

Supply Chain Collaboration, Organizational Resources and Firms' Performance

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Abstract

Purpose – This study primarily investigates the linkage between supply chain collaboration, organisational resources and firms' performance.

Design/method/approach – The study employs a quantitative research approach with cross-sectional survey data from 163 collected from logistics companies in the Greater Accra Region of Ghana. The study analysed the data gathered using SPSS (version 22).

Findings – The results show a positive and significant relationship between supply chain collaboration and supply chain performance. It was also further established that a positive and meaningful relationship exists between organisational resources and supply chain performance.

Originality/value – This paper proposes and tests a hypothetical model that investigates the relationship between supply chain collaboration, organisational resources and supply chain performance.

Keywords: Supply Chain Collaboration, Organizational Resources, Supply Chain Performance

1.0 INTRODUCTION

Globally, the field of Supply Chain Management (SCM) has moved from the days when channels members decoupled their operations from other members to the current stage where the development of stronger ties and frequent collaboration among channels is the order of the day and indeed, highly recommended (Singhry, Rahman & Imm, 2015). To stay competitive, gain competitive advantage and successfully operate in today's dynamic environment, is driving organizations, manufacturing entities and service organizations to enter strategic alliances and collaborations (Kim, 2013). Supply Chain Collaboration (SCC) can be described as the process where a partnership is developed and grown between two or more channel members who work together in terms of planning, implementation and controlling supply chain processes and procedures to realize their common objectives and achieve mutual rewards (Cao & Zhang, 2011). SCC has many terminologies such as integration, information and knowledge sharing, coordination, teamwork, strategic alliance, partnership and buyer-supplier connection (Singhry et al., 2015).

It has been pointed out that the supply chains of firms are now longer than ever before while they are also very fragile and risky (Singh et al., 2015). Today's supply chains are forced to meet and even exceed customers' demands for better service quality even though margins are ever falling (Cao & Zhang, 2011). SC members scarcely and hardly know much about events occurring within the chain even though they are required to follow, monitor, report and assess all events occurring within the chain (Dogany & Ergun, 2017). Therefore, to ensure that they are constantly abreast with current practices and better manage events happening within the supply chain, channel members have resorted to developing strategic and collaborative alliances with each

other (Singhry et al., 2015). Considering that the competitive business environment is fraught with bottlenecks such as delays, disruptions, short product lifespan and natural disasters, collaboration and sharing resources is ever more important than ever before (Cheng, Chen & Chen, 2013). This is because, these demands are often beyond the capability of one entity and it requires all stakeholders joining forces and resources to respond adequately to these challenges (Tsanos, Zografos & Harrison, 2014). Therefore, forming lasting and enduring alliances is viewed as one of the best methods of reinforcing SC agility, reliance and dynamism (Soosay & Hyland, 2015). Even though there are different aspects of collaborations within the supply chain, sharing information and knowledge is seen as the core and foundation of any effective cooperation among channel members (Singhry et al., 2015).

According to Dogany and Ergun (2017), firms enter collaborative and strategic alliances to share risks confronting them and equally share in the benefits and rewards that accrue. According to Soosay and Hyland (2015), there is a synergistic effect when firms collaborate because they tend to achieve and improve upon their SC performance than when they decide to operate alone. It has been observed that firms today are more willing to collaborate, co-compete and travel beyond their traditional operational boundaries to maximize the benefits that collaboration offers especially with respect to operational efficiency (Srinivasan et al., 2011). Partnerships also ensure that firms can capitalize on channel partners' capacities, know-how, technologies, and other resources. In addition, collaborations make it possible for firms to have access to suppliers and customers that they may not have had the opportunity to accessing without collaboration (Panahifar et al., 2018).

However, the challenge lies in determining and identifying the sort of relationship to enter; the nature of collaboration and integration and the resources and skills needed to sustain these relationships (Panahifar et al., 2018). This is because collaborations and strategic alliances with suppliers, buyers and other channel members pushes suppliers and other channel members to upgrade their conventional SC and integrate them in relation to their goals and objectives (Cao & Zhang, 2011). According to Jakhar (2015), handling and effectively managing SC entails adroit management of several inter-organizational associations and relationships including cooperative agreements, strategic alliances, and collaborations. Developing and holding competitive positions therefore requires inter-organizational integration among channel members and it is only when these relationships are sustained into the future that firms reap the benefit thereof (Tsanos et al., 2014).

The point is, all SCC processes are initiated first with a particular company or organization and then, there is an extension of these collaborative processes to other channel partners in a more cyclical and recurrent fashion. SCC has also been found to be the critical success factor for supply chain performance because SCC facilitates operational efficiency leading to cost reduction among channel partners, makes it more possible to develop strategies that are customer-centric and engenders customer satisfaction and loyalty and guarantees improved market performance (Chakraborty, Bhattacharya & Dobrzykowski, 2014). The question is, what kind of collaboration exists among supply chain members in the Ghanaian manufacturing industry? To what extent do supply chain partners collaborate with each other? What is the relationship between supply chain collaboration and supply chain performance? Unfortunately, however, there appears to be a dearth of empirical literature on the subject matter from a Ghanaian perspective even though authors such as Baah et al. (2021), Otchere, Annan and Quansah (2013) and Tian, Otchere, Coffie, Mensah and Baku (2021) have done

some work in that area. It was therefore in answering the above questions while also attempting to bridge the research gap that study was undertaken.

2.0 LITERATURE REVIEW AND HYPOTHESIS DEVELOPMENT

2.1 Concept of Supply Chain Management (SCM)

SCM has been described as the manufacturing procedures, structures and processes needed to change or transform products from their raw state into finished products (Heizer & Render, 2014). This definition however can be said to be production oriented because it focuses more on how raw materials are transformed into final products and it does not specifically bring out the issues of managing the entire process such as the coordination, planning, executing, controlling and monitoring different resources, personnel and partners towards the satisfaction of the final consumer. This brings management principles to bear on SCM and goes a long way in obtaining operational efficiency, better coordination of resources, better communication along the channel and therefore resulting in cost reduction, flexibility and ultimately, satisfaction to the final consumer.

SCM has also been described as the coordination of strategic and the long-term alliances and partnerships with channel partners with the main purpose of developing and producing offerings (Kotzab et al., 2014). This definition looks at how channel members enter into strategic alliances in order to create some synergies that will facilitate operational efficiency, innovation, information exchange and creating value in the production and delivering of products and services to final consumers. As pointed by Kim (2013), the main objective of SCM is to reduce cost, create value for all channel members – especially final consumers and users with respect to satisfaction, delivering to expectation, within cost and therefore resulting in high SCP and the sustenance of competitive positions. Table 2.1 captures a summary of some definitions of SCM.

2.2 Supply Chain Performance (SCP)

SCP is the performance of chosen functions found within the SC (Srinivasan, Mukherjee & Gaur, 2011). SCP has also been described as the capacity and ability of supply chains to execute their functions, processes and activities cost effectively with the main objective of meeting the needs and expectations of final consumers (Green & Inman, 2005). SCP is a top management priority for most organizations especially when the success and continued profitability of firms depends on how fast and efficient firms are able to move products and services across the channel to the final consumer (Heizer & Render, 2014). Thus, the emphasis is on increasing product and service offerings in order to give final consumers more alternatives and also, increase and maintain their competitive positions (Dogany & Ergun, 2017).

It must be pointed out that Supply Chain exist to create value for all channel members and it is only when there is an enhanced performance of the Supply Chain that channel members will receive value (Kim, 2013). Considering the increasingly complex nature of SCM, especially with increasing demands from all channel partners, it has become important to measure, assess and gauge the performance of supply chain operations and activities (Srinivasan et al., 2011). Measuring SC performance is therefore crucial in SC success by assessing and evaluating performance constantly and then, benchmarking the performance of one firm against another.

Different firms use different metrics to measure the performance of their SC. Some of these metrics include quantity, quality, operational efficiency (cost reduction), time (speed), dependability, agility and flexibility, innovation and customer satisfaction (Srinivasan et al., 2011). According to authors like Dogany and Ergun (2017),

VanDeursen and Mello (2014) and Soosay and Hyland (2015), the SC process and function can be said to be successful and effective when the final consumer is satisfied and all their needs, expectations and wants fully met and addressed. This therefore means that, in the final analysis, SCP should focus on the extent to which final consumers' needs and expectations were identified and met (VanDeursen & Mello, 2014).

As opined by Dogany and Ergun (2017), SC partners are increasingly redesigning their processes and practices to ensure that everything done within the chain leads ultimately to final user satisfaction. According to Singhry et al. (2015), one of the most effective means of satisfying customers' needs and expectations is through re-engineering the entire SC process and adopting more interaction, collaborative and dyadic relationships. This means that establishing and maintaining long term strategic relationships and partnerships with key channel members is crucial to SCP (Srinivasan et al., 2011). In the final analysis, these strategic relationships facilitate lower operational cost, expedites delivery schedules, provides prompt feedback, leads to low inventory cost and improvements on total reliability which ultimately implies that final consumers are supplied with the right offerings at the right price, at the right time and the right place.

It must also be mentioned that there are several benefits associated with customer satisfaction. These benefits include repeat purchases, increased usage, loyalty, positive word-of-mouth referrals and advocacy (VanDeursen & Mello, 2014). The point is, effective collaboration for instance between customers and suppliers leads to SCP and suppliers can leverage on this to sell more and get more from their scarce resources (Kim, 2013).

2.3 Supply Chain Management Resources

Resources of organizations can be described as all those things that can serve as strengths or weaknesses for these organizations (Kotzab et al., 2014). From the perspective of SCM therefore, resources can be seen as all those technological, human, financial, physical and firm assets that are deployed in the sourcing, manufacturing and delivering of firms' offerings to channel members and consumers (Alfalla-Luque, Medina-Lopez & Schrage, 2013). SCM resources therefore are the bundle of capabilities and assets that enables firms to realize their supply chain objectives and goals (Dey & Cheffi, 2013). It must be mentioned again that these resources and capabilities can be found both within the organization and outside the organization and therefore implying that channel partners need to identify different sources of their resources and then, build their capacities to maximize these resources wherever they may be found (Chakraborty et al., 2014). This method again means that channel partners have to focus on making use of resources that are deemed valuable, rare and inimitable so as to maintain their competitive positions and also improve their SCP (Baraldi, Gressetvold & Harrison, 2012).

There are three main inter-firm flows management expects that all channel members and partners must recognize and work with according to Dey and Cheffi (2013). These are: the extent to which the management of the flow of goods and services are harmonized between all channel partners; the extent to which the management of the flow of goods and services takes cognizance of demand-driven supply of information to all channel partners; and the degree to which partnerships are managed and synchronized between allies and partners. It is therefore crucial that firms are able to put together their resources (managerial capabilities, finances, technologies, personnel and systems) as well as set up systems and processes that engenders better inter-firm

management of relationships and resources considering that firms that decide to operate alone without collaborating will be out-competed in the long run (Kotzab et al., 2014). According to Chakraborty et al. (2014), one of the reasons why firms decide to coordinate, collaborate and integrate their systems is to obtain resources, eliminate or reduce to the barest minimum all risks confronting them and realize mutual goals and objectives. In the final analysis, channel partners share their resources in order to increase their probability of growth, profitability and the capacity to create value for their customers cost effectively. As opined by Baraldi et al. (2012), SC partners need to provide certain fundamental managerial capabilities and resources internally as well as to channel members they collaborate with so as to facilitate the creation of main and principal capabilities that enables them to properly and effectively implement their SC strategies.

2.4 Empirical Review

The empirical review of previous studies is discussed in this section. There have been extant studies by researchers on Supply Chain Collaboration (SCC) when effectively deployed and its strong effect on Supply Chain Performance (SCP). Qian, Seuring and Wagner (2020) used a qualitative approach to establish the relationship between quality (information, operational and relational dimensions) and SCP (financial and market, operational and relational performance). Based on 100 articles reviewed, it was concluded by the authors that relational dimensions are crucial in SCM and has strong and positive impact on firm performance (financial marketing and operational). Al-Doori (2019) investigated the effect of SCP on the performance of Pakistan's automotive industry. Data was collected from 232 members of SC such as manufacturers, suppliers and distributors and based on the factor analysis and multiple regressions, it was established that two SCM methods – information sharing (IS) and joint decision making (JDM) have a significantly positive impact on operational performance.

Also, Chakraborty et al. (2014) investigated the effect of SCC on value co-creation and firm performance by focusing on the health care service industry in Pakistan. The study found that SCC has strong and significant impact of value co-creation and firm performance and that value co-creation plays a mediation role in linkage between SCC and firm performance. Kang and Hwang (2017) investigated the extent to which interactions among inter-organizational facilitates green supply chain management in Germany. It was established by the authors that joint monitoring and controlling of mutual performance, joint planning and decision are all vital in supporting more solid collaborative relationship with channel members.

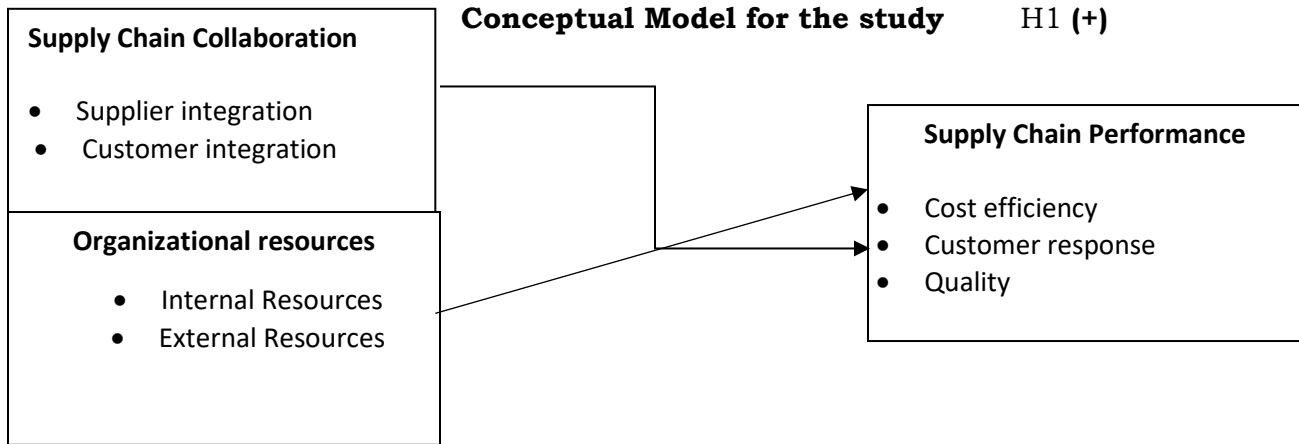
In the same vein, Panahifer et al. (2018) investigated the linkage between SCC and Performance of the Thailand's manufacturing entities. Based on the data collected from 189 participants, it was realized that collaboration enablers (trust, information readiness and secured sharing of information) facilitate SCC. It was also revealed that SCC is positively and significantly linked with firm's performance. Mofokeng and Chinomona (2019) sought to find out the effect of partnership, collaboration and integration on SCP within South Africa's SME sector. Based on the data gathered from 271 SMEs, it was found that cooperation, cooperation and integration have significant and positive effect on SCP. Cao and Zhang (2011) investigated the nature of SCC and also determined the effect of SCC on firm performance by collecting data from manufacturing firms in the United States.

The authors established that there is a strong linkage between SCC and firm performance mainly as a result of the impact that SCC has on collaborative advantage. This means that collaborate advantage is a strong inter mediator since it facilitates the attainment of synergies among SC partners leading to the creating of strong performance. Ho, Kumar and Shiwakoti (2020) investigated the associations among SCC practices, maturity level and firm performance within the Vietnamese garment industry and it was established that there is a significantly positive association among the variables especially with internal collaborations as the mediating factor. The study further revealed that internal collaboration such as information integration and operations management is a strong moderator in the relationship between SCC and firm performance.

Baah et al. (2021) explored the effect of SCC on SC visibility, stakeholder trust, and environmental and financial performance of Ghanaian manufacturing entities. Based on the data gathered, it was revealed that SCC has a significantly positive and robust effect on SC visibility, stakeholder trust, environmental and financial performance and that, SCC enables firms to mutually benefit and realize their stated goals. Dogany and Ergun (2017) investigated the connection between SCC and SCP in Turkey, and it was revealed by the authors that there is a significantly positive association between SCC and SCP. The study concludes that the need to meet and even exceed customers' needs, demands and expectations pushes firms to collaborate more instead of just competing against each other. Firms that focus on collaboration can potentially enhance their SCP and that collaboration in the final analysis is more sustainable.

Furthermore, Shin, Park and Park (2019) explored the influence of partnership orientation on partnership commitment and firm performance within South Korea and based on the data collected from 423 participants, it was established that there exist a positive and significant nexus between investment and contractual-based relationship and firm performance. It was further found that investment exchange has a moderating linkage between commitment and innovation and operational performance. Cheng et al. (2013) explored the extent to which inter-organizational relationship influence factors that impact on the development and implementation of information sharing among Taiwanese manufacturing entities. Data was collected from 528 firms and based on the data analyzed, it was revealed that relational benefits are important and play a major role in ensuring that information is shared effectively among supply chain partners.

Kotzaba, Teller, Grant and Friis (2014) investigated the inter-firm and intra-firm management resources that defines and determines the degree of implementation of inter-organizational partnership and alliance of SCM through using qualitative approaches. It was found that internal SCM resources influence the overall SCM resources and this in turn affects SCC effectiveness. Based on these findings, it can be surmised that firms, in order to realize SCP, must focus first on investing in SCM resources.



2.4.1 Collaboration on Supply Chain Performance

SCC has to do with suppliers’ capacities and abilities to come together and work closely in partnering with firms’ head offices and their preparedness to exchange diverse data such as cost processes and structures, planning and logistics (Kim, 2013). This in effect means that SCC is fundamentally an instrument through which firms can leverage on to enhance their performance. Various researchers have established that when effectively executed, SCC leads to higher SCP and this is mainly because supply chain partners freely exchange important information and knowledge with each other (Soosay & Hyland, 2015; Dogany & Ergun, 2017; (Srinivasan et al., 2011). In fact, Wiengarten, Humphreys, McKittrick and Fynes (2013) found in their study that buyer-supplier collaboration engenders operational efficiency, encourages the adopting and utilization of innovative technologies and ultimately, having a positive impact on both suppliers and customers. This is because as pointed out by Srinivasan et al. (2011), SCC can be effective when issues with partners in the process are comfortable. Again other issues such as trust, suppliers’ integrity, ability to minimize operational costs facilitates and engenders better service quality delivery.

Bae (2020) found in his study that orientation for SCM has positive influence on SCC. It was further found that SCC has a significantly positive impact on SCP. Singhry et al. (2015) sought to measure and establish the linkage between SCC and SC performance within manufacturing firms in Malaysia. Based on data collected from management members of manufacturing entities in the country, it was found that there is significantly positive association between SCC and SCP. In view of this, it is therefore hypothesized that:

H1: The stronger the level of collaboration among channel partners, the better the performance of supply chains

2.4.2 Organizational Resources and Supply Chain Performance

Organizational resources such as technological, human, financial, physical and firm assets are indispensable in establishing a more collaborative relationship among supply chain partners (Kotzab et al., 2014). The RBV holds that firms must focus on identifying unique, valuable and difficult to imitate inputs that are responsible for resources that are rare, unique, valuable and which have no alternatives because these are the resources that will enable firms to maintain their competitive positions while operating efficiently (Dey & Cheffi, 2013).

Based on the RBV, it can therefore be surmised that firms form strategic alliances and collaborate based on how they can attain the right balance between their operational costs, the interdependence of their resources and the likelihood of creating value from these relationships (Singhry et al., 2015). According to Sanchez and Heene (1997), the value of firms' resources typically has to do with how firms creatively integrate, coordinate, organize and control available resources with other resources existing within firms. In other words, developing relationships with other firms enable partners in such relationships to have access to each other's unique and inimitable resources cheaply than if these partners try to source and have access to these unique and inimitable resources on their own (Kotzab et al., 2014).

This is because collaborating with channel partners requires the availability of vital resources such as the acquisition of the right computer systems, software, communications gadgets and tools as well as training of employees. In effect, firms need to have enough resources at their disposal so as to ensure that they share information and knowledge with channel partners on a timely basis (Alfalla-Luque et al., 2013). SCM resources therefore are the bundle of capabilities and assets that enables firms to realize their supply chain objectives and goals (Dey & Cheffi, 2013). These resources and capabilities can be found both within the organization and outside the organization and therefore implying that channel partners need to identify different sources of their resources and then, build their capacities to maximize these resources wherever they may be found (Chakraborty et al., 2014). Based on the foregoing, it is therefore hypothesized that:

H2: Organizational resources strongly and positively relates with Supply Chain Performance.

3.0 METHODOLOGY

3.1 Research Design

Research design is described as the framework or outline that a researcher selects to facilitate the operationalization of stated research objectives (Bryman & Bell, 2011). Research designs are fundamental to successful execution of a study since it clearly directs and guides researchers on specific methods and approaches to choose so as to facilitate the execution of studies in more systematic and organized manner. Again, studies need to establish clarity with respect to the types of research design chosen. This study however chose the quantitative research design in order to facilitate the realization of the research objectives. Quantitative research design has to do with research objectives where statistical (numerical data) methods used to gather understanding about a given phenomenon is crucial (Neuman, 2007). Quantitative research designs focus on figures and number because numbers and figures are better in terms of the provision of accurate measures and perspectives needed to draw valid conclusions.

According to Yin (2003), quantitative research designs are useful in studies where perspectives and understanding must be obtained based on using numerical data, figures and computations. This tends to be more effective and reliable when seeking to establish relationship between certain variables. The study employed the survey method which is a research method employed by studies to gather data from a predetermined target population in order to obtain information and understanding on a particular study's objective (Saunders et al. 2012). This study used the survey method because it facilitated the gathering of data and information on supply chain collaboration and how it influences supply chain performance. Survey method was used because it enabled

the study to gather responses from questions asked in a uniform manner and therefore eliminating biased options.

3.1 Sampling Method

Sampling has been described as the statistical procedure that researchers undertake in choosing units from populations of interest in order to facilitate fair generalization of findings back to the population from which they were selected (Babbie & Mouton, 2006). This implies that samples must be representative of the total population to facilitate effective generalization. This study used the purposive sampling technique to ensure that the right sample was selected. Purposive sampling technique is a type of non-probability sampling method where samples are selected with specific purpose and objectives by researchers (Yin, 2003).

This means that purposive sampling is used when researchers have a predefined population in mind and based on the criteria set, respondents are then selected based on their ability to meet this criterion. Purposive sampling as pointed out by Saunders et al. (2012) is where researchers select samples and research participants based on the intuition and judgment of researchers. For this study, the purposive sampling technique was used because it enabled the researchers to contact and select participants who are deemed suitable because they possess information on their firms' supply chain activities, strategies and tactics. More specifically, the study contacted and invited only participants who were directly involved with their firms' supply chain activities and functions using emails. This ensured that people not having the requisite information on the subject matter were excluded from participating in the study.

3.2 Sample Size

For a study of this magnitude, it was important that enough data is collected to facilitate the drawing of valid conclusions as well as the generalization of the findings. The study sought to collect data from 200 managers of manufacturing firms in the Greater Accra metropolis. Constraint of time did not permit the full sample to be achieved hence a total sample size of 163 was obtained within the time frame and used for the study.

3.3 Data Collection Process

To collect the data, the researcher uploaded the questionnaires on Google and the link was shared with participants. Google forms were used because the service is cheaper and faster to deploy compared to personally administering the questionnaires to participants. COVID-19 and the need to observe all safety protocols also necessitated using the Google forms. The study used two months to collect the data (all things being equal).

4.0 DATA ANALYSIS

4.1 Reliability and Validity Test

To determine whether the exploratory factor analysis is appropriate for the extraction, the KMO and Bartlett's Test was used. The test statistics, Kaiser-Meyer-Olkin Measure of Sampling Adequacy produced statistically significant values that were beyond the minimum cut off value of 0.6 for the exploratory factor analysis. Because the researcher intended to extract factors to represent the constructs, those factors that accounted for the greatest percentage of the total variances were extracted with factor 1, 2, and 3 accounting for 28.37%, 42.64% and 40.81% respectively of the total variances.

Based on these the regression scores of these factors were saved as values for the construct in the moderated regression model (Tabachnick and Fidell, 2001; Johnson and Wichern, 2002). These scores were subsequently trimmed for outliers to ensure they do not affect the moderated regression analysis. Tables 4.1 and 4.2 below present the results of the factor extraction processes.

Table 4.1

Total Variance Explained							KMO and Bartlett's Test				Reliability Statistics	
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			KMO Measure of Sampling Adequacy	Bartlett's Test of Sphericity			Cronbach's Alpha	N of Items
	Total	% Of Variance	Cumulative %	Total	% of Variance	Cumulative %		Approx. Chi-Square	df	Sig.		
Supply Chain Collaboration (SCC)												
1	3.688	28.367	28.367	3.688	28.367	28.367	0.785	410.425	78	0.000	0.853	13
2	1.476	11.351	39.717									
3	1.252	9.634	49.351									
Supply Chain Performance (SCP)												
1	5.969	42.638	42.638	5.969	42.638	42.638	0.879	928.666	91	0.000	0.917	14
2	1.2	8.572	51.211									
3	1.08	7.717	58.927									
Organizational Resources (OR)												
1	3.265	40.808	40.808	3.265	40.808	40.808	0.760	355.985	28	0.000	0.876	8
2	1.361	17.009	57.817									
3	0.849		68.435									
4	0.756	9.448	77.883									
Extraction Method: Principal Component Analysis.												

Table 4.2: Loadings

Constructs		Loadings
		1
Supply Chain Collaboration (SCC)		
My firm has detailed understanding of customers' needs and expectations		0.651
We leverage on our customer relationship management (CRM) tools to share vital information and solutions with our customers		0.644
We use customer relationship management (CRM) tools to collect data from our customers		0.643
We constantly seek feedback from our customers to ensure that all issues and concerns are addressed effectively and within time		0.565

Our relationship with our suppliers is based on mutual independence instead of power	0.532
Our relationship with our customers is based on the delivery of value and need satisfaction	0.511
We rely on electronic means such as emails to realize inter-firm coordination	0.508
We collaborate with our suppliers to improve their quality in the long term	0.507
We leverage on social media tools such as emails, Instagram, Twitter, YouTube etc	0.507
Our organizational structure is such that it facilitates better communications with our suppliers	0.502
Supply Chain Performance (SCP) factor extraction	
There is high customer satisfaction and loyalty with my firm	0.754
We are always able to bring in all products features to the satisfaction of customers	0.751
We are always able to meet users requirements	0.735
There is a strong reliability among all partners	0.693
We are able to increase firms volume or capacity flexibly	0.683
My firm is always able to deliver products and services timely	0.682
My firm always exchanges product information and knowledge on time	0.682
We constantly deliver on time	0.675
My firm is able to attract and retain customers	0.659
We have high sales turnover (increased purchases and usage)	0.65
We are able to produce to conformance in my organization	0.647
Our operations are profitable	0.532
Organizational Resources (OR) factor extraction	
There is frequent exchange of knowledge and information exchange with our channel partners	0.733
We have established long term strategic alliances with our partners	0.721
We have sufficient financial resources for our operations	0.688
We have well-trained and skillful employees	0.664
We share inventory positions and forecasts with channel partners	0.618
Top management support our operations and activities	0.6
Our employees are loyal and committed to the organization	0.534
There is a positive relationship with our channel members due to fair sharing of profits	0.516
Extraction Method: Principal Component Analysis.	
a. 1 components extracted.	

4.2 Test for collinearity and normality

A multiple regression with the test for collinearity was used to test these assumptions for our data. The test produced a Variance Inflation Factor (VIF) values of 1.515 for the independent variables the model which means that the variables were not significantly correlated enough to affect the power of our estimates. The regression

standardized residual histogram and Q-Q plots produced normal plots. This confirmed that the data met the conditions required for the analysis. The results of the test are shown in the tables below.

4.3 Summary of Results on the Hypothesis

Based on the results of the analysis, the results of the hypothesis tested are presented in the table below.

Table 4.3: Conclusion on the Hypothesis

Hypothesis	Relationship	P-value	t-value	Beta Value	Results
H ₁	There is a relationship between supply chain collaboration and supply chain performance	0.0003	3.7129	0.2719	Accepted
H ₂	There is a relationship between organizational resources and supply chain performance	.0000	7.0917	0.4965	Accepted

With respect to the findings on the linkage between supply chain collaboration and supply chain performance, it can be surmised that there is a significantly positive relationship between the two variables. These findings imply that when effectively executed, supply chain collaboration has a positive impact on the supply chain performance of firms. These findings also imply that the participants' firms have been effective in developing and maintaining collaborative relationships with channel partners and therefore culminating in the strong performance of their firms. These findings in addition imply that top management and other key management members have provided adequate support in the establishment of collaborative relationship with channel partners.

As opined by Kotzab et al. (2014), establishing and sustaining collaborative relationships with channel partners can be costly and therefore requires top management's support especially in terms of approval budgets for integrative and collaborative relationships. These findings are to be expected and actually corroborate with what authors such as Qian et al. (2020), Chakraborty et al. (2014) and Dogany and Ergun (2017) found and concluded in their studies that there is a significantly positive association between supply chain collaboration and supply chain performance. The point is that supply chain collaboration facilitates operational cost efficiency within supply chains mainly because channel partners are able to reduce their operational cost, deliver within schedule, increase volume and capacity of firms and being profitable (Al-Doori 2019; Dogany & Ergun 2017; Soosay & Hyland, 2015).

Moreover, as found by authors such as Dogany and Ergun (2017) and Soosay and Hyland (2015), firms that engages in collaborative relationships with their channel partners are able to engender positive and favourable customer response and, in the process, facilitating enhanced performance. Mofokeng and Chinomona (2019) pointed out that customer responses entail the attraction and retention of customers, increasing sales turnover, gaining customer satisfaction and positive word-of-mouth referrals, which engenders increased firm in the final analysis (all things being equal). In the same vein, these findings support what Cao and Zhang (2011) and Cheng et al. (2013) found to the effect that strong collaborations with channel partners enables firms to improve the quality of their products and services such as durability, reliability and features.

In addition, and as established in Table 4.4, supply chain collaboration has been found to facilitate the elimination of delays along the channels leading to improved delivery times and prompt dissemination of knowledge and information. These findings therefore support and confirm what Baah et al. (2021), Tian et al. (2021) and Panahifer et al. (2018) found to the effect that supply chain collaboration and integration enables firms to reduce all bureaucratic processes leading to better communication and exchange of knowledge and information pertinent to operational success. From the foregoing discussions, it can be surmised that with changing consumer tastes and expectations and dwindling margins as a result of fierce competition, firms are increasingly realizing that they cannot on their own operate sustainably and profitably, without relying on strong collaborator relationships with others (Cheng, Chen & Chen, 2013). This is the reason why firms are beginning to look for opportunities to collaborate with other equally established, efficient and responsive channel members (Wu, Chuang & Hsu, 2014).

5.0 CONCLUSION

5.1 Recommendations for Practice

This study strongly recommends that, firms must ensure they enter into collaborative relationships with other firms they share similar values, systems and goals. This recommendation is highly important because failing to enter into relationship with the right channel partners will frustrate the process instead of serving as a viable alternative to serving final consumers better.

This recommendation is also important because consumers are increasingly doing business with firms that are perceived as model citizens with confirmed strong ethical and moral principles. Thus, firms that enter and collaborate with organizations with bad reputations and image can be affected negatively and in the final analysis, denting their image in the bottom-line.

Similarly, this study also recommends that firms seeking to enter into collaborative relationship with must ensure that they investigate each other's systems to ensure compatibility of systems and process. This is because collaborative relationships can be expensive and time-consuming. Thus, it is important that they agree on fundamental issues such as processes and systems to avoid complications later on.

Another important recommendation is that firms must ensure that they have adequate resources (human and financial) to sustain the collaborative relationship. Collaboration especially where systems integrations are involved can be costly and therefore requires that parties right from the on-set appreciate and understand the cost involved. This will ensure that partners prepare adequately before commencing on systems integration and will also enable them avoid issues of delay. In effect, having adequate financial resources is crucial for any collaborative venture.

In the same vein, it is important that parties decide and agree on how to share the burden of collaboration. This means that parties right from the beginning must decide and settle on how the cost of collaboration will be borne and in what percentages. Sorting this issue out will ensure a more successful collaboration since parties will not be engaged in conflicts that can derail any success chalked from the collaborative process.

This study further recommends that firms involved with any collaborative relationship build and enhance the capacities of their employees. This recommendation is important because it enable partners to quickly find solutions to challenges during the collaborative process.

Finally, this study also recommends that before entering into any collaborative relationship, parties must develop and agree on how to resolve conflicts that will arise from collaborative relationships. This is important because systems integration and sustaining relationships with partners must be built on trust and understanding. Considering that issues and conflicts are likely to occur, it is imperative that strong, fair and adequate conflict resolution mechanisms are instituted.

5.2 Suggestions for Future Studies

This study recommends that future studies should focus on the possible challenges of entering into collaborative relationships with channel parties. This is coming against the background that collaboration entails different firms with different systems, values, cultures, processes and systems coming together to achieve a common goal. This will definitely bring up several issues that can potentially threaten the quality of the collaboration. Thus, a study investigating the challenges of collaborations will bring to the fore fundamental issues and how to overcome those challenges.

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