2018

# Managing Supply Chain Disruptions in Nigerian Seaport Companies

Henry Oguche
*Walden University*

# Walden University

College of Management and Technology

This is to certify that the doctoral study by

Henry Oguche

has been found to be complete and satisfactory in all respects,
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Review Committee
Dr. Kevin Davies, Committee Chairperson, Doctor of Business Administration Faculty

Dr. Gwendolyn Dooley, Committee Member, Doctor of Business Administration Faculty

Dr. Neil Mathur, University Reviewer, Doctor of Business Administration Faculty

Chief Academic Officer
Eric Riedel, Ph.D.

Walden University
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Abstract

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## Abstract

In Nigeria, seaport companies have lost significant revenue since 2000 because of supply chain disruptions. If not mitigated, supply chain disruptions at Nigerian seaports will significantly affect organizational output and profitability. The purpose of this research was to explore strategies some seaport business leaders use to mitigate supply chain disruptions in Lagos, Nigeria. Supply chain management theory was the conceptual framework for this single case study. Data were collected using semistructured interviews with 4 participants from a Nigerian seaport company tbat adopted successful strategies to mitigate supply chain disruptions and review of company documents for methodological triangulation. Using thematic analysis, the 5 primary themes were corruption, seaport congestion, bureaucratic bottleneck, equipment failures, and employee disputes. Customer satisfaction and business profitability were 2 primary strategies the business leaders in the study used to mitigate supply chain disruptions. By implementing the strategies identified in the study, business leaders in the Nigerian seaport sector may be able to bring about positive social change by increasing business profitability. The strategies could increase employment opportunities for people in seaport cities, thereby decreasing the poverty level and leading to a better standard of living for residents.

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# Dedication

The completion of this dissertation would have not been possible if it were not for almighty God who makes all things beautiful in his time. I would like to dedicate this dissertation to my wife, Chinasa and my children, Harela, Haniel and Hadriel for their unwavering support and encouragement during my pursuit of this degree. Your unconditional love and support during the many hours working on this dissertation were essential to my success. I love you all. I would also like to dedicate this dis to my parents, Hyacinth Snr and Theresa for their support and encouragement, unfortunately both of you did not wait to see me achieve this milestone. I feel special gratitude to my wonderful siblings, Late Hyacinth Jnr, Henrietta and Helen, whose guidance and provisions during my childhood helped me understand the importance of education.

Acknowledgments

I want to acknowledge with sincerest gratitude to my Chair, Dr. Kevin Davies. for his tireless support, encouragement, and guidance. Dr.d you are amazing. I would also like to acknowledge my committee members, Dr. Gwendolyn Dooley, and Dr. Neil Mathur, your counsel, direction, support and encouragement were instrumental to my success. In addition, I would like to express special thanks to many others who prayed for and encouraged me along this journey.

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# Section 1: Foundation of the Study

Supply chains have an important role in organizational performance. Disruptions in supply chains can have a significant negative impact on organizational output and profitability (Simamora, Aiman, & Subiyanto, 2016). In this study, I explored strategies that supply chain managers use to reduce the impact of disruptions on supply chain performance. Supply chains are complicated and increasingly important for business continuity. Business leaders cannot prevent supply chain disruptions but can respond successfully to the impact by using effective strategies and innovation capabilities (Zander, Zettinig, & Makela, 2013). As Madhani (2016) noted, use of these strategies can help to mitigate the impact of disruptions, reduce costs, and increase revenue. By using the findings of this study, supply chain managers may, thus, be able to lessen the effect of disruptions, which could lead to increased sustainability for their organizations.

## Background of the Problem

Supply chain disruptions are becoming common. Their complexity makes it necessary for seaport supply chain managers to adopt strategies to minimize the impact of disruptions on operations. Between 2000 and 2014, approximately 15% of seaport companies globally, lost revenue because of supply chain disruptions (Ray & Jenamani, 2013). The business problems resulting from supply chain disruptions in Nigerian seaports are expected to continue (Somuyiwa & Ogundele, 2015). Despite privatization and concessions of Nigerian seaport terminals to make the seaports more efficient, supply chain disturbances are increasing, thereby affecting the business revenue of seaport companies (Son & Archard, 2013). Nigerian seaport companies have not been able to

meet customers' expectations, making it necessary for leaders in seaport companies to conduct business more effectively because of competition from increased international and global trade. Many leaders of Nigerian seaport companies have sought to lower costs and improve profitability. However, the increased occurrence of disruptions across the supply chain has rendered the impact minimal (Somuyiwa & Ogundele, 2015).

If organizational leaders do not mitigate supply chain disruptions, they will have to address reduced performance and profitability. Faulty supply chain policies adversely affect supply chain designs and the supply chain configuration of organizations, according to Ibrahim, Zailani, and Tan (2015). Business leaders can manage supply chain disruptions using forecasting techniques, as well as implementing effective information systems and closing gaps between supply chain partners (Lee, 2015). It is important that business leaders of Nigerian seaport companies use effective strategies to prevent, mitigate, and minimize the damage from supply chain disruptions.

## Problem Statement

Due to the global financial crisis in 2008, more than 50% of global seaport companies failed to survive beyond 5 years because of supply chain disruptions (Banerjee & Gupta, 2015). Between 2010 and 2014, leaders of Nigerian seaport companies lost $20 million; the loss has been attributed to supply chain disruptions (Somuyiwa & Ogundele, 2015). The general business problem was the failure of leaders in the seaport sector to manage supply chain disruptions that negatively affect the sustainability of seaport companies (Loh & Thai, 2015). The specific business problem was that some Nigerian seaport supply chain business leaders lack strategies to mitigate supply chain disruptions.

## Purpose Statement

The purpose of this qualitative single case study was to explore strategies that some Nigerian seaport supply chain business leaders use to mitigate supply chain disruptions. The target population consisted of four supply chain managers from a single Nigerian seaport company who had adopted successful strategies to mitigate supply chain disruptions. Nigerian seaport supply chain leaders may be able to use the findings of the study to increase customer satisfaction, which may result in increased organizational profitability. Implementation of study findings may also contribute to positive social change. Business leaders may realize a competitive advantage that they may use to enhance the sustainability of their organizations and increase employment opportunities for members of local communities.

## Nature of the Study

For this study, a qualitative method was appropriate because of the exploratory nature of the research. A qualitative research method involves the collection, analysis, and interpretation of visual and narrative information (Yin, 2014). A quantitative method was not suitable because I did not examine the relationship or differences between variables or test hypotheses. As Parker (2014) noted, in the quantitative research method, a researcher tests hypotheses, theory, and then analyzes statistical data. A mixed-method study is a combination of both qualitative and quantitative research (Whiteman, 2015) and was not suitable as I did not use a quantitative approach for this study.

For the study, I scrutined multiple research designs before selecting a case study design. Using a narrative design, a researcher collects data in a storytelling format (Gill,

2014). An ethnographic design involves collecting data in a cultural setting (Baskerville & Myers, 2015). The narrative and ethnographic designs were not ideal because I did not explore participants' stories of their experiences or cultural phenomena in their natural state. A phenomenological design was not appropriate because my intent was not to describe and interpret the meanings of participants' lived experiences; as Skiba (2014) noted, phenomenological researchers examine a particular event from individuals' perspectives. The research design I selected, a case study, is used by researchers to explore what, how, and why aspects of the research topic (Skiba, 2014). Moreover, a case study is appropriate when exploring a specific phenomenon within a real-life context (Yin, 2014). I selected a case study design because these qualities aligned with my study's goal, which was to explore strategies to mitigate supply chain disruptions in Nigerian seaport companies.

## Research Question

What strategies do Nigerian seaport supply chain leaders use to mitigate supply chain disruptions?

## Interview Questions

1. What are the supply chain disruptions in your organization?
2. What strategies do you use to mitigate supply chain disruptions in your company?
3. What are the challenges, if any, that you encountered while implementing the strategies for mitigating supply chain disruptions in your organization?

4. How did you overcome such challenges encountered while implementing the strategies for mitigating supply chain disruptions in your organization?
5. How do you determine that your organization is successful in managing supply chain disruptions?
6. What more do you wish to add that I did not ask you?

## Conceptual Framework

The conceptual framework helps a researcher to understand the study context through reviewed literature (Menon & Yao, 2017). The conceptual framework for this study was supply chain management theory. In the early 1980s, consultants introduced the concept of supply chain management (Oliver & Weber, 1998). Later, Oliver and Webber (1998) further elaborated the supply chain management concept and developed it into a theory. The supply chain management theory by Oliver and Webber provides a model for efficient management and a philosophy of conducting business with supply chain partners, which has minimal disruptions due to process synchronization and robust communication (Hitt, 2011). The supply chain participants include suppliers, manufacturers, distributors, retailers, and customers (Ellram & Cooper, 2014). Supply chain managers use supply chain management theory to integrate and manage the sourcing, flow, and control of materials among supply chain participants (Ellram & Cooper, 2014). I expected that the participants selected for this study might have experience using the key constructs of supply chain management theory to synchronize the internal supply chain process and build a robust supply chain management system for their organization, therefore minimizing supply chain disruptions in Nigerian seaports.

## Operational Definitions

*Global supply chain*: The global supply chain involves new opportunities for organizations of all sizes, with access to new markets, capital, and technology that enables the purchase of the best goods at the best prices (Ibrahim, Zailani, & Tan, 2015).

*Supply chain disruption*: Supply chain disruption is a logistical or replenishment issue that hinders the flow of goods (Loh & Thai, 2015).

*Supply chain relationships*: Supply chain relationships refer to the effective planning and coordination of supply chains between buyers and sellers based on information sharing and trust amongst associates (Dries, Gorton, Urutyan, & White, 2014).

*Supply chain risk management*: Supply chain risk management is a phenomenon that involves buyer-supplier relationships and mechanistic management control of the supply chain (Vilko, Ritala, & Edelmann, 2014).

## Assumptions, Limitations, and Delimitations

### Assumptions

Assumptions in research are conditions that a researcher assumes to be valid (Terman, 2015). Assumptions support the research activities that are out of the control of the researcher, but if they are absent, the study will become irrelevant (Marshall & Rossman, 2016). The major assumption of this study was that the supply chain manager participants would offer thoughtful and honest responses to the interview questions. Another assumption was that the participants would have knowledge of supply chain disruptions. I also assumed that the answers to the interview questions would help me

identify strategies that seaport supply chain managers use to minimize supply chain disruptions.

**Limitations**

Limitations in research are the internal and external factors that may affect a study (Moore, McKee, & McCoughlin, 2015). Limitations are a research weakness (Breslau, Marshall, Pincus, & Brown, 2015). One limitation of this study was that participants' behaviors might have changed due to the nature of the face-to-face format for the interview. To address this limitation, I ensured that the participants realize that my presence in the face-to-face meeting did not influence their response. Another limitation was the sample size of four participants; a larger sample size could have provided a better understanding of the research phenomenon. The work schedule of participants was another limitation; I minimized the limitation of the work schedule of the participants by ensuring that participants were available and had time for the interview.

**Delimitations**

Delimitations refer to boundaries for a study that are set by a researcher but which are out of his or her control (Moore et al., 2015). Delimitations narrow the scope of research (Yin, 2014). The first delimitation of this study was the research question. I opted against posing a different question concerning business issues in the Nigerian seaport sector because supply chain disruptions are the most challenging business problems of the sector (Moore, McKee, & McCoughlin, 2015). The second delimitation in this study was the location of the study. I conducted the study in the Western part of Nigeria because there are more seaport companies in the Western seaport and because I

live in that part of the country. The third delimitation was my decision to limit the sample size to four supply chain managers who conduct business within Western Nigeria. I selected the participants from a shipping company in Lagos. A sample size of four is satisfactory in qualitative studies (Yin, 2014). Finally, the scope of this study did not include identifying sustainability plans beyond supply chain management strategies.

## Significance of the Study

This research is essential, I believe, to understand the impact of supply chain disruptions on business performance, improve service levels, and reduce costs. Supply chain managers in Nigerian seaport companies may be able to improve supply chain performance in terms of service level by implementing the findings of this research. More specifically, they may gain an understanding of reliable strategies and tools for mitigating supply chain disruptions at different levels. The following subsections include the study's contribution to business practice and implications for social change.

### Contribution to Business Practice

Disruptions of the supply chain at the port of entry can significantly affect the profitability of Nigerian seaport companies. Beske and Seuring (2014) asserted that the high costs associated with supply chain are due to supply chain business leaders' poor decisions and inability to forecast and respond to uncertainties of disruptions as well as their lack of knowledge in managing supply chain disruptions. In this study, I explored successful strategies that leaders of Nigerian seaport companies use to mitigate supply chain disruptions. Learning about alternative strategies could help business leaders in seaport sector forecast supply chain uncertainties, mitigate disruptions, and administer

policies to mitigate disruptions. Managing supply chain disruptions could result in lower recovery and inventory management costs and the avoidance of lost sales, thereby increasing profitability and business sustainability (Lewis, Erera, Nowak, & Chelsea, 2013).

**Implications for Social Change**

Nigerian supply chain business leaders may use the findings of this study to develop alternative strategies to address and mitigate supply chain disruptions. Fewer supply chain disruptions may improve customers' satisfaction and business profitability. The implication for social change is that business profitability could increase employment opportunities for members of the local community.

## A Review of the Professional and Academic Literature

The purpose of this qualitative single case study was to explore strategies for minimizing supply chain disruptions in the Nigerian seaport sector. Supply chain disruptions are the primary reason that Nigerian seaport companies fail (Banerjee & Gupta, 2015). According to Banerjee and Gupta (2015), more than 50% of Nigerian seaport companies fail to survive beyond 5 years. In this qualitative case study, I focused specifically on strategies for preventing and mitigating supply chain disruptions in Nigerian Lagos seaports. The central research question was, as follows: What strategies do Nigerian seaport supply chain managers use to mitigate supply chain disruptions?

The literature review includes a comprehensive analysis and synthesis of literature related to the conceptual framework for this study, supply chain management theory. I reviewed the history of supply chain management theory and its uses in the literature and

compared and contrasted the theory with other theories. The literature review also includes a thorough analysis of previous literature that relates to the study phenomenon of supply chain disruptions at Nigerian seaports and strategies to mitigate such disruptions.

To locate literature, I searched the Business Source Complete and ABA/IMFORM databases, government websites, seminal books, Walden University library research databases and peer-reviewed journals published between 2013 and 2016. To obtain relevant literature, I identified several key phrases for the research. The key phrases were (a) *supply chain management theory*, (b) *supply chain disruptions*, (c) s*upply chain risks*, (d) *supply chain prevention*, (e) *supply chain mitigation*, (f) *supply chain sustainability*, (g) *financial implications of supply chain disruption*, and (h) *supply chain management strategies*. Conducting the literature review involved reviewing 128 relevant sources, which included 125 journal articles and three seminal books. The literature review includes 119 peer-reviewed references, with 111 of the 128 references published between 2014 and 2018, and 17 references published in 2013 or earlier. The percentage of peer-reviewed articles published within 5 years of my anticipated graduation is 87%.

**Seaports**

Business leaders are increasingly realizing the importance of seaports in trade. Seaports are the gateway of commerce, acting as an entry and exit point for transportation. Maritime transportation plays a major role in international trade and globalization. Maritime transportation carries approximately 90% of global trade by

volume (Ergin, Eker, & Alkan, 2015). Seaports play a significant role in Nigeria's economy as they contribute to infrastructure building and the promotion of industrial activities (Dutra, Ripoll-Feliuml, Ensslin, & Goncalves, 2015). Complex activities related to business communication, logistics, production, and international trade take place at seaports (Ergin, Eker, & Alkan, 2015). In the modern era, seaports are not a passive actor in transportation; instead, they play the role of an industry in supply chain management (Okeudo, 2013). Song and Yeo (2004) suggested looking at a seaport environment as a system, not as a group of terminals or independent operators, because of the complex activities that occur in seaports.

The proper functioning of seaports is essential for trade and both local and regional development (Song & Yeo, 2004). The failure of a seaport will affect the importing and exporting of goods, thereby affecting national revenue (Dutra et al., 2015). As Bohari and Zainuddin (2013) noted, seaports play an important role in a nation's economy. Furtheremore, supply chain disruptions due to logistical congestion at seaports has affected not only the operation of seaports but also the businesses that rely on seaports. The supply chain is a sequential process involving managing transportation and the distribution of goods from suppliers to customers (Da Cruz, Ferreira, & Azevedo, 2013). Seaport congestion results from various tasks, such as verifying workers, ships, and ground transportation and tracking containers as they move through ports, and activities involving just-in-time inventory guidelines (Bohari & Zainuddin, 2013).

**Nigeria Port Development**

The Nigeria port has developed in recent years. The development of ports in Nigeria occurred in four stages: (a) early port development before 1950, (b) modern port development from 1950 to 1970, (c) expansion of modern ports from 1970 to 1990, and (d) the port consolidation period 1999 to 2004 (Jaja, 2009). In 1485, the Nigerian government built the first port, and subsequently in 1533, the government established more ports because a strong trade relationship existed between Nigeria and Europe (Jaja, 2009). Trade expanded rapidly between Nigeria and European countries, and there was a need to expand the ports to accommodate the increase (Somuyiwa & Ogundele, 2015). However, the port expansion had to overcome many small hurdles, such as the constant littering of garbage and human waste in water, making it difficult for large vehicles to reach Nigerian ports (Omoke, Diugwu, Nwaogbe, Ibe, & Ekpe, 2015). In the early 1900s, littering and port pollution was so severe that large ships had to discharge smaller ships offshore to move the goods to the ports (Jaja, 2009).

In the early 1900s, major port construction took place, and the volume of traffic increased (Omoke, Diugwu, Nwaogbe, Ibe, & Ekpe, 2015). Nigerian ports were handling more than 500,000 tons of cargo in early 1900, and that number reached 1 million tons of cargo by the mid-1900s (Jaja, 2009). Modern port development began to take place from 1950 onward. In 1955, the Nigeria Port Authority was established, and the Nigeria Port Authority marine engineer began building berths and floating docks for ship maintenance (Jaja, 2009). Between 1967 and 1970, most ports were heavily damaged owing to the civil war in Nigeria; after the civil war, the federal military took control of privately

owned ports, and port rehabilitation efforts, which encompassed extensive repair of ports, began (Okeudo, 2013). Nigerian ports were handling close to 10 million tons of cargo, of which the majority was in the Lagos port (Okeudo, 2013).

After the civil war, the Nigeria economic condition improved resulting in more trade. The increased trade also led to congestion at the port. The port congestion had a negative impact on the country's economy, which had thrived after the civil war. In August 1975, over 4,000 vessels were waiting to berth at Lagos port with an average waiting time of 6 months (Jaja, 2009). The acceptable international time for a ship to berth was 10 days, and the Nigerian government was paying demurrage at about $ 4,000 for each vehicle delayed more than 10 days (Jaja, 2009). By 1990, there was a decline in import traffic, which put the country in an economic depression (Omoke et al., 2015). By early 2000s, there was a sharp increase in trade, however, because of economic reform embarked upon by the Nigerian government (Jaja, 2009). The increase in trade activities led to the port development in the country (Jaja, 2009). Today, Nigeria has 11 ports and eight oil terminals (Okeudo, 2013}.

**Nigeria Port Reform**

Before 1996, the Nigerian government commercialized its ports under the name "Nigerian Ports PLC." Later, the government changed this name to Nigerian Ports Authority(NPA) and went through a major reform in 2006 to improve service. The eight ports in Nigeria were reduced to six after the reform (Nwanosike, Tipi, & Warnock, 2016). According to Omoke et al., (2015), the Nigerian government adopted port concession as the port reform model. In the port concession model, the government

retains ownership of the infrastructure and contracts out facility operation to the private sector for a specified period (Omoke et al., 2015).

The port reform resulted in some standards that led to better port performance. Cargo dwelling time and vessel turnaround time was reduced by more than 50% (Okeudo, 2013). Port performance improved because of infrastructure modernization and process enhancement (Trujillo, Gonzalez, & Jimenez, 2013). Eniola, Njoku, Oluwatosin, and Okoko (2014) identified contributing factors to low performance at Nigerian seaports before the reform. According to Nwanosike et al. (2016), weak cargo handling, long documentation procedures, poor labor service, unskilled dockworkers, the poor relationship between customs officers and the port authority, lack of cargo handling equipment, corruption at all levels in the port, and queuing for berths problem were the contributing factors. Eniola et al. noted the poor cargo clearing system at Nigerian ports. The cargo clearing system depended on manual labor to physically move documents from various processing centers. He further noted the lack of a proper transportation system to move goods between the ports and hinterlands (Eniola et al., 2014). As a result, before the reform, the Nigerian seaport is one of the costliest in the world (Eniola et al., 2014).

After the reform, there was some significant improvement in port performance (Eniola et al., 2014). For example, Onne and River ports improved on the quality and quantity of their cargo handling equipment (Okeudo, 2013). Port harcourt port improved its operation in the handling of goods at its terminals (Okeudo, 2013). Omoke et al. (2015) noted that opportunity still exists for the Nigerian port to be user-friendly. Port workers need to be given vibrant skills training, and the government should provide

favorable policies and incentives to encourage private sector participation, Omoke et al. contended. Nigeria could experience potential benefits of continuous improvement of port functioning, such as job creation, foreign exchange earnings, wealth creation, and indigenous shipping capacity (Somuyiwa & Ogundele, 2015).

**Financial Crises in Nigeria**

It is important to discuss the relationship between financial crisis and corruption in Nigeria. The financial sector plays an important role in a supply chain. The banking sector affects the supply chain, as there are a healthy interaction and interdependence between the supply chain and financial markets (Wang, Muddada, Wang, Ding, Lin, Liu, & Zhang, 2016). The financial markets mobilize, allocate, and re-allocate capital resources through various stages and while doing so have a significant impact on the economy (Asekome & Agbonkhese, 2015). The health of the economy is dependent on the performance of the financial market. The economic crises could lead to high inflation, debt overhand, and increased unemployment, which could have a profound impact on the supply chain.

Just before the global economic crises started 2008, the prices of oil were rising, foreign exchange earnings and investment in Nigeria was high (Asekome & Agbonkhese, 2015). The global economic crises started to take shape between 2008 and 2009, Nigeria felt the heat as foreign investors started cashing out their securities, oil price dipped to below U.S. $ 50 per barrel, and the stock market continued to decline (Asekome & Agbonkhese, 2015). Nigeria's financial market lost over N8 trillion within less than a year (Asekome & Agbonkhese, 2015).

The Nigerian banking sector has gone through the continuous reform since 1999 (Adeusi, Akeke, Adebisi, & Oladunjoye, 2014). During the past reform periods, eight Managing Directors were relieved from their position, and the government injected 600 billion into banks so that banks could lend again (Adeusi, Akeke, Adebisi, & Oladunjoye, 2014). However, the case studies showed that corruption in the Nigerian banking sector continued to exist after the reform (Adeusi, Akeke, Adebisi, & Oladunjoye, 2014). The corruption resulted from fraud, falsifying documents for personal financial gain for bank officials, their friend, and relations (Thompson & Felix, 2014). According to Lawrence (2016), corruption is weakening Nigeria's economy.

**Corruption in Nigeria**

There are many contributing factors to Nigerian seaport supply chain disruptions. It is important to understand corruptions in Nigeria to figure out if it has anything to do with supply chain disruptions. By large, Nigeria has an abundance of wealth, and yet it is one of the poorest countries in the world. According to Lawrence (2016), Nigeria belongs in the list of corrupt countries in the world (Lawrence, 2016). A practice such as fraud, embezzlement, and money laundering have remained unabated in Nigeria (Lawrence, 2016). Corruption is weakening the nation's economy due to the looting of the country's treasury by government officials (Lawrence, 2016).

The 2015 Transparency International Corruption Perception Index put Nigeria at number 26 in corruption where on a scale of 0 to 100, 100 is very clean, and 0 is highly corrupt (Transparency International, 2015). Dumbili and Sofadekan (2016) stated that in Nigeria, corruption is occurring at an alarming rate. Lawrence (2016) supported the

notion by saying that the effect of corruptions in Nigeria is enormous, thereby is weakening the nation's economy, increasing the debt burden on the country, decaying infrastructure, depleting the country's treasury, and portioning lethargy in the workforce. Oluwaniyi (2011) argued that corruption has permeated into Nigeria's social fabric to the extent that now it has become a way of life for a majority of people in private and public spheres. According to Adeyemi, Akindele, Aluko, and Agesin (2012), the Nigeria government lack transparency and accountability and seen as nurturing ground for corruption.

Ionescu (2014) stated that corruption affects private investment, human capital accumulation, national treasury, capital accumulation, and so forth. To fight corruption in Nigeria, Economic and Financial Crimes Commissions (EFCC) start investigating corrupt practices, but it is making slow progress. In 2013, EFCC investigated over two thousand cases and was able to prosecute 485 offenders and convicted 117 cases of various crimes (Umar, Samsudin, & Mohamed, 2016). However, looking at the statistics, EFCC investigated only thirty-six percent of reported cases of corrupt practices and only convicted less than 5% of investigated cases. Umar, Samsudin, and Mohamed (2016) noted that Nigerian government needs to do more work is needed in Nigeria to fight corruptions (Umar, Samsudin, & Mohamed, 2016).

**Supply Chain Management**

The supply chain process spans from raw materials to manufacturing and transporting goods. The supply chain is important for organizational performance. Supply chain management is a crucial strategy in today's globalization (Blome, Schoenherr, &

Kaesser, 2013). If done correctly, supply chain management strategy can provide huge benefits to companies of all sizes (Simamora, Aiman, and Subiyanto, 2016). The supply chain process includes supplies of raw materials, manufacturers, wholesalers, retailers, and customers. Therefore, supply chain management strategy is a set of synchronized decisions undertaken by companies to streamline the process so that there is no disturbance when the product flows within supply chain participants (Madhani, 2016).

According to Simchi-Levi (2010), various factors affect the supply chain strategic decisions. The factors are (a) longer lead times because globalization, (b) rise in logistic cost because of changes in transportation and inventory, (c) risk related to lean manufacturing, outsourcing, and disruptions (d) increase in labor cost, (e) stakeholder demand in carbon footprint reduction, and (f) increase in the volatility of commodity prices. Therefore, it is important that all supply chain participants consider these factors in their strategic decision-making. There are tremendous benefits to participants from fruitful interaction with the chain. Simamora, Aimanand, and Subiyanto (2016) mentioned five pillars that all supply chain participants should focus to strengthen the partnership in the supply chain and those are (a) product and process quality, (b) supply chain logistics, (c) price and cost, (d) innovation and design, and (e) management. Participants in the supply chain need to make sure that they consistently meet quality requirement. Prices set at healthy margins so that products to customers' remains competitive remain innovative to continually improve business (Simamora, Aiman, and Subiyanto, 2016).

The supply chain strategy is to create value for its stakeholders (Madhani, 2016). Stakeholders demand that companies consider environmental and social implications in their supply chain management strategy. To adequately address environmental and social aspects of supply chain management, companies need to develop a strategy that aligns, coordinate and integrates the action of all supply chain participants throughout the chain (Morali & Searcy, 2013). The environmental aspect of the supply chain is about the functioning of supply chain activities without minimal impact to the environment. The social aspect of supply chain focuses on improving the quality of working conditions, fairness to all stakeholders, and economic development of communities (Wang & Sarkis, 2013).

Implementing social and environmental consideration could add cost to the company's bottom line. Therefore, Morale and Searcy noted both environmental and social aspect supply chain needs to be based on company Triple Bottom Line strategy (TBL). According to Wolf (2014), a supply chain management strategy based on Triple Bottom Line will address all social, environmental, and economical aspect of business operation. In other words, triple bottom line approach balances social and environmental consideration with company's economic objectives.

**Maritime Supply Chain**

Nigeria is one of the fastest growing economies in developing countries. Managing the supply chain is a challenging task to businesses due to business practice, technology capability, and regulations. These challenges are due to the nature of the seaport companies and the complications resulting from national and international laws

(Walter, James, Sampson, Bhattaacharya, Conghua, & Wadsworth, 2016). Therefore, integrated process-oriented design, competent management to control of supply chain focusing on cost reduction, cargo management, and customer service is necessary to remain sustainable (Chand & Agarwal, 2015).

A robust logistic system with real-time monitoring for faster response and time and fleet utilization could help minimize any hindrance or disturbance in the supply chain (Chand & Agarwal, 2015). The customers are interested to know the status of goods in the distribution channel. Communication between all supply chain participants, including government agencies, shops, agency offices, and company agents is important in managing a maritime supply chain. A sound information technology will ensure continuous flow information regarding the cargo status at various points in distribution channel so that a responsible party can make a proper plan to manage maritime logistics (Chand & Agarwal, 2015).

Companies' leaders realize that supply chain management is vital for their companies' sustainability. Maritime companies are no exception to this, and they keep all aspects of supply chain, including cargo documentation, maintaining, discharging, and delivery of freight to the consignee in good condition (Chand & Agarwal, 2015). Lopez and Poole (1998) noted that the maritime supply chain includes all of those activities associated with moving goods from the shipper to the consignee. The productivity will result when companies manage its relationships with all responsible parties in the supply the chain. The participants in the maritime supply chain include financial institutes,

customs, law enforcement, exporters, ship owners, shippers, shipping agents, shipping consignee agents, forwarding agents, stevedores, and so forth (Chand & Agarwal, 2015).

**Compelling Theories**

The conceptual framework for this study is the supply chain management theory. Many compelling theories apply to this study. However, supply chain management theory is ideal for this study based on the underlying purpose and the nature of this study. The other theories are classical view theory, stakeholder theory, social contract theory, research-based theory, agency theory, and system theory.

The classical view theory shows that business leaders should engage in activities geared towards making money. The classical view theory is similar to stakeholder theory. In stakeholder theory, Milton Friedman stated that the primary responsibility of the business is to make money (Schwartz & Saiia, 2012). The supply chain contains many external participants that play the vital role in supply chain management. Business leaders need to focus not only on its profits, but also consider the interests of all participants. The concept that business should focus on all participants, or in other words stakeholder is similar to stakeholder theory (Harrison & Wicks, 2013). However, both classical theory and stakeholder theory are broad in nature and do not specifically target on a supply chain aspect of business.

The advocate of social contract theory states that society, in general, expects a company to act in a socially responsible manner (Sulaiman, Dahiyat, Mohammed, & Haijat, 2012). In supply chain context, businesses not only need to act in a socially responsible manner, but also in an environmentally friendly way, just because supply

chain includes manufacturing products to the delivery of goods to end users and while doing so, there are environmental implications. The research-based theory includes both social and environmental aspects of business and states that companies should utilize all available resources to meet its environmental and social needs (Sulaiman, et al., 2012). However, the research-based like other theories does not explicitly explain how to apply the concept in a supply chain management context.

Agency theory states that business is a transaction between two parties, the agent, and the principal (Sulaiman, Dahiyat, Mohammed, & Haijat, 2012). It is a fiduciary duty of the agent to act in the best interest of the principal (Sulaiman, et al., 2012). In supply chain context, there are many agents and many participants because it is a network of multiple companies doing business to provide goods to consumers. The concept of agency theory applies to this study, but like theories discussed above does not narrow down how the concept applies to supply chain management context. System theory supports the notion that business operation should be looked as a complete system, not as individual parts and components (Salmon et al., 2017). Supply chain constitutes many elements from acquiring raw materials to manufacturing to delivery of products to consumers. There are many participants in supply chain process and looking at the entire supply chain process as a system does make sense.

**Supply Chain Management Theory**

Strategic Supply chain management assists business leaders to achieve effective output. The supply chain is a system of activities, which involves acquiring raw materials, manufacturing, and delivering products to end users (Beske & Seuring, 2014).

The supply chain management theory provides oversight, coordination, and integration of process flow to achieve customer satisfaction (Hajmohammad & Vachon, 2015). Beske and Seuring (2014) noted that the supply chain management theory highlights set of activities and decisions that integrate manufacturers, suppliers, warehouses, and customers to ensure efficient distribution of products and services to the right place at the right time to satisfy consumers. Moreover, Ortas, Moneva, and Alvarez (2014) supported the notion that supply chain management theory help business leaders to achieve optimal performance by building collaboration among all participants and thereby, helping businesses to meet customers' expectation. In sum, supply chain management theory is a strategic tool for management to efficiently allocate resources, enhance processes, reduce costs, manage inventory, and to satisfy customers (Esper & Russell, 2014).

However, many business leaders' experience challenges in managing supply chain (Abdallah, Obeidat & Aqqad, 2014). According to Ramanathan and Gunasekaran (2014), more than 50% of business leaders fail in the proper implementation of a supply chain strategy in their business practices. To implement supply change management strategy, business leaders need to identify organization's capabilities in technology, efficiency, and inventory management that affects business process (Adida & Perakis, 2014). Then, business leaders need to implement supply change strategy based on supply chain theory within its value chain while considering the need of all supply chain participants (Tseng & Liao, 2015). For a business to function properly in a supply chain, companies must integrate and coordinate its activities to align the interest of all supply chain participants. Furthermore, to remain competitive, organizational leaders must be

aware of the global market and trends relating to supply chain practices and performances (Mazzola, Bruccoleri, & Perrone, 2015). Business leaders often face many uncertainties, such as difficulties in managing global suppliers, a speed of delivery, cost, and turnaround time from global market participants (Iddrisu, Zhang, Osmani, Bachkar, Malm, & Yakubu, 2015). To remain competitive, business leaders must make provisions for such uncertainties (Soni, Jain, & Salmador, 2015).

Given that supply chain managers have different skill sets, supply chain management theory acts as a guideline for managing a supply chain. The supply chain theory is suitable in supply chain management because it provides the network model for efficient management and philosophy of conducting business with minimal disruptions through synchronization of processes (Hitt, 2011). The supply chain management theory supports building a sound relationship with supply chain participants to design, manufacture, implement, and manage logistics. Healthy relationships between components and partners will result in higher quality, speed, lower cost, and, faster service delivery (Solakivi, Töyli, & Ojala, 2015). Moreover, Sainathuni, Parikh, Zhang, and Kong (2014) supported the notion by stating that healthy relationships with partners can lead to improved throughput, efficient shipment delivery, and reduced cost. Healthy relationships result in information sharing of activities between supply chain partners, which could improve organizational sustainability and profitability (Demirbas, Flint, & Bennett, (2014)

**Tools to Manage Innovation and Trust in Supply Chains**

Management of innovation and trust is very important in supply chain processes. The success of an organization in a competitive business environment depends upon trust among business partners and company's ability to remain innovative in supply chain management (Yurov & Botella, 2014). Tolmay and Badebhorst (2015) stated that the business trust among all participants in supply chain network and innovative approach to streamlining supply chain operation not only to improve supply chain performance but also to reduce inherent risk. For example, one innovative approach in managing supply chain includes creating a workplace checklist of processes within the company's value chain and constantly self-evaluating and assessing progress made (Wolfs, Takakura, Rezende, Vivaldini, & Antoniolli, 2015). The trust among supply chain partners depends on a company's ability to share knowledge, the nature of communication, service, and cooperation (Yurov & Botella, 2014).

Information technology has an important role in innovation and building trust among all supply chain participants (Yurov & Botella, 2014). The common information technology tools used in supply chain management are Enterprise Resource Planning (ERP) software and Advance Planning System (APS) software. In a multiple case study, two major Brazilian company's top executives emphasized the importance of Enterprise Resource Planning to improve supply chain management (Dolci, Macada, & Grant, 2015). The executives mentioned the use of ERP to enhance their supply chain governance, resulting in superior performance (Dolci, Maçada, & Grant, 2015). ERP helps businesses to share knowledge, information, reduce costs, improve, and manage

business processes (Almajali, Masadeh, & Tarhini, 2016). Stadtler (2015) stated the importance of Advance Planning System (APS) for a seamless integration of business functions across a company's boundaries. APS is an advance planning tool to coordinate intra-organizational process flow, and it works well with ERP tool (Stadtler, 2015).

**Supply Chain Collaboration**

The goal of supply chain partners in a global market is to achieve a common success that will lead to business profitability. However, most organizations often face many challenges while dealing with supply chain participants (Gawankar, Kamble, & Verma, 2013). It is important that supply chain business leaders build a collaborative relationship to improve supply chain process and to benefit customers. According to Narasalagi and Veerendrakumar (2015), supply chain cooperation will help companies achieve competitive advantages and supply chain collaboration will improve the company's image, recovery, market position, security, and adaptability (Soosay & Hyland, 2015).

The collaborative relationship will reduce supply chain risk and disruptions (Yu, Xiong & Cao, 2015) by building a cohesive and functioning team that will foster a supply chain culture within the network (Negi & Anand, 2015). Moreover, collaborative relationships will reduce uncertainties, reduce transaction cost, and maximize business opportunities (Kang, Moon, & Moon, 2015). When business leaders form a positive connection, there will be job satisfaction amongst supply chain partners leading to enhance engagement (Di Paolo, 2016), overall process improvement (Scholten & Schildner, 2015), and customer satisfaction (Solakivi, Toyli & Ojala, 2015).

However, the relationship between supply chain partners may not be pleasurable because of existing sour relationships because of supply chain uncertainties and disruptions (Simangunsong, Hendry & Stevenson, 2016). To improve a relationship with existing partners or new partners, a business leader needs to focus on building trust through effective communication and sharing of information (Nehzat, 2015). According to Fang and Shou (2015), trust and honesty amongst supply chain partners will result in ultimate unity in supply chain process. Furthermore, the study revealed that trust amongst supply chain partners would improve the overall quality of organizational performance (Di Paolo, 2016). Few other authors also supported the notion that collaborative relationship enhances organizational performances (Boccuzzo, Fabbris & Paccagnella, 2016).

Effective communication among supply chain participants plays a significant role in building trust and supply chain collaboration (Zsidisin, Hartley, Bernardes & Saunders, 2015). Scholten and Schilder (2015) noted that effective communication between supply chain partners would improve working relationships and the level of trust in integrating, coordinating, and overall management of supply chain process. Simangunsong, Hendry, and Stevenson (2016) stated that effective communication and trust play an important part in addressing supply chain uncertainty and avoiding supply chain disruptions.

Another important strategy to improve the relationship between supply chain partners is transparency in sharing relevant quality information (Sanchez, Harris, & Mason, 2015). Sharing of relevant information promptly will assist supply chain participants to track inventories and control demand spikes (Sanchez, Harris, & Mason,

2015), which is essential for managing cost, generate revenue, and to satisfy customers (Zsidisin, Hartley, Bernardes & Saunders, 2015). Choi, Wang, and Yue (2015) affirmed that team performance is a function of knowledge and an effective information sharing.

**Supply Chain Technology**

Information technology is useful to disseminate information. Organizations use information technology to enhance performance (Hua, 2016). Business leaders invest in technology to streamline business process, share information, and to communicate with stakeholders (Kwon, 2015). Information technology is useful to propagate information and to communicate with its supply chain partners to address uncertainty and to prevent supply chain disruptions (Senarathna, Warren, Yeoh & Salzman, 2014). Various authors in the literature stated the benefits of information technology, and they are as follows:

1. Banerjee (2015) noted that information technology improves a quality of operational process and changes the way business leaders work outside and within the organization.
2. Gong, Tan, Pawar, Wong, and Tseng (2015) claimed that information technology could help reduce supply chain disruptions.
3. Lin and Wu (2015) mentioned that information technology helps build relationship among supply chain partners in a global environment.

In supply chain information technology includes computers, data centers, radio frequency identification devices (RDIF), and business intelligence software to manage point of sale, logistic, replenishment, just in time inventory, and so forth (Papert, Rimpler & Pflaum, 2016). These technologies will help companies to improve supply chain

performance and enhance the operational process. Ming-Chang, Ghi-Feng, and Tzu-Chuan (2014) cautioned organizations that technology could be counterproductive if not administered appropriately. Lee, Kim and Shin (2017) suggested that business leaders should seek assistance from technology experts while integrating technology to business practices. In the era of the internet, information technology plays an import role in e-commerce. Supply chain business leaders use e-commerce to respond to customer's demand (Hajli, Sims, & Shanmugam, 2014) and use e-collaboration to interact with supply chain partners (Eyers, &Potter, 2015). The use of information technology in e-commerce and e-collaboration minimize bottlenecks in supply chain process to avoid disruption (Caboni & Bruni, 2015). Sharma and Lijuan (2014) noted that information technology in e-commerce has made transactions very convenient. Gudigantala, Bicen, and Eom (2016) added that e-commerce using information technology could enhance a quality of service, customer satisfaction and reduce the cost of operation.

**Supply Chain Sustainability**

The proper management of production and distribution of goods leads to supply chain sustainability. Supply chain sustainability is gaining popularity in the global business environment, and business leaders are striving towards achieving organizational success through sustainable supply chain management (Varsei, Soosay, Fahimnia, & Sarkis, 2014). However, the global nature of the supply chain has affected how business produces market, and distribute goods (Lee, 2015).

In a global context, companies around the world are incorporating environmental and social aspect into supply chain management. Effectively integrating ecological and

social perspective in supply chain management requires businesses to develop a large stray that aligns with an action of supply chain partners throughout the chain (Morali & Searcy, 2013). Therefore, companies need to look at the supply chain management from a holistic approach and understand that supply chain sustainability is not just under the control of one organization but rather influenced by all partners in supply chain process (Hajmohammad & Vachon, 2015). Busse, Schleper, Niu, and Wagner, (2016) stated that suppliers and other stakeholders in a supply chain influence organization's performance. To maintain a sustainable supply chain, business leaders need to make sure that all supply chain partners are equally involved in incorporating environmental and social aspect in their supply chain operation.

Sustainable supply change management strategies focus on three elements, and those are environmental sustainability, social sustainability, and economic sustainability. Triple Bottom Line (TBL) concept supports the idea of incorporating environmental, social, and economic consideration in supply chain management. The environmental sustainability is about preserving natural resources. It is about making decisions, setting supply chain policies, and conducting business in a manner to minimize the negative impact on the natural environment (Wang & Sarkis, 2013). It is important that business leaders pay attention to their supply chain activities to minimize deforestation, poor air and water quality, landfill, climate change, and resource depletion. The social aspect of supply chain management focuses on issues such as working conditions, justice, and fair wages, which have a direct impact on the quality of life (Wang & Sarkis, 2013). The economic element of sustainable supply focuses on the financial aspect of the business,

which is making a profit. Return on investment, stock price, and market share measure the financial performance, which reflects the company's profitability in the TBL (Wang & Sarkis, 2013).

Morali and Searcy (2013) stated that incorporating TBL concept in supply chain management is a part of corporate social responsibility (CSR). Good CSR will enhance company reputation, create a brand image, avoids regulatory fines, and attract and retain customers (Wolf, 2014). In the literature, various authors noted a positive relationship between sustainable supply chain management and financial performance (Wang & Sarkis, 2013; Wolf, 2014). Sustainable supply chain management will maintain efficient production and distribution of goods (Schaltegger & Burritt, 2014), build positive relationships with supply chain stakeholders (Woff, 2014), and help companies to achieve competitive advantage (Abdallah, Obeidat, & Aqqad, 2014), thereby, delivering a sound financial performance.

Iddrisu, Zhang, Osmani, Bachkar, Malm, and Yakubu, (2015) mentioned the importance of organizational culture in sustainable supply chain management. The culture of an organization maintains an alignment between supply chain management and supply chain sustainability (Abdallah, Obeidat, & Aqqad, 2014). According to Beske and Seuring (2014), organizational culture is to align sustainable practices that include environmental and social consideration in business practice to create a sustainable supply chain management.

**Supply Chain Disruption**

The supply chain disruptions are unplanned and unanticipated events that negatively affect the normal flow of goods and material across the supply chain. The supply chain disruption has a profound impact on business performance. According to Son and Orchard (2013), the supply chain disturbances are increasing and could be costly to businesses. The supply chain disruption increases the cost of goods sold minimizing the profit margin and hindering performance, which could decrease shareholder value (Macdonald & Corsi, 2013).

In the modern era of the global economy, business leaders need to revamp the traditional way of doing business. Otherwise, management will have competitive disadvantages (Pettit, Croxton, & Fiksel, 2013). Nigeria is no exception when the country is operating in international markets. Nigeria, along with other African countries is facing a fierce challenge to remain competitive (Cruz, 2013). The problems with supply chain disruption are not going away soon (Zander, Zettinig, & Makela, 2013) and therefore, it is important that seaport companies in Nigeria have effective strategic tools to prevent, mitigate, and to minimize the damage from supply chain disruptions.

Craighead, Blackhurst, Rungtusanatham, and Handfield (2007) studied the severity of supply chain disruption to businesses. The authors noted that supply chain disruption could occur at three locations, a) supplier side, b) internally, and c) customer side. Below are the examples of how supply chain disruptions from the supplier side, company's internal operation, and the customer's side affected the company's profitability (Sheffi, 2005).

1. A GM supplier spilled chemical at chip plant contaminating all GM car key fobs, thereby affecting GM ability to sell cars. Steel shortage in 2004 shut down about seventy percent of Japanese Nissan's plants.

2. A tornado hit the GM in 2003, and it shut down the plant for a couple of weeks, hurting GM U.S. $168 million.

3. Caterpillar Inc. sells equipment to mining and construction industries. If equipment breaks down, then parts have to be readily available to its customers. The estimated cost of downtime of one of the caterpillar's mining customers can be U.S $ 30,000 per hour.

Multiple independent variables could affect disruptions at each location, such as stoppages, close calls, durations, and reductions (Habermann, Blackhurst, & Metcalf, 2015). Reductions refer to reductions in the flow of materials to slow down (Habermann et al., 2015). Close calls are the disruptions that are prevented at the last minute (Habermann et al., 2015). Duration is the time until the normal flow of material is restored, and stoppage is a condition when the workflow is completely at a halt (Habermann et al., 2015).

Habermann, Blackhurst, and Metcalf (2015) investigated the intensity of supply chain risk when there is a dispersion of supply chain partners and the intensity of supply chain risk when there is a co-location of supply chain partners. The result showed that supply chain disruptions occur on the supply side (inbound) of the supply chain and inbound lead-time is the most critical factor in supply chain disruptions (Habermann et al., 2015). The study found that co-location with the supplier side results in a shorter

disruptions duration (Habermann et al., 2015). In another word, co-location with suppliers will improve the resilience to disruptions and therefore, businesses need to collaborate with suppliers to jointly respond to prevent, mitigate, and to shorten the duration of supply chain disruption (Habermannet, et al., 2015).

**Fishbone Diagram in Risk Management**

Effective supply chain management by business leaders will result in better financial performance. There is a positive correlation between effective supply chain management and operational and financial performance of a company (Simchi-Levi, 2010). Desai, Desai, and Ojode (2015) noted that effective supply chain management could reduce the magnitude of potential risks to the business. In the literature, various authors discussed organizational risk in different contexts such as:

1. Yubing (2015) studied conceptual model for supply chain risk propensity.
2. Suharjito (2015) studied risk management in the agriculture industry.
3. Sharma and Lijuan (2014) investigated mitigating risk in Indian auto industry.
4. Cruz (2013) recommended using corporate social responsibility as a tool to minimize risk.
5. Rajesh, Ravi, and Venkatrao (2015) discussed various types risk in supply chain management and identified strategies to reduce the risk.

Desai, Desai, and Ojode (2015) identified Fishbone diagram as a useful tool to determine the risk. The supply chain problem has multiple causes, and Fishbone diagram helps to break down the causes to essential elements to identify potential problems (Deasi

et al., 2015). The supply chain is a complicated process with interrelated parts, and single issue in one part or component of the supply chain will affect the function of entire supply chain operation (Deasi et al., 2015). The supply chain is vulnerable to risks such as defective and counterfeit products, delays in the distribution channel, storage, warehousing, and so forth (Deasi et al., 2015). These risks have a chain reaction across the supply chain, and therefore, it is important to pinpoint the root of the problem and address it immediately to minimize further damage (Deasi et al., 2015). Deasi et al. (2015) applied the Fishbone diagram concept to study four potential problems in the supply chain: defect, counterfeit, delay, and general error. Deasi et al. (2015) illustrated each issue with the underlying factors or causes that contribute to that problem in Fishbone diagram and developed action-planning metrics. The Fishbone diagram also illustrates the underlying causes for a defect in each category by horizontal arrows. For example, the causes of a raw material defect are defective material, vendor, and low-quality material. According to Deasi et al. (2015), the next step in risk management in the supply chain is to design a matrix to address the causes of risks for each category. The matrix includes identifying and describing the causes of risk, identifying who is responsible for handling the risk, the nature and the type action to be taken, stating the time and duration of action, and identifying available resources to get the job done. Deasi et al. (2015) stated that a Fishbone diagram is an excellent mean to examine the potential causes of problem and action matrix is an effective strategy to make plans to tackle such problems.

**Globalization of Supply Chain**

Supply chain trade in global arena involves the exchange of goods across borders. In the literature, different authors had described trade with a new set of terminology (Baldwin & Lopez-Gonalez, 2015). The scope of supply chain trade begins with the sourcing of raw materials and ends up in the customer's hand as products. In between, there are many activities such as procurement, replenishment, conversions, and delivery (Baldwin & Lopez-Gonalez, 2015).

Up to 1980s, G7 nations which included the United States, Canada, France, Germany, Italy, Japan, and the United Kingdom were the front runners in supply chain trade (Baldwin & Lopez-Gonalez, 2015). The global manufacturing was high among G7 countries in the 1970s amounting to over 70% of world manufacturing (Baldwin & Lopez-Gonalez, 2015). The United States, Germany, and Japan accounted for more than 50 percent of global manufacturing. Between 1970 to 2010, the manufacturing dropped from 71% to 46% (Baldwin & Lopez-Gonalez, 2015), because of front-runners like China, Korea, India, Indonesia, Thailand, Turkey, and Poland, whose production had blossomed (Baldwin & Lopez-Gonalez, 2015). After the 1980s, the globalization started with increasing trade between high tech and low wage nations (Baldwin & Lopez-Gonalez, 2015).

However, companies were facing challenges in managing supply chain because of high supply chain activities, inventory management, customer service, and goal restructuring (Deasi et al., 2015). Now, the companies' leaders started approaching supply chain from three perspectives: strategic, tactical, and operational (Deasi et al.,

2015). The strategic supply chain requires business leaders to focus on objectives and policies of the supply chain and outline organization structure to overcome functional barriers; the tactical perspective supply chain focuses on means to meet strategic objectives; and the operational perspective focuses on the efficient operation of the supply chain (Deasi et al., 2015). The viewing of supply chain activities from three perspectives revolutionized the global supply chain trade.

The globalization of supply chain led companies to source and manufacture products from low-wage countries, shortened the distribution channels, and increase global supply chain network (Baldwin & Lopez-Gonalez, 2015). For example, the car company started making parts in China, started assembling parts in Mexico, and sold cars in the USA. This resulted in car manufacturer to share their technology, logistics with their partners in various countries to minimize the cost, increase the margin, and swift delivery of goods to end destination.

**Empirical and Quantitative Studies of Supply Chain Risk**

Modern supply chain requires business leaders to depend on strategic and tactical planning because of its complex operating environment in the global arena. Strategic and tactical planning makes supply chain operation stable. However, it may open to various types of risk. The supply chain is a network of supply chain partners who are dependent on each other due to an integrated process, and this increases the possibilities of risk (Kersten, Hohrath, Boeger, & Singer, 2011). There could be foreseeable and unforeseeable risks coming from both internal and external aspects of the supply chain (Oke & Gopalakrishnan, 2009). A supply chain disruption is an enforceable risk that

results from interruptions in the movement of goods. The empirical studies and quantitative studies were done to give some insight into supply chain disruptions from a practitioner's perspective (Costantino, Gravio, Shaboan, & Tronci, 2014) and the empirical studies are as follows:

1. Thun and Hoenig (2011) studied organizations with various types of supply chain risk management strategy such as high implementation, reactive implementation, and preventive implementation of supply chain strategy.
2. Oke and Gopalakrishnan (2009) study various types of supply chain disruptions in a retail context and identified strategies to mitigate such risks.
3. Craighead, Blackhurst, Rungtusanatham, and Handfield (2007) empirically investigated different kinds of supply chain disruptions.
4. Blackhurst, Craighead, Elkins, and Handfield, (2005) studied supply chain d isruptions in global sourcing.

Various authors also did quantitative studies to give insights into supply chain disruptions.

1. Meyer, Rothkopf, and Smith (1979) investigated production facility that was not able to meet demand due to random failure.
2. Chao (1987) studied electrical utility company that faced market disruptions.
3. Babazadeh and Razmi (2012) proposed strategies to handle disruptions within the supply chain network during turbulent business environment.

Supply chain disturbance has profound affect an organization's performance, and many companies are adopting strategies to prevent and mitigate disruptions. However,

companies' ability to control and reduce disruption depends on the types of strategies deployed and available tools. For example, Nokia and Ericsson faced the same type of disruptions resulting fire from a fire at their local plants, damaging millions of chips, but Nokia overcame disruptions because they had implemented multiple supplier strategies, whereas Ericsson was relying in sourcing from a single supplier and cost Ericsson U.S. $400 million in lost sales (Norrman & Janson, 2004). Strategic planning in the supply chain is essential to avoid supply chain disruption. Various authors have studied strategic planning in different aspects of the supply chain such as sales planning, operational planning, collaborative planning, forecast planning, and replenishment planning (Srinivasan & Swink, 2015). Few authors have identified simulation model in quantitative analysis to test the effectiveness of planning strategies adopted supply chain companies (Costantino,Di Gravio, Shaboan, & Tronci, 2014).

**Green Supply Chain Network Design**

Globalization has contributed to the growth in shipping activities. The maritime supply chain network constitutes transport of goods via sea and land. Kotowska (2013) stated that sustainable transport should be inexpensive, low emissions, and safe. However, the increase in such activities has contributed to greenhouse gasses (Kotowska, 2016). The stakeholders are expecting companies to participate in green supply chain management (Ahi & Searcy, 2013). The Green supply chain is not just good for the environment, but also good for the business bottom line. The practical approach to managing the environmental problem is through a green supply chain network. In the

literature, there is a wealth of information on the green supply chain network, and they are as follows:

1. Kannegiesser, Günther, and Autenrieb (2015) studied sustainability parameter in supply chain network design.
2. Talaei, Moghaddam, Pishvaee, Bozorgi-Amiri, and Gholamnejad (2016) examined green supply chain through robust programming approach.
3. Garg, Kannan, Diabat, and Jha (2015) studied closed loop green supply chain network design through nonlinear integer programming approach.
4. Mallidis, Vlachos, Iakovou, and Dekker (2014), analyzed the impact of green supply chain network design and its role in inventory optimization.
5. Coskun, Ozgur, Polat, and Gungor (2016) examined customer expectation in green supply chain network design.
6. Kagawa, Suh, Hubacek, Wiedmann, Nansai, and Minx (2015) analyzed carbon emission in supply chain network.
7. Nauru, Hammami, Frein, and Temponi (2016) investigated the impact of carbon emissions in supply chain network design.
8. Nakamichi, Hanaoka, and Kawahara (2016) studied CO2 emissions in supply chain network design in the automobile industry.

Kotowska (2016) stated that green supply chain network could help businesses eliminate seaport pollution by establishing an environmentally conscious supply chain. Green supply chain network design considers suppliers, manufacturers, and distributors in an optimal manner to meet consumer demand. According to Coskun, Ozgur, Polat, and

Gungor (2016), designing a green supply chain network requires both strategic as well as a tactical approach from business leaders.

## Transition

The purpose of this doctoral study is to explore strategies that seaport companies' business leaders use to manage supply chain disruptions. In this section, I discussed the background of the problem. I included the problem statement, purpose statement, and a research question. This section also contains six interview questions that I used during the interviews to find the answers to the central research question. Moreover, I have stated how my study will contribute to professional business practices and its implication for social change. The literature review contains information on the research topic and the conceptual framework.

Section 2 provides information on my research approach. In this section, I described my role as researcher, the ethical approach that I tool during the study, the sample size justification, and identified the research population. This section discusses data collection, data organization, and data analysis. Finally, in this section, I discussed how I assured reliability and validity of my study. In Section 3, I provided study findings and recommendations.

## Section 2: The Project

Section 2 includes a restatement of the purpose of the study and a description of the research, the participants, and the research method and design. After describing the research method and design, I discussed the population and sampling, issues of ethical research, the data collection method, and reliability and validity measures. This content is followed by the transition and a summary. Section 3 includes an overview of the study and a presentation of the findings.

### Purpose Statement

The purpose of this qualitative single case study was to explore strategies that some Nigerian seaport supply chain business leaders use to mitigate supply chain disruptions. The target population consists of Nigerian seaport companies based near the Gulf of Guinea. I interviewed four supply chain managers from a single Nigerian seaport company who had adopted strategies to mitigate supply chain disruptions. Nigerian seaport supply chain managers may be able to use the findings of the study to increase customer satisfaction and organizational profitability. Having a competitive advantage may enhance the sustainability of organizations in the Nigerian seaport sector and could increase employment opportunities for members of the local community.

### Role of the Researcher

A researcher collects, analyze, and interprets data (Collins & Cooper, 2014). My role as a researcher was to conduct interviews to collect data for analysis and interpretation. Interviews are a widely-used method to capture data in qualitative studies because of the flexibility they afford for exploring the area of interest (Patton, Hong,

Patel, & Kral, 2017).). According to Collins and Cooper (2014), a researcher act as primary data collection instrument. I was the primary data collection instrument for this research study. Merriam (2014) noted that as a primary data collection instrument, a researcher performs activities such as interviewing to capture rich data for analysis and interpretation.

I worked in a management capacity on the maritime desk of a Nigerian bank that liaises with seaport companies in Nigeria. As a leader in the maritime industry, I have observed that many business leaders are struggling with supply chain disruptions. Therefore, I decided to focus on the supply chain aspect of the business. My professional experience in the area of research includes working with seaport companies at the ports in Lagos in the Western part of Nigeria. However, I did not have any prior relationship with the participants or the organization in this study. The participants are business leaders who are knowledgeable about supply chain management and the supply chain process of a seaport company. The profile of the business leaders was reviewed on Linkedin to learn more about their background and experiences.

I strove to be impartial and unbiased during the participant selection process. I selected participants based on their experience related to the research topic. Moreover, there was no monetary interest or relationship with the participants. The focus of my study was to understand solutions some seaport companies deploy to prevent and mitigate supply chain disruptions. Based on my experience in maritime supply chain disruptions, I articulated my research question and carefully designed interview questions.

Bias could threaten the research validity and reliability of a study (Malone, Nicholl, & Catherine, 2014). Yin (2014) stated that researcher bias could alter the direction of research. Bias is difficult to avoid (Malone et al., 2014). I ensured that my personal feelings and experiences were separated when interpreting the responses of participants to avoid the intrusion of possible biases and personal views on my part. To avoid bias, I used the bracketing technique. Use of bracketing techniques assist researchers in separating their perceptions, morals, and personal experiences from the research data (Rossetto, 2014).).

In addition, I strictly adhered to the ethical guidelines noted in the Belmont Report. The ethical guidelines in the Belmont Report include respect for individuals, beneficence, and justice (U.S. Department of Health and Human Services, 1979). Respect for individuals concerns personal independence and diminished autonomy. Beneficence involves ethically treating participants, respecting their decisions, and protecting them from harm. Justice encompasses selecting and treating all participants fairly without any bias. I completed the National Institute of Health online training course in order to learn how to be fair, not cause harm, and maintain justice to participants while conducting the research. It is an ethical responsibility of a researcher to respect, protect, and safeguard participants from undue embarrassment (Office for Human Research Protections, 2015).

I used an interview protocol (see Appendix A) as a guide for the interviews. The interview protocol include guidelines, opening and closing scripts, a consent script, and the asking of semistructured interview questions and follow-up questions. In a case study, a researcher must follow a unified and standard interview protocol because

inconsistencies in the protocol could produce different results (Yin 2014). Yin (2014) stated that a researcher uses an interview protocol to maintain focus on the topic. The researcher design the interview protocol to meet study need (Castillo-Montoya, 2016).The interview protocol I used was the same for all participants in order to maintain uniformity and consistency in the study.

## Participants

The target population consisted of four supply chain leaders from a single Nigerian seaport company who had experienced success in mitigating supply chain disruptions. I purposefully selected participants with knowledge and experience on the research topic. Othman and Rahman (2014) suggested selecting participants who are a highly skilled specialist in research phenomenon. Dabić and Stojanov (2014) noted that study participants should be able to explain the research phenomenon in their own words.

I started the participant selection process by reviewing the LinkedIn profiles of seaport business leaders in Lagos Nigeria. The recommended means to contact participants are by telephone, letter, or e-mail (Marshall & Rossman, 2016). After obtaining Institutional Review Board (IRB) approval from Walden University, I sent research participation invitations along with consent forms via e-mail (Appendix B) for pre-interview discussions. McDonald, O'Brien, White, and Sniehotta (2015) stated practicality of obtaining consent forms before the interviews.

Successful qualitative research includes establishing a working relationship with the participant (Marshall & Rossman, 2016). According to Weller (2017), a face-to-face pre-interview will help a researcher to build a working relationship with the participants.

I requested a face-to-face pre-interview with participants to establish trust and a healthy working relationship. My interaction with the participants during the face-to-face pre-interview allowed participants to learn about the research topic, my role as a researcher, and my experience in the research topic. During the pre-interview, I discussed the consent form and answered any questions participants had. I maintained a working relationship with participants and was in constant communication during and after the research process. During the research period, I provided participants with the research updates; after the research was completed, I provided them the copy of my research findings.

## Research Method and Design

### Research Method

There are three types of research methods: qualitative, quantitative, and mixed methods (O'Brien, Harris, Beckman, Reed, & Cook, 2014). According to Keränen and Jalkala (2014)), a qualitative research method is appropriate for management related study under-researched study phenomenon. Vratskikh, Al-Lozi, and Maqableh (2016) noted that a qualitative research method is flexible since it allows a researcher to interact with the participant by posing open-ended questions. Yin (2014) noted that the qualitative approach allows a researcher to ask how and why questions in an interview in order to find the answer to the central research question.

In a quantitative method, a researcher seeks to explore the research topic by examining relationships among variables using numerical data (Hagan, 2014; Ioannidis et al., 2014). In this study, I explored the research topic by asking the open-ended questions

in an interview setting, and I did not examine a relationship between variables using numerical data. Therefore, a qualitative method is suitable for this study over quantitative method. Mixed research methodology is a combination of both qualitative and quantitative methods (Robson & McCartan, 2016). A mixed method is ideal when either qualitative approach or quantitative study alone cannot provide clarity to research phenomenon (Rittichainuwat & Rattanaphinanchai, 2015). Since a quantitative method was not suitable, the mixed research method does not make sense either for this study.

**Research Design**

The research design is a technique to inquire about the research topic of interest (Singh, 2014). In a qualitative study, a researcher has an option to choose from various research designs, and those are ethnography, narrative, phenomenological, and case study. According to Baskerville and Myers (2015), the use of ethnographic design allows researchers to focus on a cultural phenomenon. In ethnographic design, a researcher collects data within a cultural and historical setting (Vesa &Vaara, 2014) by observing culturing belief, shared ideas, and histories (Symons & Maggio, 2014). In this study, I did not interview participants in a cultural setting to explore cultural belief, shared ideas, or histories, and therefore, an ethnographic design was not suitable for my study.

In a narrative design, a researcher seeks to explore research topics in a storytelling format from the participant's point of view (Gill, 2014). In narrative design, participants narratively share life experiences, and a researcher tries to conceptualize an understanding of the problem under study (Pearson, Albon, & Hubball, 2015).). It is hard

to justify how a story can capture the particular outcome of the research (Benson, 2014) and therefore, a narrative design was not appropriate for my research.

A researcher that uses phenomenological design focuses on specific or unique lived experience from the everyday life of participants to understand the research phenomenon (VanScoy & Evenstad, 2015). In this study, I explored general occurrences to understand the strategies to reduce supply chain disruptions at seaport companies. Therefore, a phenomenological design was not suitable either for this study. The use of case study design by researchers allows for an increased level of flexibility to explore the general occurrence of a specific problem within realistic settings (Hyett, Kenn, & Dicksons-Swift, 2014). Yin (2014) stated a case study design as an empirical inquiry that investigates the research topic and gives researcher flexibility to work with small sample size. Hub,Verma, Rayala, and Bobba (2017) reached data saturation with small sample size while exploring the experiences of mobile device users. The case study was appropriate for this study because I explored the general occurrence within a real-life context with small sample size. A single case study was suitable as it provides flexibility to interview participants from a single company.

Data saturation occurs when no new information emerges during data collection process, and any additional data will be repetition and does not add value to the research. Palinkas (2014) stated that a qualitative researcher needs to emphasize data saturation for research validity (Morse & McEvoy, 2014). There is no specific number of the sample size to reach data saturation (Hennink, Kaiser, & Marconi, 2017). In this study, I allocated enough time for the interview, allowed participants to answer the interview

questions thoroughly, and make sure that I captured all the information. Moreover, I used methodological triangulation to collect data from multiple sources, which enabled me to reach data saturation. Besides interviews, I collected relevant pieces of information such as charts, sketches, and diagrams from the participants.

## Population and Sampling

Study participants should be knowledgeable on research phenomenon (Hagaman & Wutich, 2017). A qualitative researcher can choose from purposeful, convenience, and snowball sampling (Elo et al., 2014). Researchers use purposeful sampling to select participants that have in-depth knowledge of the research topic using pre-determined criteria (Robinson, 2014)). The convenience sampling involves identifying participants who are conveniently available, and in snowball sampling, a researcher gets participants from referral (Yin, 2014). I chose purposeful sampling over convenience sampling and snowball sampling because the purposeful sampling enabled me to select participants based on their knowledge and experience in the research topic. The potential participants met the following criteria to participate in the research. First, the participants are business leaders in seaport companies. Second, the participants are representative of the total population of supply chain business leaders and are known to address supply chain disruptions in seaport companies. Third, the participants were willing to provide unbiased information.

There are no strict rules that equate sample size with data saturation (Hennink, Kaiser, & Marconi, 2017)). Leedy and Ormrod (2016) n 5 to 25 participants for a qualitative case study. Roy, Zvonkovic, Goldberg, Sharp, and LaRossa (2015) noted that

3 to 5 samples are ideal for a qualitative exploratory case study. Therefore, in this study, I limited my sample size to four. The pre-interview and the interview took place at participants' office. During the pre-interview, I revised the consent form, and during the interview, I followed the same interview protocol (see Appendix A) for all participants. It is a role of a researcher to capture detailed, layered, and complex data rather than relying solely on the volume of data to ensure data saturation (Fusch & Ness, 2105). Data saturation occurs when a researcher reaches a point where no new information or themes emerge, and any additional information does not add new information to the research (Morse, & McEvoy, 2014). Leedy and Ormrod (2016) noted to limit the interview time anywhere from 60 minutes to 120 minutes for a qualitative study. Folta, Seguin, Ackerman, and Nelson's (2012) reached data saturation within 45-60 minutes in their study. In this study, I allocated 60-90 minutes for the interview and allowed participants to answer the interview questions thoroughly. I used methodological triangulation to reach data saturation by seeking information from multiple sources. In addition to interviews, I collected multiple source documents such as charts, sketches, and diagrams from the participants. Collecting data from multiple sources will assist me in reaching data saturation.

## Ethical Research

The informed consent document highlights the nature and purpose of the research, data collection, data utilization, data storage, and privacy and confidentiality (Griffith, 2014). The participant received a consent form as an e-mail attachment. There was a review of the consent form with the participants during the pre-interview. I discussed my

honesty regarding working with the participants, and my expectation for participants to provide truthful answers to interview questions. Participation in this study was voluntary. Participants could withdraw from the research any time during the study by notifying me.

There was no monetary compensation for participating in the research. There are few benefits of taking part in the research. The benefits are: (a) participants get the copy of my research findings, (b) participants can use the results of the research to strengthen their internal policy to manage supply chain disruptions, and (c) participants may feel good knowing that their contribution may add value to the literature.

Research that includes human participants requires ethical consideration (Yin, 2014). The ethical research consideration includes assuring the health and safety of participants (Bromley et al., 2015), obtaining informed consent from the participants (Griffith, 2014), and maintaining participant confidentiality (Oliver & Barr, 2014). I took two steps to assure ethical research in my study. First, I completed the National Institute of Health (NIH) course, as a guideline in protecting human participants. Second, before contacting human participants, I sought approval from the Walden University IRB. The NIH course outlines the Belmont report, which discusses ethical treatment of participants by ensuring respect, beneficence, and justice (Office for Human Research Protections, 2015). The IRB approval number for this research was 09-14-17-0568968. The Walden University IRB approval purpose is (a) to prevent psychological, physical, and economic harm to participants; (b) maintains privacy and confidentiality of participants and; (c) to develop informed consent from all participants before the interview.

Johnston, Lawton, and Pringle (2017) indicated that coding participant's name and responses to ensure privacy and anonymity. To maintain the confidentiality and privacy of the participants, I labeled each participant as P1, P2, P3, and P4. Their responses were coded and stored on my computer hard drive and a portable hard drive as a backup. Storing research data securely will safeguard the data and provide easy access to data for future audit and research. A researcher can increase efficiency and make study credible by organizing data (Lahat, Adali, & Jutten, 2015). Both my personal computer and portable hard drive will be password protected. I secured the paper documents and external electronic documents in a single key file cabinet that is only accessible by me. I will store the data securely for five years to protect the confidentiality of participants.

## Data Collection Instruments

The primary data for this study came from the semistructured interview. Yin (2014) recommended the use of primary and secondary instruments to collect data for qualitative research. I was the primary data collection instrument for this study. I conducted a semistructured interview and collected internal company documents. A qualitative researcher often uses semistructured interviews to gain insights on participant's perspectives and to build rapport (Silverman, 2017). During a semistructured interview, I asked six open-ended questions (see Appendix B) and followed up questions to find the answer to the central research question. According to Panagiotakopoulos (2014), a semistructured interview allows a researcher to ask open-ended questions in an informal setting to capture participants view on the phenomenon under study. Mertens et al. (2017) while exploring the impact of mobile applications on

elderly patients undergoing rehabilitation reached data saturation with semistructured interviews.

Researchers use methodological triangulation to enhance the reliability and validity of the research outcome by allowing researchers to explore the research topic phenomenon from several sources (Spadafino et al., 2016). I collected data from multiple sources such as internal company documents and semistructured interviews with participants. Yin (2014) recommended collecting data from multiple sources for methodological triangulation. The sources are interviews and company records. I used interviews to ask open-ended questions. The use of company records gave an overview of the company's procedure and business continuity planning. The company records are graphs, charts, and sketches relevant to the research topic provided by the participants.

I utilized the interview protocol (see Appendix A) during the semistructured face-to-face interview. The interview protocol includes interview guidelines, opening script, consent script, and ending script. The purpose of an interview protocol was to ensure consistency and validity of the open-ended semistructured interview (Sooniste, Granhag, Stromwall & Vrij, 2015). The interview protocol was the same for all participants to ensure consistency.

It is essential to make sure that the data obtained during the semistructured interview represent participants' responses. Moreover, it is equally important that after data analysis, participants clarify responses or provide additional information to support the research findings (Hagan, 2014). Researcher use member checking to enable participants to add new information and also add trustworthiness to the study by allowing

the participants to review the research findings to ensure the data interpretation and analysis are accurate (Varpio, Ajjawi, Monrouxe, O'Brien, & Rees 2017)). In this study, after data analysis, I met with participants for member checking to ensure that data interpretation from the interview and other sources was credible and reflects their views on a research topic.

## Data Collection Technique

Data collection is the process of gathering information to answer the research questions. The data collection process started with the literature review. After identifying the participants, I invited participants via e-mail to participate in the research. The interested participants met with me for pre-interview to go over the consent form and ask any question they may have about the research. The participants signed the consent form, and I set the date and time for the interview, which took place at participants' office. During the interview, I followed the interview protocol. The purpose of an interview protocol is to outline procedural guidelines to ensure the reliability of the case study and to reduce fieldwork visits (Yin, 2014). The interview protocol (see Appendix A) for this study includes opening script, consent script, note taking, observing behaviors, follow up questions, and ending script. The interview protocol was the same for all participants to ensure consistency (Sooniste, Granhag, Stromwall & Vrij, 2015). During the interview, I asked semistructured interview questions and followed up questions to find the answer to the central research question as recommended by Patton, Hong, Patel, and Kral (2017). In this study, after data analysis, I met with the participants for member checking to give

them an opportunity to review the interpretation of data and to add any new information that is valuable to the research.

Researchers use the semistructured interview to ask open-ended conversational questions to understand the phenomenon under study (Haak-Saheem & Darwish, 2014). However, Varaki, Floden, and Kalatehjafarabadi (2015) emphasized that to collect data from multiple sources known as methodological triangulation to gain a greater understanding of the research phenomenon from a different perspective. In addition to the semistructured interview, I collected data through company records provided by the participants.

All data collection techniques have advantages and disadvantages. The advantage of a semistructured interview is that researchers gain in-depth insight into the phenomenon by asking very articulated open-ended questions (Haak-Saheem, & Darwish, 2014). The disadvantages of a semistructured interview are the potential lack of discovery or unexpected outcomes (Baskarada, 2014). The semistructured interview may include probing questions (Merriam & Tisdell, 2015). Participants may find the interview probing intrusive. The advantage of company records is that it may provide key internal information that could be valuable to find the answer to the central research question. The disadvantage of company records is that some of the information is proprietary information and there may be restrictions on how I may use them.

In this study, I conducted an expert review (field test) of my interview questions (see Appendix B). O'Brien, Harris, Beckman, Reed, and Cook (2014) recommended expert review in a qualitative study. In an expert review, two or three experienced academic

scholars reviewed the interview questions to assure its effectiveness in finding answers to the central research question.

## Data Organization Technique

Researchers need to secure data for future audit and reflection (Cope, 2014). Feldman and Lowe (2015) recommended maintaining a research log, journal entries, diaries and so forth. A research diary is a reflective log that contains information related to research activities that could come handy during data analysis and interpretation. Throughout the research, I kept a diary to capture all of my research activities. According to Derobertmasure and Robertson (2014), an appropriate measure taken collect and organize data will assist researchers in data retrieval and enhance study credibility.

During literature review, I organized data in MS Excel to ensure easy access. I recorded the interview data and later, translated the audio recording into Microsoft Word using Nuance Dragon Voice recognition software. I utilized Nvivo, a data management tool as suggested by Castelberry (2014) to organize the coded themes and concept that emerged from the collected data. I concealed participants' identities for confidentiality by assigning each participant a generic code. I stored the secondary data, audio recordings, interview transcripts, informed consent forms, and organizations' documents electronically. I stored data on a password-protected desktop computer and portable hard drive as a backup for five years. I will be the only person who will have access to the stored data, and after five years, I will destroy the data.

## Data Analysis

During data analysis, I analyzed primary and secondary data to discover significant themes, patterns, and explanations related to the central research question (Yin, 2014). In this study, I adapted Yin's (2014) five stages of data analysis approach: (a) collecting data, (b) separating data into groups, (c) regrouping the data into themes, (d) interpreting the meaning of data, and (e) developing conclusions. Data triangulation is collecting data from multiple sources (Yin, 2014). I collected data from a semistructured interview and company documents from the participants. Concurrently, triangulating data from multiple sources enhanced the researcher's understanding of the phenomenon under study (Varaki, Floden, & Kalatehjafarabadi, 2015). During data analysis, I followed the following steps:

1. Listened to recorded interviews to gain familiarity with the data before transcribing.
2. Used Nuance Dragon voice recognition software to transcribe the recording into a Microsoft Word text.
3. Manual keyboard entry of data that are not recognized by the Nuance Dragon software.
4. Conducted content analysis of the transcript.
5. Broke down the interview data to units of analysis, such as words, phrases, and sentences where the sentences are too long, I broke it down to a separate chunk of data to get a feel of the data.

6. Looked for commonalities, differences, and patterns in the data. I used Nvivo 10 for Windows for this purpose.

7. Eliminated redundant codes to bring it down to a manageable number.

8. The codes were put together to create subthemes and finally a theme to draw findings.

9. Finally, compared and contrasted common themes and trends to get an insight into the central research question (Yin, 2014).

During data analysis, I put the collected data into two groups. The first group of data also includes information such as charts, graphs, and diagrams provided by participants. The second group of data includes recorded interviews with the participants. I separated the first group of data into groups and regroup them into themes manually. For the second group of data that constitutes interview recording, I used the Nvivo software to load, store, group, regroup, and code to develop themes (Kikuchi et al., 2014). Oliver and Barr (2014) recommended Nvivo to analyze data for qualitative research.

To stay focused, I used key phrases to conduct a literature review. After collecting data from multiple sources, I cross-sourced data analysis with pre-determined themes. In a multiple cross-source analysis, a researcher compares and contrast themes derived from different sources to find the answer to the central research question (Percy, Kostere, & Kostere, 2015). In addition to interviews, I collected data from company records such as charts, graphs, and diagrams provided by participants. I ranked the themes according to the frequency of appearance. The themes and its corresponding frequency of appearance

are congestions (29%), bureaucratic bottleneck (26%), corruptions (22%), equipment breakdown (10%), and Labor disputes (12%). I ensured that the findings of this study align with previous findings in the literature as well as the conceptual framework which is supply chain management theory.

## Reliability and Validity

Validity and reliability is a significant component of academic research. Therefore, Morse (2015) recommended integrating validity and reliability component in the research process. Validity and reliability add trustworthiness to the research outcomes (Prion & Adamson, 2014). Trustworthiness depends on research dependability, credibility, transferability, and confirmability (Prion & Adamson, 2014).

### Reliability

The reliability is analogous to the dependability of the study (Morse, 2015), which means if repeated, the study will produce the same results. The dependability of the study depends on the instruments used for collecting data. I was the primary data collection instrument, and I avoided any form of bias during data collection. Moreover, I ensured that my previous exposure to the research topic does not interfere with data analysis. I utilized a bracketing technique during data collection and data interpretation. Bracketing is a self-reflective process in which a researcher becomes aware of any preconceived notions that may hinder the reliability of the study (Rossetto, 2014). To maintain the consistency in my research, I followed the interview protocol (see Appendix A) which will further strengthen the reliability of the study.

**Validity**

In qualitative research, validity refers to the degree to which the study findings relate to the central research question (Leung & Tse, 2017). Study validity depends on research dependability, credibility, transferability, and confirmability (Prion & Adamson, 2014). Credibility refers to the accuracy of data collected and the accuracy of data analysis (Elo et al., 2014). I affirmed the accuracy of data through member checking. Member checking allowed me to make sure that the collected data accurately represent participant's responses (Thomas, 2017). Member checking increases the trustworthiness of data (Ozertugrul, 2015). During member checking, participants review the research findings for accuracy and consistency (Elo et al., 2014)). Joslin and Müller (2016) noted that a qualitative researcher could improve research credibility by collecting data from different sources often known as methodological triangulation. Methodological triangulation provides rich information on the phenomenon under study so that researchers have sufficient data for analysis to make research reliable (Munday, 2014). In this study, I collected data from the semistructured interview and company records.

Confirmability ensures that the research outcome reflects study intentions and not researcher biases (Percy, Kostere, & Kostere, 2015). Confirmability affirms that the research finding is genuine and does not constitute an intentional or unintentional misrepresentation of facts by the researcher. Personal bias could affect research validity (Demassis & Kotlar, 2014). During purposeful sampling, I was mindful of selecting participants to avoid personal bias. I chose participants who are known to provide answers to the central research question. During data collection and analysis, I engaged in

bracketing technique to avoid personal biases. Bracketing is the self-reflexive process in which research is aware of any preconceived notions and mindful while collecting and analyzing data (Rossetto, 2014).). I continuously audited my work during data collection and analysis to avoid any unintentional misrepresentation. According to Cope (2014), audit trial increases conformability.

Transferability means that research findings can apply to another setting or groups (Morse, 2015). Morse (2015) stated that a researcher could affirm transferability through thick descriptions or narratives. In this study, I ensured that I reached data saturation to provide rich narratives to study findings. The data saturation is a point in an interview when any additional information is redundancy (Hagaman & Wutich, 2017). The semistructured interview and probing with follow-up questions along with sufficient interview time ensured data saturation in my study. Marshall and Rossamon (2016) stated that it is up to the researcher to decide who else besides target population could benefit from the research findings. To ensure transferability, I selected participants from purposeful sampling technique, making sure that participants are knowledgeable in research topic and represent the attribute of the whole group. The nature of research design and the type of interview questions resulted in finding that is not only applicable to the target population, but also to other seaport companies that are outside Nigeria.

## Transition and Summary

Leaders of Nigerian seaport companies experienced disruptions in the supply chain in the last ten years, impacting the businesses in the maritime sector. Supply chain managers need to understand how to develop a different set of strategies to manage

supply chain disruptions in seaports. Despite the privatization and concession of Nigerian seaport companies, the supply chain disturbances are increasing and, thereby, affecting business revenue (Son &Orchard, 2013) Between 2000 and 2014, approximately 15% of seaport companies lost revenue because of supply chain disruptions (Ray &Jenamani, 2013). The purpose of this qualitative single case study was to explore strategies that some Nigerian seaport supply chain business leaders use to manage supply chain disruptions.

The research questions and conceptual framework from section 1 formed the foundation for the Section 2. Section 2 provides insight on how I approached my research. The sessions begin with the purpose statement, my role as a researcher, the qualification of my research participants, the justification for the sample size, states the target population, and my ethical approach towards the research. Furthermore, the section highlighted research method and design, instruments to collect data, data organization, and analysis approach. Finally, the section ends discussing the approach I used to ensure reliability and validity of my research.

Section 3:Application to Professional Practice and Implications for Change

## Introduction

The purpose of this qualitative single case study was to explore strategies that some Nigerian seaport business leaders used to mitigate supply chain disruptions. The four participants were representative of the total population of supply chain business leaders and had experience addressing supply chain disruptions in seaport companies. Under supply chain management theory, extensive literature reviews, data from multiple sources, and using Yin's (2014) five stages of data analysis resulted in identification of five themes. These themes are (a) corruption (b) seaport congestion, (c) bureaucratic bottleneck, (d) worker noncompliance, and (e) machinery breakdown.

The five themes represent strategies that seaports business leaders use to minimize supply chain disruptions. According to Goodwin et al. (2017), emerging themes from data analysis help a researcher to understand the phenomenon. The strategies I identified as themes include reducing corruption; minimizing congestion during vehicles berthing; reducing time-consuming bureaucratic hassles from the supply chain partner; minimizing worker compliance; and avoiding strike, maintenance and electric outage issues as well as the need to replace seaport equipment.

To add credibility to the study findings, I completed member checking with all four research participants. I was able to validate findings by doing so. Implementation of the findings of this study may result in mitigation of supply chain disruptions, leading to customers' satisfaction and business profitability. The implication for social change is

that business profitability could increase employment opportunities for members of the local community. Section 3 includes a detailed explanation of the study findings.

## Presentation of Findings

The central research question was, What strategies do Nigerian seaport supply chain leaders use to mitigate supply chain disruptions? I conducted thematic analysis using NVivo 11. I accessed the keywords search in context through queries and grouped the words to develop themes from various data sources which included interview transcripts and company documents provided to me by participants. I identified five themes by analyzing the data collected from semistructured interviews and company documents. The themes and their frequency in the semistructured interviews and company documents are presented in Table 1.

Table 1

*Frequency of Themes*

| Themes | *N* | Incidence |
|---|---|---|
| Congestions | 63 | 29% |
| Bureaucratic bottleneck | 57 | 26% |
| Corruptions | 48 | 22% |
| Equipment breakdown | 22 | 10% |
| Labor dispute | 26 | 12% |

*3*

### Theme 1: Congestion

Due to globalization and growth in trade, seaports inland access is critical to the success of businesses (Roso & Lumsden, 2010). A higher percentage of international trade takes place at seaports in Nigeria, and the Nigerian economy accounts for 70% of

seaborne trade in the West African subregion (Fivestar Logistics, 2008). Hence, there is increasing congestion at Nigerian seaports arising from the movement of ships in and out of the seaports. Gidado (2015) noted that efficiency in managing the logistics at the seaports did not improve over time leading to long turnaround time for ships and increased dwell time. Nabais, Negenborn, Benitez, and Botto (2013) noted that seaport congestion is hindering business productivity. Due to the congestion, the Nigerian seaport is one of the costliest seaports in the world (Oghojafor, Kuye, & Alaneme, 2012).

All four participants stated that port congestion is the number one cause of supply chain disruption. All four participants indicated that congestion is due to too many ships at the terminals and the vessels waiting in a queue to berth. P1 said, "It takes a long time to load and unload the vessels at Nigerian seaports due to logistical problems." The standard turnaround time to unload and reload for container ships is 48 hours, but it can take several weeks to do so in Nigeria (Oghojafor, Kuye, & Alaneme, 2012). P2 noted that there was a situation where one of the vessels got stuck in shallow water during berth because the ship crews were under pressure to berth due to time constraints. According to the company midyear management report of 2017 provided by P2, it cost the company $1 million because the vessel was damaged.

The participants noted that the congestion at the port is also due to gate congestion of land transportation. According to P2, vehicles related congestion is due to poor road conditions leading to the ports. P2 said, "Since the trucks are unable to reach the port to pick up the containers, and this leads to the storage area being overly crowded." All participants stated that poor road conditions are another significant

contributor to supply chain disruptions. P3 noted that when the gates of seaport close, it restricts the movement of trucks, congesting the whole seaport city. Analysis of the company document revealed that, at one time, about 1,000 vehicles were waiting to get to the terminal to offload the empty containers and upload the new containers at the seaport for P4's company. The containers are large standardized boxes used in maritime trade to transfer goods.

All participants noted that traffic congestion on the road leading to the seaports causes a delay for delivery trucks to reach the ports to pick up the containers. Because of the delay, the arriving ships are not able to berth in order to unload containers because storing facilities have reached their maximum capacity. P3 added that the vessels that are waiting in queue to berth are burning up fuel and causing damage to the environment. P2 stated that trucks also carry containers of goods for export. Often the ships at the terminal wait for export goods to arrive so they can leave. If the vessels at the terminal do not depart, the arriving ships are not able to berth. P4 shared that sometimes over 20 ships were waiting to berth causing severe congestion.

P3 noted that the congestion at the seaports are due to various factors that are beyond the control of his company or any other companies. P3 pointed out that each company can create its process to reduce the impact of a logistical problem at the seaports. Roso and Lumsden (2010) supported the notion that business leaders need internal strategies in place to maintain containers, customs clearance, and safety of cargo for faster delivery and to lower transport cost. For example, P3 and P4 said that their company purchased their trucks instead of relying on other trucks owned by private

companies to transport their containers from the seaport to the terminal. P4 mentioned that using the railway system which has been abandoned by the NPA to evacuate the containers is one option the company has adopted. P1 noted that shallow water makes large vessels not to berth at the terminal. P1 further acknowledged that the company has to use a ship to ship transfer which could take up to 10 days in most cases, but his company uses vessels with a shallow draft to transfer containers to the berth.

All four participants noted that they categorize their items in the containers as a dry liquid, liquid bulk, and general cargo. All participants prioritize their unloading of their items based on processing time, customs clearance, and availability of the storage at the port facilities. Moreover, the participants coordinate with NPA officials to unload and store their containers at the designated time and the day of the week. Nabais et al. (2013) suggested categorizing the cargo according to cargo type, cargo destination, and cargo due time.

P1 noted that to ease congestion, his company instead of using Lagos port complex use country's underutilized eastern seaports. P1 has added that Lagos is one of the biggest shipping hubs in Nigeria and congestion can be overwhelming. P2 noted that his company is working with their supply chain partners to berth the ship containing their cargo to other West African countries to avoid the congestion delay and the cost. P2 noted using other ports could provide 24-hour clearance compared to Nigerian ports that could take weeks.

**Theme 2: Bureaucratic Bottlenecks**

The NPA has introduced port concessions to streamline the port operation. A concession is a process where concession grantor allows private concessionaires to operate the facility or provide services at the ports (Tseng & Liao, 2015). According to Oghojafor, Kuye, and Alaneme, (2012), both the government and the concessionaires must work together to make the port operation effective and efficient. However, according to P3, it is not the case. P3 noted that the government officials and concessionaires have stiff bureaucratic bottlenecks due to complex cargo processing procedures and corruptions that are affecting the supply chain of seaport companies.

P3 company documents revealed that the cargo clearing process at the seaport. The documents listed how the company works with the freight brokers and clearing vendors to process bill of lading, invoice, packing list, certificate of origin, and Combined Certificate of value of Origin (CCVO). P3 noted that after paying all the associated fees, the document goes to Nigerian Customs Service (NCS) for review and approval. Finally, P3 concluded that once the company gets a SONCAP certificate from NCS, it can clear the goods from Nigerian port.

P1 stated that the cumbersome task is cargo examination booking with NCS officials, collecting signatures and stamps from custom officers, enforcement officers, Custom gate control, and so forth. All participants noted that the cargo clearing process also requires a signature from port police, anti-drugs unit, anti-bomb unit, National Agency for Food and Drugs Administration and Control (NAFDAC), and Standards

Organization of Nigeria (SON), and others. P3 commented that above bureaucratic paperwork hassles increase dwell time.

P3 stated that there are some measures that the company can take to reduce the dwell time. All participants stated their strategies while dealing with government officials, clearing agents, freight brokers, and concessionaires. All participants noted that bureaucratic bottlenecks from government officials are due to corruption. All participants noted that they have strict policies against paying any bribes to any seaport stakeholders. P1 and P2 noted that on many occasions, their companies had reported bribery by port officials to the appropriate authority. P1 and P2 added that such reporting adversely affected their supply chain because the corrupt officials deliberately falsified the documents, damaged the cargo, and prolonged the cargo clearing time. P4 noted that because of the complexity of the process involved and various actors' involvement in the process, it is difficult to pinpoint the perpetrators. When asked how their companies deal with corruption, all participants said they leave it up to NPA officials and appropriate government officials.

All participants stated that they hire experienced clearing agents and freight brokers and train them to utilize the company's business intelligence tools to expedite the customs process. However, P1 stated that his company faced some challenges from clearing agents and freight brokers. According to P1, those agents were part of the bribery scheme. P1 noted that his company fired those agents and brokers and started working with other agents and brokers who are ethical.

When asked to expand upon how their technological tools enable them to accelerate the customs process, P4 said, “Custom service has moved from manual processing of documents to Automated System for Customs Documentation (ASYCUDA) platform. Our company’s partners have technological tools that are compatible with ASYCUDA to track and assist our internal progress so that we can make informed decisions.”

All participants noted that despite the implementation of ASYCUDA platform, their businesses continue to experience a bureaucratic bottleneck from NCS because of self-serving operatives intercepting progress for personal gain. P1 noted that despite the implementation of ASYCUDA platform, some works in clearing process requires manual work. The deliberate delay in manual work affects the supply chain process. P2 added that some clearing documents are moved manually from one office to another, handwritten bills due to machine failure are subject to alteration, and documents are often misplaced.

All participants noted that they had developed an excellent working relationship port concessionaries and other port operators as business partners. All participants agreed that bureaucratic bottlenecks due to tedious paperwork requirement from concessionaires and port operators hinder clearing of cargo. To streamline the cargo clearing process, P1, P3, and P4 stated their companies deploy industry-specific technology-based business intelligence tools. P4 showed how the company uses electronic data interchange (EDI). EDI is inter-company data exchange between computers. The participants stated that an integrated information system allows them to link with the network shared by the port

authority, concessionaires, customs officers, and other operating agencies at the port. For example, P1 stated that an integrated information system uses bar codes, scanners, smart cards, and so forth to register entry/exit, loading, and unloading of cargo, and identify vehicles.

P3 stated that the company uses geographical information system (GIS) application to locate containers, track containers arrival and departure, and trace containers. P1 and P3 stated that through GIS application and use of integrated information system, the companies could reduce the cost and time of handling and clearing of cargo. P2, P3, and P4 noted that using industry-specific business intelligence tools has helped their company leaders to avoid some of the bureaucratic bottlenecks because it minimized human interactions with corrupt port personnel.

When asked to elaborate on challenges, P4 stated that various government regulators operate within the ports and are situated far apart from each other and sometimes it takes about 8 hours to shuttle between their locations which could delay the supply chain process. P4 and P2 noted that their companies invested in getting an office complex within the same terminals as regulators, and their staff communicate and process work through their server and utilize their mode of transportation. Both participants stated that renting offices, using a personal server, and transportation has made process seamless and has improved turnaround time making some aspect of their supply chain process efficient.

All participants noted that cargo clearance is their top priorities. P1 said that because of many human contacts, the process elongates. P1 and P3 stated that after

getting clearance from the customs officers, there are other logistical challenges such further examining of cargo, storing, sorting, labeling, and so forth. P1, P2, and P3 noted that their company utilized a newly established Kaduna dry port to avoid a logistical problem. P2 stated that after clearing the cargo, the company transport goods to the Kaduna dry port, whereas, P2 and P3 use Kaduna to clear cargos for the Northern region. All three participants noted that Kaduna is a new facility that can handle over 30, 000 containers. P2 stated that Kaduna dry port is less congested, has the latest technology, and has strict monitoring of so-called Warf Rats. However, all three participants stated that the road that connects the seaport town Lagos and Kaduna dry port is congested and are in bad conditions, so the company is using the railways to transfer cargos. The participants noted that they transport goods during non-peak hours using company trucks and railroads. P2 stated that the company partners with The Association of Nigerian Licensed Customs Agents (ANLCA) to demand the federal government to use money generated from NCS to fix the road leading to the ports.

**Theme 3: Corruption**

Various types of corruptions occur at Nigerian seaports. Corruptions at the seaports are extortions and monetary inducements for personal gain (Ojadi & Walters, 2015). Stakeholders do not view each other as a partner, but as a potential target to take advantage if the opportunity presents (Ojadi & Walters, 2015).

The activities that take place at the seaport are cargo services, vessel services, securities, and so forth (Nwanosike, 2014). Some personnel are responsible for maneuvering of ships, berthing and rebirthing of vessels, loading, and unloading of

containers, moving containers to storing facilities, and so forth (Olalere, Temitope, John & Oluwatobi, 2015). Some port personnel are responsible for equipment operation, cargo tracking, and transfer to land transport, customs clearance, security, and more (Nwanosike, 2014).

According to research participants, there are corruptions taking place at all activities at the seaports. Even the security personnel who are there to safeguard the cargo and safety are corrupt (Odukwe & Ikeh, 2017). According to P1, security personnel so-called wharf- rat is responsible for cargo theft and breaking. When asked to expand upon the type of illegal activities at the port, P2 mentioned indiscriminate litigation, illegal detention of vessels at the berths, delaying incoming vessels, deliberate paperwork error, prolonging the vessel turnaround time, and so forth. P3 stated that in one instance the perpetrators of corruptions deliberately diverse the company cargo to neighboring ports because the company refused to pay bribes. According to P3, ship diversion severely affected the company's supply chain because the company could not deliver the goods to its clients. Deliberately diverging cargo to neighboring ports is standard practices of the perpetrators at Nigerian seaports (Chikere, Ibe, Stephens, Nze, & Ukpere, 2014)

Participant1 stated that some seaport officers collect bribes from clients to approve their cargo clearances paper. According to P1 clearance of bill of lading should not take 48 hours, but the customs officers hold back the paperwork of companies that do not provide the bribe money. P1 showed me company documents that showed months on delay in clearing documents, and according to P1, the delay occurred because the company refused to pay N500, 000 in bribes to seaport officials. All participants agreed

that bribery by seaport officials are normal practices at seaports. P2 stated that there are backlogs of paperwork waiting for clearance and decision to expedite the paperwork depends on the amount of the bribes. P1 stated that to minimize corruptions, the company actively brings up the issues with NPA and seaport officers' supervisors. All participants noted that the government officials are not doing enough to minimize the corrupt practices at Nigerian seaports.

P2 stated that their company staff was making inside deals with the corrupt officials for personal gain. The company terminated such staff and had implemented a zero-tolerance policy to control internal corruption. P2 posited that the company implemented strategies that require a minimal interface with the clearing agents through automated software to minimize the manual process. P3 stated that their company pays a high salary to employees to compare to most seaport companies to avoid temptation for corruption.

All participants noted that it is impossible to address all the corruptions that take place at Nigerian seaports because of the actors involved and a propensity of crimes. However, all participants mentioned two types of corruptions that are most detrimental to their businesses which are collusion and coercion. Collusive corruption occurs when company's private agents and public officials collude to reduce the tariffs whereas; coercive corruption is about seaport officials taking bribes from companies clearing agents to process the paperwork (Sequeira, Sandra, Djankov, & Simeon, 2013).
P4 further added that to minimize collusion type of corruptions, the company partners with NPA officials, private agents, and public officials to create an audit trail to tracking

corruption in the pipeline. P2, P3, and P4 stated that their companies pay the private agents who are professionals to oversee tariff evasion. P1 said that the company works with ethical clearing agents whom the company recommends to its customers. P4 stated that coercive corruption opportunities exist when there is a frequent interaction for a long period between the companies' clearing agents and seaport officials. P4 stated that company hires contractors for short time horizon to work as clearing agents and the old contractors are replaced with new contractors periodically. P4 added that their company requires contractors to sign the anti-corruption clause. P4 stated that frequent rotation of staff would reduce the temptation of asking for bribes by seaport officers not knowing whether the clearing agents are part are company employees or government officials in disguise doing random audit.

**Theme 4: Equipment Failure**

The seaport operatives are interdependent, and equipment breakdown from one side could lead to the disruption of seaport operation (John, Paraskevadakis, Bury, Yang, & Wang, 2015). Loh and Thai (2012) stated equipment failure as one of the main reasons for supply chain disruptions. Kurapati, Lukosch, Verbraeck, and Brazier (2015) noted that equipment failures cause backlogs, queues, traffic jams, and hinder many port operations. P1 added that there was an explosion of one of the company's diesel storage tanks and that led the temporary shutdown of the terminal for 24 hours resulting in backlogs of the company cargo due to disruption in the supply chain process. P1 stated that to avoid the similar problem in the future, the company partnered with NPA to convert its overhead storage to underground storage.

P1 noted the efficiency of cargo handling equipment at the terminals result in vessels taking a long time to unload the cargo and thereby causing congestion at the port. According to Lewis, Erera, and White (2006), delay in loading and discharging the cargo containers from the vehicle due to equipment failure could negatively affect supply chain productivity. All participants agreed that concessionaires and cargo handling companies are responsible for the functioning of their equipment. The participant also stated NPA is not doing enough to hold concessionaires and other port operatives accountable for machine failure. However, all participants noted that additional cost associated with untimely loading and unloading of cargo containers is passed to the respective companies, thereby holding them accountable.

All participants stated that old machinery, cranes, and the forklifts that are breaking down is a significant problem. Kulak, Polat, Gujjula, and Günther, (2013) supported the notion that quay cranes and yard cranes failure constitute a significant concern to seaport companies. P1 stated that cranes are meant to offload 20,000 containers in 24 hours, and when there is a breakdown, the company could not meet the sales level agreement (SLA). P1 showed me the document that shows the company paying $10,000 in fine for not being able to meet SLA with the clients. After the incident, the P1company partnered with terminal operatives and invested in state of the art and modern equipment in their terminal. According to P1, “it was an overhead cost to us, but the cost-benefit analysis showed that we are better off investing in new equipment than continuingly paying fines to our clients.” P1 further noted that it was a strategic decision to build rapport with the client and minimize future fines. The P3’s company used a

different route to address the crane failure. The P3's company uses the terminal that handles automated lifting vehicles (ALV) instead of the one that uses automated guided vehicles (AGV). P3 stated contrary to AVG, ALV does not need to interact with a crane which is susceptible to failure in most instances.

P2 stated that the NPA coordinate piloting, towing, berthing, and shifting of vehicles and charge a high cost for these services. The P2's company partnered with NPA to reduce the fees if there is a delay in rendering services to the company. P2 added that the problem is not just about the fees, but the breakdown of tugboats and other equipment that lead to other supply chain disruptions. The document revealed that in one instance it cost the P2 company $100,000 because the company was unable to meet cargo clearing deadline. The P2's company negotiated with the regulators to purchase their equipment, rubber tire gantry crane, forklift, and tugboats to work strictly on their vessels and at their terminal.

P4 stated that the epileptic nature of the power supply in the country had affected the operation of the seaport company in Nigeria. According to P4 power outage has caused supply chain disruptions that affected the turnaround time of cargo clearance. P4 showed the document that lists $50,000 in damages because the work couldn't be done on time because of power interruption. P4's companies partnered with NPA to invest in the power supply of its terminals. The company invested in a gas turbine power plant that provides the terminal with power instead of depending mainly on the power supply from the government.

**Theme 5: Labor Disputes**

The participants stated that seaport companies face strikes from port employees and truckers. P1 stated that each actor in seaport operation is dependent on each other for their business, and often disputes arise because either the work is not done on time or disagreement on payment terms. P2 noted that personnel disputes could affect cargo handling or even shutting down the port. P3 posited that sometimes the protest comes from union workers when there is a threat to workers' employment, pay raise, and so forth. All participants stated that recently there was a nationwide strike by port workers at the Ports and Harbour Bill that could lead to massive job loss of port workers. The participants stated that the Maritime Workers Union of Nigeria (NWUN) and the Transport and Corporations Maritime Branch (SSACTAC) organized the protest. P1 showed me the flyers that NWUN and SSACTAC used during the strikes. P1 state that during the strike, the workers barricaded Lagos and Tin-can ports bringing full stoppage of traffic flow in and out of the ports. P4 noted that if the bills to Amend Nigerian Port Authority Act, 1955 passes, it will have negative implications to supply chain operation of maritime companies. P4 read some of the highlights in Nigerian Port Authority Act to me during our interview. P1 stated that on one occasion, there was a strike because MWUN raised the alarm about unregistered people working at the port. All participants noted that the strikes are the means for ports workers to resolve disputes.

All participants stated that the truckers' strike results in severe consequences. Kurapati, Lukosch, Verbraeck, and Brazier (2015) said that truckers are essential for hinterland transportation and a strike could result in ripple effects in the transportation

network. P2 noted that the truckers strike to improve their working conditions and pay. P1 stated that truckers strike would create chaos and confusion in the terminal because containers start to pile up in the yard building congestions and companies have to look for alternative means to transport the containers.

All participants stated their company has no means to avoid or stop the nationwide strike organized by NWUN. All participants hope that the union and the government official reach an agreement so that that duration of the strike is short. All participants stated that they minimize some strikes by port workers through social dialogue. P1 and P4 noted that ongoing social dialogues between management and workers help build sound labor-management relations. All four participants stated that they view all port stakeholders, including concessionaires, clearing agents, and freight brokers, and customs officers as strategic partners. All participants indicated that they work hard to make workers feel that they work for their companies, not the union. All participants stated they treat the port workers and truckers as employees, not contractors. All participants stated that their company has an open-door policy to hear works concerns. All participants stated that they tone down the oligarchy and provide power to bargain collectively for a pay raise and working conditions. All participants stated that their companies have a competitive pay scale to their employees and contractors.

The participants stated that their companies use company trucks and are not heavily dependent on trucking companies. P4 state that the company engages with truck drivers' association and the company created a union where the head of human resource partners with the union and a truck driver association to ensure the welfare of truck

drivers. All participants stated that their company addresses workers issues as soon as they raise them by having a dialogue with the union rep. P1 and P3 noted that their firm has negotiation managers working with HR department to deal with workers issues and strikes. Both participants stated that their negotiation managers are expert in Nigerian labor laws, trade unions, legal knowledge, and has solid negotiating and people skill.

**Alignment of Findings to the Conceptual Framework**

Supply chain management concept is a management tool that business leaders use to streamline sourcing, production, and distribution of products (Ellram & Cooper, 2014) to create ultimate value for customers (Maloni, Carter, Kaufmann, & Rogers, 2015). According to the supply chain management theory, business leaders can minimize supply chain disruption through process synchronization and resource planning (Madhani, 2016). Disruptions negatively affect supply chain system (Schmitt, Kumar, Stecke, Glover, & Ehlen, 2017). Theme 1, which is congestion causes supply chain disturbance. The business leaders can avoid congestion at the seaport through coordination, integration, and management of the process involving ships waiting in a queue to berth, land transportation, and other logistics. Participants noted the use of hinterland transportation system including trucks and rails, and ultization of internal transports within the port to move goods minimize delay and disruptions. Algan Tezel, Lauri Koskela, and Zeeshan Aziz (2018), studied of FMCG company suggested an adaptation of intermodal transport in managing a supply chain.

The resource planning requires a robust logistical system with real-time monitoring for faster response time and fleet utilization to avoid congestion (Chand &

Agarwal, 2015). Participants stated that in their companies, resource planning activities include process-oriented design, a robust logistical system for cargo management and fleet utilization and use resources such as information technology to ensure a continuous flow of cargo at seaports. All participants noted they are vigilant and aware of their supply chain activities that could result in disruptions. According to supply chain management concept, business leaders need to be aware of uncertainty and risks supply chain to mitigate disruption by being agile, flexible, and persistent (Alcantara, 2015). Diabat and Richard (2015) identified alertness, flexibility, and adaptability as strategies to manage supply chain disruptions. Sheffi (2015) noted that business leaders need to detect and respond quickly to supply chain disruptions to minimize its impact.

Theme 2 is corruption. The supply chain theory provides tools to business leaders to collaborate and build trust with stakeholders to avoid corruptions (Ortas, Moneva, & Alvarez, 2014). The participants noted that they partner with NPA officials, customs officials, and cleaning agents to ensure ethical business practices by implementing audit trails and building trust through communication and collaboration. Collaboration among supply chain partners minimizes supply chain disruption risks (Revilla, Revilla, Saenz, & Saenz, 2017) such as corruption.

Theme 3 is bureaucratic bottlenecks as another cause for the supply chain disturbance. The supply chain theory supports the notion of collaboration among all supply chain participants (Ortas, Moneva, & Alvarez, 2014). Participants stated that they work with experienced clearing agents and train them to utilize the company's business intelligence tools to expedite the customs process. Participants have developed an

excellent working relationship with clearing agents, other concessionaires, and customs officers as business partners to minimize bureaucratic bottlenecks. The bureaucratic bottlenecks are due to the tedious paperwork requirement from customs officers and other regulatory bodies to clear cargo. To streamline the cargo clearing process, participants deploy industry-specific technology-based business intelligence tools. The supply chain theory supports the notions that business leaders need to utilize resources such as business intelligence to minimize supply chain disruptions (Madhani, 2016). Cai et al. (2016) stated uses of information technology to establish collaboration and responsiveness among supply chain participants. Participants stated that building collaboration and responsiveness among supply chain participants is one of their core strategies in minimizing b bureaucratic bottlenecks in port operation.

Theme 4 is equipment failure. According to the supply chain management theory, business leaders can minimize the supply chain hindrance through inventory management, including business equipment (Esper & Russell, 2014). All participants stated that they maintain and replace obsolete cargo handling equipment to minimize supply chain hindrance.

Theme 5 is labor disputes. Ortas, Moneva, and Alvarez (2014) stated that supply chain management theory supports the notion that collaboration and trust among stakeholders can help business leaders to avoid supply chain disturbance. Participants noted that they view all port stakeholders, including other concessionaires, clearing agents, and customs officers as strategic partners. Participants posited they strengthen the trust of stakeholders through open door communication policy and stakeholders having

barging power for a pay raise and working conditions. The trust among supply chain partners will result in higher quality, speed, lower cost, and, faster service delivery (Solakivi, Toyli, &Ojala, 2015) and thereby reduce supply chain disturbances.

**Relationship of Findings to Existing Literature**

The supply chain disruption increases the cost of goods sold, minimizes the profit margin, and hinder supply chain performance, which could decrease shareholder value (Macdonald & Corsi, 2013). The study resulted in discovering strategies in minimizing congestion, corruption, bureaucratic bottlenecks, equipment failure, and labor disputes in maritime companies. All participants noted congestion as the number one reason for the supply chain disturbance. Participants mentioned that port congestion is due to logistical problems. Various authors supported the notion that logistical uncertainty could hinder normal flow of goods disturbing supply chain (Nyamah, Oppong-Sekyere, & Nyamaah, 2014; Tse, Matthews, Tan, Sato, & Pongpanich, 2016). Participants stated that poor road conditions are connecting the ports to hinterland cause seaport congestions. Martínez and Feo (2017) also identified poor road conditions near seaports cause congestions and suggested to develop intermodal connections between seaports and hinterland.

Gidado (2015) noted that inefficiency in managing seaport logistic causes longer turnaround time and dwell time for ships causing congestion at Nigerian seaports. Oghojafor, Kuye, and Alaneme, (2012) added that time to load and unload cargo could take several weeks instead of 48 hours standard time. As a result, Nigerian seaport is one of the costliest seaports in the world (Oghojafor, Kuye, & Alaneme, 2012). The participants stated that robust logistical systems and process flow help them to minimize

supply chain disturbance. Chand and Agarwal (2015) supported the notion of integrated process design and management of the logistical system to help business leaders to minimize supply chain disturbance. Hajmohammad and Vachon (2015) emphasized on oversight, coordination, and integration of process flow to minimize supply chain disturbance. Beske and Seuring (2014) noted to utilize the robust logistical system to ensure efficient distribution of products and services to the right place at the right time to minimize supply chain disturbance and to satisfy consumers.

Odukwe and Ikeh (2017) stated that there are corruptions at seaports. Wagner (2017) study of seaports of Poland stated that corruption affects seaports companies' sustainability. Nigerian maritime industry has a problem of corruption leading to operational inefficiencies (Okapta, 2017) which could lead to supply chain disruption. Deliberately diverging cargo to neighboring ports is standard practices of the perpetrators at Nigerian seaports (Chikere, Ibe, Stephens, Nze, & Ukpere, 2014). All participants stated that their company pays a high salary to employees to compare to most seaport companies to avoid temptation for corruption. Van Rijckeghem and Weder (2001) supported the fact that high wages reduce corruption. The participants mentioned collaboration with NPA officials and customs officials at Nigerian seaports to reduce corruption. Business leaders need to collaborate with partners in supply chain network partners to build trust and to reduce the inherent risk (Tolmay & Badebhorst, 2015), such as corruptions. Yu, Xiong, and Cao (2015) mentioned that the collaborative relationship would reduce supply chain risk and disruptions.

All participants noted that bureaucratic bottlenecks result in supply chain disturbances. Kulak et al. (2013) stated that the government, concessionaires, and seaport companies must work together to reduce bureaucratic bottlenecks for efficient and effective port operation. All participants stated using information technology to reduce bureaucratic bottlenecks that could lead to supply chain disturbances. Gong, Tan, Pawar, and Tseng (2015) and Konig and Spinler (2016) claimed that information technology could help reduce supply chain disruptions. In a supply chain, excellent information and information flow reduces bottlenecks and improve efficiency (Riley, Klein, Miller, & Sridharan, 2016). Sound information technology will ensure continuous flow information regarding the cargo status at various points in distribution channel so that a responsible party can make a proper plan to manage maritime logistics (Chand & Agarwal, 2015) Lin and Wu (2015) mentioned that information technology helps build relationship among supply chain partners. Healthy relationships result in information sharing of activities between supply chain partners, which could improve organizational sustainability and profitability (Demirbas, Flint, & Bennett, 2014).

Participants noted that equipment failure results in supply chain disruptions. Loh and Thai (2012) stated equipment failure as one of the main reasons for supply chain disruptions. Buhari, Okeke, and Samuel (2017) supported the notion that obsolete and non-working port equipment is a major problem in Nigerian seaport. Few other studies stated equipment failure disrupts seaport operation (John, Paraskevadakis, Bury, Yang, & Wang, 2015; Kurapati, Lukosch, Verbraeck, and Brazier, 2015; Lewis, Erera, & White, 2006). All participants stated that they maintain and replace their obsolete equipment for

efficient port operation. Kulak, Polat, Gujjula, and Günther, (2013) supported maintaining quay cranes and yard cranes to avoid supply chain hindrance. Participants added that they replace old equipment with technologically advanced equipment to become more efficient. Bokhonko (2017) and Maiga (2017) noted that business leaders should integrate technology to improve efficiency and performance.

According to participants, labor dissatisfaction causes supply chain disturbances. Nwobia and Alojohani (2017) stated that many factors contribute to labor dissatisfaction at work. Labor dissatisfaction could lead to strikes. Kurapati, Lukosch, Verbraeck, and Brazier (2015) said that truckers are essential for hinterland transportation and a strike could result in ripple effects in the transportation network and supply chain. All participants noted that they have a good working relationship with supply chain partners. The participants noted that a good working relationship is due to work collaboration and trust among supply chain participants. Ortas, Moneva, and Alvarez (2014) supported the notion of work collaboration for supply chain efficiency. Similarly, Zhu, Krikke, Caniels, and Wang (2017) stated that business leaders need to establish a collaboration with suppliers and customers including employees to minimize supply chain disruptions. Collaboration with employees and other supply chain partners may deter labor dispute and strikes (Konig & Spinler, 2016). Labor disputes and strikes are a business risk (Swanson, Jin, Fawcett, Fawcett, 2017).

Tseng and Liao (2015) mentioned implementing supply change strategy within its value chain while considering the need for all supply chain participants. Few authors in the literature emphasized on establishing a healthy relationship with supply chain

partners to build trust and improve supply chain performance (Sainathuni, Parikh, Zhang, Kong, 2014; Solakivi, Töyli, &Ojala, 2015; Tolmay & Badebhorst, 2015; Yurov & Botella, 2014).

## Application to Professional Practice

Maritime transportation carries approximately 90% of global trade by volume worldwide (Ergin, Eker, & Alkan, 2015). Seaports play an important role in import and export of goods since ports are part of the transportation network connecting to the Foreland (Gidado, 2015). The products travel to and from the seaport through trucks and rails. When there is a disruption at the port, it will affect the supply chain because it will hinder the movement of goods through the distribution channels (Olalere, Temitope, John, & Oluwatobi, 2015). The supply chain disruption will result in extra cost, loss of trade, upset customers, and ultimately the business profitability of seaport companies (Gidado, 2015). In some African ports, cargo remains unprocessed due to poor operational practices (Gidado, 2015) and stays for a long time before moving to inland due to supply chain disruptions.

Seaports play a significant role in Nigeria's economy as they contribute to infrastructure building and promoting industrial activities (Dutra, Ripoll-Feliuml, Ensslin, & Goncalves, 2015). Supply chain management is a crucial strategy in today's globalization (Blome, Schoenherr, & Kaesser, 2013). However, according to Olapoju and Aloba (2016), seaport management is failing to give attention to cargo handling equipment, congestion, and bureaucratic bottlenecks that are hindering port efficiencies. The supply chain disruption at seaport is causing inefficiency in high dwell time spiraling

cost of shipping upwards (Collier, Soludo, and Pattillo, 2008). The study resulted in discovering strategies that seaport business leaders can use in their business practices to reduce the causes of supply chain disruptions such as congestions, corruptions, bureaucratic bottlenecks, equipment failure, and labor dispute.

The participants identified congestion as the first most disruption cause in the seaport. The congestion at ports exists due to slow turnaround time ships and poor road conditions seaport to hinterland (Oghojafor, Kuye, & Alaneme, 2012). According to Rajamanickam and Ramadurai (2015), congestion at port reduces overall freight productivity. The study findings resulted in identifying a few key strategies to manage seaport logistics and such strategies if implemented correctly could help seaport companies to reduce congestions at both sea and land that could hinder companies' profitability.

Lack of security personnel, broken process, and poor management, and unscrupulous contractors and labors are the reasons for theft and corruption at the seaport (Oghojafor, Kuye, & Alaneme, 2012). Ionescu (2014) stated that corruption affects private investment, human capital accumulation, national treasury, capital accumulation, and so forth. Customs clearance at the seaports is cumbersome due to the bureaucratic bottleneck (Oghojafor, Kuye, & Alaneme, 2012). Collier, Soludo, and Pattillo (2008) study resulted in discovering bureaucratic bottleneck and corruption as the most significant problems in port supply chain besides congestion which is degrading port efficiencies. Nigerian seaports have complex bureaucratic control of government officials, which is compromising efficiencies and productivity of seaport companies

(Oghojafor, Kuye, & Alaneme, 2012). As a result, Nigerian seaport is one of the costliest seaports in the world (Oghojafor, Kuye, & Alaneme, 2012). The study findings provided few key strategies that some successful seaport companies, business leader use to tackle corruptions and bureaucratic bottlenecks at Nigerian seaports.

The cargo handling equipment of concessionaires is old and obsolete in Nigerian seaports, causing longer dwell time and delay in cargo handling (Oghojafor, Kuye, & Alaneme, 2012). The dwell time reflects the clearing of cargo after arriving in port premises. The lack investment in cargo handling equipment is resulting in port inefficiencies hindering seaport companies' productivity (Olapoju & Aloba, 2016). Loh and Thai (2012) stated that equipment failure causes supply chain disruptions. According to Kurapati, Lukosch, Verbraeck, and Brazier (2015), equipment failures lead to backlogs, long queues, massive traffic jams, and hinder many other port operations. The study findings resulted in identifying strategies on how to manage seaport equipment, cost implications, and few benefits of maintaining and replacing them.

Halim, Kwakkel, and Tavasszy (2016) stated labor dispute could bring disruptive changes in seaports. Kurapati et al. (2015) noted that labor dispute or strikes could result in ripple effects in supply chain transportation network which could reduce port efficiencies. Long Beach Port strike in 2014 resulted in US$ 308 million in wages and penalties, and 2014,Hong Kong dockworkers strike threat led Hong Kong ports to slip down in ranking among world's busiest container ports (Cowmana, Zellhoeferb, & Dragnichc, 2015). In this study, I identified a few strategies such as maintaining a social dialogue and collaborate relationship as tools to minimize labor disputes and strikes.

Supply chain management strategy if done correctly can provide considerable benefits to companies of all sizes (Simamora, Aiman, and Subiyanto, 2016). The supply chain strategy is to create value for its stakeholders (Madhani, 2016). The study resulted in identifying strategies to minimize the causes of supply chain disruptions. For example, Nigerian ports could utilize proper programming of the ship's arrival, anchorage, and departure to avoid the long queue of vessels in the harbor and quick turnaround of ship berthing (Gidado, 2015). The seaport business leaders can utilize technological tools to minimize fraud and corruptions among custom officers and clearing agents and to deal with bureaucratic bottlenecks in cargo clearing. Moreover, seaport business leaders should invest in cargo handling equipment to improve berth and other port logistics (Gidado, 2015). Cowmana, Zellhoeferb, and Dragnichc (2015) noted that social dialogue or healthy relation among seaport stakeholders including employees, employers, and contractors is vital to remain competitive and productive.

## Implications for Social Change

In general, reduction in supply chain disruption could increase profitability. Business profitability could lead to business growth, which means employment opportunities to people in port cities. According to Stubbs (2017), organizations are more likely to contribute to the community when profitable. The study findings resulted in five themes: congestions, corruptions, bureaucratic bottlenecks, equipment failure, and labor dispute. Each of these themes has some implication for social change. For instance, addressing congestion at the port reduces the ship berth time and in and out of trucks from the port. Unproductive waiting time to berth the ships and the long queue of trucks

at the port leads to more fuel consumptions and air pollution in seaport cities which can be detrimental to human health. The study findings will assist seaport business leaders to minimize congestion at the port.

The corruption by customs officers at the port could result in lower tax revenue for local government. The government can use tax revenue for skill development, social protection, and other wellbeing of citizens. The identified strategies could avoid bribery which means tax revenue for government cause all transactions will be on the record. The bureaucratic bottlenecks will make it difficult to get things done quicker which results in high payroll cost, frustration, unequal treatment of people, and lowers employee empowerment leading to corruption. The study findings support the notion that integrity and a good name worth more than ill-gotten wealth and such message among its stakeholders can help build a decent society.

Poor equipment maintenance and obsolete equipment can raise safety issues. The strategies identified in this study finding include proper management of port equipment making it safe for people. The most important finding of this study in terms social implication perspective is reducing labor disputes. Minimizing labor dispute requires decent work practices, creating jobs, guaranteeing worker' rights, and pay raise which benefits employee at large.

The seaport companies can reduce supply chain disruptions by managing congestions, corruptions, bureaucratic bottlenecks, equipment failure, and labor dispute. The reduction in supply chain disruptions many lead to business profitability which could increase employment opportunities. Increase in employment opportunities may decrease

the poverty level in the community (Jamali, Lund-Thomsen, & Jepson, 2017) leading to better standard of living.

## Recommendation for Action

Several themes emerged in this study findings to mitigate supply chain disruptions. The study resulted in finding congestion as the most critical factor that causes supply chain disruption. Addressing all congestion at the seaport considering the complexity of seaport logistic is difficult; however, business leaders can deploy some internal policies and activities as highlighted in this study to minimize the intensity of supply chain disruptions. Corruptions and bureaucratic bottlenecks are second and third influential factors in supply chain disruptions. I recommend civil society, financial institutions, NPA, and Nigerian government engage in activities to stimulate awareness, mitigate, and prevent both the corruptions and bureaucratic bottlenecks that exist at Nigerian seaports.

The study findings revealed that equipment fails and labor dispute causes supply chain disturbance. Seaport companies have leniency and better control in managing port equipment. My recommendation to seaport companies' business leaders is to conduct cost-benefit analysis while replacing port equipment and a decision should not focus on the immediate cost associated with such replacement, but the long-term implications of creating value and benefits to the companies. Labor dispute can be from internal employees and external stakeholders. Internal employee dispute is manageable through social dialogue. Maritime Workers Union of Nigeria (NWUN) and the Transport and Corporations Maritime Branch (SSACTAC) play an important role in an overall labor

dispute. So, the seaport companies' business leaders little control on preventing strikes, but seaport businesses can collectively collaborate with NWUN and SSACTAC to minimize the frequency of strikes.

The dissemination of study findings to proper audience is an important aspect of a study and the responsibility of a researcher (Barton, Tam, Abbott, Hall, & Liaw, 2017). I will decimate the study findings through publication scholar journals, seminars, conferences, and business forums. I will offer classes on the topic related to my research through Nigerian Seminar and Training online platform.

## Recommendation for Further Research

The study resulted in some valuable findings to address supply chain disruptions. However, there exists an opportunity to do further research on the topic to fill some of the gaps in the literature. The limitation of this study was sample size. According to Brutus, Aguinis, and Wassmer (2013), a limitation could affect the study results. A larger sample size using multiple case study or phenomenological design could provide more insight to research topic. Second, I selected the participants using purposeful sampling. I excluded supply chain stakeholders from other parts of supply chain network such as NPA, custom officers, clearing agents, suppliers, and so forth. Interviewing all players in supply chain network besides seaport companies' business leaders could capture a wider range of knowledge and experiences. Third, the research finding resulted in fives causes that contributes to supply chain disruptions. The recommendations for future qualitative research includes conducting separate study in each of the themes identified to understand in depth about the phenomenon. I limited my study to Nigerian seaports. The

supply chain disruption in the maritime industry is a global phenomenon. My fourth recommendation is to conduct future research on how seaport business leaders in various countries address supply chain disruptions and such information could provide more insight on the nature of the problem and help fill some gap in the literature.

## Reflections

The doctoral study journey has been overwhelming and rewarding to me. I started the journey to explore strategies on how maritime industry business leaders could reduce supply chain disruptions. During the study, I was aware of the fact that my experience in the maritime industry could lead to personal biases during data collection and interpretation. I bracketed my own biases by mitigating personal presuppositions and viewed my study through the lens of my research participants. Henriques (2014) stated that researchers need to be aware of individual bias by ignoring the perceived notion of the research problem.

The participants openly and honestly shared their perspective on the research topic. After listening to participants and doing an extensive review of the literature, I realized that I lacked diverse perspective on the components that affect supply chain disruptions. The findings of this study opened my horizon and provided me more prominent and better perspective on my research inquiry. Moreover, the study helped me with scholarly writing, enabled me to view business issues with objectivity, made me a better listener and an observer, and taught me the value of hard work and perseverance.

When I started my doctoral study, I thought earning a terminal degree would be easy, but I found it challenging. However, the knowledge I gained and the rewarding

experience I acquired at the end worth all the challenges. My doctorate from Walden University will prepare me to be a lifelong learner and knowledge I acquired will help me to bring social change. During my doctoral journey, Walden staff were resourceful, faculties were encouraging, participants were insightful, and most importantly, my families believed in me and supported me till the end. For that, I am thankful to all.

## Conclusion

The supply chain disruption has a significant impact on organizational profitability (Son & Orchard, 2013). Approximately 15% of seaport companies lost revenue because of supply chain disruptions between 2000 and 2014 (Ray & Jenamani, 2013). According to Somuyiwa and Ogundele (2015), the business problem with supply chain disruptions in the Nigerian seaports is not going away soon. Therefore, Nigerian seaport business leaders need strategies to mitigate supply chain disruptions.

In this qualitative single case study, I explore strategies that some Nigerian seaport business leaders use to mitigate supply chain disruptions. The target population consists of four supply chain managers from a single Nigerian seaport company that demonstrated and adopted successful strategies to reduce supply chain disruptions. The study resulted in discovering five significant factors that affect the supply chain at Nigerian seaports, which are congestions, corruptions, bureaucratic bottlenecks, equipment failure, and labor dispute. The congestion at ports exists due to slow turnaround time ships and poor road conditions seaport to hinterland (Oghojafor, Kuye, & Alaneme, 2012). The corruptions are a result of bureaucratic bottlenecks at Nigerian seaports. The equipment failures are due to lack of proper care and replacement of

obsolete equipment. Finally, the labor dispute is due to managers' inability to establish a social dialogue and collaborate relationship with stakeholders.

The study findings provided few key strategies that some successful seaport companies, business leader use to tackle congestions, corruptions, bureaucratic bottlenecks, equipment failures, and employee disputes at Nigerian seaports. In summary, business leaders need to mitigate supply chain disruptions to increase profitability. Business profitability may result in business growth leading to social implication regarding employment opportunities to people in port cities.

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# Appendix A: Interview Protocol

Potential participants will receive a copy of the informed consent. Participants will be given at least 48 hours to review and respond to the informed consent form. The participant decision to participate in the study will be sent via e-mail. The following steps are the procedural protocols for the interview:

1. Send all participants an invitation letter with specific calendar days and times to confirm the face-to-face interview.
2. Before starting the interview, seek permission from participants to begin the audio recording.
3. If the participant agrees to the audio recording, start recording.
4. Welcome each participant with the following: "Hello, My name is Henry Oguche and I am a doctoral student at Walden University. Thank you so much for volunteering to participate in my study. The total time for this interview should be about 30-60 minutes."
5. Assure all participants that responses will be confidential and privacy of the participants will be protected and the published doctoral study will not include any information about the participant in order to protect your identity.
6. Ensure an e-mail copy of the written informed consent form was received.
7. Explain the study's purpose and interview procedure.
8. Explain the format for the interview questions.
9. Discuss a statement of consent and option to withdraw from the interview process.

10. Begin asking the interview questions.
11. Advise participants that they will receive a copy of the transcribed interpretation of the audio recording.

# Appendix B: Interview Questions

1. What are the supply chain disruptions in your organization?
2. What strategies do you use to mitigate supply chain disruption in your company?
3. What are the challenges, if any, that you encountered while implementing the strategies for mitigating supply chain disruptions in your organization?
4. How did you overcome such challenges?
5. How do you determine that your organization is successful in managing supply chain disruptions?
6. What more can you add to the study that I have not covered?

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