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Research paper

Supply Chain Management Practices and the Productivity of Low Automated Manufacturing Firms

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Abstract

Purpose - The studies on the relevance of supply chain management have been tested on several fronts, with majority tending towards positive impact. The essence of this study was to test the relevance of supply chain management practices on the production performance of fast-moving consumable-goods manufacturing firms with low automation systems in developing countries.

Design/methodology - The study employed a survey design, with a mixture of stratified and random sampling techniques being implemented. The analysis applied confirmatory factor analysis (CFA) as well as structural equation modelling (SEM).

Findings - The study finds a positive significant relationship between supplier relationship management and organisational productivity, it also found an insignificant relationship between customer relationship management and organisational productivity, alongside an insignificant relationship between material management and organisational productivity.

Implications – Emphasis must be placed on training employees on customer relationship management to exploit the benefits of such practice, there must also be intentional investment in production technology to improve on productivity.

Originality – This presents a significant addition to research in supply chain as it investigates an industry (fast-moving-consumable-goods) that has scarcely been covered by relevant literature, especially from a developing country with low automated systems standpoint.

Keywords Supply chain, Manufacturing, Productivity, Organisational productivity, Performance

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1. Introduction

In recent years, supply chain management (SCM) has been seen as the next source of building and sustaining competitive advantage. Several articles on the subject matter have revealed the advantages of running an efficient supply chain (Al-Shboul, Garza-Reyes, & Kumar, 2018; Ibrahim & Hamid, 2012; Min & Mintzer, 2004; Tan, Lyman, & Wisner, 2002). SCM can be described as the construction and management of an impeccable, value-added process that extends beyond organisational boundaries to meet the real needs of the target market, that is, consumers/customers (Daniel, 2010). In the past decade or so, firms implemented practices along SCM principles in order to co-ordinate and integrate the component and product flow from suppliers to customers (McLoughlin & Horan, 2002). Thus, as a consequence of implementing SCM, new responsibilities and practices for procurement officers evolved, major production and development responsibilities handed over to a selected group of strategic suppliers and the importance of selecting the optimal supply base became crucial. SCM of today is a multidisciplinary concept mostly reliant on logistics (Robinson & Malhorta, 2005). In the wake of new business environment realities, understanding and implementing new practices, and adopting new perceptions for handling the interface between buyers and suppliers is a must have for firms, especially manufacturing firms' performance (Hoyt & Huq, 2000; Lintukangas, Kahkonen, & Hallikas, 2019).

As worldwide commerce and rivalry instigated a spike in the number of competitors within every business sphere, both local and worldwide, organisations do not just rebuild internal and external networks to produce higher-quality products; while reducing cost, they must also encapsulate adaptability to the market in dealing with their supply network (Siddiqui, Haleem, & Wadhwa, 2009). SCM encourages an organisation to design and execute all steps in the universal chain used to acquire crude materials from vendors, transform them into finished goods, and deliver both goods and services to customers (Lazzarini, Chaddad, & Cook, 2001). SCM has been reported to have positive yields at operational parameters (Tchokogué, Nollet, Merminod, Pache, & Goupil., 2017), though with only few relevant studies on its impact on productivity from the Nigerian perspective. SCM incorporates chain-wide data sharing, planning, resource synchronization, and worldwide performance assessments. The supply chain of manufacturing/ assembling firms includes providers of input, distributors, retailers, and customers. The focus of the supply chain are its customers since any business and its supply chain is to satisfy customer needs. Over the span of time, according to Mikkola (2008), the most impressive advantages to business with advance supply chain management capabilities will be improved customer responsiveness, developed customer service, improved satisfaction of customers, increased flexibility for changing market conditions, improved customer retention and more effective marketing management (Humphrey, 2005).

Additionally, it is fascinating to see that while present day innovation is hastening the contraction of the value chain, fragmentation of manufacturing as well as services, modern management practices are goading the business towards integration of the value chain and the crafting of a comprehensive viewpoint, that captures customers at the teeth-end to the producer/provider of the firms' crude material at the tail-end (Moberg, Cutler, Gross, & Speh, 2002). What is more an ideal approach to tether these seemingly divergent trends would be to visualize them in an `enabler-executor' framework. Innovation progression has facilitated fragmentation and delocalization of various stages in the chain. And precisely, this trend has strengthened the need to look at the complete value chain in a holistic manner (Humphrey, 2005). In other words, the

stronger the enabler (technology development), the stronger would be the need to `bind them all together', so as to draw upon the synergistic advantage for the organisation as a whole. Additionally, market uncertainty necessitates supply chains to be easily flexible to changes in the situation of trade (Kurniawan, Zailani, Iranmanesh, & Rajagopal, 2017). Such flexibility in supply requires effective supply chain management. Thus, supply chain management is aimed at examining and managing supply chain networks. The rationale for this concept is the opportunity for cost savings and better customer service (Al-Shboul, Barber, Garza-Reyes, Kumar, & Abdi, 2017). An important objective of SCM is to improve corporate competitiveness in the global marketplace irrespective of tough competitive forces and promptly changing customer needs (Batt, 2003).

A critical pillar to the survival of any manufacturing organisation is productivity. The quality and quantity of work is brought to the fore when mentioning productivity; because it revolves around the effectiveness and efficiency of the production unit (Olusanya, Awotungase, & Ohadebere, 2012). While there is no universally accepted definition of organisational productivity because the concept is usually context based (Ali, Yousof, Khan, & Masood, 2011), in the context of manufacturing, it can be described as the output (produced goods) in relations to the input (resources) invested (Ali, Yousof, Khan, & Masood, 2011; Stevenson, 2015). In fact, contemporary literature supports that higher productivity of profit-based organisations result in higher competitive advantage (Stevenson, 2015), in other words, it is appropriate to assess organisational productivity through its competitiveness in the business environment. This aligns with other researchers (Khan, 2003; Dalota, 2011) who have argued the limitations of focusing on the organisational efficiency aspects (labour, material, energy, capital) alone as the parameter for productivity. They argue that what is the essence of efficiency if the organisation has lost touch of what her customers want (knowing that destructive technology is introduced rapidly into the market, and customer specification is constantly changing), or worse; at the cost of quality. Therefore, in this study, organisational productivity will be measured by efficiency productivity (labour and material) and effectiveness productivity (quality and meeting customer specification). It is essential that studies into the improvement of organisational productivity is carried out, especially on the African business environment (Grayson, Nyamazana, & Funjika-Mulenga, 2016)

A factor relevant to every manufacturing firm is the supply chain as it plays a major role in the life span of their existence (Fynes & Voss, 2002; Al-Shboul, Garza-Reyes, & Kumar, 2018). Because of the progression of worldwide exchange, the administration of the components engaged with this chain has turned out to be considerably challenging, particularly when it includes the issue of a universal supply chain (Simon, Satolo, Scheidl, & Di-Sério, 2014). The viability of manufacturing supply chain has increasingly turned out to be daunting for worldwide brands due to the nullification of international trade barriers (Duffy, 2008). In Nigeria, peculiar tests of very high business mortality rates exist. Within 2016 and 2017, two hundred and twenty-six organisations either left the country entirely or opted for offshore manufacturing (Vanguard 2017). More manufacturing firms in Nigeria are closing shop due to poor finances. In addition, a blend of strong international competitors and greater production costs necessitate exercises that can identify and eliminate wastes (Faber, De Koster, & Smidts, 2013; John, Etim, & Ime, 2015). Moreover, production organisations battle with the issue of lower bargaining power against suppliers, as several firms rely on a set of providers or wholesalers. Thus, numerous Nigerian organisations don’t get the right quality at the right price, and conversion becomes a

fortune, rendering firms powerless in the battle for market share (Ibegbulem & Okorie, 2015). These concerns have roused this investigation to provide research-based approaches to improving productivity.

2. Theoretical framework

2.1. Resouce Based View

Resource based view (RBV) receives much attention in explaining supply chain collaboration. An organisation can only exploit opportunities with its resources, in other words the stronger your resources, the more opportunities to exploit. The resource-based view emphasizes strengthening your resource to better position your organisation to exploit the numerous opportunities in the external environment, as well as secure the organisation from threats that lurk in the corners. The key concepts of RBV are resources, capabilities, and strategic assets (Barney 1991). The Resource based view suggests that the resources possessed by a firm are the primary determinants of its performance, and these contribute to a sustainable competitive advantage of the firm (Wenerfelt, 1984). This means that before an organisation can look at the external environment of their business for opportunity, they need to know the internal capacity of the resources of their organisation. According to Barney (1991), the concept of resources includes all assets, capabilities, organisational processes, firm attributes, information, knowledge, and partnerships controlled by a firm that enable the firm implement strategies that improve its efficiency and effectiveness. Resources that are valuable, rare, non-substitutable and one that is not easily imitated by competitors are the ones every firm needs to build.

The resource-based view was first mentioned in strategic management by Birger Wernerfelt in 1984 through his paper, a resource-based view, published in the strategic management journal (Kraaijenbrink, Spender, & Groen, 2010). The emphasis is to focus on the actual process of dynamic capability building rather than buying capabilities. Essentially, it is the bundling of the resources that builds capabilities. It is a sustainable competitive advantage when the efforts by competitors to render the competitive advantage redundant are comatose due to failures (Rumelt, 1984). In other words, when the imitative actions have come to naught without disrupting the firm's competitive advantage, the firm's strategy can truly be called sustainable. This theory is relevant to this study because organisations that combine resources in a unique way to create a chain can achieve a sustainable competing advantage over their competing firms who are unable to do so (Oghazi, Rad, Zaefarian, Beheshti, & Mortazavi, 2016). RBV supports the integration of unique competencies of several organisations to create a competitive advantage because of their rare, valuable, hardly-substitutable, and difficult-to-imitate nature (Foss & Knudsen, 2003). The understanding of RBV is essential to the management of any supply chain.

3. Conceptual framework

With an expanding number of rivalries, both local and around the world, the essence of suppliers and its management is pivotal. The concept of managing suppliers have become a main business interest, such that it is hard to find any manufacturing journal issue without its related variables being studied (Croxton, Garcia-Dastugue, Lambert,

& Rogers, 2001). The segments of the chain are suppliers, makers, wholesalers, retailers and customers (Schiavo, Korzenowski, Batista, Souza, & Scavarda, 2016). Be that as it may, the customers are most pivotal on the grounds that without them organisations would cease to exist (Chorpa & Meindl, 2001; Reimann, Schilke, & Thomas, 2009; Coltman, Devinney, & Midgley, 2011). Lately, the network has been broadened to inculcate environmental friendliness, thus proposing that re-cycling be considered in procedures of suppliers for selection (Galve, Elduque, Pina & Javierre, 2016).

Supply chain could be portrayed as a logic enveloping the arranging and coordinating of exercises associated with sourcing, obtainment, conversion of raw materials, and distribution of end produce (Council of Supply Chain Management Professionals, 2013). The complexity and competition of the business environment is such that it is beyond the main manufacturing entities but between supply chains (Chibba, 2017). It is to the greatest advantage of the firm to have the most ideal chain. Practices of supply chain used to assess the concept in the organisations of focus are the management of supplier relationship (Lambert & Cooper, 2000; Ibrahim & Hamid, 2012), the management of customer relationship (Handfield, Kannan, & Tan, 1998; Qayyum, Ali, & Shazad, 2013), and materials management (Robinson & Malhorta, 2005; Nyamasege & Biraori, 2015).

3.1. Supply Chain Practices

3.1.1. Supplier relationship management (SRM)

Managing of providers is the most essential factor in the accomplishment of any supply chain. Imanipour, Rahimi and Akhondi (2012) opine that a powerful relationship between a firm and provider(s) is capable of creating an upper hand for the entire chain. The importance of supplier relationship to the chain has been lavishly looked into (Birou & Fawcett, 1994; Leenders, Nollet, & Ellram, 1994; Larson & Kulchitsky, 1998) with larger part stating its critical job in production networks. Globalization attracted huge challenge on the local front of most developing nations like Nigeria. This challenge drove a few corporate entities over the globe to rethink their whole chain to identify and outsource exercises that are of lesser incentive in returns to the firm (Amad, Hamid, Salleh, & Choy, 2008). This repositioning of core activities and redistribution of lesser incentive activities positioned providers as prominent influencers of overall outcome, hence, the need to build up more ground in relationship between the firm and providers. Another view of supplier relationship would be the procedure, techniques and strategies a focal firm utilizes in choosing, creating and dealing with the connected providers, where all involved draw luxurious advantages (Onyango, Onyango, Kiruri, & Karanja, 2015).

3.1.2. Customer relationship management (CRM)

CRM has developed over time to wind up a fundamental piece of business exercises. Initially a promoting technique; it centers around the fulfilment of customers at each period of exchange between customers and the organisation (Kotler & Keller, 2012). The wide targets of customer relationship administration incorporate expanded client devotion, unrivalled data and information sharing, understanding client and all things customer centric (Nguyen, Sherif, & Newby, 2007; Al-Shboul, et al, 2018). CRM is an

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extensive system and procedure that includes the securing, holding, and merging forces with specific firms that compliment your product/service to produce higher satisfaction for the end user (Sheth & Parvatiyar, 2000). Its significant components include customers reliability, relationship and administration (Christoph, 2011).

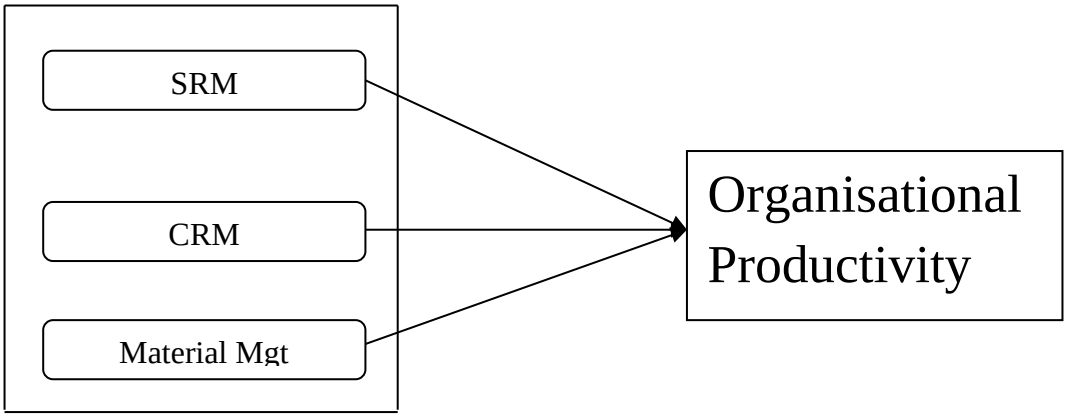
3.1.3. Materials management (MM)

Materials management is an integral part of supply chain management, it includes the activities of deciding the manufacturing prerequisite, buying of the materials, planning the manufacturing forms, and the procurement and apportioning of materials (Ondiek, 2009). Materials are pivotal to any manufacturing organisation and its administration is relevant to the survival of the organisation. The aim of its management is to limit or eliminate the related expenses of materials (Ogbadu, 2009). As indicated by Banjoko (2009), materials are mainly in three structures: crude materials, work-in-progress and completed merchandise, hanging tight to be sold to end users or organisation as their own inputs for use in the production of a larger product. So, to manage materials associated costs, there is need for crafting appropriate strategies for choosing the number of materials to be requested or ordered, amount to be reserved, and that to be used.

3.2. Organisational productivity

The concept of productivity is generally described as the relation between output and input, and has been available for over two centuries and applied in several scenarios on various levels of aggregation in the economic system (Tangen, 2002; Kamble & Wankhade, 2017). It is argued that productivity is one of the basic variables governing production activities, and it is arguably the most important one (Singh, Motwani, & Kumar, 2000). Productivity concerns both effectiveness and efficiency (Olusanya, Awotungase, & Ohadebere 2012). Productivity is frequently discussed by managers but rarely defined, often misunderstood and confused with similar terms, ultimately leading to productivity being disregarded. According to Koss and Lewis (1993); remarkably, many managers who make decisions daily on improving plant efficiency do not fully grasp what productivity is. According to Bhatti and Qureshi (2007), in this twenty-first century, if we do not fully understand what productivity is, how can we properly measure, interpret, or take the appropriate steps to improve it? Evidently, this confusion surrounding the subject makes it warrant further investigation, and the emphasis of the contemporary measurement of productivity. Dalota (2011) gives evidence through research that many manufacturing organisations produce without understanding the changing needs of their customers. Khan (2003) argues that efficiency do not equate to organisational goals. In his opinion, some efficiently-ran production companies do not meet organisational goals, because irrespective of how efficient a unit is, if its product or service does not attract its target market, then its goals of profit and market share will no longer be feasible. Such was the case of Nokia, who totally lost track of the needs of their target market and secured incredible losses. In this study, productivity will be measured from its efficiency and effectiveness.

3.3. Conceptual Model



Source: Developed by the researcher, 2020.

3.3.1. Supply chain management and productivity hypotheses development

Ngwu, Okolie, and Ezeokonkwo (2015) assessed materials management and its effect on the productivity of organisations. The study revealed that the lack of materials management was greatly affecting the productivity of the firms under investigation, while recommending an improvement in material scheduling amongst other things to improve the organisational productivity. Keitany, Wanyoike, and Richu (2014) assessed the role of materials management on organisational performance, with results showing a significant increase in organisational performance as a result of inventory control system involvement, and a highly significant relationship between lead time and organisational performance through the influence of materials management. Overall, there was a significant relationship between materials management and organisational performance. Tangus, Oyugi and Rambo (2015) examined the effect of supplier relationship management practices on the performance of manufacturing firms in Kisumu County; Kenya, using eighty-two (82) personnel involved in procurement, across 31 companies. The result was an increase in performance that corresponds to the increase in supplier relationship management. Qayyum, Ali, and Shazad (2013), conducted a research on the impact of supply chain management practices on the overall performance of the organisation. Data was collated through the distribution of copies of a questionnaire to thirty managers. The result shows that supply chain management positively and significantly impacted the overall performance of manufacturing firms.

Ugoani and Ugoani (2017) examined the performance of productivity by supply chain management improvements. The study revealed that there was a strong positive significant relationship between both variables. The study was limited by all respondents being from one manufacturing plant. Studies with a broader inclusion of firms in its sample would be shedding light to their finding. Daniel (2019) researched into materials management impact on the productivity of organisations in Nigeria. While making significant contribution to the studies on productivity holistically, the study was limited by a sample size of two hundred and fifty-five (255) respondents, and respondents from two companies in the Abuja region. The result of the test showed that there was a positive significant relationship between materials management and organisational productivity, and prompted studies with larger sample sizes and of other

states to corroborate their findings. Amachree, Akpan, Ubani, Okorocha, and Eberendu (2017) studied material management and productivity, and their result revealed a significantly positive relationship with material management and productivity. While specifically hinting at improvements in time, cost and materials wastage. Equipment manufacturers were selected for the study and the need to replicate this study in other sectors of the country (Nigeria) was suggested. The findings of the study revealed a significant positive relationship between SCM practices and organisational performance. These findings and literature review have led to the testing of the following hypotheses.

Ho1: Supplier relationship management does not impact organisational productivity significantly.

Ho2: Customer relationship management does not impact organisational productivity significantly.

Ho3: Material management does not significantly affect organisational productivity.

4. Methodology

4.1. Data Collection and Procedure

An established mode of research conduction in supply chain literature is the cross-sectional survey design (Huo, 2012; Wagner, Grosse-Ruyken, & Erhun, 2012) and this method was employed in this study to capture respondents' opinion on the relationship under investigation. The study had a quantitative approach, and it used the distribution of questionnaire copies to gather data from fast moving consumer goods (FMCG) manufacturing firms in Lagos State. Extensive review of highly relevant and impactful existing literature was carried out to develop the research instrument for this study. The questionnaire items for supplier relationship management (SRM) were adapted from Fynes and Voss (2002), Ketkar, et al, (2012), Akamp and Müller (2013), Simon, et al, (2014), Kurniawan, et al, (2017), Kumar, et al, (2018), and Al-Shboul, et al, (2018). The questionnaire items for customer relationship management (CRM) were adapted from Zhao, et al, (2008), Reimann, et al, (2009), Coltman, et al, (2011), and Simon, et al, (2014). The questionnaire items for material management were adapted from Kaynak (2003), Faber, et al, (2013), and John, et al, (2015). The questionnaire items for organisational productivity were adapted from Grayson, et al, (2016), and Kamble and Wankhade (2017). The measurement items can be found in the Appendix.

The study focuses on the FMCG firms because of their critical role in the society in the provision of products of necessity to the general populace. Especially in a time that the country is coming out of a lock down, and experiencing a recession. Due to no collative data on FMCG firms in Lagos, the population of this study was made up of all Lagos-based companies in the listing of the National Union of Food, Beverage, and Tobacco (NUFBT, 2021). This is because all firms in the union equally fall under the FMCG manufacturing firm's category.

Out of all listed firms in the National Union of Food, Beverage, and Tobacco (65), fourteen (14) were Lagos-based. For convenience, four FMCG firms (with a combined staff strength of 715) were selected due to proximity and access, and one hundred questionnaire copies were distributed to each firm; making a total of four hundred

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distributed questionnaire copies. Employees selected in each of these organisations were staff within the supply chain related departments of the organisation, such as supply chain, production, procurement, logistics, packaging, marketing, and sales. The study adopts stratified sampling and simple random sampling techniques to select the respondents in the selected FMCG companies in Lagos State. The stratified sampling was employed to determine the departments to be selected in the organisation. In addition, simple random sampling was used to ensure all employees in the selected departments had equal opportunity of being selected.

5. Data Analysis

5.1. Context and Participant

The study distributed four hundred questionnaire copies across four FMCG companies selected for sampling and only three hundred and eighty-nine were successfully returned and used for analysis. This makes a 97% returned rate which is a good representation sampling. Out of the respondents sampled 47.8% are male while 52.2% are female. Similarly, 66.1% are married, 33.2% are single, 0.5% are divorced and 0.3% are widowed. Also, on age range of respondents, 15.7% are between 21-30 years, 72.85% are between 31-40 years of age, 10.3% are between 41-50 years, while 1.3% are 50 years and above. Furthermore, response based on educational qualification shows that 0.3% ticked OND/NCE, 59.1% respondents ticked HND/BSC, 37.8% ticked MSC/MBA, while 2.8% said professional certification. Also, years of service experience of these respondents shows that 21.6% respondents have less than 5 years' experience, 68.4% have between 5-10 years, 7.2% respondents have between 11-20 years, and 2.8% respondents have 21 years and above experience. Finally, employee job status revealed that 36.8% are management staff of their company, 63% are senior staff, while 0.3% are entry level staff. This validates the stratified sampling selection criteria used to select each of these employees from their companies.

5.2. Confirmatory Factor Analysis

Confirmatory factory analysis helps to conduct unidimensionality which is used to measure whether all the items of a constructs measure what it is supposed to measure and whether they are reliable for testing the hypotheses in SEM (Nusair & Hua, 2010). Each of the constructs was specifically analysed using CFA to determine the unidimensionality criteria and to assess the extent to which the nineteen items load for acceptability and fitness. The total number of items were twenty-six, however, in conducting CFA, some items were deleted in order to achieve perfect model fitness for each of the construct. In customer relationship management; three items (CRM4, CRM5, CRM6) were deleted, in organisation productivity; two items were deleted (OP1, OP2), while in supplier relationship management; two items (SRM6, SRM7) were deleted, making a total of nineteen items used for the CFA analysis.

In table 1, the confirmatory factor analysis is used to assess whether the study model compare with the null-model supposing there are no correlations between the models constructs. When the value of CFI is above 0.90, then the study construct represents a good fit for the data (Bentler, 1992). Evidently, the CFI value as displayed in (Table 1) for each of the four construct is above 0.90 as recommended and therefore shows acceptable fit for the model. The factor loading ranging from 0.57 – 0.96 also shows a statistically significant value, and this contributes to the fitness of the data to the

model. The Cronbach alpha which according to Nunannly (1978) must have value greater than 0.70 before it can be deemed acceptable. Reliably, the Cronbach alpha for each of the four constructs as shown in (Table 1) is greater than the acceptable threshold. Furthermore, the composite reliability and the average variance extracted further strengthen the unidimensionality of the study model as both the CR and the AVE are greater than 0.70 and 0.50 respectively, as recommended by Bagozzi and Yi (2012) as the threshold of acceptance for both analyses.

Table 1: Measurement Reliability

Constructs		χ^2	CFI	Factor Loading	Cronbach Alpha	CR	AVE
Supplier Relationship Management	SRM1	11.321	0.921	0.74***	.750	0.731	0.656
	SRM2			0.76***			
	SRM3			0.89***			
	SRM4			0.96***			
	SRM5			0.57***			
Customer Relationship Management	CRM1	41.964	0.945	0.86***	.821	0.708	0.545
	CRM2			0.78***			
	CRM3			0.66***			
Material Management	MM1	19.012	0.950	0.89***	.827	0.718	0.603
	MM2			0.59***			
	MM3			0.72***			
	MM4			0.88***			
	MM5			0.90***			
	MM6			0.87***			
Organisational Productivity	OP3	45.044	0.962	0.88***	.822	0.721	0.745
	OP4			0.83***			
	OP5			0.64***			
	OP6			0.82***			
	OP7			0.74***			

Note: CR: *Composite Reliability,* ***AVE:*** *Average Variance Extracted,* ***CFI:*** *Confirmatory factor analysis,* ***χ^2:*** *Chi-square Value.*

Source: Field Survey, 2020

Table 2: Results of CFA Model

	X^2	df	P	CFI	TLI	IFI	GFI	RMSEA
Measurement Model	2.231	290	.000	0.910	0.923	0.919	0.908	0.07
Recommended Value	≤ 2 or 3			>.9	>.9	>.9	>.9	< .05 to .08

In general, the CFA model conducted to access all the element of unidimensionality analysis shows a perfect fitness as (X2/df = 2.231, IFI, =.919, CFI=.910, TLI=.923, GFI = .908 and RMSEA = .07) where, (X2/df) represents the chi-square, (IFI) represents incremental fits index, (CFI) represents comparative fits index, (TLI) represents tucker lewis index and (RMSEA) represents roots mean square error of

approximation. Hence, the model above shows a perfect fitness and is good to test the stated hypotheses using structural equation model (Nusair & Hua, 2010; Hair, Hult, Ringle & Sarstedt, 2017).

5.3 Hypotheses Testing (Path Modelling)

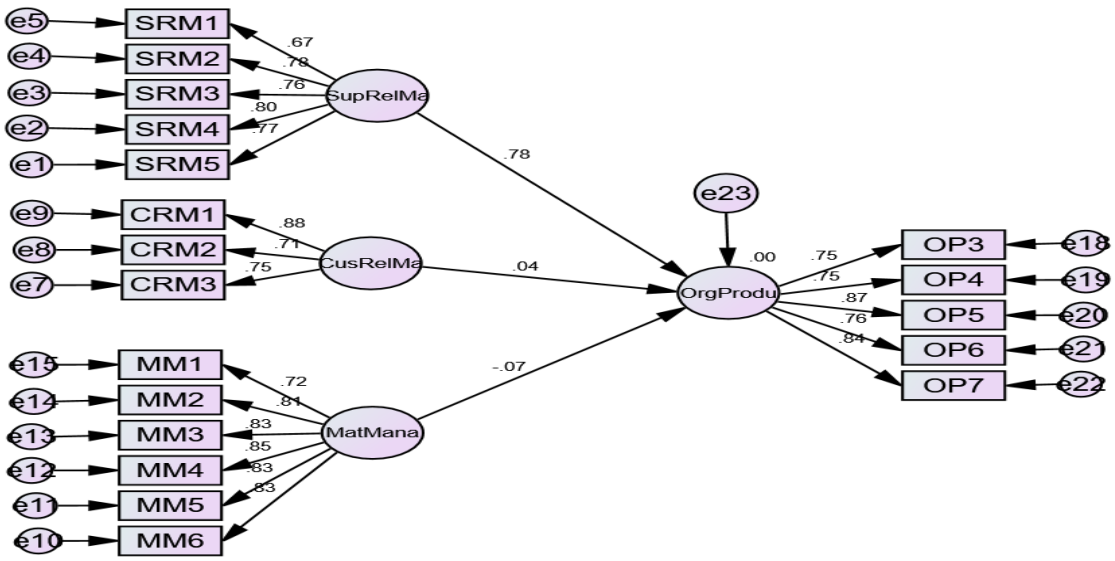
The study tested three hypotheses and all hypotheses are subjected to $p<0.05$ level of significance. Literature confirms that a hypothesis that falls below $p<0.05$ or $p<0.01$ is a good indication that there is a significant relationship among measured and latent variables and therefore lead to accepting or rejecting a hypothesis (Chinomona, Lin, Wang & Cheng, 2010).

Table 3: Hypothesized Model and Coefficients

Hypothesized Model	R	R^2	β	T	*P*
SRM → Organisation productivity	.682	.341	0.783	6.121	.000
CRM → Organisation productivity	.102		0.042	1.107	.152
MM → Organisation productivity	-.067		-0.074	-.046	.254

Table 3 shows the summary of hypothesized model and the multiple regression coefficients for each of the three hypotheses tested in the study. Hence, **R** represent the correlation or the relationship between the latent and observed variables, $\mathbf{R^2}$ represent the squared multiple correlations, **β** represent elements of the standardized coefficients, **t** represent the t-statistics and **P** represent the P-value at (0.05).

Figure 1: Standardized Hypothetical Path Model



5.4 Discussion of findings

The first hypothesis tested if there is a significant relationship between supplier relationship management and organisation productivity. This result shows a positive significant relationship at t=6.121 (p<0.05) and β=0.78, hence, the hypothesis is rejected. The finding shows that creating an effective supplier relationship management contributes immensely to the success of an organisation especially with regards to organisation productivity. The finding aligned with the work of (Al-Tit, 2016) which found that creating a network of reliable suppliers and managing them is healthy to the continuous productivity and competitiveness of the organisation. The second hypothesis focused on examining whether the relationship between customer relationship management and organisation productivity, its result shows a positive non-significant relationship at t=1.107 (p<0.05) and β=0.04 exist between latent and measured variables. Hence, the hypothesis is accepted. Customer relationship management is the heart of every organisation and therefore the non-significant relationship between measured and latent variables could be due to other factors not mentioned in the study, but affect customer relationship management within the perspective of the sampled respondents. This finding negates the work of (Al-Tit, 2016) who found that customer relationship management is significantly related to organisation productivity. The last hypothesis examined if there is a significant relationship between material management and organisation productivity. The result indicates that a negative non-significant relationship at t= -0.046 (p<0.05) and β= -0.07 exist between latent and measured variables. This could be explained by the observations of machine feeders (material handlers) on the manufacturing floors. In the process of production floor employees being overly cautious, they slow down the process and inevitably reduce productivity. The finding is inconsistent with the work of Amachree, Akpan, Ubani, Okorocha, and Eberendu (2017) which found a positive significant relationship with material management and productivity. Their study found direct impacts on time, cost and materials. Overall, from the study we can deduce that supply chain management through all three parameters adopted in this study does not significantly affect organisational productivity, a disparity with the findings of Ugoani and Ugoani (2017) which showed a significant positive relationship between supply chain management and organisational productivity.

6. Conclusion

This study concludes with a significant and positive relationship between one supply chain management practice and organisational productivity, also revealing is that two applied supply chain management practices tested insignificant in its relationship with organisational productivity. Specifically, supplier relationship management and organisational productivity had a positive and significant relationship, while insignificant relationships were established between customer relationship management and organisational productivity, and between material management and organisational productivity. The study however supports the theory of RBV; the combined resources of the focal firm and its suppliers through supplier relationship management are evidently improving the productivity of the firm.

The capacity for improved performance through a competitive advantage largely lies within the supply chain of manufacturing firms in the modern business context (Wamba, Gunasekaran, Akter & Dubey, 2019). With very few studies examining supply chain management practices in Nigeria, it is scarcer when the study's focus (FMCG) is considered. This study posits some significant research implications,

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including highlighting the relevance of supply chain practices to the organisational productivity of FMCG firms in Nigeria. However, it reveals that only supplier relationship management can positively influence the outcomes in organisational productivity in FMCGs in Nigeria. This implies that the finding is contrary to studies that opine that supply management practices can improve organisational productivity. Hence, it opens a contemporary discuss on the relevance of supply chain management practices on the organisational productivity of FMCG firms generally in developing nations, and it is worthy of further empirical investigations. Perhaps, the deficiency in technology sophistication (in comparison to developed nations) needed to reap the benefits of supply chain management practices is the underlying cause.

Practical implication extracted from this study is that managers of FMCG firms must focus on building impeccable supplier relationship through established practices like supplier collaboration (Duong & Chong, 2020) supplier development (Krause, Handfield, & Tyler, 2007; Shahzad, Sillanpaa, Sillaanpaa, & Imeri, 2016), and information sharing (Huo, Haq, & Gu, 2020). The study puts forward some recommendations. Amongst them; efforts should be made to exploit the rewards of a seamless supplier relationship as the results present it as the only supply chain practice that improves the firm's productivity. Contrary to studies on the benefits of customer relationship management, the study poses an insignificant one. Hence, it is recommended that trainings on customer relations are given priority to educate staff on their interaction with customer to reap these benefits. Finally, the organisations are advised to invest more on advanced automation systems in their production floors to eliminate avoidable waste and improve productivity in terms of speed of production as humans are inevitably slow when focusing on waste reduction.

7. Limitation and Further Scope of study

Despite the relevant contribution of this study to the research in supply chain management practices and productivity, there were some limitations which could be explored for future studies. Firstly, the FMCG industry is comprised of several goods inclusive of beverages of all kinds, packaged food, home toiletries, low-cost pharmaceutical products, and stationery goods, among others. This study however captured two of these categories (beverages and packaged foods) under FMCG, which invariably reduces the generalisation integrity of the study. Secondly, while Lagos State being an economic hub of Nigeria and West Africa may be justification for the study's scope, it also limits the understanding of the relationship between both variables. Subsequent studies can endeavour to incorporate every single category in the FMCG industry to improve the generalisation. In addition, to further expand the scope of this study, further research could extend beyond the boundaries of Lagos State to capture the impact of supply chain management on organisational productivity on a national scale across FMCGs. Finally, further research into the relationship between supply chain management and organisational productivity on the Nigerian FMCG industry could introduce a mediating variable to test if there are variables that could affect the relationship between supply chain management practices and organisational productivity, as absence of direct impact may not necessarily mean absence of a relationship in totality.

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