EFFECT OF SURVIVAL STRATEGY ON THE SUSTAINABILITY OF EMERGING POULTRY FIRMS IN NORTH CENTRAL NIGERIA

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Abstract

The study aimed to assess how strategic alliances and vertical integration contribute to the long-term sustainability of poultry firms in a dynamic and competitive environment. A sample of 417 poultry business owner-managers was surveyed, and the primary data they provided, through an administered structured questionnaire, was analysed using Partial Least Squares Structural Equation Modeling (PLS-SEM). The findings revealed that both strategic alliances and vertical integration have positive and significant effect on business sustainability, underscoring the importance of adopting these two survival practices for improving business practices and ensuring long-term sustainability. The study, thus, emphasised the need for poultry businesses in the region to build strong partnerships with key stakeholders, such as suppliers, distributors, and other industry players. These alliances allow for better management of costs, smoother adaptation to regulatory changes, and overall improved resilience, supporting long-term sustainability in a dynamic market environment. Furthermore, these businesses can also benefit greatly from vertical integration by taking more control over their supply chain, whether by managing feed production or handling distribution directly.

Keywords: Poultry, survival strategy, business sustainability, North Central.

INTRODUCTION

Poultry farming plays a crucial role worldwide by providing an affordable and nutritious source of animal protein. It not only helps meet the growing global demand for food but also creates valuable opportunities for investment, especially in developing regions. The poultry industry supports a wide range of jobs, from farm workers to those involved in feed production, processing, and distribution. For smallholder farmers, poultry offers a practical way to earn a living and improve their financial security. This sector is vital for rural communities, where it can boost income levels and contribute to overall economic growth. As demand for poultry products continues to rise, the industry holds the potential to foster local development, reduce poverty, and enhance food security, benefiting both individuals and entire nations (Attia et al., 2022).

As the world's population continues to grow, the demand for poultry products has surged, presenting both opportunities and challenges for producers, particularly in developing regions such as Africa. In many parts of the world, including sub-Saharan Africa, poultry farming has become increasingly important as a means of enhancing food security, fostering rural development, and creating employment. However, in countries like Nigeria, despite the sector's potential, poultry businesses, especially small and medium-sized enterprises (SMEs), face significant obstacles that hinder their long-term sustainability.

In Nigeria's North Central region, where poultry farms are crucial to the local agricultural economy, the poultry industry faces a paradox. Despite its immense potential to contribute to food security, employment, and economic growth, many poultry businesses struggle to survive. These small and medium-sized enterprises, which play a crucial role in providing affordable protein to local communities, are continually besieged by high operational costs, disease outbreaks, unreliable infrastructure, and a lack of managerial expertise (Ume et al., 2022). As the poultry sector remains a cornerstone of Nigeria's agricultural economy, it is essential to understand the strategies that can help these enterprises endure the volatile conditions they face. The survival of these businesses depends on developing effective strategies that can help them remain profitable and competitive in a volatile environment. While the existing literature largely focuses on productivity issues like feeding, housing, and disease control (Bamiro et al., 2006; Yusuf et al., 2018), there is a dearth of research on survival strategies and their effect on sustainability.

This study aimed to address this gap by exploring how strategic alliances and vertical integration can enhance the sustainability of poultry enterprises in North Central Nigeria. By focusing on these survival strategies, the research seeks to provide actionable panaceas that could inform policies and initiatives to strengthen the industry, improve food security, create jobs, and contribute to economic development in both Nigeria and similar regions across Africa.

Accordingly, the study had the following objectives.

- i. To assess the effect of Strategic Alliance Strategies on the Sustainability of Emerging Poultry Farms in North Central Nigeria.
- ii. To establish the effect Of Vertical Integration strategies on the Sustainability of Emerging Poultry Farms in North Central Nigeria.

In line with stated objectives, the following hypotheses were formulated for the study, stated here in null form:

H₀₁: Strategic alliance strategies have no significant effect on the sustainability of emerging poultry farms in north central Nigeria.

H₀₂: Vertical integration strategies have no significant effect on the sustainability of emerging poultry farms in north central Nigeria.

LITERATURE REVIEW

Survival Strategy

A survival strategy generally refers to a set of actions businesses adopt to ensure continued existence in the face of a volatile operating environment. Liu and Zhang (2022) describe the term as a systematic approach to identifying, mitigating, and overcoming existential threats through the optimisation of internal processes and external relationships. As pointed out by Osei-Kyei and Chan (2021) threats may include adverse market conditions, changing consumer preferences, and intensifying competition. Such strategies are aimed towards achieving resilience, adaptability, and competitive advantage (Dlamini, 2023) through a proactive and coordinated process involving a comprehensive set of managerial decisions and organizational practices (Ibrahim & Hassan, 2021; Patel et al., 2023). As a dynamic capability, Lopez-Garcia and Puente (2021) explains survival strategy as enabling firms to rapidly reconfigure their resources, processes, and value propositions in response to existential threats through a systematic process involving identifying and leveraging organisational strengths, mitigating weaknesses, and capitalising on environmental opportunities (Choi & Kim, 2023).

Strategic Alliance

Strategic alliance is defined by Gulati and Gargiulo (2021) as a voluntary arrangement between two or more independent firms to exchange, share, or co-develop resources or capabilities to achieve mutually beneficial outcomes. Such agreement can be a long-term collaborative agreement between two or more organisations to leverage complementary strengths, mitigate weaknesses, and achieve strategic objectives that would be difficult to accomplish independently (Chen & Li, 2023). Kwon et al. (2023) note that strategic alliance presents a flexible form of inter-organisational collaboration where firms can access complementary resources, enter new markets, and share risks while maintaining their strategic autonomy. Here, firms pool their resources, distinct competencies and capabilities in response to market uncertainties or competitive pressures (Mba & Eze, 2022), for the purpose of achieving mutually beneficial outcomes, such as market expansion, innovation or risk mitigation (Naidoo & Verma, 2022).

Vertical Integration

As a survival strategy, vertical integration involves an expansion of business operations into different stages of the same industry's value chain, either backwards towards suppliers or forwards towards endusers (Porter, 2021). Kumar and Patel (2022) explain that vertical integration is a corporate strategy through which a firm acquires or develops business operations within its own supply chain, aiming to increase control over inputs or distribution channels. These two approaches strengthen a firm's ability to optimize performance; upstream vertical integration involves acquiring or controlling suppliers or raw material producers, while downstream vertical integration involves acquiring or controlling distribution

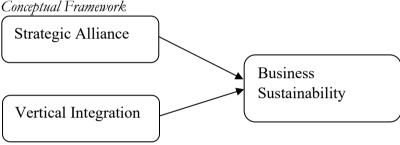
channels, retailers, or end-users (Hitt et al., 2020). Vertical integration can be a powerful strategy for companies to enhance their competitiveness, capture value, and achieve sustainable growth, but it requires careful execution and management to realize its full potential (Hoskisson et al., 2017).

Business Sustainability

The sustainability of a business reflects its ability to survive - to endure, adapt, and thrive. It encompasses the ability to remain operational over time. Ogbonna and Ekpo (2022) argue that business sustainability is fundamentally about maintaining operations and adapting effectively to change. Lynch and Hufbauer (2022) add that resilience is a key component, where businesses must absorb shocks, recover quickly from disruptions, and uphold financial stability. Sustainability goes beyond staying afloat to ensuring profitability, competitiveness, and relevance in an ever-evolving business environment (Ezeanokwasa et al., 2023; Nwagbala et al., 2023;). Beyond financial gains, survival supports broader objectives such as achieving organisational goals, safeguarding jobs, and contributing to economic stability. To achieve this, companies must employ strategies that enable them to adapt, innovate, and manage risks effectively (Ezeanokwasa et al., 2024).

Figure 1 presents the conceptual framework of the study

Figure 1



Source: Researcher's Compilation.

Empirical Review

Strategic Alliance and Business Sustainability

In their study carried out in Egypt, Abdelfattah et al. (2021) utilized survey data collected from 396 poultry farmers who had formed strategic alliances in analysing the causal relationship between strategic alliances and the sustainability of their businesses. Findings arrived at indicated a positive and significant relationship. Nguyen et al. (2022), in a similar study conducted in Vietnam, found that business sustainability was positively determined by strategic alliance after content analysis of qualitative interview data from four poultry enterprises which had formed strategic alliances with various stakeholders, including feed suppliers, veterinary services, and processing facilities.

Owusu-Sekyere et al. (2023) conducted a longitudinal study to examine the long-term effects of strategic alliances on the business sustainability of poultry farming in Ghana. Using a mixed-methods approach, the study focused on data collected from 150 poultry farming enterprises over a period of five years, and subsequently analysed using panel regression models and thematic coding techniques. The findings revealed that strategic alliances had a positive effect on the sustainability of poultry farming in the long run. Moges et al. (2019), in a related study done in Ethiopia applied PLS-SEM to cross-sectional data gathered from the responses of 312 poultry farmers across different regions of the country. The results indicated a positive effect of strategic alliances on business sustainability that was statistically different from zero, implying that alliances were particularly crucial for enhancing sustainability in the poultry farming sector.

Vertical Integration and Business Sustainability

The study carried out by Manyelo et al. (2022) in South Africa analysed survey data from 412 vertically integrated poultry farms. The PLS-SEM analysis applied towards estimating variable relationships indicated that vertical integration was a positive and significant predictor of business sustainability. In

their study carried out in Uganda, Karugia et al. (2021) also found that sustainability was positively determined by the level of vertical integration.

In the study conducted by Zaman et al. (2020) in Pakistan, it was found that vertical integration exerted positive and significant effect on sustainability. This was concluded from a path analysis of survey data collected from a cross-section of 367 smallholder poultry farmers from different regions of rural Pakistan. The same finding was arrived at by Chikwava et al. (2022) from their study carried out among women poultry entrepreneurs in Zimbabwe. Positive effect of veritical integration on business sustainability was also confirmed by Al-Rousan et al. (2020) in their Jordanian study applying mixed-methods techniques on both qualitative and quantitative data obtained from 216 vertically integrated poultry farmers across the country.

Dynamic Capabilities Theory

The effects of Strategic Alliance and Vertical Integration, as survival strategies, on Business Sustainability, is predicated on the Dynamic Capabilities Theory (DCT), as a guiding framework justifying this causal relationship. Originally developed by Teece et al. (1997), the DCT improves on the Resource-Based View (RBV) by specifically focusing on how businesses prevail within a dynamic operating environment. The theory argues that to sustain performance, in light of competition, goes beyond having possessing Valuable, Rare, Inimitable, and Non-Substitutable (VRIN) resources, but instead, lies on the ability of the organization to continuously create, enhance, reconfigure, and protect its unique asset base to remain relevant and competitive.

Dynamic capabilities, thus, refers to the ability of the firm to integrate, build, and reconfigure both internal and external competencies - categorised into sensing, seizing and transforming - to address environmental changes. While sensing involves identifying and assessing new opportunities, seizing deals with mobilising resources to exploit these opportunities and create value. Transforming, on the other hand, is concerned with renewing and adapting resource bases to sustain relevance and growth.

The DCT provides an important framework for understanding how poultry firms can navigate the challenges of survival and long-term sustainability. Through strategic alliances with key players like suppliers, distributors, and other business partners, poultry firms are able to pool resources, share technologies, and access valuable expertise. This collaboration helps them overcome operational hurdles, reach new markets, and adapt quickly to shifting costs and regulations. Additionally, vertical integration, which involves taking control over various stages of the production or supply process, enables firms to optimise their resources, reduce dependency on external parties, and improve overall efficiency. When combined, these strategies enhance a firm's ability to adapt to changing conditions, improve product quality, and lower costs, ultimately fostering sustainable growth and resilience.

METHODOLOGY

The study employed a causal design to effectively examine the cause-and-effect relationship between Strategic Alliance and Vertical Integration, considered as exogenous constructs, and Business Sustainability, the endogenous outcome. The study's population consisted of the owners of the 1,221,629 poultry businesses in the North Central region of Nigeria, as reported by the National Bureau of Statistics (NBS) and the Ministry of Agriculture and Rural Development in their Collaborative Survey on the National Agriculture Sample Survey (NASS), 2010/2011. Due to the large population size, however, a sample was drawn using Yamane's (1967) formula [see (1)] for finite populations, with a 5% margin of error (e).

$$n = \frac{N}{1 + N(e)^2} \tag{1}$$

Substituting the relevant values gives,

$$n = \frac{1222296}{1 + 1222296(0.05)^2}$$

$$=\frac{1222296}{3056.74}$$

$$\approx 400$$

The sample size was, however, increased by 30% (120) to accommodate non-responses. Consequently, oversampling involved 520 respondents.

For the purpose of achieving a comprehensive and representative coverage across the study area, multistage sampling was employed involving the use of stratified, purposive and snowball sampling in selecting respondents to participate in the study survey. Firstly, stratified sampling provided sample proportions for each state in the North Central, which served as strata. Sample allocations were determined using Bourley's proportions formula given as,

$$n_b = \frac{n(h)}{N}$$

Where:

 $n_b =$ Sample proportion for stratum

n = Total sample size

h = Population size of stratum

N = Total population

Table 1 gives a summary of the sample determination process for each stratum.

Table 1
Breakdown of Samble

Stratum	Population Proportion	Sample Proportion
Benue	70,777	$\frac{520(70777)}{1221629}_{=30}$
Kogi	502,716	$\frac{520(502716)}{1221629}_{=214}$
Kwara	103,647	$\frac{520(103647)}{1221629}_{=44}$
Nasarawa	130,000	$\frac{520(130000)}{1221629}_{=55}$
Niger	253,910	$\frac{520(253910)}{1221629}_{=108}$
Plateau	122,656	$\frac{520(122656)}{1221629}_{=52}$
FCT	37,923	$\frac{520(37923)}{1221629}_{=16}$
Total	1,221,629	520

Note. Researcher's Compilation from NASS Survey Data.

With sample allocations done, purposive sampling was then applied in the identification and selection of economic active areas within each state, and subsequently, snowball sampling was employed in the selection of study respondents. Data was collected, therefrom, through a quantitative survey involving the administration of a structured questionnaire to respondents using the drop-off/pick-up method. The instrument was validated using both face and content methods involving pre-test participants and experienced researchers respectively, as well as confirmed for internal consistency using Cronbach's Alpha at 0.7 acceptance threshold. Construct measurement scales are based on the 5-point Likert format. The analysis of the collected data was carried out using the Partial Least Squares Structural Modelling (PLS-SEM) approach to path modelling carried out with the SmartPLS statistical software (version 3).

RESULTS AND DISCUSSION

During the study, a questionnaire survey was conducted to collect field data for measuring the model constructs. Out of the 520 copies of questionnaire distributed, 433 were returned and underwent screening and preliminary analysis. After the screening, 417 valid and properly completed responses were retained for further analysis. The results showed that the majority of respondents were male (67%), aged between 31 and 40 years (32%), held a Bachelor's degree (32%), and had been managing their business for 4 to 6 years (28%).

Table 2 presents the descriptive statistics for responses to Likert-scale questions on strategic alliances (STA), vertical integration (VTN), and business sustainability (BS) in poultry farms. The description of each variable includes measures of central tendency - mean, median, standard deviation (SD), as well as range (Min-Max) values, providing a comprehensive understanding of the data. However, obtained responses indicated that both strategic alliances and vertical integration are underutilized in poultry farming in the North Central. Farms engaged in some partnerships with businesses, research institutions, and industry associations, but these collaborations are limited. Similarly, while some farms implement vertical integration strategies, such as controlling feed production and ensuring quality, the adoption remains moderate. This suggests opportunities for farms to expand both strategies to improve efficiency, sustainability, and competitiveness.

Low mean scores for Strategic Alliance indicated that poultry businesses were not tapping fully into the potential of these partnerships, while the moderate variability suggested that some firms were more engaged than others. In the same vein, the moderate mean scores suggested limited application of vertical integration strategies, with the slightly higher variability in responses indicating differing levels of adoption among respondents. However, the relatively higher mean scores compared to the other scales suggest that respondents are generally more successful in implementing sustainability practices, particularly in terms of market adaptability and financial stability. However, the significant variability in responses indicates that these outcomes are not uniformly achieved across all farms, highlighting the need for broader and more consistent adoption of sustainability practices within the industry.

 Table 2

 Descriptive Statistics of Survey Responses

		Missing	Mean	Median	Min	Max	SD
STA1	How significantly has your farm partnered with other poultry businesses to	0	2.477	2	1	5	1.283
	reduce costs and enhance operations?						
STA2	How much does your farm collaborate with research institutions for improved practices?	0	2.417	2	1	5	1.169
STA3	How engaged is your business in industry associations or cooperatives for knowledge sharing and resource access?	0	2.247	2	1	5	1.034
STA4	How strongly has your farm allied with distributors or retailers to expand market reach?	0	2.173	2	1	5	0.962
STA5	How integral are strategic alliances to your farm's long-term business strategy	0	2.098	2	1	5	0.933
VTN1	How extensively does your farm own or operate feed mills or processing facilities to improve efficiency and reduce costs?	0	2.458	2	1	5	1.263
VTN2	To what degree has your farm adopted the practice of producing its own feed to minimise reliance on external suppliers?	0	2.362	2	1	5	1.172
VTN3	How effectively has your farm implemented vertical integration strategies to capture additional value across the production chain?	0	2.237	2	1	5	1.072
VTN4	How well does your farm ensure quality by controlling production?	0	2.165	2	1	5	0.986
VTN5	How critical is vertical integration as a strategic approach for sustaining and growing your farm's operations?	0	2.11	2	1	5	0.941
BS01	Our farm consistently achieves efficient resource use that supports long-term operations.	0	2.64	2	1	5	1.157
BS02	We have successfully implemented waste management practices that minimise environmental impact.	0	2.487	2	1	5	1.251
BS03	Our business demonstrates operational resilience through regular staff training and development.	0	2.434	2	1	5	1.277
BS04	Our farm continuously meets market demands while adapting to economic changes to ensure business stability.	0	3.144	3	1	5	1.402
BS05	We maintain financial stability, allowing the business to thrive despite fluctuations in the poultry market.	0	3.134	3	1	5	1.41

Note. Extracted from SmartPLS Output.

As is conventional with PLS-SEM analysis, indicator reliability was firstly tested via an evaluation of factor loadings, square of loading values, as well as statistical significance, as recommended by Hair et al. (2019). Indicator reliability statistics is contained in table 3. All retained indicators were determined to be reliable; indicators of STA4, STA5, VTN4 and VTN5, which did not meet reliability criteria were discarded.

Table 3 *Indicator Reliability*

Indicator	Loading	Loading ²	Std. Dev	t	p Value
BS01 <- Business Sustainability	0.814	0.663	0.014	56.184	0.000
BS02 <- Business Sustainability	0.806	0.650	0.016	50.749	0.000
BS03 <- Business Sustainability	0.923	0.852	0.007	123.826	0.000
BS04 <- Business Sustainability	0.733	0.537	0.020	36.087	0.000
BS05 <- Business Sustainability	0.756	0.572	0.019	39.235	0.000
STA1 <- Strategic Alliance	0.841	0.707	0.012	69.227	0.000
STA2 <- Strategic Alliance	0.832	0.692	0.017	48.733	0.000
STA3 <- Strategic Alliance	0.710	0.504	0.036	19.797	0.000
VTN1 <- Vertical Integration	0.849	0.721	0.012	70.586	0.000
VTN2 <- Vertical Integration	0.853	0.728	0.014	60.055	0.000
VTN3 <- Vertical Integration	0.689	0.475	0.043	15.972	0.000

Note. Extracted from SmartPLS Output.

Retained indicators were, further, tested for internal consistency reliability using Cronbach's Alpha and Composite Reliability (CR), results of which are provided in table 4. All constructs were determined to be internally consistent and stable given acceptable reliability values of more than 0.7 in all cases.

Table 4Internal Consistency Reliability and Average Variance Extracted (AVE)

Construct	Cronbach's Alpha	rho_A	CR	AVE
Business Sustainability	0.871	0.898	0.904	0.655
Strategic Alliance	0.715	0.744	0.838	0.635
Vertical Integration	0.724	0.764	0.842	0.641

Note. Extracted from SmartPLS Output.

Additionally, Average Variance Extracted (AVE) values of more than 0.5 attained upheld convergent validity for all constructs. To assess divergent validity, however, the Heterotrait-Monotrait ratio (HTMT) was used, as shown in Table 5. According to Hair et al. (2019), HTMT values should generally be below 0.85. The results obtained adhered to this criterion, indicating that the constructs were distinct from one another.

Table 5Heterotrait-Monotrait (HTMT) Ratio

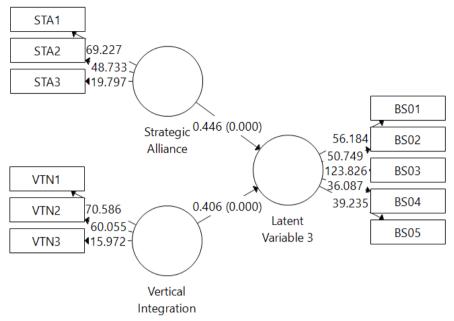
	Business Sustaiability	Strategic Alliance
Strategic Alliance	0.061	
Vertical Integration	0.639	0.070

Note. Extracted from SmartPLS Output.

Once the measurement model's reliability and validity were confirmed, the next step was to estimate the structural model.

Figure 2

Estimated Path Model of the Study



Note. Extracted from SmartPLS Output.

The final model, which highlights the causal relationships between the survival strategy dimensions and Business Sustainability, is presented in Figure 2. This involved running a bootstrapping procedure with 5,000 subsamples.

To check for potential multicollinearity in the model, Variance Inflation Factor (VIF) values were assessed. The results, shown in Table 6, indicated that multicollinearity was not a concern, as all VIF values were below 3.

Table 6

Variance Inflation Factor (VIF) (Inner Model)

Strategic Alliance 2.146		Business Sustainability
V	Strategic Alliance	2.146
vertical integration 2.140	Vertical Integration	2.146

Note. Extracted from SmartPLS Output.

Additionally, the in-sample predictive ability of the estimated model was evaluated using the Coefficient of Multiple Determination (R²). As shown in Table 7, the adjusted R² value indicated that approximately 58% of the variation in Business Sustainability can be attributed to Cost Leadership and Focus Strategy. This suggests that the path model has a strong predictive ability.

Table 7 *In-Sample Predictive Power*

	R Square	R Square Adjusted
Business Sustainability	0.627	0.626

Note. Extracted from SmartPLS Output.

The estimated coefficients for the specified relationships revealed that both Strategic Alliance and Vertical Integration had statistically significant effects on Business Sustainability (see Table 8). The path relationship of Strategic Alliance -> Business Sustainability was estimated to have a coefficient of 0.446 (t = 12.047, p < 0.05), while Business Sustainability was estimated to also incrase with increasing levels of Vertical Inegration (0.406, t = 10.841, p < 0.05). This was sufficient information for not accepting the null hypothesis in both cases.

 Table 8

 Estimated Path Coefficients of the Study

	β	Mean	StdDev	t	p Value	P < 0.05?
Strategic Alliance -> Business Sustainability	0.446	0.445	0.037	12.047	0.000	Yes
Vertical Integration -> Business Sustainability	0.406	0.407	0.037	10.841	0.000	Yes

Note. Extracted from SmartPLS Output.

CONCLUSION AND RECOMMENDATIONS

The study showed that Strategic Alliances and practicing Vertical Integration can serve as impetuses for sustainability businesses in the poultry industry in the North Central. These findings emphasise the need for poultry businesses in the region to look into building strong partnerships with key stakeholders, such as suppliers, distributors, and other industry players. These collaborations can provide access to crucial resources and expertise, helping businesses to navigate challenges and open up new market opportunities. By working together, firms can share risks, pool investments in innovations, and strengthen their competitive advantage. These alliances allow for better management of costs, smoother adaptation to regulatory changes, and overall improved resilience, supporting long-term sustainability in a dynamic market environment.

Furthermore, poultry businesses could benefit from vertical integration by taking more control over their supply chain, whether by managing feed production or handling distribution directly. This approach helps reduce reliance on external suppliers, leading to cost savings and better control over product quality. Vertical integration also reduces risks associated with supply chain disruptions and gives businesses greater flexibility to respond to market changes. By managing more stages of production, poultry firms can optimize operations, cut costs, and improve long-term sustainability, making them more competitive and resilient in a challenging market.

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