and include additional variables such as digital marketing capability, supply chain collaboration, innovation capability, or institutional support to provide a broader explanation of agribusiness sustainability.

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REFERENCES

Armstrong, G., Kotler, P., & Opresnik, M. O. (2020). *Marketing: An introduction* (14th ed.). Pearson.

Bansal, P., & DesJardine, M. R. (2014). Business sustainability: It is about time. *Strategic Organization, 12*(1), 70–78. https://doi.org/10.1177/1476127013520265

Barney, J. B. (1991). Firm resources and sustained competitive advantage. *Journal of Management, 17*(1), 99–120. https://doi.org/10.1177/014920639101700108

Baron, R. M., & Kenny, D. A. (1986). The moderator–mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology, 51*(6), 1173–1182. https://doi.org/10.1037/0022-3514.51.6.1173

Chaffey, D., & Ellis-Chadwick, F. (2019). *Digital marketing: Strategy, implementation and practice* (7th ed.). Pearson.

Christopher, M. (2016). *Logistics & supply chain management* (5th ed.). Pearson.

David, F. R., & David, F. R. (2017). *Strategic management: A competitive advantage approach, concepts and cases* (16th ed.). Pearson.

Dyer, J. H., & Singh, H. (1998). The relational view: Cooperative strategy and sources of interorganizational competitive advantage. *Academy of Management Review, 23*(4), 660–679. https://doi.org/10.2307/259056

Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage.

Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European Business Review, 31*(1), 2–24. https://doi.org/10.1108/EBR-11-2018-0203

Hayes, A. F. (2022). *Introduction to mediation, moderation, and conditional process analysis: A regression-based approach* (3rd ed.). The Guilford Press.

Kotler, P., & Keller, K. L. (2016). *Marketing management* (15th ed.). Pearson.

Martilla, J. A., & James, J. C. (1977). Importance-performance analysis. *Journal of Marketing, 41*(1), 77–79. https://doi.org/10.1177/002224297704100112

Monroe, K. B. (2003). *Pricing: Making profitable decisions* (3rd ed.). McGraw-Hill.

Porter, M. E. (1985). *Competitive advantage: Creating and sustaining superior performance*. Free Press.

Preacher, K. J., & Hayes, A. F. (2004). SPSS and SAS procedures for estimating indirect effects in simple mediation models. *Behavior Research Methods, Instruments, & Computers, 36*(4), 717–731. https://doi.org/10.3758/BF03206553

Teece, D. J. (2007). Explicating dynamic capabilities: The nature and microfoundations of sustainable enterprise performance. *Strategic Management Journal, 28*(13), 1319–1350. https://doi.org/10.1002/smj.640

Teece, D. J. (2018). *Dynamic capabilities and strategic management: Organizing for innovation and growth*. Oxford University Press.

Teece, D. J., Pisano, G., & Shuen, A. (1997). Dynamic capabilities and strategic management. *Strategic Management Journal, 18*(7), 509–533. https://doi.org/10.1002/(SICI)1097-0266(199708)18:7%3C509::AID-SMJ882%3E3.0.CO;2-Z

Trienekens, J. H., Wognum, P. M., Beulens, A. J. M., & van der Vorst, J. G. A. J. (2012). Transparency in complex dynamic food supply chains. *Advanced*

Engineering Informatics, 26(1), 55–65. https://doi.org/10.1016/j.aei.2011.07.007

van der Vorst, J. G. A. J., Tromp, S. O., & van der Zee, D. J. (2009). Simulation modelling for food supply chain redesign: Integrated decision making on product quality, sustainability and logistics. *International Journal of Production Research, 47*(23), 6611–6631. https://doi.org/10.1080/00207540802356747