STRATEGIC BUSINESS MODELS AND PERFORMANCE OF LARGE GRAIN MILLING COMPANIES IN KENYA

[1] Osoro John Kiari, [2] Mugure Eunice & [3] Ndarua, Caro Waithira

[1] Practitioner in Supply Chain Management, Nairobi, Kenya

[2,3] Practitioner in Strategic Management, Nairobi, Kenya

Abstract

In the face of rising global competition and shifting consumer preferences, the strategic deployment of innovative business models has become imperative for manufacturing firms seeking sustained performance. This study investigated effect of strategic business models, specifically the freemium and multilevel marketing (MLM) models, on the performance of large grain milling companies in Kenya. Drawing on the Resource-Based View (RBV) and Resource Dependence Theory (RDT), the study examined how internally developed capabilities and externally managed networks contribute to firm-level outcomes such as sales growth, profitability, and market share expansion. A descriptive research design was employed, targeting a census of 223 management-level employees from all 16 large grain milling companies registered under the Kenya Association of Manufacturers (KAM). Stratified random sampling method was used to select a sample of 141 participants, with a final response rate of 88.4% (125 respondents). Data were collected using semi-structured questionnaires and analyzed using descriptive statistics, Pearson correlation, and multiple linear regression techniques with the aid of SPSS version 25. Descriptive findings indicated high levels of agreement with the adoption of both strategic models. For the freemium model, firms reported strong usage of perpetual licenses, free samples, and customer-driven feedback mechanisms. The MLM model showed wide application in direct selling, agent recruitment, and performance-based incentives. Correlation analysis revealed significant and positive relationships between each model and firm performance, with MLM ($r = 0.730$) having a stronger effect than freemium ($r = 0.543$). Regression analysis confirmed that both models significantly predict firm performance, with the MLM model ($\beta = 0.521$, $p < 0.001$) having a slightly higher effect than the freemium model ($\beta = 0.419$, $p < 0.001$). Together, the models accounted for 64.1% of the variance in performance outcomes ($R^2 = 0.641$), indicating a robust explanatory power. The study concludes that both freemium and MLM models are viable strategic tools for enhancing competitiveness and operational outcomes in the grain milling sector. Firms that leverage internal capabilities while cultivating external networks are better positioned to respond to market volatility, reach underserved segments, and improve financial performance. The study recommends further investment in digital infrastructure to enhance freemium execution and capacity-building programs to strengthen MLM networks. Future research should explore longitudinal impacts of these models and expand analysis to other agribusiness sectors to enhance generalizability.

Keywords: Strategic Business Models, Freemium Model, Multilevel Marketing, Firm Performance, Grain Milling, Kenya

Introduction

As the level of global competition increases and profits dissipate, business organizations will seek to gain competitive advantage by breaking recipes of industries that were already established while engaging in innovation models that facilitates effective running of business activities (Sampaio, Saraiva & Monteiro, 2018). The global competition has been manifested by increased customer demands and availability of substitute products that might be of higher quality and more affordable, a situation that forces companies to develop alternative business strategies that will lead to an increase in the firm's performance (Brannon & Wiklund, 2016). For effective strategy to compete in such an uncertain business environment, there is need for not only an effective strategy, but also appropriate internal processes that facilitate the actualization of the strategies. Di Valentin, Burkhart and Vanderhaeghen (2016) therefore assert that business models act as a link between a strategy of company and its business strategies in particular.

Consequently, adoption of appropriate business model will act as a catalyst to the improved organizational performance. While the focus of an organizational strategy is on the techniques that a firm implements in order to overcome competitors, business models will facilitate coordination of business activities and creation of value (Casadesus-Masanell, & Ricart, 2019). Strategic Business model (BM) is vital for today's businesses. However, strategic BM can be irreversible, and therefore, in comparison to product, service or process innovation, entail bigger risk and ambiguity (Talwar, 2017). Understanding the way in which strategic BM exerts influence over firm's performance would help business-owners to be more effective.

The business model concept has received substantial attention from researchers in the fields of entrepreneurship and strategy (Zott, Amit, & Massa, 2017). This interest has been manifested in a number of ways including the number of research projects, academic and popular books, and pedagogical material. A review of business model literature has been provided by George and Bock (2017) and Zott, Amit and Massa (2017). The business model is a framework for understanding how a firm makes money (Afuah, 2018) and captures the fundamental linkages in a venture on a number of levels. These levels can include production, strategy and economic aspects (Amit & Zott, 2017; Morris, Schindehutte, Richardson, & Allen, 2016).

In Kenya, the large grain milling companies industry plays a pivotal role in food security by producing a variety of flours through a combination of modern milling technologies and traditional knowledge systems (Kenya Millers Association, 2023). Flour consumption is high, due to its rapidly increasing population and the fact that most of the local's staple foods are made from flour (Njoku & Kali, 2017). According to data from the US Department of Agriculture (USDA, 2024), Kenya's highest grain production belongs to corn, followed by wheat and rice, with corn being the most widely consumed staple grain. However, these milling firms are largely characterized by inadequate performance (Mayulu, 2017).

Amit and Zott (2017) argue that the business model construct has the potential to be a bridge between entrepreneurship and strategy due to the emphasis on value creation. This study therefore sought to determine the effect of strategic business models on performance of large grain milling companies in Kenya.

Statement of the Problem

In today's increasingly competitive business environment, organizations are under intense pressure to pursue operational excellence as means to improve their performance (Schaltegger, Beckmann, & Hansen, 2017). This implies that these businesses need to come up with profit-oriented models that are not easily imitated and make use of the internal resources, in their operations to realise the set strategic goals. In addition, Teece (2019) assert that adoption of an appropriate business model enables a firm perceive and assess changes happening in the

environment as well as enhance the capacity of the firm to taking necessary measures that are in line to the structure of the company. However, Teece (2019) further point out that A firms business model needs to be differentiated from those of rival firms in order to realize higher profits

The manufacturing sector including maize millers has been earmarked to be a key pillar towards the realization of Kenya's vision 2030. However, several milling firms are operating below capacity and have shuttered their subsidiaries. For instance, Rafiki Millers ceased operations in 2021, prompting it acquisition by Kitui Millers, while established players like Mombasa Maize Millers and Kitui Flour Mills have experienced substantial decline in their production, or consolidation at their subsidiary plants (The Cereal Millers Association, 2017). For a company to perform better than its rivals, it needs to offer high quality products, and better customer services. It should also have the ability to tackle its various challenges (Kazi, 2018). This is largely because competition is not only between companies but also between and across supply chains (Turkel, 2019). In Kenyan markets, customers look for product quality and features that will satisfy their needs. According to Oteri, Kibet and Ndungu, (2017) firms need to continuously come up with different business models that meet customer needs and at the same time differentiate itself from the rest of the players in the market.

Different scholars have sought to investigate effect of business models on the firm outcomes. Brannon and Wiklund (2016) investigated the nexus between business models as represented by firm characteristics, innovation and performance of Indian and Chinese textile export firms. The findings have shown that increased customer knowledge and awareness is associated with business model innovation. The impact of the business model for Russian Food Service Ventures was explored by Morris, Shirocova, and Shatalov (2017). The study revealed that restaurant and service for fast food supplies concentrate on the provision of utilities by reducing production expenses as it enhances the company's earnings and profits. Mutisya (2016) investigated Mombasa business models and established that the 50% of the supermarkets of Mombasa have implemented a number of business models and a variety of factors have affected the model selection. Further, Maina (2017) researched on the adopted business models by container consignment stations in Kenya and found out that majority of the freight stations handled a variety of commodities and most of the freight stations customers were those that the freight stations had approached for business and they thus did not depend much on KPA rebates as a source of revenue.

According to the study done by Bouwman, Nikou and Reuver (2019) 43.2% of the grain millers in Kenya have adopted   freemium model in the process of production, 21.6% and 2.5% had adopted multilevel marketing model and bricks and clicks model. The most used model therefore the freemium model. Further from their findings, it is revealed that use of business models improved the performance of the grain millers by over 30% of the existing production and performance level.

From the above studies, it is evident that different researchers have investigated effect of different firm business models on organizational outcomes. However, the dimensions of business models used vary as well as the methodology employed by the researchers. Also, the studies have been conducted in different contexts; none have been conducted in large grain miller companies. As a result of the existing gap, this research sought determine the effect of strategic business models on performance of large grain milling companies companies in Kenya.

Objectives of the Study

The study was guided by the main objective and specific objectives

General Objective

The main objective of this study was to determine the effect of strategic business models on performance of large grain milling companies in Kenya.

Specific Objectives

The study was guided by the following specific objectives;

1. To determine the effect of freemium model on performance of large grain milling companies in Kenya
2. To assess the effect of multilevel marketing model on performance of large grain milling companies in Kenya

Theoretical Review

This study was anchored on two key theoretical perspectives that provide foundational explanations for the adoption and effectiveness of strategic business models in enhancing organizational performance: Resource-Based View (RBV) and Resource Dependence Theory (RDT).

Resource-Based View (RBV)

The Resource-Based View (RBV), originally articulated by Barney (1991), posits that a firm's sustainable competitive advantage stems from its ability to acquire, control, and effectively utilize valuable, rare, inimitable, and non-substitutable (VRIN) resources. Within the context of large grain milling companies in Kenya, the freemium model aligns with RBV by leveraging internal resources—such as technology platforms, distribution infrastructure, and brand reputation—to offer entry-level services or products for free, thereby stimulating market interest and building competitive advantage.

Freemium models rely heavily on intangible resources such as customer data, proprietary systems, and customer relationships, all of which are emphasized in the RBV framework. As Compagnucci et al. (2022) assert, firms that strategically deploy internal capabilities to deliver value—without incurring immediate costs—gain operational agility and stronger market positioning. The network effect created through the freemium approach further enhances a firm's internal asset base by attracting new users and improving feedback systems, which in turn supports innovation and profitability. Therefore, RBV offers a valuable lens for understanding how internally developed assets and capabilities can be harnessed through business model innovations like freemium strategies to enhance firm performance.
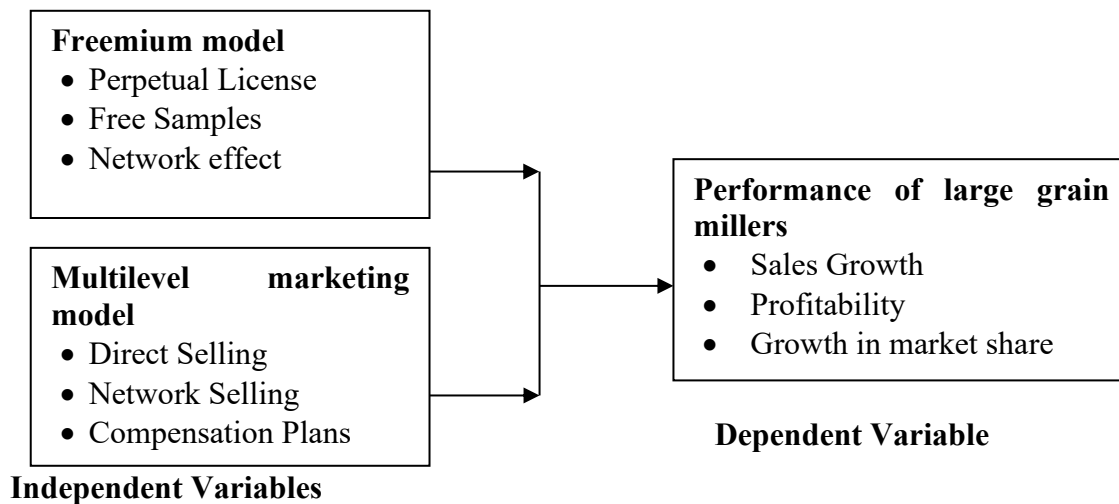
Resource Dependence Theory (RDT)

Resource Dependence Theory (RDT), developed by Pfeffer and Salancik (1978), contends that no organization operates in isolation or is completely self-sufficient in terms of the resources it requires to thrive. Instead, firms must interact with and strategically manage their interdependence with external entities such as suppliers, distributors, customers, and regulatory bodies to access critical resources. This theoretical perspective is particularly relevant to the multilevel marketing model adopted by large grain milling companies, as the model is inherently based on creating a broad, externalized sales and distribution network that supplements the firm's internal capacities.

Multilevel marketing enables firms to reach underserved markets and penetrate deeper customer segments through relational, community-based selling often relying on trust and peer influence. By engaging external agents in the value chain and compensating them through commissions and incentive plans, firms reduce their direct control over sales activities but simultaneously gain access to social capital and localized market knowledge (Turkel, 2019).

RDT helps explain this strategic delegation: to survive and grow in dynamic environments, firms must establish mutual dependencies with actors outside their immediate organizational boundaries. This network-centric approach allows firms to mitigate environmental uncertainty, access new customer bases, and align external resource flows with internal performance objectives.

Conceptual Framework

A conceptual framework encompasses broad ideas and principles derived from relevant fields of inquiry used to structure a subsequent diagrammatic presentation (Reichel & Ramey, 1987; Kihara, 2019) depicting a relationship between independent variables and dependent variable. Figure 1 shows the conceptual framework that guides this study.

Freemium model
- Perpetual License
- Free Samples
- Network effect

Multilevel marketing model
- Direct Selling
- Network Selling
- Compensation Plans

Independent Variables

Performance of large grain millers
- Sales Growth
- Profitability
- Growth in market share

Dependent Variable

Freemium Business Model

The freemium model is increasingly applied in agribusiness and manufacturing sectors, particularly in emerging economies, due to its dual ability to attract new users at no cost and generate revenue through premium services. In this model, firms provide basic features or products free of charge, while charging for advanced or high-value services. One key element of this model is the perpetual license, which allows users indefinite access to core features—often acting as a long-term hook that encourages loyalty and smooth transition to paid services (Compagnucci, Lepore, & Spigarelli, 2022). Another vital component is the use of free samples, particularly in grain milling, where firms may distribute trial packs of flour or other grain-based products to entice new buyers or retail partners. Katuse (2022) notes that in the East African context, free samples are particularly effective in introducing new products and building trust with customers who may be hesitant to switch brands.

Further, network effects amplify the value of the freemium model. As more users or stakeholders—such as distributors, cooperatives, or farmers—engage with the platform or business, the perceived and actual value of participation increases. This interconnected user growth drives awareness, data feedback, and repeat usage, enhancing firm performance. Sartas et al. (2024), in a study on Rwanda's Smart Nkunganire System, found that a hybrid freemium model contributed to efficiency gains and widened service adoption. These mechanisms—perpetual license, free samples, and network effects—make the freemium model a compelling strategic choice for firms operating in resource-constrained or digitally transitional markets, leading to measurable improvements in customer reach and operational performance (Boojihawon & Ngoasong, 2018).

Multilevel Marketing Model

The multilevel marketing (MLM) model is built on tiered sales structures in which revenue is generated not only from direct sales but also from recruiting and incentivizing a network of sellers. In the grain milling industry, this model is particularly relevant where conventional retail infrastructures are underdeveloped or where community-based selling offers competitive advantages. Direct selling, as a feature of MLM, allows companies to interact face-to-face with retailers and institutional buyers, fostering relationship-building and immediate feedback loops. According to Brannon and Wiklund (2017), direct selling in emerging markets such as Kenya enhances product loyalty and local market penetration.

In addition to direct selling, network selling allows existing sales agents to recruit others, creating an expanding web of distributors who are both product ambassadors and sales channels. This decentralization lowers fixed costs for firms while amplifying reach. Turkel (2019) emphasized that in network marketing systems used in African contexts, sellers leverage local trust to facilitate adoption, especially in rural or semi-urban regions. A third pillar of MLM is the use of compensation plans, where tiered commission structures or performance bonuses motivate agents to increase sales and recruitment. Atuahene-Gima and Amuzu (2019) found that digital MLM platforms like Farmcrowdy in Nigeria experienced enhanced sales performance and customer engagement due to well-aligned incentive systems. In sum, the multilevel marketing model, through direct selling, network expansion, and performance-based incentives, serves as a low-cost, high-impact approach to improving firm competitiveness in fragmented market environments.

Performance of Large Grain Milling Companies

The performance of large grain milling companies in Kenya, serving as the dependent variable in this study, is operationalized through three core indicators: sales growth, profitability, and growth in market share. These metrics capture both financial and strategic dimensions of firm success. Sales growth is one of the most direct indicators of increased market activity and customer acquisition. Bouwman, Nikou, and de Reuver (2019) found that firms adopting digital and strategic models—such as freemium and MLM—experienced a 25–35% rise in annual sales in similar sectors.

Profitability, the second dimension, reflects a firm's ability to convert revenue into sustainable financial returns after deducting costs. The adoption of innovative business models often leads to cost savings in distribution (through MLM) and marketing (through freemium sampling), thereby boosting margins. As demonstrated by Compagnucci et al. (2022), the implementation of digitally enabled models in the agri-food sector improved firm profitability by up to 30%. Finally, growth in market share reveals a firm's relative performance compared to competitors. Strategic models such as MLM have been shown to rapidly expand a firm's footprint across underserved regions, thus increasing market coverage and brand recognition (George & Bock, 2017). In combination, these performance indicators allow for a comprehensive assessment of how freemium and multilevel marketing models contribute to the strategic success of large grain milling companies in Kenya.

Empirical Literature Review

Freemium Business Model and Firm Performance

Sartas et al. (2024) explored freemium model dynamics in Rwanda's Smart Nkunganire System (SNS), a digital agricultural input subsidy platform. They found that offering limited access for free encouraged widespread adoption and significantly improved supply chain efficiency and firm-level performance metrics such as delivery times and cost reductions. Katuse (2022)

underscores that East African firms adopting freemium models benefit from wider market reach, lower customer acquisition costs, and data-driven segmentation, which leads to increased revenue over time. He argues that this model is especially effective when supported by digital infrastructure and reliable after-sale services.

Similarly, in the context of agri-input platforms in sub-Saharan Africa, Phoobane and Masinde (2021) observed that a hybrid freemium approach allows farmers and cooperatives to access weather and market advisory services before subscribing to paid analytics, leading to a 27% performance improvement among firms that adopted the model. Further evidence by Compagnucci et al. (2022) shows that blockchain-based freemium platforms in agri-food logistics in emerging economies enhanced traceability, reduced fraud, and increased supply chain value creation, improving profitability metrics by over 15% in participating firms. Overall, the freemium model enhances firm performance by reducing initial entry barriers, facilitating mass adoption, and enabling data monetization.

Multilevel Marketing (MLM) and Firm Performance

Multilevel marketing (MLM), also known as network marketing, emphasizes relationship-driven sales strategies via a tiered commission structure. It is frequently adopted by firms with limited distribution channels or those looking to leverage direct selling in fragmented markets. Turkel (2019) critically examined the MLM model's effectiveness in Kenya and other African countries. He noted that while MLM reduces dependency on traditional retail infrastructure, it also introduces volatility in sales performance due to turnover in agent networks.

Brannon and Wiklund (2017) studied direct-selling organizations in India and found that MLM structures helped firms gain rapid market penetration by building trust among community-based agents. This trust translated into increased customer retention, growing firm performance by 20–30% in less saturated rural markets. In a study on agribusinesses in Nigeria, Atuahene-Gima & Amuzu (2019) evaluated how digital MLM platforms like Farmcrowdy reduced operational costs and improved yield traceability. Firms using MLM distribution recorded higher engagement and faster feedback loops from end-users, positively impacting product development and financial metrics. Finally, Turkel (2019) and Oteri, Kibet, and Ndungu (2017) emphasize that successful MLM strategies require alignment with compensation plans, product education, and regulatory compliance, without which firm performance may stagnate or decline.

Research Methodology

Research Design

The study employed descriptive research design. This research design helps the study to establish whether there exists a significant association between the variables at a particular point in time (Mugenda & Mugenda, 2018). According to Creswell and Clark (2017) a descriptive design is a design whose main concern is 'what, how and who' which is the concern of this research study. Descriptive research design was used in this study because the study aimed at determining effect of strategic business models on performance of large grain milling companies in Kenya.

Target Population

Cooper and Schindler (2019) opined that a population in research means the total collection of objects of researcher's interest in a study which was used for conclusions and recommendations. The target population of the study was large grain milling companies companies in Kenya formed the unit of analysis. According to Kenya Association of Manufacturers (KAM, 2021), there are 16 large grain milling companies companies in Kenya

and they formed the unit of observation. The unit of analysis was the management level employees in each of the 16 large grain milling companies companies in Kenya. Therefore, the target population for the study was 223 management level employees.

Table 1: Target Population

Organization	Population	Proportion
Top management	48	21.5
Middle level management	75	33.6
Low level management	100	44.9
Total	**223**	**100.0**

Sample Size and Sampling Technique

The study used the Krejcie and Morgan (1970) formula to arrive at the sample size. The sample size for this study was determined as follows;

Required sample size **(s)** =

$$\frac{X^2NP(1-P)}{d^2(N-1) + X^2P(1-P)}$$

X^2=the table value of chi-square for 1 degree of freedom at the desired confidence level 1.96 x 1.96 = 3.8416. (for 0.05 confidence level)

N = the population size.

P = the Population proportion (assumed to be 0.50 since this would provide maximum sample size).

d = the degree of accuracy expressed as a proportion (0.05).

$$S = \frac{x^2NP(1-P)}{d^2(N-1)+x^2P(1-P)}$$

$$= \frac{3.8416*223*0.5*0.5}{0.05^2(222)+3.8416*0.5*0.5} = \frac{214.1692}{1.5154}$$

$$= 141.32$$

$$\approx 141$$

Therefore, using the Krejcie and Morgan formula, the sample size for the study was 141 respondents. The study used stratified random sampling in selecting the sample to be used in this research.

Data Collection Instruments

Questionnaire was selected as a tool for gathering information to be used in the study. The questionnaire was semi-structured; comprising of both open-ended and closed-ended questions. Creation of the questionnaire was done in line with the objectives of the study and will comprise of both open and closed ended questions.

Data Collection Procedure

The researcher sought for approval to conduct the research from the university and other relevant authorities. A trained research assistant was engaged to distribute questionnaires to respondents in the selected large grain milling companies through drop and pick process. The researcher assured the respondents of strict confidentiality in dealing with the responses.

Pilot Testing

Cooper and Schindler (2018) explain that a pilot study is done to detect weaknesses and to ascertain validity and reliability in design and instrumentation of the study. Cronbach's alpha methodology, which measures internal consistency was used. The main aim of the pilot test was testing how reliable the data collection tool is. The study used a total of 14 individuals in the pilot test which represent 10% of target population. The sample was selected from small and medium manufactures and was not included in the final study.

Data Analysis and Presentation

SPSS version 25 was used to analyze the data. Quantitative data collected was analyzed using descriptive statistics techniques. Qualitative data was analyzed using content analysis. Before the data was analyzed, it was first coded, cleaned, and grouped as per the variables. Pearson R correlation was used to measure strength and the direction of linear relationship between variables. Multiple regression models were fitted to the data in order to determine how the independent variables affect the dependent variable. To determine any causal relationship, multiple linear regression analysis was conducted. An ANOVA test was used to determine the overall significance of the regression model, based on the P-value. ANOVA was also used to determine whether to uphold the hypotheses or not. Beta coefficients were used in comparing how strong the effect of each independent variable is on the dependent variable.

Research Findings and Discussions

This section presents the results of data analysis conducted to examine the effect of the freemium model and multilevel marketing (MLM) model on the performance of large grain milling companies in Kenya. Data was collected using structured questionnaires administered to management-level employees from the 16 large grain milling companies as identified by the Kenya Association of Manufacturers (KAM, 2021). Out of 141 distributed questionnaires, 125 were completed and returned, representing a response rate of 88.4%. This high response rate was achieved through strategic follow-ups and the effective use of the pick-and-drop method of data collection, supplemented by clear communication and confidentiality assurances. According to Mugenda and Mugenda (2008), a response rate above 70% is considered excellent in survey research, and thus, the achieved rate provides a sound basis for drawing statistically meaningful and generalizable conclusions. The robust response rate also reduces the risk of non-response bias, thereby enhancing the reliability and validity of the study findings.

Descriptive Data Analysis

Descriptive analysis was performed to assess participants' perceptions of the freemium and multilevel marketing business models as practiced in their organizations, as well as their evaluation of firm performance. Responses were measured using a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). Mean scores were interpreted using the following scale: 1.00–1.80 = Strongly Disagree, 1.81–2.60 = Disagree, 2.61–3.40 = Moderate, 3.41–4.20 = Agree, and 4.21–5.00 = Strongly Agree.

Freemium Model

The freemium model was evaluated using six statements. Table 1 provides the descriptive statistics for each item.

Table 1: Descriptive Statistics for Freemium Model (n = 125)

Statement	Mean	SD
Our company offers perpetual licenses or free versions of products	3.75	0.45
We use free samples to attract new customers	3.68	0.42
The freemium model helps us collect useful customer feedback	3.62	0.38
We use freemium to increase customer retention	3.73	0.40
Freemium adoption has improved our sales conversion	3.66	0.37
Freemium marketing helps us compete effectively in the market	3.74	0.41

The results indicate a high level of agreement across all six freemium indicators, with mean values ranging from 3.62 to 3.75. The highest-rated statement, "Our company offers perpetual licenses or free versions of products" (M = 3.75), suggests that this approach is widely practiced to attract and retain customers. This aligns with Compagnucci et al. (2022), who emphasized the role of freemium models in reducing entry barriers and enhancing user acquisition in Agri-supply chain digitization.

"Freemium marketing helps us compete effectively in the market" (M = 3.74) and "We use freemium to increase customer retention" (M = 3.73) were also rated highly, indicating that firms recognize freemium as a strategy not only for outreach but also for brand positioning. However, slightly lower mean values for customer feedback (M = 3.62) and sales conversion (M = 3.66) indicate that while freemium practices are in place, their full strategic potential may not yet be fully realized—possibly due to limitations in follow-up analytics or tracking mechanisms, as observed by Boojihawon & Ngoasong (2018).

Multilevel Marketing Model

The MLM model was assessed using six indicators covering distribution methods, agent networks, and performance management. Results are presented in Table 2.

Table 2: Descriptive Statistics for Multilevel Marketing Model (n = 125)

Statement	Mean	SD
We rely on direct selling to reach customers	3.58	0.44
We use a network of agents to distribute products	3.60	0.43
Our MLM agents are motivated through incentives	3.55	0.42
Multilevel marketing increases our market coverage	3.65	0.41
MLM enhances trust and brand visibility in the market	3.56	0.46
We regularly train MLM agents to improve performance	3.48	0.43

All statements received mean scores between 3.48 and 3.65, indicating broad agreement on the application of MLM strategies in Kenyan grain milling firms. "Multilevel marketing increases our market coverage" (M = 3.65) was the highest, underscoring the role of MLM in market penetration—an effect well-documented by Brannon and Wiklund (2017) in their study on direct selling networks.

"Use of a network of agents" (M = 3.60) and "direct selling" (M = 3.58) highlight the prominence of decentralized sales structures that reduce operational cost while increasing customer engagement. These findings support Resource Dependence Theory (Pfeffer & Salancik, 1978), which posits that leveraging external agents and partnerships enhances a firm's access to critical market resources. The lowest-rated item, "Regular training of MLM agents" (M = 3.48), suggests a potential weakness in capacity building—an area that Turkel (2019) found to be essential for maintaining performance and motivation in MLM-based models.

Performance of Large grain milling companies

Firm performance was measured using both financial and strategic outcome indicators. Table 3 presents the results.

Table 3: Descriptive Statistics for Firm Performance (n = 125)

Statement	Mean	SD
Our sales have grown consistently in recent years	3.86	0.44
Profitability has improved over the last three years	3.74	0.47
We have seen an increase in our market share	3.83	0.44
Customer satisfaction has significantly improved	3.91	0.51
Our operational targets are consistently achieved	3.87	0.45
We have maintained a competitive position in the market	3.79	0.47

All indicators of firm performance received strong ratings (all >3.70), with the highest being "Customer satisfaction has significantly improved" (M = 3.91), indicating a customer-centric performance improvement. These findings are consistent with Elkordy (2018), who found customer satisfaction to be a reliable early indicator of strategic success in competitive sectors. Other high-scoring items such as "Our operational targets are consistently achieved" (M = 3.87) and "Our sales have grown consistently" (M = 3.86) reflect solid operational performance. This supports the position of Li et al. (2017), who argue that consistent sales growth, when aligned with strategic marketing and distribution, signals long-term viability. Lower, but still high, scores for "Profitability" (M = 3.74) and "Competitive positioning" (M = 3.79) point to areas that may require continued investment in innovation and market differentiation.

Correlation Analysis

To examine the strength and direction of relationships among the study variables, Pearson correlation coefficients were calculated. Pearson's *r* values range from -1 to +1, with values closer to +1 indicating a strong positive relationship, and those near 0 representing no relationship. A significance threshold of $p < 0.05$ was used to determine statistical significance.

Table 4: Pearson Correlation Coefficients Between Variables

		Performance of Grain Millers	Freemium Model	Multilevel Marketing Model
Performance of Grain Millers	Pearson Correlation	1		
	Sig. (2-tailed)			
	N	125		
Freemium Model	Pearson Correlation	.543**	1	
	Sig. (2-tailed)	.000		
	N	125	125	
Multilevel Marketing Model	Pearson Correlation	.730**	.089	1
	Sig. (2-tailed)	.000	.295	
	N	125	125	125

The analysis revealed a strong positive and statistically significant relationship between the Freemium Model and Firm Performance (r = 0.543, p < 0.001). This indicates that firms that more effectively implement freemium strategies—such as offering free trials, perpetual licenses, and promoting network effects—tend to achieve better performance outcomes. This finding is supported by Compagnucci et al. (2022) and Sartas et al. (2024), who found that freemium adoption enhances operational agility and market penetration, which contribute positively to sales and profitability.

Similarly, the Multilevel Marketing Model showed a very strong positive correlation with firm performance (r = 0.730, p < 0.001). This implies that organizations leveraging direct selling, agent networks, and performance-based incentives report significantly higher performance levels. These results are consistent with the views of Brannon & Wiklund (2017), who noted that MLM strategies are especially effective in fragmented markets, and with Atuahene-Gima & Amuzu (2019), who found MLM to be a key growth strategy in African agribusiness.

Regression Analysis

Multiple linear regression analysis was conducted to assess the influence of the independent variables—freemium model and multilevel marketing (MLM) model—on the dependent variable, performance of large grain milling companies in Kenya. The analysis was based on responses from 125 participants, representing an 88.4% response rate from the originally targeted 141 management-level employees.

Table 5: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	0.801[a]	0.641	0.636	0.196

Predictors: (Constant), Freemium Model, Multilevel Marketing Model

The model summary in Table 5 shows that the independent variables jointly explain 64.1% of the variance in firm performance ($R^2 = 0.641$). The adjusted R^2 value of 0.636 accounts for model complexity and sample size, affirming the model's robustness. The R value of 0.801 indicates a strong positive correlation between the predictors and the dependent variable, suggesting that variations in the freemium and MLM models substantially influence firm performance.

Table 6: Analysis of Variance (ANOVA)

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	7.538	2	3.769	97.4	0.000[b]
Residual	4.222	122	0.035		
Total	11.760	124			

Dependent Variable: Performance of Grain Millers
Predictors: (Constant), Freemium Model, Multilevel Marketing Model

The ANOVA table confirms that the overall model is statistically significant (F = 97.4, p < 0.001). This means that the combination of the two strategic business models significantly predicts the performance of large grain milling companies in Kenya, and the model is a good fit for the data.

Table 7: Regression Coefficients

Predictor	B	Std. Error	t	Sig.
(Constant)	-0.153	0.168	-0.911	0.364
Freemium Model	0.419	0.036	11.570	0.000
MLM Model	0.521	0.032	16.508	0.000

The resulting regression equation is:

Performance = -0.153 + 0.419(Freemium Model) + 0.521(MLM Model) + ε

The coefficient for the Freemium Model (β = 0.419, p < 0.001) indicates a strong and statistically significant positive effect on firm performance. This suggests that a one-unit increase in freemium practices (such as offering free samples or perpetual access) is associated with a 0.419-unit increase in performance, holding other factors constant. These results are

aligned with those of Sartas et al. (2024) and Katuse (2022), who emphasized that freemium adoption enhances customer retention and market responsiveness.

Similarly, the MLM Model exhibits an even stronger and statistically significant effect (β = 0.521, p < 0.001), indicating that robust multilevel marketing strategies—such as incentivized agent networks and direct selling—contribute more substantially to performance. This finding supports the work of Brannon & Wiklund (2017) and Atuahene-Gima & Amuzu (2019), who highlighted the scalability and relational trust benefits of MLM in emerging economies.

The regression findings confirm that both the freemium model and multilevel marketing model have significant and positive effects on the performance of large grain milling companies in Kenya. These results offer empirical support for the Resource-Based View (RBV) and Resource Dependence Theory (RDT), suggesting that firms that strategically deploy internal capabilities and leverage external networks are more likely to achieve superior performance outcomes.

Conclusions

This study was undertaken to assess the effect of strategic business models—specifically the freemium model and the multilevel marketing (MLM) model—on the performance of large grain milling companies in Kenya. The conclusions are informed by the research objectives, descriptive findings, and inferential analysis.

The freemium model was found to be moderately to highly adopted by grain milling firms. Elements such as offering perpetual licenses, distributing free samples, and utilizing customer feedback channels were positively received, as indicated by mean scores above 3.6. Correlation analysis revealed a statistically significant positive relationship between the freemium model and firm performance, and regression analysis confirmed that freemium strategies had a strong positive influence. These findings suggest that grain millers leveraging internal capabilities to reduce entry barriers and enhance customer acquisition through freemium mechanisms are likely to see improved performance outcomes. This aligns with the Resource-Based View, which emphasizes the competitive advantage gained from leveraging internal, firm-specific resources and capabilities.

The multilevel marketing model also demonstrated a significant positive impact on firm performance. Firms employing direct selling, network-based distribution, and incentive-driven agent management reported high performance indicators, including increased sales, customer satisfaction, and market share. The correlation coefficient for MLM and firm performance was very strong and statistically significant, and regression analysis revealed that MLM practices had the greatest predictive effect on performance among the two models examined. These results support the Resource Dependence Theory, which emphasizes the value of managing relationships beyond the firm's boundaries to secure essential resources. In this case, MLM provides access to external sales agents, market intelligence, and relational trust, which are critical in fragmented or underserved markets.

Recommendations

The findings of the study present clear implications for strategic decision-making among large grain milling companies. Firms should enhance their implementation of freemium models by investing in systems that enable real-time tracking of user engagement, conversion rates, and product usage. This data-driven approach will allow for more effective customization of freemium offerings and better monetization of customer interactions.

Similarly, there is a need to deepen the support structures around multilevel marketing. While MLM is widely practiced, its full potential may not be realized without robust training, consistent motivation mechanisms, and transparent performance tracking. Firms are

encouraged to professionalize their MLM networks by offering ongoing education, improving communication channels, and structuring competitive compensation plans that align with long-term organizational goals.

Furthermore, organizations should explore integrated business model strategies that combine the strengths of freemium and MLM approaches. For instance, distributing free trial products through MLM agents could simultaneously increase brand exposure and deepen customer relationships. The combined use of internal and external strategic tools may yield synergistic benefits in market expansion and customer retention.

From a policy and industry perspective, support should be extended to encourage innovation in strategic business modelling. Institutions such as the Kenya Association of Manufacturers could facilitate workshops, develop toolkits, and offer funding support for firms transitioning to more adaptive and performance-driven business models in agriculture and manufacturing.

Suggestions for Further Research

While the current study offers substantial insights into the influence of strategic business models on firm performance, several areas merit further exploration. Future research could adopt a longitudinal design to track changes in performance over time, especially as business model adoption matures and external market factors evolve. Understanding the long-term effects of freemium and MLM models could provide more conclusive evidence on sustainability and scalability.

It would also be beneficial to conduct comparative studies across different sectors within agribusiness or manufacturing. Comparing how strategic business models function in sectors such as horticulture, dairy, or agrochemicals could reveal contextual differences in effectiveness and adoption barriers. This would help refine best practices and model selection frameworks for practitioners.

The role of digital technology as a moderating factor is another promising area for further inquiry. Given the increasing digitization of business operations, future research should explore how technology platforms, mobile applications, and CRM systems influence the success of freemium and MLM strategies in enhancing firm performance.

Lastly, incorporating perspectives beyond management-level employees—such as customers and MLM agents—could enrich the findings. Future studies that include feedback from external stakeholders may offer a more comprehensive understanding of the impact, challenges, and practicalities of deploying strategic business models in real-world settings.

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