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# **SUPPLY AND DEMAND CHAIN MANAGEMENT AND OPERATIONAL EFFICIENCIES OF BREWERYING FIRMS IN NIGERIA: A STUDY OF CHAMPION BREWERIES, UYO, NIGERIA.**

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## **Introduction**

Supplying consumer goods every day without failing means that many of the principles of supply chain management is at work. Manufacturing consumer goods like champ Malta and Champion beer and making it available to buyers, requires building relationships, not just with customers of finished goods and channel members, but also with suppliers of raw materials, making up the supply and demand chain management. According to Armstrong & Kotler (2011), supply chain management consist of the “downstream” and “upstream” partners. Upstream of the company comprises of firms that supplies the raw materials, component parts, information, finances and expertise needed to create a product or services whereas downstream marketers traditionally are focused on wholesalers, agents, retailers and distributors.

According to Kotler & Keller (2013), a successful value creation needs successful value delivery which demands that companies must build and manage a continuously evolving and increasing complex channel system and value network. Today, holistic marketers are increasingly taking a value network view of their businesses, instead of limiting their focus to their immediate suppliers, distributors and customers (Armstrong & Keller P., 2011). Marketers now should examine the whole supply and demand chain that links raw materials and production and show how they move towards the final consumers thus attaining efficiency as operational Efficiency at its core aims at producing more and better products and services with fewer resources. Operational efficiency refers to how well an organisation achieves its market oriented goals as well as its financial goals. Thus the achievement of these goals lies in the proper management and coordination of supply and demand chain where activities are planned, directed and controlled to achieve organisational objectives through accurate demand forecasting to ensure goods produced meets expectation of consumers, cycle time reduction and minimize the cost associated with stocks in terms of stock out and carrying cost. Located in Aka offot, Uyo, Akwa Ibom State in Southern Nigeria, Champion Breweries is the producer of Champion Lager beer and Champ Malta and has Sorghum and Wheat which produced in the Northern part of Nigeria as its major raw materials, thus, a gap between location of production plant and raw materials which results in delay of production if instant/early replenishments are not made. Its ever dynamic consumer market creates a problem of accurately anticipating demand per production time leading to over or under production at a given time resulting from the fact that the supply function operates independently of demand. This usually leads to an increase in replenishment time as a result delayed order placement, lack of an accurate forecasting of demand leads to over/under production as the company, Furthermore, this forestalls timely delivery

of raw materials as at when needed, monitoring of goods in transit, instant order and responsiveness to dynamics of demand and widening the gap between supply and demand processes, thus, leading to production stoppages, increase in stock out cost and limiting the firm from attaining operational efficiency and the competitive advantages that accrue from supply and demand process integration. This study therefore seeks to examine the influence of effective supply and demand chain management on operational efficiency in brewery firms with champion breweries PLC, Akwa Ibom State as a case study.

### **Objectives of the Study**

**The major objective of the study was to assess the influence of supply/demand chain management on operational efficiency of Champion Brewery Plc. Specifically;**

1. to evaluate the contribution of supply/demand chain management on accurate demand forecasting in Champion Breweries Plc.
2. to examine the impact of supply/demand chain management on lead time when ordering in Champion Breweries Plc.
3. to determine the effect of supply/demand chain management minimize cost efficiency in Champion Breweries Plc.

### **Hypothesis of the Study**

- H0<sub>1</sub>. There is no significant relationship between supply/demand chain management and accurate demand forecasting in Champion Breweries Plc.
- H0<sub>2</sub>. There is no significant relationship between supply/demand chain management and lead time when ordering in Champion Breweries Plc.
- H0<sub>3</sub> There is no significant relationship between supply/demand chain management and cost efficiency in Champion Breweries Plc.

### **Literature Review**

A supply chain is a system in which organisations, people, activities, information and resources are involved in moving a product or service from supplier to consumer. Its activities involve transforming natural resources, raw materials, component parts into finished goods and deliver same to consumers. It is a set of synchronized decisions and activities utilized to efficiently integrate suppliers, manufacturers, warehousing, transporters, retailers and customers so that the right products or services are distinguished at the right quantities, to the right locations, and at the right time, in order to minimize system - wide cost while satisfying customers. Wieland & Wallenburg (2013) suggested that a typical supply chain begins with the ecological, biological and political regulation of natural resources, followed by the human extraction of raw materials and includes several production links. Many of the exchange encountered in the chain management are within different companies that seek to maximize the revenue within their sphere of interest, but many have little or no knowledge or interest in the remaining players in the chain (Wieland & Wallenburg, 2013).

In the 1980s the term supply chain management (SCM) was developed to express the need to integrate the key business processes from end user through original supplier (Oliver & Webber 1992). Before then, logistics was predominantly used which means those activities within one company or organisation involving products distribution, whereas “supply chain” additionally encompasses manufacturing and procurement, and therefore has a much broader focus as it involves multiple enterprises (including supplier, manufacturing and retailers) working together to meet a customer need for a product or service (David 2013). Supply chain management therefore has passed through three stages;

Phase 1: Physical distribution management – where manufacturing was handled in isolation & output was pushed to finished goods warehouse.

Phase 2: Integrated Logistics management- Operations of sales, procurement, manufacturing, warehousing, and transportation are integrated to achieve efficient & effective system.

Phase 3: Logistics management graduated to SCM, linking external partners like suppliers, distributors, service providers and customers with a view to deliver enhanced value to customer by synchronized management of flow of physical goods, information and cash between source to customer.

Traditionally, supply chain management was driven by planning and communication. Planning future demand and working continually to ensure that all stakeholders whether is an actual manufacturing firm or its suppliers get the information they need at the right time and can respond at the right time without incurring errors, cost overruns and delays. Today, Supply chain management literally means what it says, controlling the materials, entities, and processes that are involved in producing and delivering goods and services. Anyanwu (2003) defines supply chain management as a system, an organisation of people, technology, activities, information and resources involved in moving a product or service from suppliers to materials and components into finished product that is delivered to end users. Njoku and Kalu (2015) opine that the supply chain integrates functions with the primary responsibility of linking major business functions and processes within and across companies into a collusive and performing business model. It includes all the logistics management activities as well as manufacturing operations, driving the coordination of processes and activities within and across marketing, sales, product design, finance and information technology. Supply chain management does not just aim to optimize the flow, all participating entities work to improve their specific processes and cooperate so that everyone benefits and achieve an optimal end to end process.

Furthermore, the council of supply chain management professionals (CSCMP) (2013) also defines supply chain management to encompass the planning and management of all activities involved in sourcing and procurement, conversion and all logistics management activities. Importantly, it also includes coordination and collaboration with channel partners which can be suppliers, intermediaries, third party service providers and customers. In essence, supply chain management integrates supply and demand chain management within and across companies. It involves three or more organisation that pulls materials from their origin, process them and ship them to customers. Thus, the supply chain ensures that the desired product is available to the consumer in the right condition and quantity and at the right time, place and cost. It involves coordination of logistics, operation, inventory management, transportation, packaging and other functions in an efficient manner.

Though some authors (Volman, 2000, Suzanee and Ari-Pekka, 2004 ) have argued that demand chain management and supply chain management do mean the same thing, Kwabena, Sarpong and jonathan (2013) opine that Demand Chain Management (DCM) is fast gaining popularity in industries and academics as this can be attributed to the pursuit for the competitive advantage achieved through operational efficiencies in an organisation and as such should be treated differently from supply chain management. Treville, Shapiro and Hameri (2004) propose narrowing the definition of demand chain management as they believe demand chain management can effectively replace supply chain management, however, Juttner, Christopher and Baker (2007) state that demand chain management is a concept which aims at integrating supply and demand oriented processes at the customer or market interface and also respond to customer demand through high value creation. It is a set of practices aimed at managing, coordinating and working backward to raw materials suppliers. Thus, companies that link their customers and suppliers into tightly integrated links called demand chain management are considered the most admired organisations as they are able to determine demand and satisfy consumers through efficient supply. Vollman, Gordon and Hekkila (2002) defines demand chain management as those practices that manages and coordinates the supply chain from end customers backwards to suppliers. Similarly, Selen and Soliman defines Demand chain management as a set of practices aimed at managing and coordinating the whole demand chain starting from the end consumer and working backwards to raw materials suppliers. Baker (2003) further stress that managing a demand chain is

fundamentally different from managing a supply chain. It requires upturning the supply chain and taking the consumer as the starting point rather than its final consumer, which involves creating and managing customer value through responsive networks. Demand chain management thus helps to improve an organisation's processes by advancing the coordination between the supply chain and demand driven activities such as consumer demand analysis or the selection of markets which best meet an organisation capabilities (Largabere and Rose,2001 ).

Demand chain management brings a critical change in leadership, the customer is at the centre of all work and dictates how the supply chain operates. A demand driven network involves everything that customers want; quick turnaround, ideas that turn into a new product at warp speed, reduced costs, superb customer service, etc. To sustain profitability, companies need to look at new ways to responding to demand and best practices for reducing operating cost while optimizing quality and service. Supply and demand chains therefore, must work as tightly integrated networks as all stakeholders need relevant visibility into what customers want and what they purchase, for example, decisions about inventory and movement of materials need to work hand in gloves with signals that can change very quickly.

Despite the need for collaboration between Supply and demand chain management, Kwabena et al. (2013) opine that there exist thin lines between supply and demand chain considering the value chain in an organisation. Howbeit, there is a significant difference in the process, for example, where supply chain seeks to improve the logistics tied to conception, production or distribution of products or services or ideas, demand chain tries to improve visibility of customer demands. Charlebois (2008) suggest that supply management consist of all the supply processes essential for fulfilling consumer demand while demand chain on the other hand encompasses all the demand processes required to identify, create and stimulate customer demand. Godsell, Harrison, Emberson and Story (2006) state that demand chain processes predominantly market and create demand whilst supply chain capabilities sustain the demand created. Supply chain aims at achieving reduction of supplier base, evaluating suppliers based on quality and delivery performance, establishing long term contracts with suppliers and elimination of paper work, while demand chain management on the other hand aims at increased access to demand information throughout the supply chain to permit rapid and efficient delivery, coordinated planning and improved logistics communication (Frohlich and West brook 2002).

The supply chain optimizes processes by pushing management data out to internal and external customers whereas, demand chain pulls customers and its accompanying demand data , therefore, supply chain is attributed to the management of activities such as strategic sourcing, inventory and collaborative planning, forecasting and replenishment while demand chain management on the contrary is attributed to customer need identification, value propositions and development, demand creation and development, etc. Customers rather than companies drive demand chain management which means that companies need complete, accurate and proactive visibility into their customer trends. This relates to the “pull” strategy that differs sharply from the traditional supply chain “push” of goods based on incomplete and possibly inaccurate assessment of the market place.

Admits this slight differences between supply and demand management, some authors (Uta, Baker and Christopher, 2004, Payne and Christopher, 2002, Kwabena et al, 2013, Melo and Alcantra 2016 ) have continued to stress that to develop higher stakeholders value, there has to be a synergy in supply and demand chain management, thereby, emphasizing effectiveness and collaboration in supply and demand chain processes. Kwabena et al (2013) suggest that the lack of collaboration and management imbalances of the two models may result in high operational cost as well as lack of responsiveness and inefficient product delivery. Juttner et al. (2004) opine that effective supply and demand chain management is believed to provide the organisation with opportunity to attain customer value along the chain. All benefits such as cost reduction, efficient materials and information movement, new product development, product differentiation and effective delivery emanating from supply and demand chain respectively can be derived from an effective management of the two processes. The integration of

supply and demand management ensures that the consumers needs are well identified, filtered and the goods produced meets the specifications of consumers for their prompt satisfaction. Through process integration, the consumers are able to say their mind in terms of specifications and quality which aids the firms to have a clear understanding of their needs and how these impact on inventory, price, financing and channel decisions.

Effective supply and demand chain management is facilitated by many factors, many authors have identified supply chain practices that integrate supply and demand chain processes. Li et al. (2004) suggested supplier and customer relationships, level and quality of information sharing and postponement. Ibrahim and Ogunye (2012) suggested supplier and customer partnerships and quality of information. Gattorna (2010) also stresses the important role of human resource in the dynamic alignment framework by integrating marketing rules, internal supply chain strategies with the internal culture and leadership. Baghai et al. (2000) suggested that organisational capabilities that is embedded in a company's people, processes and institutional knowledge are basic value catalyst to enhance effective supply and demand supply management. Melo and Alcantara (2016) identified factors such as top management involvement, customer and supplier segmentation, information technology, collaborative management and demand level adherence. However, in this study, top management involvement, customer and supplier segmentation, information technology, logistics integration and cooperation are adopted as being Central to the success of effective supply and demand chain integration.

Min et. al (2005) opined that for effective communication and information sharing between supply and demand chain agents, the involvement of top management team is necessary to enable identification of business opportunities and areas for improvements and collaboration. Furthermore, internal alignment includes determining what needs to be done internally and what needs to be done by external partners. Thus, to ensure this alignment, the involvement of top management is necessary as they are responsible for setting and implementing organisational goals related to supply and demand chain processes respectively (Min et. al, 2005).

Lau (2012) states that demand management presupposes that the supply chain should be segmented according to market needs so that different strategies can be formulated to optimize efficiency and agility. In order to achieve an efficient supply and demand management, it is pertinent among other factors to have an advanced and intelligent market segmentation. This enables firms to have an accurate demand forecasting and firsthand information as to which segment of the market the firm is to serve at a particular given time. Also, it optimizes order quantity as forecasting enables firms to know accurately the right quantity to be placed at a particular time to avoid cost on storage and stock out. Segmentation makes for an easy and accurate information flow between supply and demand chain partners, therefore, supply is always dependent on demand information for efficiency. Furthermore, Melo and Alcantara (2015) state that companies with successful supply and demand management had customer and supplier segmentation as a major facilitator, thus, achieving results that led to efficiency and effectiveness.

One other major facilitator of effective supply and demand chain management is information technology. Hilletofth et al. (2010) states that information technology is a prerequisite to be used in the supply and demand process respectively, however, the author believes that this resources can also be used for coordinating these processes with each other, both inside and outside the organisation. Al-mudimigh et. al (2004) emphasizes that the integration of supply and demand management is essential, and that creating an integrated environment based on information is a challenge, thus, companies must ensure their information technology is constantly improved and optimized to provide real-time knowledge of production processes, customer demands, and the activities of the various sub processes that are crucial to the supply chain principles. In relation to this, Melo and Alcantara (2015) state that companies in the supply chain with advanced information technology were able to share information in real time with internal and external teams, and they could also accurately forecast their demand, respond effectively to dynamics of demand, and could create a scorecard to assess demand performance.

Therefore successful supply and demand chain management is facilitated through a proper integrated information system, as it serves as a link between supply and demand chain and aiding management in delivering of stakeholders value. Firms attain these competitive advantages through the use of technology and information to break the traditional boundaries that before now existed among suppliers, manufacturers, distributors and end users in a supply chain that has brought effectiveness and efficiency in channel management. Now managers, engineers, professional staff and even technical workers are no longer the only custodians of corporate knowledge, rather knowledge is shared across strategic frontier in global and virtual enterprises. The demand for instant and accurate information by customers is getting heightened as the days pass by. Most times, the velocity of information flow across business community does not keep pace with the demand but is a known fact that changes in the market place are not slowing down, hence, the need to beat up innovation in the business process. As globalization increasingly affects business management in our society, it is being increasingly realised that one means of staying competitive and eventual survival is the ability of maintaining a good information interchange between all parties in the supply chain. Organisations must migrate to embrace information solutions in their business management, the integration of supply chain information into the system has become imperative for survival, therefore, these systems provide the required communication, database and feedback that enables organisations to run their operations more effectively.

Okon (2011) states that the information technology has redefined traditional procurement system. Enterprise resource planning systems are web enabled to support closer coordination along the supply chain, eventually creating a virtual manufacturing or service providing enterprise. Okon (2011) further explains that the efficiency achieved in the pattern of business operation with the introduction of the information technology in a model as shown in table below;

**Table 1.1**

<b>OLD BUSINESS MODEL</b>	<b>IT- BUSINESS MODEL</b>
Large orders	Instant orders
Scheduled	Real time replenishment
Supply driven(push)	Demand driven (pull)
Weekly	Daily/hourly
Efficiency	Responsiveness

**Source; adapted from Okon (2011)**

This model explains the new ways of delivering qualitative stakeholders value as at when needed through proper information system as opposed to the traditional ways of doing business and only firms who properly integrate information technology in to their supply and demand chain management can gain competitive advantages. Therefore, information technology facilitates the integration of every partner in the supply chain. Where real time demand information and inventory visibility were once impossible, web based technology are now indispensable for supply chain forecasting, scheduling and execution. Real time information travels immediately backwards through these web based demand driven supply chains while inventory flows swiftly forward. Frohlich and westbrook (2002) suggest that the more integrated the flow of data between customers and suppliers, the easier it also becomes to balance supply and demand across the entire network. Effective online coordination with reduced lead times helps reduce the “bull whip” and increase performance, thus, the need for digital integration in supply and demand chain management to facilitate process integration. Koudal and Wellener (2003) states that the term “digital integration” highlights that supply and demand processes are linked through information technology. Thus, information management and technology is a key enabler of effective supply and demand management. On the demand side , CRM technology is what propelled relationship marketing to the fore front, enabling firms to collect and store unprecedented data while on the other hand supply chain management system have a number of functions such as forecasting functionality, connecting

parties in the chain, etc. but these systems operated independently prior to the integration of information technology in this processes. Therefore, information technology aids to effective management supply and demand chain and provide higher stakeholders value by providing adequate information through the use of various tools.

Cooperation is another fundamental requirement for effective supply and demand chain management, this results in cooperative buyer – supplier behaviour on an extended basis across the network. Sanderson, Chris and Russell (2015) suggest co-operation becomes more likely if buyer and supplier interact with each other on a repeated basis as repeated interactions enable them to get to know each other, to build trust and to overcome the lack of information. This interaction is facilitated through an effective integration of supply and demand chain management, as this ensures that the information about consumers needs are obtained, right materials are sourced, efficient production processes are employed, employing and training the right channels of distribution to make available quality products to the consumers, therefore, the effective of supply and demand chain management is essential for high productivity by firms and delivery of high value to stakeholders.

Another factor that aids effective supply and demand chain management is Logistics. Prajogo & Olhager (2012) defines Logistics as the "process of scheduling" and controlling the flow, storage of raw materials, inventory in manufacturing, final product and its related information at the minimum cost. The entire process of logistics combine a large number of activities with suitable integration in order to implement the right to meet customer needs to reach smooth flow of operations through the chain and the most portion of profit for organization and customer (Valizade & Malakirad, 2011). The goal of logistics management is planning and coordinating all activities which are necessary to achieve desired levels of quality and customer service with the lowest possible cost. Logistics is thus a link between marketing and operational activities. Logistics within the organization start from supply and management of raw materials to delivery final product to market and customers (Valizade & Malakirad, 2011). Logistics decreases various problems such as bullwhip effect and gives the organizations and partners the opportunity to benefit from vertical integration (quality, reliability, planning and control and lower cost). Logistics enhances integration between supply chain partners yields a number of operational benefits, including reduction in costs, lead time, and risks as well as improvement in sales, distribution, customer services, and service levels and customer satisfaction ( Stock et al, 1998).

According to Sheila et. al. (2011), a competitive market place requires that companies provide quality products and services at the right value in order to capture market share. To achieve this, they have to actively measure and improve their operational efficiency across their value chain. Operational efficiency encompasses several strategies and techniques used to accomplish the basic goal of delivering quality goods to customers in the most effective and timely manner. Achieving efficiency is therefore a system wide effort that involves adopting flexible organisation structure that allow the flow of information involving other stakeholders, such as suppliers, distributors and customers which is only attainable in a properly integrated supply and demand chain. Therefore, effective supply and demand chain gives businesses a competitive advantage in the market place and help mitigate risk and cost associated with acquiring raw materials and delivering products and service. Also, different authors have different definitions and methods of assessing operational efficiency. Lee and Johnson (2011) state that operational efficiency is the ability to deliver products with the minimal resources. This requires the minimization of waste and maximization of resource capabilities that has a direct impact on the organisations profit margin. Hackman (2008) reveals that the analysis of productivity and efficiency is associated with a firm's ability to answer questions such as; How efficient is the firm in utilizing its input to produce its outputs?, How has the firm improved its productive capability overtime?, how does the firm compare to its competitors. some authors (Demirbag et. al., 2007, Faynes voss et. al., 2005 and karimi & Rafiee,2014) propose flexibility, cost saving, accurate demand forecasting, increase in profit, increase in sales, resource planning and reduced lead time as indices of measuring operational efficiency. Paulraj et al. (2006) measured efficiency using quality, flexibility and financial performance. Kannan



tan (2005) suggested that efficiency is attained when a firm is able to compete well with competitors, deliver high customer service and produce quality goods. Krause et al. (2007) measured operational efficiency in terms of quality, delivery time, annual sales and total cost. Thus central objective of an effective supply and demand chain is to create a major source of competitive advantage for an enterprise to differentiate itself from its competitors by operating at a lower cost, lower cycle times, accurate demand forecasting, quick responsiveness to changes in demand and timely raw materials with the primary goal of attaining efficiency. This study therefore seeks to measure efficiency through accurate demand forecasting, reduced lead time and timely availability of goods taking into consideration the impact of effective supply and demand chain management in its attainment.

Effective supply and demand chain processes play an important role in the attainment of operational efficiencies, these empirical studies have shown impact of supply and demand chain integration on operational efficiency. Karimi and Rafiee (2014) conducted a study on analysing the impact of supply chain management on organisational performance through competitive priorities (case study of Iran Pumps Company). The major objective was to analyze the impact of supply chain practices of supply chain integration, information sharing, supply chain characteristics and customer service management on firms attainment of performance and competitive advantage. Having questioned 483 employees of Iran pump who were selected through random sampling, structural equation modelling (SEM) was used to analyze the data. It was discovered that practices of supply integration, information sharing, supply characteristics and customer service management had a significant positive relationship with competitive advantage and operational efficiency.

Koh (2007) conducted a study on the impact of supply chain management on performance of SME's. The study had as its major objective to determine the dimensions of supply practices, operational performance and SCM related performance with special emphasis on small and medium size enterprises (SME's) in Turkey. Data for the study were collected from 203 manufacturing SME's in Istanbul Turkey. The hypothesis were tested using partial least square method and findings were that supply chain practices of close partnership with suppliers, just in time supply, e-procurement few suppliers etc., aids efficient supply chain management and integration and has a direct positive impact on operational efficiency.

Vickery et al (2003). conducted a study on the effects of an integrated supply chain strategy on customer service and financial performance: an analysis of direct versus indirect relationships. The study's major objective was to examine the performance implications of integrated supply chain strategy, with customer service performance followed by financial performance as performance construct. The study identified integrative information technologies and supply chain integration as factors that facilitate integration. A sample size of 57 participants was questioned and analysis was carried out using Structural Equation Model. The results showed a positive direct relationship between integrated information technologies and supply chain integration, supply chain integration and customer service and customer service and firm performance. The relationship of supply chain integration to financial performance was indirect, though customer service was found to fully mediate the relationship between supply integration and the firm and performance for first tier suppliers in the automotive industry.

Theoretically, the Game theory, Systems theory and network perspective theory are the underlying theories that support the integration of supply and demand chain management. Originally, developed by Von Neumann and Morgenstern in 1944, the Games theory argues that many economic decisions involving more than one actor (e.g buyer and a supplier) take the form of a sequential, strategic game involving anticipation by one player of the other player's actions. Games such as prisoner's dilemma have been used to show how co-operative behaviour becomes more likely if two actors interact with one another on a repeated basis. This is because repeated interactions enable them to get to know each other, to build trust and to overcome the lack of information available in a one-off interaction about the other party's likely behaviour. In a one off interaction, the other party's intentions are unknown, the model

suggests that both actions will behave competitively to try to maximize their individual utility. Based on this theoretical provenience, the underlying assumptions of the integrated supply chain approach are that actors are rational, but may face information problems and that actors are interested in their profitability, but will co-operate through repeated interactions where greater net gains can be obtained from doing so. Macbeth and Ferguson (1994) states that integrated supply chain management adopts this reasoning to develop an understanding of how buyers and suppliers can be encouraged to cooperate on a long term basis and innovate to create a larger pool of value rather than competing over a static pool of value.

The systems theory was Developed by L. Von Bertalanffy, a biologist in 1968, the systems theory was used as a basis for the field of study known as ‘general systems theory’ which was mainly applicable in the natural sciences, but has subsequently become widespread in organisation and management theory as a means of explaining processes within and between firms. This theory brings with it an assumption that no system, in this case a supply network, should be thought of in terms of its component parts. Rather, it is argued that the processes and output of a system can be understood only by considering it in its totality. As noted earlier that supply chain management does not exist independently on its own, we can then suggest that for an efficient delivery of stakeholders value, a synergy must exist between supply and demand chain management, thereby operating as a system whole rather than in parts. Thus for attainment of operational efficiency in a firm, supply and demand should be managed as a system, an integrated whole rather than independently.

**Methodology**

This study adopted the survey research design. The choice of survey research design was to gather relevant information on respondents’ perceptions and assessments on supply and demand chain management and operational efficiencies of Champion Brewery, Uyo. Contextually, this research design is very useful for opinion and attitude studies. The study used both descriptive and differential statistics. Pearson Correlation and the analysis of variance were used for the hypotheses tests. The population of 120 respondents was used as a sample size because it is manageable and portend less error.

**Data presentation and analysis**

A response rate of 94.1 percent was actualized from the 120 copies of distributed questionnaire. This signifies that only 113 copies questionnaire were used for the study. The study used both descriptive and inferential statistics and the results of the collated and analyzed data are as presented in the tables below: The study examined the supply and demand chain management and operational efficiencies of Champion Breweries, Uyo. The main dependent variable in this study was operational efficiencies. This was further categorized into demand for casting, lead time, and cost efficiency. The independent variable is supply and demand chain management. Data collected was summarized into mean and standard deviation and are presented in Table 1. The result reveals that the mean values for all the variables falls within a similar threshold and do not differ from themselves.

**Descriptive Statistics**

	N	Mean	Std. Deviation
sus_dd_chain	113	5.6283	1.29004
dd_forcas	113	5.1593	1.39876
lead_time	113	5.7080	1.46191
cost_efficiency	113	5.3451	1.20097
Valid N (listwise)	113		

Source: Researcher’s output 2017

In relation to the relationship between the independent variable components of operational efficiencies and the dependent variable- supply and demand chain management. It can be discovered that supply/demand chain management is related can bring about accurate demand forecasting with a correlational value of 35.673 (p-value < 0.05). Same can be said of supply/demand chain management and lead time with a correlation of 3.82 and a (p-value < 0.05). Information on the relationship between supply/demand chain management and cost efficiency of Champion Breweries Nig Plc., also indicated a profound relationship with a high correlational value of 510 with a (p-value < 0.05).

**Table 2: Correlations**

		sus dd chain	dd_forcast t	lead time	cost_efficien cy
sus_dd_chain	Pearson	1	.528**	.382**	.510**
	Correlation				
	Sig. (2-tailed)		.000	.000	.000
	N	113	113	113	113
dd_forecast	Pearson	.528**	1	.023	.886**
	Correlation				
	Sig. (2-tailed)	.000		.809	.000
	N	113	113	113	113
lead_time	Pearson	.382**	.023	1	.038
	Correlation				
	Sig. (2-tailed)	.000	.809		.693
	N	113	113	113	113
cost_efficienc y	Pearson	.510**	.886**	.038	1
	Correlation				
	Sig. (2-tailed)	.000	.000	.693	
	N	113	113	113	113

\*\* . Correlation is significant at the 0.01 level (2-tailed).

Source: Researcher's output 2017

A further test using the one way analysis of variance from table 3 below shows that the high and statistically significant value of the F-statistic [F-stat. (1, 112) =42.887; p-value <  $F_{0.05}(1, 111) = 3.84$ ] confirms the overall significance of the model and the predictive power of the independent variable. It follows therefore that there is a significant relationship between supply/demand chain management and accurate demand forecasting in Champion Breweries Nig Plc.

ANOVA result relating to supply/demand chain management and lead time reveals that there is a high and statistical significance value of F-statistics [F-stat. (1, 112) =18.991; p-value <  $F_{0.05}(1, 111) = 3.84$ ] indicating that there is a significant relationship between supply/demand chain management and lead time in Champion Breweries Nig Plc. The result on supply/demand chain management and cost efficiency confirms a high and statistical value of F-statistics [F-stat. (1, 112) =39.021; p-value <  $F_{0.05}(1, 111) = 3.84$ ]. There is therefore a significant relationship between supply/demand chain management and cost efficiency in Champion Breweries Nig Plc.

**TABLE 3: ANOVA<sup>b</sup>**

dd_forcas		Sum of				
		Squares	df	Mean Square	F	Sig.
H0 <sub>1</sub>	Regression	51.945	1	51.945	42.887	.000 <sup>a</sup>
	Residual	134.445	111	1.211		
	Total	186.389	112			
lead_time		Sum of				
		Squares	Df	Mean Square	F	Sig.
H0 <sub>2</sub>	Regression	27.231	1	27.231	18.991	.000 <sup>a</sup>
	Residual	159.158	111	1.434		
	Total	186.389	112			
cost_efficiency		Sum of				
		Squares	Df	Mean Square	F	Sig.
H0 <sub>3</sub>	Regression	48.480	1	48.480	39.021	.000 <sup>a</sup>
	Residual	137.909	111	1.242		
	Total	186.389	112			

a. Predictors: (Constant), demand forecast, lead time, cost efficiency

b. Dependent Variable: sus\_dd\_chain

Source: Researcher's output 2017

### Summary of findings

1. There is a significant relationship between supply/demand chain management and accurate demand forecasting in Champion Breweries Nig Plc.
2. There is no significant relationship between supply/demand chain management and lead time when ordering in Champion Breweries Nig Plc.
3. There is a significant relationship between supply/demand chain management and cost efficiency in Champion Breweries Nig Plc.

### Summary/Conclusion

Organisations' purchasing units goal is to make the right product available at the right time, price, quality and quantity (supply chain) to guarantee that the right quantity of finished goods are available where demand for it is, but at the right time, with the right price and quality to satisfy a need (demand chain) or goal of marketing department.

This study evaluates the relationship between supply and demand chain management and accurate demand forecasting, lead time and cost efficiency of Champion Brewery Plc, Uyo and findings reveals among others that;

There is a significant relationship between supply/demand chain management and accurate demand forecasting in Champion Breweries Plc. And that there is a significant relationship between supply/demand chain management and cost efficiency when ordering in Champion Breweries Plc. Moreso, that there is no significant relationship between supply/demand chain management and lead time in Champion Breweries Plc.

### Recommendations

Based on the findings, it is recommended that management and most especially purchasing and marketing units should pay attention to channel members' welfare to ensure maximum performance in their respective units.

Moreso, in-service training should be sponsored regularly by management to sharpen the skills of workers in this organisation, if maximum performance is expected from members of staff of Champion Breweries Plc.

Furthermore, value analysis should be conducted in every cost-centre of the organisation to remove unwanted cost and maximized profit.

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