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What Sustains Performance in A Strategic Alliance? The Role of Level of Collaboration

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Abstract Active collaboration in strategic alliances is quantified using the model of inter-organizational network structures, which is applied to measure the effect of the level of collaboration in strategic alliances formed by Small and Medium Enterprises in the manufacturing sector. The study's target population comprised 74 manufacturing SMEs in Kenya, and the respondent included the firm's CEO and senior managers. The study used stepwise methods for the regression analysis of the mediating effect proposed by Baron and Kenny (1986). The study findings indicated that manufacturing SMEs in Kenya practice strategic alliances to a moderate extent (Mean=3.78; S.D=0.66), level of collaboration is practiced to high extent at (M=4.24; S.D=0.41), while the level of firm performance is at the level of moderate extent (M=3.68; S.D=0.77). The finding of the study hypotheses shows a positive and significant effect of strategic alliances on firm performance, while the level of collaboration has a significant partial mediating effect on the relationship between strategic alliance and firm performance. The study concluded that collaboration is relevant in strategic alliances formed by manufacturing SMEs in Kenya since the strength of the relationship between strategic alliance and firm performance depends on the level of collaboration. Though impactful at the managerial level of manufacturing SMEs, the study findings have also proposed suggestions on the complementarities among multiple theories suitable to explain the phenomenon of strategic alliance and firm performance.

Keywords: *strategic alliance, firm performance, level of collaboration, small and medium enterprises, manufacturing sector*

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1. Introduction

A strategic alliance is a voluntary cooperative agreement between two or more firms that is characterized by an agreement, achievement of mutual benefit by all parties, joint efforts, and work relations that operate within a structured system enacted by the partners in the strategic alliance [1,2]. The strategic management literature eludes that a firm's management is constantly faced with the challenge to either fulfill the firm's strategic objectives solely (competitively) or jointly (cooperation) with other firms [3]. Hence, forming a strategic alliance results from a firm's strategic decision to pursue strategic objectives jointly with other firms.

The strategic alliance literature has documented the benefits that firms accrue from joining strategic alliances, including penetrating new markets and developing new products [4], knowledge acquisition [5], reduction of cost of business through economies of scale [6], increasing survival rates, stabilization of business ventures, cope with competition, manage business uncertainty and unpredictability, mitigate resource shortage [7]. Likewise, the pitfalls of joining a strategic alliance have received sizeable attention from scholars, indicating that firms that choose strategic alliance risk exploitation by partner firms [8] and poor performance due to a mismatch between strategic motives for joining the alliance among partners [9].

Despite the increased adoption of strategic alliances, failure cases have also been high due to management challenges, poor communication, lack of trust among partners, cultural differences, and rivalry [10]. [11] point out that the internal tensions of competing forces of cooperation versus competition, rigidity versus flexibility, and short-term versus long-term orientation among alliance partners also contribute to alliance failure. The same authors offer that it is prudent to strike a balance between the opposing forces/motives among the alliance partners for the strategic alliance to achieve its strategic objective successfully.

The strategic alliance literature has covered the theme of strategic alliance structure to demonstrate how firms have sustained and maintained successful alliances over time. [12] offer that strategic alliance coordination, an attribute of an alliance structure, can effectively stabilize strategic alliance exchanges, especially with powerful

partners. However, the increase in diversity of strategic alliances calls for attention to how firms can increase the success rate of alliances formed and reduce the probability of failure. This study observes that to understand what sustains strategic alliances fully, there is a need to adopt a holistic view of the mechanisms, structures, processes, and skills necessary to facilitate interactions of partners and implementation of the strategic alliance activities [13]. To this end, this study adopts the level of collaboration as the component that portrays the functional state of an actively operational alliance. This study considers the level of collaboration a precursor to value creation. Therefore, organization's performance resulting from an alliance is pegged on achieving a certain level of collaboration within the alliance. Augmenting this argument is the philosophical reasoning that an enacted strategic alliance needs to attain a functional form that allows it to create and deliver value [14].

The strategic alliance literature postulates that for organizations to derive value from a strategic alliance, the strategic alliance should embrace collaboration for bridging organizational differences and creating real value for the alliance partners [15]. This study, therefore, considers the level of collaboration as a facilitator in achieving organizational performance through a strategic alliance [14]. This study adopts a relational definition of the level of collaboration and considers the level of collaboration as indicated by the depth of interaction and involvement of strategic alliance partners in the strategic alliance activities [16].

This study identifies the collaborative efforts in strategic alliances as a critical component in demonstrating how alliance partners overcome their different motives, build trust and commitment, and exchange resources amongst themselves, thus contributing to firm performance. A review of strategic alliance literature reveals that how to quantify this collaboration in a strategic alliance set-up remains a point of concern among strategic management scholars who have studied diverse attributes of the strategic alliance [17,18] and inter-organizational networking/collaboration [15,19]. To address this gap, this study perceives the model of inter-organizational network structures proposed by [20] and its five dimensions as a suitable answer for quantifying the level of collaboration in a strategic alliance configuration as they offer flexibility in their application to structure the relationship among alliance partners [20].

1.1. The Research Problem

The benefits of strategic alliances, especially among Small and Medium Enterprises, are well documented, and the risks and pitfalls of strategic alliances [8,21,22,23]. A review of strategic alliance literature indicates that less attention is given to the internal affairs of strategic alliances, thus limiting our understanding of how strategic alliances contribute to performance improvement through resource exchange, management of power relations, and prohibiting opportunistic behavior [15,20,24].

In addition, this study observes that the success of a strategic alliance is pegged on achieving a suitable level of collaboration which this study investigates using the model for inter-organizational network structures proposed by [20]. This study, therefore, advances the perspective of the level of collaboration into the study of strategic alliance structure among SMEs in the manufacturing sector in Kenya for the first time and operationalizes the level of collaboration using the dimensions of the model of inter-organizational structures. Also, the study sought to demonstrate the suitability of the model of inter-organizational network structures in strategic alliance studies to complement existing theoretical underpinnings in the study of strategic alliance structures.

[25] observes that most of the studies on strategic alliance suffer from potential serious methodological shortcomings and cite geographical or industrial focus as biases in such studies, limiting the generalization and applicability of their results. This study contributes to bridging this gap by focusing on Africa, where fewer studies on strategic alliances have been conducted, and targets SMEs in the manufacturing sector in Kenya. Further, the study expanded the scope of strategic alliance studies in Kenya, which have mainly concentrated on the types, benefits, and motives of strategic alliances [26,27,28,29].

1.2. Study Objectives

Two main objectives guided this study. One to establish the effect of strategic alliance on firm performance. Two, to determine the mediating effect of level of collaboration on the relationship between strategic alliance and firm performance.

2. Review of Literature

This section outlines the theories underpinning the study and the extant literature reviewed.

2.1. Theoretical Review

The study was supported by three theories: the resource-based view, the resource dependency theory, and the model for inter-organizational network structures.

The economist Edith Penrose is considered the originator of the RBV theory in 1959 [30]. A significant contribution to the development of the RBV theory was also done by [31,32,33]. The core argument for the RBV is that a firm's internal environment and the resources therein constitute a source of firm heterogeneity [34].

The perspective of resources within a firm is further defined in terms of resource bundles. These bundles of resources are viewed as unique and specific to each firm, thus influencing how firms perform and compete in the industry [34]. According to the RBV, resources are broadly classified as tangible resources that include land, buildings, materials, financial capital, and intangible resources that consist of expertise, abilities, status, reputation, structures, systems, and processes [35].

The resource-based perspective demands that organizations acquire resources that support their strategic objectives, which necessitates creating value from one's existing resources and tapping into other firms' resources to amass a bundle of resources that will enable optimal returns [36] (Das & Teng, 2000). Therefore, the theory recognizes

strategic alliance as a viable strategy for sourcing resources for improving performance.

The RDT perspective is associated with [37] of Stanford University in America, where it was initially designed to explain the relationships between organizations and their external environment through organizational adaptations and interdependencies [38]. According to [37], interdependence occurs when firms do not have total control over the environmental conditions to achieve their business strategy. The same authors argue that interdependencies arise due to a lack of control over all circumstances surrounding the achievement of organizational goals. Therefore, the theory articulates that organizational performance can be explained by how well organizations take advantage of external resources held by other firms to complement existing organizational resources.

The RDT theory embraces the concept of embeddedness to show how interdependency among strategic alliance partners can be beneficial. According to the theory, embeddedness relates to how an organization is rooted in a strategic alliance's social and economic interactions [39]. The involvement of different firms in an alliance arrangement generates power differences which the RDT theory argues can be managed through joint dependencies [40]. The same authors point out that the management of dependencies among the strategic alliance partners breeds mutual dependency, which includes trust, commitment, reciprocity, and understanding.

The inter-organizational network structure model was developed by [20]. The model explains network relationships from a social perspective, and the authors of this model argue that inter-organizational structures are characterized by five dimensions that are both network-wide and organization-specific and whose application is diverse.

The five dimensions include formalization, standardization, frequency, intensity, and reciprocity [20]. Formalization entails how instructions, rules, norms, procedures, and values govern transactions in a network. Defining such parameters within a strategic alliance breeds predictability, consistency, precision, and fairness among the strategic alliance members [41]. Similarly, formalization enables clear and open communication among the strategic alliance members [42].

Standardization within a network setting involves developing and incorporating similar processes, systems, and procedures to support network activities [20]. The dimension of standardization calls for the development of specific systems and processes adopted and implemented by all network members, thus bringing about uniformity in how things are done within the network [43]. For example, incorporating an information system linking the network members facilitates efficient and effective information flow.

Frequency as a network dimension involves the amount of contact between network members. This dimension covers the aspect of interaction and how often that interaction is achieved among network members. According to the model, the higher the frequency of interaction, the more relational ties are established, and the more network members invest in the network. The intensity dimension entails the level of resource commitment and investment that network members have among each other [20]. This commitment and investment are related to the resources availed by network members to other members. It is expected that such resource investment among alliance partners will enhance symmetrical partnership and uncertainty through investing in the alliance activities and enable mutual benefit among partners [44].

The last dimension is reciprocity which deals with symmetrical relationship of exchange among network partners. The model argues that reciprocity covers two critical aspects of a network: resource reciprocity, which involves exchanging resources during network transactions where the network members have mutual benefit. The second aspect of reciprocity in a network relates to mutually agreed-on transactions that call for equal contribution from the involved network members. [45] has demonstrated that reciprocity can take different forms of actions among alliance partners, which manages expectations among partners and can breed trust. The model articulates that in the presence of reciprocity, joint decisions will be made by network members, and equal distribution of benefits, risks, and costs will be witnessed [20].

The model offers several insights into embeddedness in a strategic alliance by highlighting how the strength of ties affects the structure dimensions among partners. According to the authors, strong ties translate to a low degree of formalization, while weak ties result in high formalization. This argument is also supported by [15]. From a standardization point of view, strong ties result in similar standardized procedures and processes, whereas weak ties feature less clarity and breed informality in procedures and processes. Strong ties in strategic alliances have also been associated with increased control of the alliance operations, which positively affects the alliance's success [46].

Regarding the frequency dimension, strong ties are characterized by frequent interaction, unlike weak ties, whereas strong relationships indicate resource investment and information sharing among partners, and weak association shows low intensity in resource investment. Concerning the reciprocity dimension, strong ties show long-term interactions that breed trust and resource exchange, while weak ties feature a low degree of reciprocity. [47] states that strong ties in a strategic alliance formed by SMEs can be more beneficial compared to alliances that are characterized by weak ties.

As conceptualized, each dimension in the model is sufficient to explain alliance structures while all may occur concurrently. This study observes that the model demonstrates a wide breadth of applicability to cover the diversity demonstrated by strategic alliances.

2.1.1. Conceptualization and Hypotheses

The conceptual model for this study was founded on the literature review conducted. As highlighted in Figure 1, the conceptualized framework highlights the inter-relationships in the survey variables. The variables used in this study include strategic alliance, level of collaboration, and firm performance.

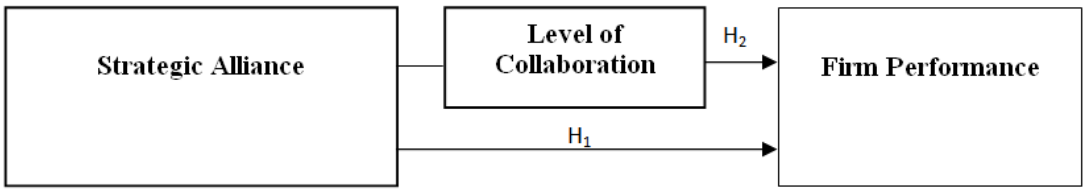

Figure 1. Conceptual Model relating Strategic Alliance, Level of Collaboration and Firm Performance

2.2. Conceptual and Empirical Reviews

2.2.1. Strategic Alliance and Firm Performance

This study adopts the definition of strategic alliances advanced by [48] that strategic alliances are long-term partnership relationships developed between several legally and formally independent organizations for long-term strategic cooperation. This study also incorporated the Resource-Based View (RBV) to advance the argument that manufacturing SMEs form a strategic alliance with other firms to seek resources that they lack and that such resources contribute to the performance improvement of such firms [49]. This study perceives the need to acquire resources as the main motive behind strategic alliance formation among SMEs due to their resource restriction [29].

According to the RBV perspective, firms that lack critical resources can gain access to such resources by forming partnerships with other firms in their environment [49]; [50]. The RBV broadly classified resources as tangible resources that include land, buildings, materials, financial capital, and intangible resources that consist of expertise, abilities, status, reputation, structures, systems, and processes [51]. In practice, firms are motivated to enter strategic alliance(s) with other firms to accumulate and exchange valuable resources and capabilities that improve the resource bundles in firms that have been linked to improved performance [36,52].

[53] indicated that the more strategic alliances a young firm forms, the more the benefits due to the ability to access resources that improve the innovation of such firms. Likewise, [54] established that SMEs that engage in strategic alliances are in a position to improve their performance by accumulating intellectual resources possessed by their alliance partners.

The perspective of firm resources is further defined in terms of resource bundles which are viewed as unique and specific to each firm, thus influencing how firms perform and compete in the industry [34]. This RBV theory postulates that a firm resource can only contribute toward competitive advantage and ultimately superior performance if it fulfills the VRIN criteria [49]. The resource-based view considers strategic alliance a network of resources that can be an essential means of acquiring valuable, rare, inimitable, non-substitutable resources [50].

This is made possible by restricted membership in a strategic alliance which only presents an opportunity for the members to benefit from the strategic alliance resources exclusively, thus making such resources valuable, rare, inimitable, and non-substitutable to firms outside the strategic alliance. As such, a strategic alliance and the resources contained therein can be a source of competitive advantage and improved organizational performance [11,51,55,56].

In a study on absorptive capacity and firm performance, [5] indicated that the capacity of SMEs to acquire resources from a strategic alliance has a direct influence on their performance. The authors concluded that the successful contribution of a strategic alliance towards SME performance is determined by how well the SMEs can acquire, internalize and apply the resources they get from their alliance partners.

Further, firms are expected to find out how to allocate and utilize these resources to increase the firm's effectiveness and efficiency, thus generating benefits for the firm [57]. The resource-based perspective also demands that organizations acquire resources that support their strategic objectives, which necessitates creating value from one's existing resources and tapping into other firms' resources to amass a bundle of resources that will enable optimal returns [36].

For instance, [58] concluded that strategic alliances could support business strategies adopted to improve industry strategic position. [50] observe that performance improvement and competitiveness can be enhanced through strategic alliances that offer scarce resources that complement existing resources. Similarly, it is expected that manufacturing SMEs will seek to form strategic alliances for purposes of accessing and accumulating resources, and so the study proposes that:

H_1: There is a positive and significant relationship between strategic alliance and firm performance.

2.2.2. The Role of Collaboration

This study considers the level of collaboration within a strategic alliance as a precursor to value creation. As such, organization performance is pegged on achieving a certain level of collaboration within the partners in a strategic alliance. The current study relies on extant literature to adopt the level of collaboration as the component that portrays the functional state of an actively operational alliance.

This study defines the level of collaboration from a relational perspective and considers the level of collaboration as a status indicated by the depth of interaction and involvement of strategic alliance partners in the strategic alliance activities [16]. Based on this definition, the Resource Dependence Theory (RDT) is well suited to support the relational perspective [37]. The phenomenon of dependence that breeds relationships among alliance partners has been exploited by scholars who investigated alliance structure [60,61,62,63].

The strategic alliance literature postulates that for organizations to derive value from a strategic partnership,

the strategic alliance should embrace collaboration to bridge any organizational differences and create real value for the alliance partners [15]. This value creation can only be possible when the alliance partners strike a balance between the opposing forces held by alliance partners for the strategic alliance to achieve its strategic objectives [11]. [17] observed that effective coordination and cooperation are critical contributors to managing complications caused by the different motives held by partners in an alliance configuration. However, this study observes that the construct of collaboration which also encompasses coordination and cooperation, offers a more diverse perspective in the study of alliance structure. This study also articulates that by striking a balance between the interests of all alliance members and ensuring that strategic alliance benefits are mutually shared, and undesirable tendencies are minimized, alliance collaboration will boost interdependence among partners [12].

[16] investigated interdependencies and the relationships that emerge during group interactions and established that the relationship between group interactions and performance is mediated by collaboration. Therefore, it is anticipated that active collaboration within a strategic alliance can be achieved by adopting the five dimensions of the model of inter-organizational network structure [20].

Furthermore, it is predicted that active collaboration within a strategic alliance can be achieved by developing systems that facilitate partners' interactions and effective implementation of strategic alliance activities [13]. Achieving this active collaboration grants a strategic alliance the ability to achieve a satisfactory level of collaboration to operate effectively and efficiently. Strategic alliance literature has demonstrated that implementing alliance structure dimensions like reciprocity enables collective performance among partners and facilitates resource sharing and fulfillment of roles and obligations by partners [45,64].

This study argues that by fulfilling the requirements of the dimensions of the model of inter-organizational network structure, strategic alliance gains direction, connectivity between partners is enhanced, and partners achieve mutual benefit from the strategic alliance activities, thus achieving the alliance's strategic objective [41]. Similarly, commitment among the strategic alliance partners is improved, and strategic alliance trust is nurtured because of effective and efficient organization and management of the strategic alliance relationships [14]. Hence, it is suited to state that alliance partners who achieve a high degree of collaboration will benefit more than partners who achieve a low level of collaboration. As such, this study hypothesizes that:

H_2: The strength of the relationship between strategic alliance and firm performance is mediated by the level of collaboration achieved by the alliance partners.

3. Research Methodology

3.1. Research Design, Population, and Sampling

This study utilized a descriptive and explanatory research design that was cross-sectional. The study adopted these research designs to assist in predicting, expounding on facts and features of individuals, groups, or situations, as well as show the relationships among the various variables of the study [65,66,67].

A total of 74 manufacturing SMEs formed the study's target population [68]. The target population was identified through telephone interviews involving the SME CEO or senior managers regarding whether their firm had formed a strategic alliance with another firm (s). This confirmation exercise was informed by the Kenya Association of Manufacturer's directory for 2017/2018, used to identify the SMEs in the manufacturing sector. Another criterion for selecting the SMEs was their geographical base since all the firms had to have an operating base in Nairobi City County.

A census of all identified SMEs was undertaken, and therefore, no sample was drawn since the authors felt that the target population was relatively small. In addition, the study targeted one respondent per SME, resulting in 74 respondents who included the CEO or any other senior manager in the SME.

Table 1 shows the distribution of the study target population according to the 13 sub-sectors represented in the manufacturing sector in Kenya. The presented sub-sectors are involved in processing and value addition.

Table 1. Distribution of Study Population

Sub-sector	Frequency	Percentage
Building, Mining & Construction	7	9
Chemical & Allied	1	4
Energy, Electrical & Electronics	5	7
Fresh Produce	5	7
Food & Beverages	7	9
Leather & Footwear	3	4
Metal & Allied	6	8
Motor Vehicle & Accessories	9	11
Paper & Board Timber	7	9
Pharmaceutical & Medical Equipment	5	7
Textile & Apparel	7	8
Timber Wood & Furniture	8	11
Total	**74**	**100**

The survey's primary data was gathered using structured questionnaires, ideal for descriptive and explanatory research [69]. The study respondents self-administered the questionnaire. The CEO or any senior manager formed the primary respondents for the study in the identified SMEs. This group of respondents was deemed relevant since they have great discretion in decision making and their actions or decisions influence the strategic options adopted by their organizations.

3.2. Data Analysis and Discussion

The survey relied on descriptive statistics for data analysis and presented this analysis using the mean and standard deviation. The descriptive statistics were also utilized to present the basic information regarding the study variables and the strength of the relationship among

the study variables. In contrast, inferential statistics were used to arrive at conclusions regarding the hypothesized relationships among the study variables, establish the relationship's significance among the study variables, and draw conclusions on the hypothesized relationships of the variables. The study used stepwise methods to analyze the mediating effect as proposed by [70].

In the first Stage, a regression model was constructed to estimate the contribution of strategic alliance to organization performance. This regression analysis used a composite index for the independent and dependent variables. Stage two involved a regression analysis in estimating the contribution of strategic alliance to the level of collaboration on the relationship between strategic alliance and firm performance. The regression analyses models used are presented as follows:

Model 1: $Y = \beta 0 + \beta 1SA + \varepsilon 1$

Model 2: $Y = \beta 0 + \beta 1SA' + \beta 2LoC + \varepsilon 3$

Whereby: Y is firm performance; SA is a strategic alliance, and LoC= Level of Collaboration. SA also represents the relationship between strategic alliance and performance in the first model, while SA' represents the coefficient relating to strategic alliance on firm performance adjusted for the effect of level of collaboration (mediator). ε1- ε3 represent the unexplained variability, and the β0 and β1 are the intercepts.

The decision rule for mediation was based on the interpretation that (β1 SA) is the direct effect of the independent variable on the dependent variable while (β1SA') is the indirect effect of the mediator on the independent variable and dependent variable. According to [70], when the coefficient of (β1SA') is zero when the mediator is introduced in the model, there is full mediation. In contrast, when the value of the direct effect between strategic alliance and firm performance is reduced when the level of collaboration is introduced, but the direct effect is still significant, the mediation effect is reported as partial.

The study also conducted some diagnostic tests to ensure conformity to regression analysis assumptions. The test results for these tests are presented in Table 2.

Table 2. Diagnostic Test Results

Assumption	Test	Results
Normality	Skewness and Kurtosis test	Values for all variables range between -1.0 and +1.0 implying normal distribution of the data set.
Linearity	Pearson Correlation	P < 0.05 for all predictor variables indicated a significant positive linear relationship to the predicted variable.
Multicollinearity	Variance Inflation Factor (VIF) & Tolerance (T)	VIF<10 and T>0.1 for all survey variables. Results show the absence of multicollinearity.
Homoscedasticity	Breush-Pagan Test	P-value > 0.05 for all items. Results show that the error term was homoscedastic.
Sample Adequacy	Kaiser-Meyer-Oklin	The Score of KMO statistic for all study variables was greater than 0.5. Results support that the sample is adequate for factor analysis.

4. Findings

4.1. Respondent's and Firm Characteristics

This study targeted 74 respondents from SMEs in the manufacturing sector, and a response rate of 100% was achieved. This achievement rate was necessary since the study target population was considered small. The study was set to obtain respondents' demographic data, including their gender, age, years of service in their current company, and the respondent's department.

The survey analysis showed that the respondent's gender distribution was 79.73% men and 20.27% women. This distribution demonstrates the male gender domination of the manufacturing sector in Kenya as both SME owners and formal employees [71]. The distribution of the respondent's age indicated that 2% were 35-40 years while the majority, 42%, were 41-45 years. Another group of respondents, 30%, were above 45 years. The age distribution implies that mature and knowledgeable employees participated in the study. In addition, 45% of the respondents were CEOs of the SMEs targeted by this study, while 21% were marketing managers, 7% were production managers, and only 1% were operational managers.

The survey analysis also showed that 54% of the targeted SMEs had between 10-50 employees while 20% had 50-100 employees. This firm distribution is in-line with the definition for SMEs adopted by this study: SMEs have between 10-100 employees.

The analyzed data indicates that the main collaborators for the SMEs include suppliers of raw materials, distributors of goods, logistics/transport companies, utility companies, government departments, media companies, consultancy firms, and universities/colleges. All the sampled SMEs indicated that they form strategic alliances for the provision of raw materials, the distribution of finished products to the market, improving the company status in the industry, observing government policies, acquiring more capital, access to marketing services, gaining access to new markets, acquisition of skilled labour, acquire new personnel and technology for the company.

According to the respondents, manufacturing SMEs had entered strategic alliances with local, regional, and international companies. However, all SMEs had local companies as part of their strategic partners, while 66% had regional companies as their strategic partners, and 45% had international companies as their strategic partners. This finding was interpreted to mean that distribution SMEs in the manufacturing sector in Kenya have formed diverse strategic alliances locally, regionally, and internationally to support their value chain activities.

4.2. Descriptive Analysis of the Study Variables

The features of the study variables were summarized using descriptive statistics, and the item statistics per variable were presented, outlining the aggregated mean scores and the standard deviation score in Table 3.

Table 3. Statistics for Study Variables

Variables	α	No. of Items	Mean	Std. Dev
Firm Performance	0.903	2	3.68	0.77
Strategic Alliance	0.879	10	3.78	0.66
Level of Collaboration	0.758			
Formalization		3	4.27	0.50
Standardization		2	4.15	0.51
Frequency		4	4.19	0.44
Intensity		2	4.36	0.49
Reciprocity		2	4.24	0.51
Aggregate Score for Level of Collaboration		**13**	**4.24**	**0.41**

The research instrument used for this study used a 5-point Likert scale of 1-5 where: 1 = Not at all, 2 = slight extent, 3 = moderate extent, 4= high extent, 5 = very high extent. According to Table 3, the mean score for the strategic alliance variable was 3.78, and the standard deviation was 0.66, which indicates a moderate level of practice. The firm performance had a mean of 3.68 and a score of 0.77 as the standard deviation, which indicates a moderate level.

The results tabulated in Table 1 show that the sub-variable formalization has a mean score of 4.27 and a score of 0.50 as the standard deviation. This finding shows that strategic alliance activities are well organized and coordinated, strategic alliance partners value using specific procedures for activity implementation, and strategic alliance partners embrace similar values to guide their alliance activities.

The sub-variable standardization has a means score of 4.15 and a standard deviation of 0.51. The findings show that strategic alliance partners highly value joint planning of their activities and undertake routine meetings and discussions. The sub-variable frequency had a mean score of 4.19 and a standard deviation of 0.44. This finding indicates that strategic alliance partners highly valued frequent joint planning, routine feedback on strategic alliance activities, consultations among the strategic alliance partners, and frequent meetings to resolve grievances and complaints.

The sub variable intensity had a mean score of 4.36 and 0.49 as the standard deviation. This finding indicates that SMEs have committed resources for the strategic alliance activities, and strategic alliance partners have largely benefitted positively from the strategic activities. The sub variable reciprocity had a mean score of 4.24 and 0.51 as the standard deviation. This finding meant that strategic alliance partners contribute equally to strategic alliance activities, and strategic alliance partners have agreed on the terms of undertaking strategic alliance activities.

The aggregated mean score for level of collaboration was 4.24 and 0.41 standard deviation, signifying a high score on the measurement scale. The summative mean scores for each sub-variable were greater than 4.0, indicating that the SME in the manufacturing sector practices level of collaboration. The low level of standard deviation of less than 1.0 on all sub-variables indicates low variability in the responses offered by the respondents.

The standard deviation for the study variables ranged from 0.41 to 0.77, with the level of collaboration indicating the least variability (0.41) and strategic alliance having the most variability (0.66). This finding indicates that the results from the descriptive statistics are agreeable to most of the respondents and an accurate representation of SMEs in the manufacturing sector in Kenya.

4.3. Test of Hypotheses

The first hypothesis focused on ascertaining whether there is a positive and significant effect of strategic alliance on SME performance. To perform this analysis, a composite index was formulated for the independent variable (strategic alliance) using a weighted average for all the constructs used to measure strategic alliance. The test results are illustrated in Table 4.

Table 4. Regression of Firm Performance on Strategic Alliance

Goodness of fit	Test Statistics		P-value
Adjusted R-Squared	0.620		
R-Squared	0.625		
F-Statistic (1,72)	120.208		0.000**
Dependent Variable= Organization Performance	**Linear Regression Results**		
	Coefficients	**t-statistic**	**P-value**
Strategic Alliance (SA)	0.924	10.964	0.000**
Constant	0.183	0.568	0.572
Key	******Significant at 5 per cent		

As per Table 4, the adjusted R2 was 0.620, implying that the model explains 62% of the performance of manufacturing SMEs. Other factors explain the remaining 38% variation in the performance of manufacturing SMEs in Kenya besides strategic alliance. In addition, the ANOVA scores indicate that the F statistics at (1, 72) is 120.208 and is significant at $P<0.05$, meaning that strategic alliance is significant in explaining variation in organization performance. The strategic alliance coefficient is positive at 0.924 and significant at $P<0.000$, meaning that firm performance is positively and significantly affected by the strategic alliance. Hypothesis one of the study is therefore supported by the data presented in the finding.

The second hypothesis sought to determine whether the level of collaboration mediated the relationship between strategic alliance and firm performance. To perform this analysis, a composite index was formulated for the independent, dependent, and mediating variables. The analysis for this hypothesis was conducted following [70] recommended method. Table 5 outlines the analysis of the two-stage approach as per the regression model formulated.

Table 5. A Summary of the Statistical Results from Steps 1-3

Parameter	Step 1 (Before Mediation)	Step 2 (After Mediation)	Statistics
Adjusted R^2	0.620	0.625	0.005
R^2	0.625	0.636	0.011
F-Value	120.208*	61.956*	-58.252
β Constant	0.183*	0.861	0.678
β Strategic Alliance (SA)	0.924*	1.005*	0.081
β Level of Collaboration (LoC)	-	-0.232	-0.232

Dependent = FP, Independent = SA, Mediating = LoC
* Value Significant at P<0.05.

Table 5 shows that in step 1, the strength of the relationship between strategic alliance and organization performance was 0.620 as per the adjusted R2, while the coefficient was 0.183. Step 2 shows that, after introducing the mediating variable (level of collaboration), the value of adjusted R2 increases by 0.005 to 0.625 while the coefficient for strategic alliance increases by 0.081 to 1.005.

The test statistics for testing hypothesis one on mediation, adopted the procedure by Baron and Kenny (1986). The decision rule for mediation is that if the coefficient of strategic alliance is significant in step 1 and the coefficient of strategic alliance is significant in either step 2 or step 3, then mediation is supported. Full mediation is present when the coefficient of strategic alliance is not significant in step 3. However, when the coefficient of strategic alliance is significant in step 3, partial mediation is present. The study findings indicate that in step 3, the strategic alliance coefficient was significant after introducing the level of collaboration. As per the decision criteria adopted by this study, the null hypothesis was rejected (Baron & Kenny, 1986). The change in R2 in steps 1 and 2 signifies a stronger empirical explanatory power on the relationship between strategic alliance and firm performance when the mediating variable (level of collaboration) is present. These statistics show that the size of the effect of strategic alliance increases while the explanatory power of strategic alliance on the variations of firm performance increases. Therefore, the study concludes that the strength of the relationship between strategic alliance and SME performance depends on the level of collaboration that derives from the set of interactions among the alliance partners.

5. Discussion and Conclusion

This section presents a discussion of the study findings and the conclusions.

5.1. Discussion

The study findings on hypothesis one indicated that strategic alliances affect, to a significant level, firm performance. The study was founded on the resource-based perspective, which articulates that strategic alliances among SMEs are a viable strategy to seek and accumulate scarce resources critical to these firms' survival [32,36,72]. The findings and conclusions of this study have implications that impact theory, practice, and research. The independent variable used in this study fits this theme well in that top management team's desire to generate satisfactory bundles of strategic resources is a suitable basis for initiating a strategic alliance [32].

The support for hypothesis one is a clear sign that the quest for a strategic alliance partnership is indicative of the practice of strategic choice, which from a strategic management perspective, enhances the pursuit of the desired strategic direction as envisaged by top management teams at the firm level. This study relied on the responses of top managers who constitute top management teams who make corporate-level decisions on resource requirements and allocation and stakeholder management. The descriptive analysis shows that most of the top managers involved in the study had more than five years of experience, signifying wealth of knowledge on strategic alliance formation and management.

The resource-based view considers strategic alliance as a network of resources that can be an essential means of acquiring valuable, rare, inimitable, non-substitutable resources [50]. This perspective is well supported by the findings of this study which considers that the resources accumulated through strategic alliances and the capabilities possessed by the top management teams in the SMEs are considered firm-specific, thus making them difficult to imitate and a basis of competitive advantage [32]. The finding on the link between strategic alliances and firm performance complements existing evidence, which shows that the resources accumulated through strategic alliances can boost the performance of resource-restricted firms like SMEs [8,53,54,23,28,72,73,74].

The support for hypothesis two indicates the route through which strategic alliances affect firm performance. The mediating variable sought to assess the level of collaboration adopted by the manufacturing SMEs and its role in the emerging relationship between the alliance and firm performance. This led to the investigation of the level of collaboration based on several dimensions, namely, formalization, standardization, frequency, intensity, and reciprocity. The descriptive scores on this variable showed that the responses on the dimensions were ranked highly (M>3.5). These results were interpreted to mean that top management teams that formulate governing rules, standards, and procedures, have routine meetings with partners, commit resources to alliance activities, and ensure mutual benefit from the strategic alliance to all partners, were successful in building strong ties, commitment, and trust with their partners [20].

The RDT theory can further explain the findings on the level of collaboration. The RDT theory perceives interdependence between organizations as critical to

resource sharing and observes that accessing resources held by other firms breeds power struggles and uncertainty within the strategic alliance [75]. However, such alliance challenges are overcome by embracing joint dependence among the strategic alliance partners, which results in mutual dependency whose outcome is trust, commitment, reciprocity, and understanding [24].

Given this, how does the move towards achieving symmetrical dependencies fit into the desired level of collaboration? The model for inter-organizational network structures has been suggested for adoption due to the limitation of the RDT theory to operationalize the process of managing dependencies. The model for inter-organizational network structures postulates that inter-organizational structures are characterized by five dimensions that are network-wide and organization-specific [20].

The study findings show that top management in the sampled SMEs improves the level of collaboration with their alliance partners through the formalization of strategic alliance activities, standardization of its operations, increasing frequency of interactions among alliance partners, investing resources into the alliance activities, and engaging in reciprocal exchange with partners. By embracing these dimensions, the administration of the partner's collaborative effort is enhanced, thus facilitating better coordination, control, and monitoring of alliance activities [15]. The achievement of these alliance structure attributes further contributes to the embeddedness of the partners into the alliance, thus creating strong ties and increasing the depth of economic and social interactions [24]. In addition, this study believes that adopting the dimensions of the model of inter-organizational network structure enables SMEs to overcome the constraints related to dependency and provides such firms with an opportunity to benefit, especially when alliances are formed with large firms [76].

The study findings support the application of the model for inter-organizational network structures in studying the level of collaboration in strategic alliances. The applicability of this model accounts for the positive effect of the level of collaboration on SME performance in the manufacturing sector in Kenya. The extant empirical studies relied upon to justify the current study have demonstrated how different aspects of the alliance structure contribute to alliance success [16,18,77]. This current study builds on existing knowledge on strategic alliance structures by demonstrating how the dimensions of the model of inter-organizational network structures can enhance our understanding of the aspects of relationship building and the management of strategic alliances [20].

The authors believe that the path by which the firms experience the effect of strategic alliance is explained through the mediating variable touching on the level of collaboration the SMEs attained due to the deployment of the strategic alliance strategy focused on resource acquisition motives [29]. The study authors also observe that the strength of the strategic alliance's effect on SME performance depends on the level of collaboration the SMEs can institute by deploying the dimensions of the model of inter-organizational network structure. This study observes that with a clear understanding of the dimensions of inter-organizational network structure, top managers in SMEs can adapt their alliance structure to fit different strategic alliances based on the motives for alliance formation [29].

This study adopted the dimensions of the model of inter-organizational network structures to study alliance structure, in contrast to earlier studies on strategic alliances. For the first time, this operationalization has been adopted to study strategic alliances among manufacturing SMEs in Kenya. Prior attempt to apply this model was tested using institutions of higher learning [78]; [18]. Therefore, the survey adds to existing knowledge on strategic alliances by demonstrating that the level of collaboration achieved in a strategic alliance has a role in the relationship between strategic alliance and organizational performance.

5.2. Conclusion

This study was guided by two objectives that sought to establish the effect of strategic alliance on firm performance and determine the effect of level of collaboration on the relationship between strategic alliance and firm performance. The study findings indicated a positive and significant effect of strategic alliance on firm performance. This effect between strategic alliance and firm performance improves when level of collaboration is present. As a result, the study concludes that manufacturing SMEs should embrace strategic alliances as a viable strategy for resource access to improve operational activities at different value chain stages.

Secondly, the study concluded that the level of collaboration partially mediates the effects of strategic alliances and organizational performance. This demonstrates that by adopting the dimensions of formalization, standardization, frequency, intensity, and reciprocity, manufacturing SMEs in Kenya can build and strengthen relationships with their alliance partners, effectively and efficiently manage the affairs as well as enhance resource sharing among the partners, which in turn will contribute to the alliance performance and ultimately to the SME performance.

Lastly, the study has demonstrated that complementarities exist among multiple theories suitable to explain the phenomenon of strategic alliance and firm performance. This study has established that complementarity among several theoretical frameworks is necessary to understand the association between strategic alliance and organizational performance. This study observes that the resource-based view supports the strategic objective held by SMEs to form a strategic alliance. However, RDT complements the RBV by demonstrating the conditions necessary to facilitate resource exchange among strategic alliance partners by creating stronger ties, commitment, and trust.

6. Policy Recommendation

There is a need for the government and other professional bodies that support SMEs to build their capacity in strategic alliances and partnerships. The study findings indicate that besides creating strategic alliances, the adoption of level of collaboration is a critical component affecting the contribution of the strategic

alliance toward SME performance. The study offers that such capacity-building initiatives should be geared towards creating a better understanding of how to effectively and efficiently operationalize SME alliances by applying the dimensions of formalization, standardization, intensity, frequency, and reciprocity. The study anticipates that this will strengthen the attainment of the alliance's strategic objectives and contribute to performance improvement.

7. Limitations and Suggestions for Further Research

The study's conclusion needs to be adopted with caution bearing in mind the study's limitations. The scope of the study is limited by the construct and context adopted. Therefore, the study's findings apply to the extent to which strategic alliance and level of collaboration are assessed in this study. The authors suggest that further research can be undertaken to expand the study construct to include other facets of a strategic alliance like the effect of the external environment on the applicability of the model's dimensions in a strategic alliance relationship and the impact of such interaction on firm performance.

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