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Mitigating Petroleum Product Shortages in the Nigerian Downstream Petroleum Supply Industry

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
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Abstract

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by

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MEPE, Delta State University, 2009

MBA, Lagos State University, 2003

BS, Obafemi Awolowo University, 1998

Doctoral Study Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Business Administration

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Abstract

In Nigeria, almost every business enterprise relies on petroleum products for power or transportation. Shortages of petroleum products cripple business activities and undermine development of the Nigerian economy. The purpose of this multiple case study was to explore supply chain management strategies needed by petroleum business leaders to mitigate shortages and sustain business development in Nigeria. The sample for the study included 10 senior leaders from 2 private-sector Nigerian downstream petroleum supply companies located in the Niger Delta region, who had successfully implemented strategies for petroleum supply. The resource based view theory served as the conceptual framework for the study. Data collection included semistructured face-to-face interviews and review of operational and policy documents from the supply companies. Data were transcribed, analyzed, and validated through member checking and triangulation, resulting in the identification of 6 themes: appropriate allocation of resources to all segments of the supply value chain for efficiency, efficient banking and foreign exchange operations, engaging appropriate human capital for operational efficiency, technology application in both operational and nonoperational segments, maintaining good organization reputation in the industry, and investment in Nigerian crude oil refining and infrastructures. Findings may be used by petroleum business leaders and investors to create effective and efficient supply chain management, leading to product availability, employment opportunities, poverty reduction, and economic development.

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Dedication

I dedicate this doctorate to my lord and savior, Jesus Christ. I achieved this success not by my might, power, but by his grace. The strength, finance, and time involvement miraculously came from the almighty God. I want to especially thank my beautiful wife, Mary, for acting as a pillar of support during my Walden journey. To my daughters, Romunu, Angel, Anthonette, Annabel, and Isabella, I appreciate you. Daddy took part of your play time for study. One day, you will grow to earn your doctorates.

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Section 1: Foundation of the Study

Refined petroleum product is the lifeblood of the Nigerian economy (Abutu, 2014; Ambituuni, Amezaga, & Emeseh, 2014). Almost every Nigerian enterprise depends on petroleum products for both transportation and an alternative supply of power (Aziz & Bakar, 2013; Chigbu, Ubah, & Chigbu, 2016; Gonzalez, 2016). A feature of the Nigerian downstream petroleum supply industry (NDPSI) is continual petroleum product shortages, which cripple business activities, leading to loss of revenue and underdevelopment of the economy (Adelabu, 2012; Chigbu et al., 2016; Osuala, 2013). Findings from the current study may address a gap in business practices regarding strategies business leaders need for adequate supply of refined petroleum products to sustain business development in Nigeria.

Background of the Problem

The Nigerian economy thrives on the oil and gas industry (Abutu, 2014; Okwanya, Moses, & Pristine, 2015). Since the 1980s, the Nigerian business environment has experienced inefficiencies in the downstream petroleum subsector that have crippled business development and the country's economy (Aminu & Olawore, 2014; Osuala, 2013). Adelabu (2012), Chigbu et al. (2016), and Osuala (2013) stated that supply inefficiencies occurring at the petroleum downstream subsector include (a) shortage, (b) scarcity, (c) hiked pricing and adulteration, (d) product diversion, (e) hoarding at retail outlets, (f) pipeline vandalism, and (g) cross-border smuggling to neighboring countries. The economic results of the petroleum downstream inefficiencies include unemployment and poverty for the Nigerian populace (Adelabu, 2012; Osuala, 2013).

Economic consultants to the Nigerian petroleum subsector noted that the continuous shortage of refined products has contributed to the underdevelopment of the nation's business economy (Akinwotu, 2014; Osuala, 2013). The partial deregulation of the Nigerian petroleum downstream subsectors in the year 2003 was intended to eradicate inefficiency and create a sustainable petroleum supply framework for enhanced business development and economic growth (Adelabu, 2012; Akinwotu, 2014; Osuala, 2013). Further deregulation of the subsector took place in 2016 (Chigbu et al., 2016). The Nigerian National Petroleum Corporation (NNPC) regulates petroleum supply activities in the Nigerian downstream subsector (Osuala, 2013). However, the regulatory activities of the NNPC have not created an efficient and effective petroleum supply framework for the Nigerian nation (Adelabu, 2012; Ambituuni et al., 2014; Osuala, 2013). Shortages in refined petroleum product supply exist in Nigeria, crippling business activities (Abutu, 2014; Aminu & Olawore, 2014). Findings from the current study may provide Nigerian organizational leaders with sustainable supply chain management (SCM) strategies for increased business development, employment opportunities, and enhanced economic growth.

Problem Statement

Nigeria is an oil-producing nation with persistent shortages of refined petroleum product supply to power the local business economy (Aminu & Olawore, 2014; Osuala, 2013). Nigerian local refineries produce 18 million liters of refined petroleum products per day while the daily national demand is approximately 30 million liters, and the annual economic cost lost to import subsidies is $4.4 billion (Adelabu, 2012; Chigbu et al., 2016;

Glyba, Mulugetta, & Azapagic, 2013). The general business problem was that petroleum supply shortages are negatively affecting economic and business sustainability in Nigeria. The specific business problem was that some petroleum leaders lack supply chain management strategies to sustain Nigerian business development.

Purpose Statement

The purpose of this qualitative multiple case study was to explore supply chain management strategies needed by petroleum business leaders to sustain business development in Nigeria. The targeted population consisted of petroleum business leaders of private oil marketing companies in the NDPSI. The study was conducted in the Niger Delta region of Nigeria. The implications for positive social change include the potential for business leaders to develop sustainable strategies to increase petroleum product supply, create employment opportunities, and enhance the country's economy.

Nature of the Study

The method for this study was qualitative. The purpose of qualitative research is to explore human experience and meaning of a phenomenon (Harrison, 2013). Because I focused on human experiences of participants to obtain textual data, the qualitative method was appropriate for this study. The quantitative method includes hypotheses and statistical manipulations to present results (Scrutton & Beames, 2015). Because I did not test a hypothesis in this study, the quantitative method was not appropriate. Mixed-methods researchers use a combination of methods to develop rich insights into situations that cannot be fully understood using a quantitative or qualitative method solely (Venkatesh, Brown, & Bala, 2013). The study purpose did not require a combination of

participants' experiences and empirical data; therefore, the mixed-methods approach was not appropriate.

A multiple case study design was appropriate for this study. Yin (2014) asserted that researchers use a case study design to explore multifaceted perspectives of a contemporary activity, using numerous data sources in a real-world context. Because I incorporated multiple sources of data, the case study design was appropriate. The phenomenological design is an approach used by researchers to understanding the lived experiences of the participants (Moustakas, 1994). Exploring the lived experiences of individuals was not my intention for this study; therefore, the phenomenological design was not applicable. Researchers use the ethnographic design to study cultural settings by immersion to understand the formation, patterns, and operations of human groups (Ravasi & Canato, 2013). Because I did not immerse myself in the participants' culture, the ethnographic design was not appropriate.

Research Question

The central research question that drove this study was the following: What petroleum supply chain management strategies are needed by petroleum business leaders to sustain business development in Nigeria?

Interview Questions

1. How do you, as a petroleum business leader, combine resources to achieve efficient petroleum supply chain management strategies in Nigeria?
2. What financial resources do you use to enhance refined petroleum supply chain management strategies?

3. How do you use human resources for development of petroleum supply chain management strategies?
4. How do you use natural resources to improve petroleum supply chain management strategies for enhanced business development?
5. What are your specific strategies to enhance petroleum supply sustainability in Nigeria?
6. How do you use private sector participation in petroleum supply chain management to enhance sustainable refined petroleum products' availability?
7. How do you use technological resources to improve petroleum supply chain management strategies for sustainable business development?
8. What resource and capability management strategies do you use to create an effective and efficient supply chain management system?
9. How can your organizational reputation enhance petroleum supply chain management strategies toward sustainable business development?
10. How do you improve organizational resource knowledge of supply chain management to mitigate shortages and enhance business development?
11. How do you improve petroleum supply chain management in your industry?
12. What other information would you like to share regarding supply chain management strategies to sustain business development in Nigeria?

Conceptual Framework

The conceptual framework for this study was the resource based view theory (RBV). In 1991, Barney (1991) developed RBV to describe the relationship between a

firm's resources and sustained competitive advantage. RBV holds that leaders achieve sustainable organizational competitive advantage by possessing resources (financial, human, physical, technological, organizational, and reputational) and the capability to combine two or more of these resources (Barney, 1991, 2012; Zimmermann & Foerstl, 2014). Barney (1991) postulated that to achieve sustainable competitive advantage, leaders of a firm must acquire resources (a) for creating effective and efficient strategies, (b) uncommon in the industry, (c) that are imperfectly imitable, and (d) nonsubstitutable in the industry. Leaders can apply RBV to optimize resources to create value, leading to organizational effectiveness and efficiency (Barney, 1991; Crook & Esper, 2014; Zimmermann & Foerstl, 2014). Creating competitive advantage automatically generates value for a firm (Barney, 2012).

Business leaders apply RBV for SCM processes to create value through resource harnessing and capability management (Varsei, Soosay, Fahimnia, & Sarkis, 2014). Furthermore, organizational leaders apply RBV principles to manage supply chain structures to improve supply performance (Varsei et al., 2014; Zimmermann & Foerstl, 2014). A key challenge facing business leaders in the NDPSI is resource and capability management in the supply chain (Adelabu, 2012; Olukoju, 2014). Harnessing all available resources including human capital, finance, and machinery will lead to the success of the NDPSI (Doki, 2012).

Resource and capability management in the areas of finance, human capital, and technology affect the NDPSI (Adelabu, 2012; Aminu & Olawore, 2014). In the NDPSI, inefficiencies in resource allocation result in (a) low refining output, (b) moribund

refineries, (c) inadequate storage and pipeline infrastructures, (d) poor petroleum transport channels, (e) personnel shortages, (f) subsidy cost loss, and (f) irregular retail outlet activities (Adelabu, 2012; Aminu & Olawore, 2014; Odeh, 2011; Osuala, 2013). Resource and management inefficiencies contribute to refined product shortages, which negatively affect transportation and power, crippling business activities in Nigeria (Adelabu, 2012; Aminu & Olawore, 2014; Osuala, 2013). Organizational leaders achieve positive results by applying RBV to create efficiency and attain a comparative advantage (Barney, 2012). Because Nigeria's economic development revolves around resource management from the oil and gas industry, business leaders applying RBV may mitigate inefficiencies in the NDPSI (Chigbu et al., 2016; Osuala, 2013). Business leaders may solve the problem of petroleum supply shortages through the application of optimal resources and capabilities management to all supply chain segments of the NDPSI.

Operational Definitions

Downstream sector: The downstream sector is the economic subsector involved with refining, marketing, and distribution of petroleum products outside drilling operations (NNPC, 2016; Odeh, 2011). For the purpose of this study, the terms *downstream sector* and *midstream sector* were interchangeable.

Interdiction: Interdiction refers to the breakage of petroleum pipelines by humans to satisfy personal gains other than by natural causes, thereby causing shortages in supply of products (Anifowose, Chapman, Lawler, & Horst, 2014).

Local content: Local content in the Nigerian context is the institutional reforms by foreign multinational companies to give preference to development and use of local

suppliers and labor when sourcing technical and human resources for petroleum production (Nqoasong, 2014).

Midstream sector: The midstream sector is the economic subsector involved with refining crude oil and storage of refined petroleum products (Aminu & Olawore, 2014). For the purpose of this study, the terms *midstream sector* and the *downstream sector* were interchangeable.

Nigerian petroleum industry: The Nigerian petroleum industry is concerned with exploitation, extraction, and processing of crude oil into refined products for consumption (NNPC, 2016; Osuala, 2013). For the purpose of this study, the terms *Nigerian petroleum industry* and *Nigerian oil and gas industry* were interchangeable.

Nigerian oil and gas industry: The Nigerian oil and gas industry is associated with exploitation, extraction, and processing of crude oil into refined products for consumption (NNPC, 2016; Osuala, 2013). For the purpose of this study, the terms *Nigerian oil and gas industry* and *Nigerian petroleum industry* were interchangeable.

Petroleum business leaders: Petroleum business leaders are senior personnel in the NDPSI concerned with strategy, vision, policy formulation, and implementation (Dignam et al., 2012; Monday, 2015; Oladepo, 2014). For the purpose of this study, petroleum business leaders consisted of chief executive officers, executive directors, and senior managers in the marketing, sales, logistics, and tank farm divisions of a Nigerian downstream private petroleum company.

Petrol states: Petrol states are oil-exporting countries that derive most of their revenue from oil sales (Colqan, 2014).

Refined petroleum products: Refined petroleum products are products obtained by processing crude oil into simpler products such as premium motor spirit (PMS), automotive gasoline oil, dual purpose kerosene, gas, lubricants, and waxes (Aminu & Olawore, 2014; NNPC, 2016).

Sharp practices: Sharp practices are engagement activities by retail outlet workers to make abnormal profits to the detriment of consumers, such as under-measuring of products, collecting extra money before sales, and pumping air into vehicles instead of fuel products (Odeh, 2011).

Assumptions, Limitations, and Delimitations

Assumptions

Assumptions are statements considered true without verification in the course of a study (Lips-Wiersma & Mills, 2014). The first assumption for this study was that the participants expressed their experiences regarding the researched phenomenon. Second, I assumed that participants' responses were candid and honest. I assured participants' confidentiality, voluntary participation, and right to withdraw.

Limitations

Yin (2014) defined limitations as potential weaknesses in a study. Because the sample size was small, the study results may not be generalized to a broader population. Limiting the focus to executive and senior leadership perspectives also limited the generalizability of findings. Finally, the use of a case study design may have limited insights that could have been obtained through other qualitative designs.

Delimitations

Delimitations refer to the boundaries and scope of a study (Barros-Bailey & Saunders, 2012). The population purposefully selected for this study was limited to petroleum business leaders of the NDPSI located in the Niger Delta region of Nigeria. Furthermore, data collection was limited to semistructured interviews and archival documents.

Significance of the Study

Contribution to Business Practice

Petroleum products drive the Nigerian economy (Onojake, Atako, & Osuji, 2013). Shortages of refined petroleum products exist in the Nigerian downstream petroleum industry (Adelabu 2012; Chigbu et al., 2016). Glyba et al. (2013) stated that the continual shortage or scarcity of refined petroleum products after the deregulation of the Nigerian downstream petroleum subsector in 2003 created the need for an improved SCM system. Petroleum scarcity cripples both large and small-scale enterprises and contributes to the under development of the Nigerian business economy (Adelabu, 2012; Aminu & Olawore, 2014).

In Nigeria, almost every business enterprise relies on petroleum for power or transportation (Aminu & Olawore, 2014; Okwanya et al., 2015). Findings from the current study may address the problem of continual petroleum product shortages in Nigeria and may reveal strategies for sustainable product supply. Akinwotu (2014) and Aminu and Olawore (2014) emphasized that a sustainable supply of refined petroleum products will enhance economic development and growth of businesses in all sectors of

the Nigerian economy, especially among small and medium-size enterprises, self-employed individuals, and cottage industries.

Implications for Social Change

The Nigerian oil and gas industry is the lifeblood of the Nigerian economy (Ambituuni et al., 2014; Aminu & Olawore, 2014; Chigbu et al., 2016). A well-developed downstream petroleum supply system will have a multiplier effect on almost all forms of business sustenance, including power generation, health, transportation, agriculture, cottage industry, small and medium-size enterprises, banking, schools, and manufacturing industries (Adelabu, 2012; Okwanya et al., 2015). Every business enterprise in Nigeria relies on refined petroleum product for either power or transportation (Abutu 2014; Adelabu, 2012; Glyba et al., 2013). Findings from the current study may help business leaders to develop an efficient and effective supply system and to create a policy framework to build a healthier subsector, thereby generating employment opportunities and reducing poverty.

A Review of the Professional and Academic Literature

The following literature review was intended to provide a deeper understanding of the petroleum shortages and strategies of supply chain management that may enhance economic and business development in Nigeria. The literature review contains peer-reviewed journal articles regarding refined petroleum products and supply in Nigeria, and related deregulated downstream oil and gas industries. In addition, the literature review addresses the conceptual framework (RBV) for the study. Furthermore, the review

addresses product shortage problems and supply chain management strategies needed to create refined petroleum supplies.

The literature review contains five major categories: oil-producing nations, refined petroleum supply, SCM, NDPSI resources, and RBV and related theories. The first category consists of the production, economies, and business development in oil-producing nations, including the Nigerian downstream oil and gas industry. In the refined petroleum supply category, I address national demand, shortages, price volatility, import subsidies, and the economic impact of petroleum supply. In the SCM section, I review petroleum SCM, crude oil supply, the Nigerian downstream petroleum supply chain with attention to risk and strategies, business development, and economic impact. Next, I review financial, physical, technological, human, and reputational resources in NDPSI. Lastly, I review RBV and other related theories. The synthesis of this literature provided a background for studying strategies to sustain refined petroleum product supply for business development in Nigeria.

I gathered information from 97 resources for the literature review, of which 87 (89.7%) were peer-reviewed articles and 84 (86.6%) were published between 2014 and 2018. In addition, the literature review includes four government publications (4.1%) and six non-peer-reviewed articles (6.2%). I retrieved articles from the Google Scholar search engine and Walden University databases, including ProQuest, EBSCOhost, Emerald Management Journal, Sage, Science Direct, and ABI/Inform. Key words used in the literature review search were *oil and gas, petroleum, deregulation, downstream, refined*

petroleum products, shortages, scarcity, supply strategies, supply chain management, business development, and *resource based view theory.*

Oil-Producing Nations

Countries endowed with petroleum resources whose economies depend on production and exports are petrol states, oil-based economies, or oil-producing nations (Colqan 2014; Painter, 2014). Colqan (2014) defined petrol states as oil-exporting countries that derive most of their revenue from oil sales. Petroleum is the most influential commodity traded across nations and continents of the world (Reiner, Jammernegg, & Gold, 2014). Nigeria is endowed with vast natural petroleum resources (Chigbu et al., 2016; Tobor, 2014).

Nigeria is a major oil producer, ranking seventh among oil-producing nations in the world (Aminu & Olawore, 2014; Oladepo, 2014). Nigeria is a leading member of the organization of petroleum exporting countries (OPEC), with large reserves of oil. However, Nigeria suffers from a shortage of refined petroleum products (Aminu & Olawore, 2014). Nigeria is the only OPEC member that relies heavily on importation to meet local demand (Aminu & Olawore, 2014; Chigbu et al., 2016). Nigeria imports 80% of petroleum products to meet local demand (Aminu & Olawore 2014; Oladepo, 2014).

An acute shortage of petroleum products is consistent with the Nigerian petroleum industry (Aminu & Olawore, 2014; Chigbu et al., 2016). The petroleum product scarcity is associated with low refining output, inadequate pipeline infrastructure, pipeline vandalism and rupture, and bridging of petroleum through roads (Aminu & Olawore, 2014). Moreover, Aminu and Olayinka (2014) attributed high levels of

petroleum consumption in Nigeria to increasing population, economic growth, an increase in vehicular traffic, inadequate supply of electricity, low price of fuel, and lack of petrol tax. Furthermore, Alaba and Agbalajobi (2014) affirmed that the supply and distribution of petroleum products in Nigeria is bedeviled by crises, irregular supply, shortages, hoarding, smuggling, adulteration, and long queues.

The petroleum industry is the mainstay of the Nigerian economy (Adamu, Ajienka, & Ikiensikimama, 2015; Ambituuni et al., 2014). Petroleum export and marketing dominates the Nigerian economy (Oladepo, 2014). Petroleum accounts for 95% of foreign exchange, 65% of federal government income, and 85% of total export (Aminu & Olawore 2014; Oladepo, 2014). The petroleum industry provides energy and energy-related products that power the Nigerian economy (Ambituuni et al., 2014; Aminu & Olawore, 2014). The effective running of the Nigerian economy depends on the sustainable supply of petroleum products (Aminu & Olawore 2014; Chigbu et al., 2016).

The NNPC is the major importer of petroleum products into Nigeria (Alaba & Agbalajobi, 2014). The establishment of the NNPC retail department, with proposed ownership of 50% retail outlets in the downstream, was intended to end fuel scarcity in Nigeria (Oladepo, 2014). The Nigerian government also gave licenses to independent oil marketers to import petroleum products and set up private depots to alleviate shortages (Alaba & Agbalajobi, 2014; Chigbu et al., 2016). Several private depots exist through the country; however, they are not operating at optimum efficiency (Alaba & Agbalajobi, 2014). Also, Alaba and Agbalajobi (2014) noted that the challenges facing the private depots include insecurity, price instability, and policy instability by the government.

Mitigating scarcity of refined petroleum product is a way of advancing development in oil-producing nations (Van Den Bremer, Van der Ploeg, & Wills, 2016). Van Den Bremer, Van der Ploeg, and Wills (2016) suggested three fund categories to manage revenue from oil windfalls: (a) integration funds to smooth benefits across generations, (b) liquidity funds to cope with oil price volatility, and (c) funds to manage domestic investment in case of capital scarcity. Ghanaian, Iraqi, and Norwegian oil industries have different success rates based on their differing investment capabilities on oil revenues (Van Den Bremer et al., 2016).

Nigerian oil and gas industry. Oil discovery in commercial quantities occurred in 1956 at Oloibiri in the Niger Delta region of Nigeria (Chigbu et al., 2016). The first oil export took place in 1958, and since then oil has become the mainstay of the Nigerian economy (Aminu & Olawore, 2014). Shell-D'Arcy (later Shell Petroleum Development Company) was the leading international oil company (IOC) that made the oil discovery (Osuala, 2013). In 1971, the federal government of Nigeria established the Nigerian National Oil Company (NNOC) to regulate and monitor oil-production activities that were dominated by IOCs (Osuala, 2013). Because of inefficiencies of the NNOC, the Nigerian National Petroleum Corporation (NNPC) was created in 1977 to replace the NNOC and affirm effective control over the oil and gas industry (Osuala, 2013).

However, the NNPC has not lived up to the expectation of effective and efficient management of the Nigerian oil and gas sector, as inefficiency still dominates the sector (Adelabu, 2012; Osuala, 2013). Inefficiencies such as continual petroleum product shortages, capacity underutilization of resources, moribund refineries and infrastructures,

and vandalism of oil industry equipment dominate the Nigerian downstream industry (Aminu & Olawore, 2014). In 2003, the federal government of Nigeria started the process of deregulation and liberalization of the downstream subsector to create supply efficiency and enhance the economic development of the nation (Chigbu et al., 2016).

Production. The production and supply of crude oil are dependent on the political stability of exporting nations (Painter, 2014). Disruptions in crude oil production in one part of oil-producing nations affect supply to other parts of the world (Aastveit, Bjornland, & Thorsrud, 2015; Painter, 2014). The Iraqi war, the Middle East uprising, and the Nigerian Niger Delta crisis affect petroleum supplies to consuming nations (Painter, 2014; Tobor, 2014).

Nigeria has four refineries: the Port Harcourt Refinery Company1and 2, the Warri Refinery and Petrochemical Company, and the Kaduna Refinery and Petrochemical Company (Akinwotu 2014; NNPC, 2016). The refineries have a total installed production capacity of 445,000 barrels per day (Alaba & Agbalajobi 2014; Aminu & Olawore, 2014). The refineries process crude oil into different refined products such as petrol or premium motor spirit, diesel, dual purpose kerosene, lubricants, jellies, and coal tar (Akinwotu, 2014; Oladepo, 2014). Nigeria's four refineries are small in relation to the country's population when compared to other members of oil-exporting countries (Aminu & Olawore, 2014).

Since the 1980s, poor management of resources by business leaders occurred at the refineries, leading to low productivity (Alaba & Agbalajobi, 2014; Osagibovo, 2012). As of 2014, the refineries were producing less than 25% of the required 30 million liters

of daily local demand (Alaba & Agbalajobi, 2014). The low-capacity production has resulted from the moribund state of the refineries, lack of maintenance, neglect, and improper resource utilization (Oladepo, 2014). Aminu and Olawore (2014) attributed the petroleum production shortages to (a) low refining output of refineries, (b) inadequate pipeline infrastructures, (c) pipeline vandalism and rupture, and (d) inefficient road transportation of petroleum products. The NNPC spent over 400 million dollars on turnaround maintenance of refineries between 1990 and 2000, without improvement in production (Adelabu, 2012; Chigbu et al., 2016). The low productivity of the existing refineries resulted in sourcing petroleum through importation from abroad (Alaba & Agbalajobi, 2014).

Besides importation, Nigerian economic consultants proposed strategies to improve petroleum product production. Oladepo (2014) and Aminu and Olawore (2014) suggested that constructing more refineries will increase the nation's refining capacity and enhance petroleum availability. Aminu and Olayinka (2014) recommended the introduction of a petrol tax and removal of subsidies to reduce consumption and create availability. Chigbu et al. (2016) emphasized the judicious use of resources in the oil and gas sector to achieve sustainable development of the supply chain. Furthermore, Aminu and Olawore (2014) and Chigbu et al. (2016) recommended that privatizing existing refineries and pipeline networks would help create proper resource management to achieve fuel availability.

Multinationals dominate Nigerian oil and gas production with little indigenous participation (Oladepo, 2014). For a participative development of indigenous companies

and economic growth, the federal government set up governing policies such as the Petroleum Industry Bill (PIB) and the Nigerian Oil and Gas Industry Content (NOGIC) (Adangor, 2016; Oladepo, 2014). The federal government signed the NOGIC into law to ensure Nigerians and Nigerian companies would participate in the petroleum supply chain to boost the local economy (Oladepo, 2014). The PIB is a policy statement to strengthen the operations of all aspects of the petroleum industry in achieving sustainable development of the Nigerian economy (Adangor, 2016; Adamu et al., 2015; Ambituuni et al., 2014). The passage of the much-awaited PIB into law may provide a framework for reform in the oil and gas sector to achieve economic development (Adamu et al., 2015; Ambituuni et al., 2014; Oladepo, 2014).

The establishment of private sector participation by the Nigerian government was to improve production and distribution of refined petroleum products in addition to developing the economy (Chigbu et al., 2016; Oladepo, 2014). The Nigerian government granted licenses to private investors to build refineries and depots to mitigate shortages (Oladepo, 2014). Private investors include major oil marketers, independent oil marketers, and private depot owners (Alaba & Agbalajobi, 2014). Private investors and oil marketers have built depots across the country; however, they have not succeeded in establishing refineries (Alaba & Agbalajobi, 2014).

Economy and business development. Crude oil business has improved the world economy since the 1960s (Dulami, 2014). The supply and price volatility of crude oil have a direct developmental effect on nations' economies (Fowowe, 2014). David, Harrak, Mills, and Ocampus (2014) posited that international oil price volatility

determines the national retail price of petroleum products across the world. The Nigerian economy and business development depends directly on activities of the oil and gas industry (Akinwotu, 2014; Osuala, 2013)

The increase in the price of world oil and petroleum products affects business development and quality of life in developing economies like Nigeria (Alimi & Fatukasi, 2014). Alimi and Fatukasi (2014) asserted that end users take the responsibility of increasing world petroleum prices without changes in government taxes or subsidies. Poverty has increased, and future businesses activity has been negatively affected (Adelabu, 2012; Chigbu et al., 2016). Further, the higher cost of imported petroleum products, such as in Nigeria, leads to an increase in the external country spending and underdevelopment of the local economy (Okwanya et al., 2015).

Despite huge revenues accrued from petroleum sales, Nigeria has not achieved a developed and sustainable business economy (Akinwotu, 2014; Gonzalez, 2016; Tobor, 2014). According to Ambituuni et al. (2014) and Anyanwu and Erhijakpor (2014), Nigeria has no blue print for achieving economic development using revenue from petroleum resources; therefore, the nation's economy is grossly underdeveloped. The Nigerian state is plagued with low-level infrastructure, poor electricity, bad roads, and persistent refined petroleum scarcity (Akinwotu, 2014; Okwanya et al., 2015). To enhance sustainable business development and grow the Nigerian economy, adequate private partnership must be involved in the NDPSI (Chigbu et al., 2016).

Nigerian downstream oil and gas industry. The Nigerian oil and gas industry consists of the upstream sector, the midstream sector, and the downstream sector (Aminu

& Olawore, 2014; NNPC, 2016). The upstream industry is the sector charged with exploration, exploitation, and production of crude oil. The midstream sector is responsible for refining and storage of products. The downstream sector's activities involve marketing, distribution, and transportation of refined petroleum products from the refineries or import jetties to retail outlets or points of consumption (NNPC, 2015; Osuala, 2013).

The downstream industry powers the Nigerian economy through provision of products for transportation and energy, employment generation, and wealth creation (Aminu & Olawore, 2014). Because of mismanagement and misallocation of resources, the Nigerian oil and gas downstream sector has not lived up to expectation (Ambituuni et al., 2014; Gonzalez, 2016; Okwanya et al., 2015). The sector experienced gross inefficiencies, which crippled business development through the nation (Chigbu et al., 2016; Osuala, 2013). Nigerian downstream petroleum inefficiencies include a perennial shortage of refined petroleum products, product diversion, product adulteration, abnormal product subsidy, underutilized refineries, refinery sabotage, pipeline breakage, product theft, corruption, and sharp practices in retail outlets (Adelabu, 2012; Chigbu et al., 2016; Osuala, 2013).

The continual shortage or scarcity of petroleum products in Nigeria has a multiplier effect on almost all sectors of the economy, which has given rise to some abnormal business practices in the downstream petroleum supply chain (Adelabu, 2012; Chigbu et al., 2016). The abnormal business activities contribute negatively to product supply sustainability and enhance scarcity (Osuala, 2013). The abnormal business

activities include (a) retail outlet inefficiencies, (b) product diversion and cross-border smuggling, and (c) pipeline interdiction and stealing of nation's products.

Retail outlet inefficiencies. Retail outlet inefficiencies are abnormal practices by retail outlet managers aimed at making extra profit during products scarcity situations (Odeh, 2011). Specifically, retail outlet inefficiencies include overpricing of products, hoarding of products, product adulteration, and sharp practices (Adelabu, 2012; Odeh 2011). Product hoarding refers to the unlawful hiding of products from the consumers at a required demand period (Osuala, 2013). With the continual petroleum product shortages, dealers of retail outlets hoard products to sell at higher prices (Okwanya et al., 2015) during leaner times. Consumers buy these products at a higher price or through the black market process. The higher price translates into higher cost of doing business, thereby reducing or eliminating profit, which eventually cripples both upcoming and existing enterprises (Okwanya et al., 2015).

Petroleum product adulteration refers to diluting a quality-refined product with a less quality product to increase the volume for more profit (Vempatapu & Kanaujia, 2017). Because of shortages of refined petroleum products, unscrupulous individuals or organizations indulge in adulteration of petroleum products to achieve higher gains or profits (Adelabu, 2012). Vempatapu and Kanaujia (2017) affirmed that the resultant effect of product adulteration can be damaging to machine and vehicle engines, leading to fatality and higher cost of business. Product adulteration can result in explosion, leading to loss of lives (Vempatapu & Kanaujia, 2017).

Sharp practices are abnormal activities conducted at retail outlets by either the station managers, sales attendants, or the dealers of the stations (Aminu & Olawore, 2014; Odeh, 2011). Sharp practices aim to extort money from consumers or make abnormal profits by petroleum retail organizations (Odeh, 2011). Sharp practices include adjustment of meters tolerance level, under-dispensing of products, collection of money at entrance of retail stations, short-changing customers and black market activities within the retail outlet (Aminu & Olawore 2014). These activities are prevalent whenever scarcity persists. The regulatory authorities such as the civil service commission and the Department of Petroleum Resources (DPR) attempt to curb these activities (DPR, 2016). Sharp practices eventually lead to high cost of the product, which translates to a high cost of doing business.

Product diversion and cross-border smuggling. Product diversion occurs when a product meant for a specific destination changes to another destination (David, Harrak, Mills, & Ocampus, 2014; Osuala, 2013). For example, re-directing a product meant for a retail station in an urban environment to a rural environment. The selling price in the new destination may be much higher than the originally allocated destination (Chigbu et al., 2016). This differs from cross-border smuggling in that the product consumption takes place within Nigeria. The result is that scarcity will loom in the original destination, creating business problems. David et al. (2014) affirmed that price variation of petroleum products occur within a country.

Cross-border smuggling is the process of illegally transporting refined petroleum products, meant for domestic consumption in Nigeria, to neighboring countries (David et

al., 2014; Osuala, 2013). According to David et al. (2014), smugglers and unregistered traders exploit price differentials across countries in Western Africa. Smuggling between Nigeria and Togo cost a loss to the Togo government of 23 million Euros per year (David et al., 2014). Economic forces drive prices within this region rather than market forces (David et al., 2014)**.** As an oil producing country, petroleum product costs lower in Nigeria compared to neighboring countries (Chigbu et al., 2016; David et al., 2014). Dealers capitalize on the price differentia to sell the products at higher prices to neighboring countries, resulting in product scarcity in Nigeria, which hampers business development (Osuala, 2013).

Pipeline interdiction and Niger Delta activities. The pipeline networks represent critical infrastructural facility for the Nigerian oil and gas industry and are pivotal to sustaining energy supply and economic growth (Chigbu et al., 2016). In Nigeria, pipeline interdiction is one of the major causes of refined petroleum product shortages (Aminu & Olayinka, 2014). Pipeline interdiction occurs when no natural causes lead to pipeline breakage (Anifowose et al., 2014).

Ambituuni, Amezaga, & Werner (2015) and Anifowose et al. (2014) reiterated that the main modes of petroleum transportation are through road trucking and pipeline. The Nigeria pipeline network has exceeded the designated lifespan and prone to corrosion and rusting (Anifowose et al., 2014). Rusting and corrosion often lead to pipeline breakages, causing pollution and product shortages in different parts of the country (Anifowose et al., 2014).

Igbinovia (2014) researched on thieves breaking pipelines to siphon petroleum products, damaging both the economy and the environment. Igbinovia reported that oil theft in Nigeria hit a record high in the first quarter of 2013, a loss of U.S. $1.2 billion. Criminals cut off crude oil supplies to the refineries thereby shutting down production at the refineries. The net effect is a lack of refined products, leading to petroleum scarcity.

The most productive region of oil in Nigeria is the Niger Delta region (Enuoh & Inyang, 2014; Gonzalez, 2016; Tobor, 2014). The Niger Delta inhabits about 30 million people, has 48 oil fields, 93 national gas fields, a reserve of 34.5 billion barrel of oil and 94 trillion cubic feet of gas (Enuoh & Inyang, 2014; Gonzalez, 2016; Tobor, 2014). According to Tobor (2014), the Niger Delta region has 33 billion barrels of crude oil and 163 trillion cubic meters of gas reserves. The Niger Delta region has yielded over $600 billion from petroleum since 1956, yet the Niger Delta region is in penury (Enuoh & Inyang, 2014).

Multinational oil companies (MNC) operating in the Niger Delta have not met the expectations of the local communities regarding resources distribution (Enuoh & Inyang, 2014; Tobor, 2014). Tobor (2014) and Enuoh and Inyang (2014) affirmed that the MNC did not treat the inhabitants of the communities like stakeholders. Basic infrastructures such as roads, water, hospitals, and schools lack in areas of oil production (Akinwotu, 2014; Enuoh & Inyang, 2014). The inhabitants of the Niger Delta live in penury while the multinational companies smile to the banks (Enuoh & Inyang, 2014; Tobor, 2014). Multinational companies have the responsibility to address social issues in their areas of operations (Maniruzzaman & Jasimuddin, 2016). Pollution by MNC has brought penury

to the lands in the Niger Delta thereby prompting youth to be involved in illegal activities (Enuoh & Inyang, 2014; Tobor, 2014). The resultant effect is civil unrest, militancy, social disorder, and disruption of the flow of crude oil supplies to refineries, leading to production shut down and hence supply shortages (Enuoh & Inyang, 2014). Nigerian deregulation and supply strategy implementation can only come into fruition if the business environment is conducive and stable (Ijiaya, 2014).

The Niger Delta has a proliferation of arms and light weapons (Wilson, 2016). Militants in Niger Delta create wealth through bunkering activities thereby reducing or cutting off crude supplies to refineries (Enuoh & Inyang, 2014). Militants attack on oil installation reduces government income, and affects the supply of petroleum products across the West African region (Tobor, 2014). The resultant effect is production shortages and scarcity of refined petroleum products.

Refined Petroleum Supply

The Nigerian downstream oil and gas industry has gone through neglect, infrastructural decay, leading to inefficiencies and shortages of refined petroleum product supply (Adelabu 2012; Chigbu et al., 2016; Osuala, 2013). Nigeria refineries have the capacity for 445,000 barrels but refine less quantity because of old age and poor management of resources (Akanle, Adebayo, & Adetoro, 2014; Osuala, 2013). The four Nigerian governments owned refineries operate less than 40% percent capacity, creating room for importation to support local demand (Chigbu et al., 2016; Glyba et al., 2013). Nigeria is one of the largest importers of petroleum products in the world (Akanle et al., 2014). The high cost of imported petroleum products in Nigeria, leads to an increase in

the country's external spending and under-develop the local economy (Chigbu et al., 2016; Adelabu, 2012).

The NDPSI lacks an energy footprint for sustainable development (Adekomaya et al., 2015; Anyanwu & Erhijakpor, 2014). An energy footprint is a map that shows the flow of energy supply, demand, consumption and loses in certain section in an economy (Lan, Malik, Lenzen, McBain, & Kanemoto, 2016). Chigbu et al., (2016) recommended channeling resources to pipeline privatization as a panacea for solving the problem of supply to enhance refined petroleum product availability. The solution to the resource curse doctrine associated with naturally oil rich nations is to embrace a well-designed resource wealth management (Anyanwu & Erhijakpor, 2014). Deregulation and privatization of the Nigeria oil and gas industry will lead to a reduction in prices of product and guarantee product supply availability (Adelabu, 2012; Chigbu et al., 2016).

Furthermore, achieving petroleum supply sustainability to enhance the development of the Nigerian business environment will require the implementation of the petroleum industry bill (Ambituuni et al., 2014; Adamu et al., 2015). The Nigeria petroleum industry bill (PIB) is a result of the government intention to reform the regulation of the oil industry to enhance Nigerian development (Adangor, 2016; Adamu et al., 2015). The PIB content explains reform such as deregulation of the downstream, resource control, liberalization, and privatization of the industry (Adangor, 2016; Adamu et al., 2015). In addition, Chigbu et al. (2016) recommended the use of private sector participation to improve business development in NDPSI.

National demand. Petroleum is a vital source of energy and essential raw material in manufacturing process all over the world (Okwanya et al., 2015). Nigeria's demand for refined petroleum product has outgrown the nations supply because of growth in population and socio-economic activities (Aminu & Olawore, 2014). Every aspect of life in Nigeria is connected and dependent on happenings in the oil and gas sector (Akanle et al., 2014).

Electricity generation and transportation relies exclusively on diesel and petrol products, which drives the Nigerian economy (Adekomaya, Sadiku, Jamiru, Huan & Suleiman, 2015; Aminu & Olawore, 2014). Petrol and diesel prices affect almost every commodity, and politicians use the medium to convince voters as better managers (Srinivasan, 2014). Nigeria daily consumes 42 million and 26 million liters of petrol and diesel respectively (Glyba et al., 2013). According to Adelabu (2012), Nigerian refineries refine 18 million liters of petrol per day while the daily national demand is approximately 40 million liters. Nigeria economy relies on imported petroleum while the local refineries produce less than 40% of their installed capacities (Adelabu, 2012; Chigbu et al., 2016). Chigbu et al. (2016) noted that if all four Nigerian refineries were operational, a gap of 15million liters per day would exist.

The Nigerian passenger system depends on the road system, which consumes a high quantity of petroleum products (Glyba et al., 2013). In Nigeria, oil consumption by transportation sector accounts for 80% of total petroleum products. Road transport dominates over 90% of all transport in term of kilometer coverage (Okwanya et al., 2015; Glyba et al., 2013). Aminu and Olayinka (2014) affirmed that the high consumption of

petroleum product is a result of subsidization and the tax-free nature of the products. Comparative low prices of petroleum products encourage over consumption of petrol in Nigeria and in OPEC countries (Aminu & Olayinka, 2014). From consumption perspective, Glyba et al. (2013) recommends that future transport policy in Nigeria should promote incentivize public (bus) transport as a more environmentally and economically sustainable option than transport by cars and motorcycles.

Shortages. The Nigerian economy has experienced several eras of refined petroleum product shortage since the 1980s (Adelabu, 2012; Aminu & Olawore, 2014; Aminu & Olayinka, 2014; Chigbu et al., 2016). Almost every business enterprise depends on petroleum product for either transportation or power generation (Chigbu et al., 2016). Petroleum product shortages have therefore resulted in underdevelopment and crippling of business activities in Nigeria (Chigbu et al., 2016).

Nigeria ranked seventh among the 11 Organization of Petroleum Exporting Countries (OPEC) is plagued with the continual scarcity of petroleum products (Aminu & Olawore, 2014; Aminu & Olayinka, 2014). In Nigeria, fuel scarcity or shortages are the results of inefficiencies in the downstream sector of the petroleum industry (Adamu et al., 2015; Adelabu, 2012). The inefficiencies include underutilization of existing refineries, dilapidated state of refineries, pipeline and infrastructure vandals, smuggling, cross-border activities, corruption among officials, bunkering, and the emergence of rich oil mafia or cartels and militants that control petroleum business (Adelabu, 2012; Chigbu et al., 2016). Aminu and Olawore (2014) attributes refined petroleum scarcity and shortages

to inefficient resource management such as low refining output, lack of pipeline infrastructure, road bridging inadequacies, and pipeline vandalism.

Oil spill and Pipeline vandalism disrupts both crude oil and refined products supply to refineries and consumer respectively (Anifowose et al., 2014). Oil spill in Nigeria occurs because of corrosion of pipes and storage tanks, operational error and oil tanker accidents (Anifowose et al., 2014; Osuala, 2013). In Nigeria, thieves break oil pipelines to siphon fuel, often with sparks results in explosion, leading to hundreds of deaths of looters and by-standers (Anifowose et al., 2014). The resultant effect is refined petroleum product shortages and scarcity in the Nigerian economy. Furthermore, the NDPSI has cartels who determine prices, the volume of importation, and proportion of supply quantity to the market, while other marketers hoard products, resulting to supply shortages in the economy (Adelabu, 2012). Government officials' neglect of infrastructures such as refineries and pipelines, and enhancing vandals and sabotage, affects the supply of refined products to the economy (Osuala, 2013).

Petroleum product shortages exist across the world and have necessitated a shift to alternative energies (Xiong, Sun, & He, 2014). Industrial and individual consumption of fossil fuel results in economic and political concern like global warming, rising energy prices, dependence on foreign oil, and negative environmental impact (Ntabe, LeBel, Munson, & Santa-Eulalia, 2015). Scientist teamed up to construct hybrid electric to pure electric vehicles to mitigate the shortage of petroleum products (Xiong et al., 2014). Substituting fossil fuels with renewable energy will solve the problems of climatic change and petroleum shortages (Ntabe et al., 2015). Ntabe et al. affirms that by moving

to ways, value institutions, and system that reduces need for material energy and ecological resources will solve green house and petroleum shortage problems.

Oil shortages made the greatest input on petrol price hike at the retail outlets across the world (Osoro, Muturi, & Ngugi, 2016). To avoid scarcity or shortages of refined petroleum products, Jiao, Han, Wu, Li, and Wei (2014) suggested that large storage of fuel between six months to one year must be stock at all times. Waisman, Cassen, Hamdi-chief, and Hourcade (2014) asserted that secure, sustainable energy flow would require implementing policies and measures that (a) address incentives for long-term investment, (b) secure future pricing, and (c) develop patterns consistent with global energy objectives. The European Union has a comprehensive portfolio of strategies to deal with the scarcity of petroleum products (Urciuoli, 2014). The United States achieved improved and increased petroleum output by applying shale technology on tight oils. The International Energy Agency predicted United States to lead the world oil production by 2040 (Conti et al., 2016).

Price volatility. Oil price volatility refers to the rise and fall in oil price over a period (Tule, Salisu, & Chimeke, 2018). Oriakhi and Iyoha (2013) researched on the consequence of oil price volatility on the development of the Nigerian economy, between 1970 and 2010. The result of the findings revealed that oil price volatility imparted directly on real government expenditure, real exchange rate, real import, real GDP and real money supply. In addition, Tule, Salisu, and Chimeke, (2018) noted that a little shock in the price of oil in the global market had significant effect on the Nigerian economy. The implication was that oil price changes determine government expenditure,

which in turn determines business development in the Nigerian economy (Oriakhi & Iyoha, 2013; Tule et al., 2018). According to Maniruzzaman and Jasimuddin (2016), oil price rose from $17.10 in 2002 to $146.00 in 2008.

For exporting nations like Nigeria, rise in oil price implies more revenue. For importing nation like Nigeria also, increase price means increased input cost, inflation, lower investment, fall in tax revenue, and increase in budget deficit (Oriakhi & Iyoha, 2013; Tule et al., 2018). Oil price volatility has a direct effect on the exchange rate of the Nigerian Naira (local currency) since crude export accounts for Nigeria's foreign exchange and refined petroleum product drives the economy (Akinwotu, 2014). Nigeria budget is strongly dependent on the oil price, demand, and supply in the international market. Oriakhi and Iyoha (2013) posit that Nigeria foreign reserve fell from $60 billion in 2008 to $30 billion in 2013. A Short in the supply of refined product in Nigerian economy affect business development activities.

Import subsidies. The Nigerian government is involved in the subsidizing of refined petroleum products to the Nigerian citizens (Abutu, 2014; Okwanya et al., 2015). The supply of products from the local refineries could not meet up with the demands of the ever-increasing Nigerian population (Aminu & Olayinka, 2014). Therefore, the Nigerian government complemented the short supply by importing products from abroad (Abutu, 2014). The landing cost of the imported product is higher than the local cost hence government subsidizes the product to create a balance in the economy (Abutu, 2014).

Since the 1990s, the cost of subsidy runs into billions of dollars. The federal government of Nigeria spent a large sum of the country's revenue, meant for economic development on subsidy of petroleum product (Okwanya et al., 2015). The findings of the audit report of the Nigerian Extractive Industry Transparency Initiative (2013) showed that the federal government of Nigeria spent the sum of $1.9 billion on subsidy payment. The findings also revealed that between the periods 2009 to 2011, the subsidy payment increased by 500%, thereby incurring a huge economic loss to the Nigerian state.

The federal government of Nigeria planned to eradicate subsidy by January 2012 (Akinwotu, 2014). Attempts to remove subsidy from petroleum product was met with stiff opposition from the Nigerian Labor Congress and civil society groups, degenerating to violence leading to the destruction of properties and loss of lives (Okwanya et al., 2015). Furthermore, the Nigerian government identified discrepancies and corrupt practices in the subsidy management system which has escalated the high cost of products subsidy (Chigbu et al., 2016; Okwanya et al., 2015).

The cost of subsidy in Nigeria has risen such that project and business development meant to alleviate poverty are affected (Siddiq, Agular, Grethe, Minor & Walmislery, 2014). The cost of importing product has increased in recent years such that the amount threatens Nigeria's balance of payment and capital expenditures (Chigbu et al., 2016). This cost lost led to the debate between the Nigerian government and organized labor on the removal of subsidy and deregulation of the downstream petroleum products supply to achieve economic development (Akinwotu, 2014).

Removing subsidy has always ended in chaos in the last four years (Siddiq et al., 2014). Nigeria witnessed series of social disorder and strikes on January 1, 2012, when subsidies were removed (Akinwotu, 2014; Siddiq et al., 2014). In 2012, the price of premium motor spirit (PMS) increased from N65 to N147 and returned to Ninety-seven naira (N97) because of protest and strikes by the Nigerian people (Siddiq et al., 2014).

The Nigerian government introduced subsidy into social services in the 1970s during the oil boom period (Akanle et al., 2014). The subsidy has an impact on GDP, household income and on poor Nigerians (Siddiq et al., 2014). According to Okwanya et al., (2015) and Siddiq et al. (2014) petroleum products subsidy in Nigeria benefits the rich more than the poor. In research on the impact of energy subsidy reform on Malaysian economy and transport sector, Solaymani and Kari (2014) showed that the removal of subsidies increases real GDP and real investment while decreasing total export and imports. Fathurrahman, Kat, and Soytaș (2017) affirmed that 30% of the richest people in Indonesia enjoy 72% of fuel subsidy. Nigerian government spends billions of dollars in subsidizing fuel, which few individuals embezzle in the marketing industry (Akinwotu, 2014).

Implementing removal of petroleum product subsidy in Nigeria will require putting sufficient palliatives in place that will benefit the poor (Akanle et al., 2014). Siddiq et al. suggested that subsidy removal would require income transfer to the poor. Aminu and Olayinka (2014) posit that the removal of subsidy and petroleum tax will enhance petroleum product conservation in Nigeria. Chigbu et al. (2016) affirms that oil revenue constitutes 89% of Nigerian income and the surplus obtained from oil subsidy

removal be channeled to stimulate economic growth and development. Domestic production of refined petroleum product will lead to the elimination of subsidies, which will translate more funds for economic development (Siddiq et al., 2014). Deregulation and privatization of the downstream petroleum sector will eradicate subsidy cost loss (Chigbu et al., 2016).

Several countries succeeded in the removal of petroleum subsidies to achieve an adequate supply of petroleum products and enhance economic development. In 1992, the Spanish government removed subsidy and completely deregulated and liberalized the oil sector, leading to economic growth and development of the industry and economy (Chigbu et al., 2016). Indonesia in 2005 had a peaceful removal of subsidy (Siddiq et al., 2014).

Economic impact. The oil and gas industry is the lifeblood of Nigeria (Aminu & Olawore 2014; Okwanya et al., 2015). The Nigerian economy is heavily dependent on the oil industry for survival (Chigbu et al., 2016). Nigerian electricity and transportation depends largely on diesel and petrol products (Chigbu et al., 2016). Economic development in Nigeria revolves around resources management from the petroleum industry (Aminu & Olawore, 2014). Nigeria is a mono-economy state that depends on oil for over 95% of foreign exchange earnings and 65% budgetary reserves (Akanle et al., 2014).

Nigeria is an example of contradiction between natural resource abundance and perverse economic development outcomes (Esu, 2017). According to Anyanwu and Erhijakpor (2014), Nigeria is a country endowed with natural petroleum resources wealth

but does not impart on the development of the economy. Seventy-five percent of Nigerians live below one dollar per day, confirming the repercussion of the resource curse theory in Nigeria (Edo, 2013; Esu. 2017; Ogwo & Agu, 2016). Activities in the oil and gas sector caused a disregard for all other sectors, leading to the collapse of these sectors thereby amplifying the underdevelopment of the Nigerian economy (Esu. 2017; Ogwo & Agu, 2016). Olukoju (2014) affirmed that Nigeria's economic growth does not translate into development for the citizens but for corrupt few. To achieve sustainable economic development, Nigeria must divest from a petrol monoculture economy to embrace other sectors (Mogaji, Sotolu, Wilfred-Ekprikpo, & Green, 2018; Ojide, Ojide, & Ogbodo, 2014).

Ojide, Ojide, and Ogbodo (2014) affirmed the resource curse theory on the Nigerian economy since the advent of the petroleum industry activity in 1958. Between the 1960s and 1970s, agricultural products dominated the Nigerian export sector (Ojide, Ojide, & Ogbodo, 2014). Petroleum product became the main stay of export in Nigeria in the mid-1970s, constituting about 96% of total exports (Ojide et al., 2014). Considering the volatility of international petroleum market and the fact that crude oil is an exhaustible asset, the main option for sustainable development in Nigeria is to diversify the economy (Ojide et al., 2014).

Anyanwu and Erhijakpor (2014) posited that Nigeria is an oil rich nation with no blue print in attaining sustainable business development. A properly managed oil wealth will inspire business development and growth in the Nigerian economy by adopting a resource-led development model (Anyanwu & Erhijakpor, 2014; Gonzalez, 2016).

Deregulation and privatization of the Nigeria oil and gas industry will lead to a reduction in prices of petroleum product and guarantee availability (Chigbu et al., 2016). However, the Nigerian Labor Union and the civil society groups believe deregulation will increase poverty and hardship to Nigeria (Chigbu et al., 2016).

Local content has stimulating roles in the economic development of oil-producing nations (Nqoasong, 2014). The developmental roles depend on the business practice applied by the international oil-producing countries (IOC) to respond to local content policies (Nqoasong, 2014; Osagibovo, 2012). The local content policies should be in the form of institution reforms, giving preference to the development and use of local supplies and workers when sourcing technical and human resources for operations (Nqoasong, 2014; Osagibovo, 2012). In Nigeria, the IOC's such as Shell, Total, Chevron, and Exxon Mobil have not stimulated the economy in the desired direction (Nqoasong, 2014).

Oil price fluctuation negatively affects middle economies and net oil-exporting countries than high-income economies and net importing economies (Salisu, Isah, Oyewole, & Akanni, 2017). Nigeria is a both exporting and importing economy with a drastic economic imbalance in oil price fluctuation. Akanle et al. (2014) posited that Nigeria is one of the largest importers of petroleum products in the world. In a sensitivity analysis report, Alimi and Fatukasi (2014) reported that the fluctuation in oil revenue has resulted in inflations, lower output growth, and real exchange rate problem in Nigeria. Dulami (2014) affirmed that the cyclical evolution or market manipulation of oil prices

affect economies around the world. A small oil price change results in significant or large effect on the Nigerian economy (Ingwe, Ukwayi, & Utam, 2014; Okwanya et al., 2015).

Emerging markets and developing economies must have sustainable energy security to achieve economic development success (Blazquez & Martins-Moreno, 2014). The concept of energy security is the uninterrupted physical availability of refined petroleum products at an affordable price while maintaining environmental concerns (Blazquez & Martins-Moreno, 2014). Nigeria is an oil-producing nation with consequent energy insecurities, which cripple business activities (Chigbu et al., 2016).

A way forward for achieving petroleum supply sustainability to enhance the development of the Nigerian business environment was the implementation of the petroleum industry bill (Adamu et al., 2015; Adangor, 2016). The Nigeria petroleum industry bill (PIB) is a result of the government intention to reform the regulation of the oil industry to enhance Nigerian development (Osagibovo, 2012). Conversely, Dike (2014) affirmed that the Nigerian proposed PIB would only make a minimal improvement to the 1969 petroleum act. Osagibovo identified the involvement of private sector participation as better resource managers to improve business development in Nigeria. The implementation of the PIB will enhance the development of the Nigerian business environment through reforms that will ensure adequate resource management, leading to a sustainable supply of refined petroleum products (Osagibovo, 2012).

Nigeria oil resources resulted in continued patrimonial, decentralized, and conflict system of state civic society relation, which limit capacity for democratic and economic development (Esu, 2017). Norway and Botswana are resource rich nations that portray

stable political institutions (Anyanwu & Erhijakpor, 2014). Most developed and developing countries of the world have a stable supply of petroleum products, which enhanced economic developments (Chigbu et al., 2016).

Supply Chain Management

Supply chain involves all activities associated with the flow and transformation of goods from the raw materials stage, through to the end user, as well as the associated information flow in both the direction of the manufacturer and consumer (Varsei, et al., 2014). Supply chains are links to suppliers, which include internal functions, upstream suppliers, and downstream consumers. Organization sustainable performance goes beyond sales to include supply chain efficiency (Balfaqih, Nopiah, Saibani, & Al-Nory, 2016). The supply chain is a value addition to the business process (Handfield, Cousins, Lawson, & Petersen, 2015).

Supply chain management (SCM) is the process of coordinating the movement of goods, services, and resources as they undergo a transformation from raw materials to finished products, from wholesalers to retailers and to consumers to meet planned objectives (Varsei et al., 2014). The SCM is the integration of all supply chain activities through improved supply chain relationships to achieve sustainable competitive advantage (Barney, 2012). The supply chain activities include sourcing, procurement, production scheduling, inventory management, warehousing, customer service, and after-market disposal of packaging materials (Dubey & Gunasekaran, 2015). According to Barrick, Thurgood, Smith, and Courtright (2015), SCM is a business philosophy that

strives to integrate the dependent activities, actors, and resources between the different levels of the points of suppliers, manufacturers, and consumers.

Petroleum supply chain management. Petroleum SCM involves the coordination of crude oil exploration, transportation, refining and distribution of refined products to consumers (American Petroleum Institute, 2014; NNPC, 2016; Osuala, 2013). The supply chain of the petroleum industry is different from other discrete manufacturing industries. According to Tong, Gleeson, Rong, and You (2014) and NNPC (2016), the distinct features of the petroleum supply chain are:

- A process industry of fluid transformation, which is different from discrete manufactured items like computer sets or canned foods.
- Adulteration: Petroleum products are easily contaminated or deliberately adulterated in the supply chain process.
- Inflammability: The petroleum supply chain (PSC) process involves risk at every stage, as the products are highly inflammable.
- Transportation: Petroleum transport involves shipping from sourced nations to consuming nations. Both crude oil and refined products incur high cost of transportation when compared to the transportation of discrete manufactured items.
- Bulk: Petroleum products production occurs in bulk quantities, and the shipping also occurs in bulk volumes. The bulk volume translates to high inventory cost. This risk is unique to the petroleum supply chain.

- Long supply chain: Most countries source crude oil from thousands of miles away, and the tankers travel from weeks to months before arriving at the delivery destination. Refined products are either consumed locally or shipped to destination thousands of miles away.
- Price volatility: Local and international market forces, natural disasters, wars, foreign exchange, and politics determine the price volatility of crude oil. No discrete manufactured product supply chain undergoes volatility like the petroleum supply chain.

Crude oil supply. Crude oil is the natural raw material obtained from beneath the earth and refined into consumable products (NNPC, 2016). Crude oil has imparted positively on world economy since the 1960s (Dulami, 2014). The supply of crude oil has a direct developmental effect on nation's economies (Tule et al., 2018). David et al. (2014) posit that international oil supply volatility affects the national retail price of petroleum products. Dulami (2014) noted two identical moments in the crude oil market: (a) the price collapse of 1986, and (b) 2014. The collapse of oil price affected large producers like Russia, Venezuela, Nigeria and Middle East countries.

Crude oil prices rose steadily since 1973, enriching most oil-producing nations like Nigeria (OPEC, 2016). Crude oil prices were steadily high for over four and half years before crashing to half the price in 2014, because of oversupply existing on international markets, slow in demand by BRICS nations, and the U.S. shale oil production. Further, the increase in natural gas consumption and proliferation of green

energies has reduced fossil fuel consumption (Dulami, 2014). The fallen prices of crude oil negatively affected the Nigerian economy.

Crude oil supplies are subject to shocks from events in single oil-producing countries (Difiglio, 2014). Weak economic growth of 2 to 3 years occurs immediately because of oil price and supply shocks (Difiglio, 2014). Strategic crude reserves can protect the worldwide economy, by announcing large releases to mitigate unplanned supply shortages (Difiglio, 2014). Forecast techniques are available on how supply planners can identify worst-case scenario of availability for key sources of petroleum energy and resources (Hillock, Wu, Hall, & Jefferson, 2014).

Transporting crude from platform to terminals and refineries is expensive (Aizemberg, Kramer, Pessoa, & Uchoa, 2014). Transport cost usually adds up to increase cost in crude oil supply chain (Aizemberg et al., 2014). The constraints in determining petroleum tanker transportation are the time of delivery, tanker capacity, tanker size and refinery demand (Aizemberg et al., 2014). Shipping channels are the most traveled and commonly used source to move petroleum products from one location to the other (Siddiqui & Verma, 2015).

Crude oil transportation is a key aspect that determines crude oil prices across the globe. While crude oil production takes place in the Middle East, West Africa, and some European states, consumption takes place in large quantities by the western countries. According to Lee and Song (2017), refinery requirement is the force driving crude oil transportation since different refineries require different crude grade to produce the

different range of products. Tankers transport about 1.86 billion tons of crude oil across seas annually (Lee & Song, 2017).

Cost is a key factor that affects crude oil supply (Reiner, Jammernegg, & Gold, 2014). Reiner, Jammernegg, and Gold (2014) noted that petroleum companies experience varying degrees of crude oil procurement cost, which affect profitability. Crude oil cost consists of four components; the spot price of crude oil, adjustment factor, transportation, and miscellaneous charges (Reiner et al., 2014). Crude oil cost accounts for over 85% of the refining overall cost. The last three components have minimal contribution to the total cost (Reiner et al. 2014).

Refined petroleum product cost relates to four major components. According to Ginn (2015), the four components are; distribution and marketing, refining and profits, taxes, and crude oil. Crude oil cost is most significant of all the components. Factors affecting crude oil price include natural disasters, geopolitical developments, strategic actions, and unforeseen events (Zhang, Zhang, & Zhang, 2015). Future markets and speculations are financial instruments that determine the spot price of petroleum products (Kilian & Murphy, 2014).

Crude oil prices are difficult to predict because of effect from different factors (Zhang et al., 2015). Factors affecting crude oil price include national disasters (Hurricane, earthquake, and typhoon) geopolitical developments (naturalization, strikes) strategies action (OPEC) and other unforeseen events such as spills and pipeline disruptions (Zhang et al., 2015). According to Aastveit et al. (2015) oil price determination comes from demand within emerging and developed economies because

real price of oil has historically tended to be permanent, difficult to predict, and governed by different regimes at a different point in time. The purchase price of crude oil depends on the spot price at the time of delivery rather than at the time of ordering (Zhang et al., 2015).

According to Ginn (2015), the four major components of the price of a gallon of gasoline are; crude oil, distribution and marketing, refining cost and profit, federal and state taxes. Ginn reiterated that the retail price of a gallon of gasoline increases continuously through the years from the 1980s to 2000s. A consistent price rise in crude oil occurred in the same period while other component reduced over the same period. Kilian and Murphy (2014) asserted that the surge in the price of oil during 2003-2008 has no explanation by economic fundamentals, but by increased financialization of the oil future market. Oil future contracts are financial instruments that allow a trader to lock in today a price at which to buy or sell fixed quantities of the commodity on a predetermined date in future (Kilian & Murphy (2014).

Nigerian petroleum supply chain. The petroleum industry consists of the upstream sector, the midstream sector, and the downstream section (NNPC, 2016; Osuala, 2013). The upstream handles exploitation, exploration, and production of crude oil. The midstream sector activities cover refining and storage of finished products. The downstream sector activities cover marketing and distribution of refined petroleum products (DPR, 2016).

The supply chain activity starts at the upstream (Osuala, 2013; NNPC, 2015). Crude oil is located and produced from wells, either onshore or offshore. Explorers

transport crude oil from the production site to export terminals via pipelines, where export takes place (Anifowose, et al., 2014). In other cases, the crude oil transportation takes place via pipelines to storage tanks from where the crude pumping to refineries take place (Anifowose et al., 2014).

After refining, the products are stored in large tanks for distribution. The distribution is for either local consumption or export. In Nigeria, distribution for local consumption takes place via pipelines, and road tankers through bridging to depots (Anifowose et al., 2014). From the depots, products diversion to retail outlets or industrial consumers occur. Individual consumers purchase products from retail outlets for personal or business purposes. (NNPC, 2016)

Risk. PSC operation is associated with high uncertainty and risk (Ambulkar, Blackhurst, & Cantor, 2015). Because of the unique features of the PSC, risk abounds in (a) geological operations and production; (b) market risk; (c) technological risk; (d) price volatility risk; (e) socio-political risk; and (f) environmental and community risk. Risk analysis is important for the development of proactive risk management policies in a PSC environment (Ambulkar et al., 2015).

PSC industry uncertainties include oil reserve depletion, exploration activities, crude oil price, and market forces of demand and supply. Ambulkar et al. described the impact of global risk (political, legal, commercial, environmental) and element risk (operation, finance, construction) to affect both upstream and downstream supply operations. The PSC risk management is important to ensure (a) commercial viability of oil and gas projects, (b) the high cost of investment in upstream, (c) geological

uncertainties and political uncertainties of producing host countries, (d) the downstream supply chain risk of crude oil marketing. A guarantee of crude oil and refined oil supply stability occurs by mitigation of supply chain security (Ambulkar, et al., 2015).

Managing petroleum supply risk is important to both developed and developing countries. The uninterrupted flow of petroleum is vital to development and health of business economies (Aminu & Olawore, 2014). In Nigeria, oil plays an invaluable role in economic development (Aminu & Olawore, 2014; Chigbu et al., 2016). The PSC risk management is imperative because risk can lead to uncertainty and insecurity of petroleum supplies in Nigeria and the global market, resulting in crippling business economies and global crisis (Ambulkar, et al., 2015).

Supply risk management is a systematic approach to identifying and addressing diverse type of risk such as natural catastrophes, demand risk, equipment failure, terrorism and war (Urciuoli et al., 2014). In ensuring petroleum products supply security, Difiglio (2014) noted that world GDP relates to world oil price and supply. The European Union has a comprehensive portfolio of strategies to deal with the scarcity of petroleum products (Urciuoli et al., 2014). Rabbani, Bahadornia, and Torabi (2015) prefer to internalize and manage supply risk rather than stop the supply activity. Nigeria's risk lies in inefficient resource management and allocation instead of natural and geographical factors (Chigbu et al., 2016).

Energy security is associated with the sustainability of world oil supply at low prices (Ang, Choong, & Ng, 2015). Melikoglu (2014) noted that shale oil and gas production through fracking technology improved the world energy security. To ensure

efficient global supply network, Dubey and Gunasekaran (2015) suggested that supply managers must communicate, integrate, and analyze supply chain initiatives from international perspectives, understanding laws and regulations of different nations. Crisis in the Nigerian Niger Delta negatively affects crude production, which threatens both the Nigerian energy security and the global petroleum market (Enuoh & Inyang, 2014; Ijaiya, 2014).

Strategies. Chigbu et al. (2016) and Oladepo (2014) recommended the deregulation and privatization of Nigerian oil and gas sector for steady supply of petroleum products to enhance national sustainable development. The Nigerian government expectation of the deregulation of the downstream supply industry was that of an efficient and effective utilization of scarce economic resources to enact free forces of demand and supply (Chigbu et al., 2016). The deregulation of NDPSI will lead to rapid private sector investment in refineries, and petrochemicals, which will generate millions of jobs, steady supply of petroleum products, and increase the prosperity of Nigeria (Akinwotu 2014; Chigbu et al., 2016).

Complete deregulation involves removal of petroleum subsidy from the downstream sector, which, Nigeria masses opposed by embanking on industrial action and civil unrest (Okwanya et al., 2016). The implementation of complete deregulation will have a trickledown effect on resources management, sustain investor's confidence, create employment, erode supply shortages, and improve national development (Akinwotu, 2014). Appropriate pricing of petroleum product will attract both local and foreign investments into NDPSI (Chigbu et al., 2016; Okwanya et al., 2015). The private

sector participation will facilitate increased competition, promote higher productivity and enhance supply sustainability for improved profitability (Chigbu et al., 2016).

Government should leave the management of petroleum supply companies in the hands of strategic private partners to ensure optimum resource allocation and efficiency of the sector (Chigbu et al., 2016). According to Aminu and Olayinka (2014), the government should tax petroleum products, and subsidy removed to increase the price, lower consumption and make the products more available. No petrol tax exists in Nigeria. The Nigeria government once set up committee to manage funds derived from subsidy removal towards improving local capacity to refine crude. The management of these resources is critical to providing steady petroleum supply, jobs, and development to Nigeria people (Chigbu et al., 2016).

To mitigate short supplies of petroleum products, Aminu and Olayinka (2014) recommended strategies for fuel conservation. The strategies include increase utilization rate of public transport, improve vehicle fuel economy, encourage walking and cycling, introduce high parking fees, increasing car-pooling and car sharing activities. In addition, Chigbu et al. (2016) recommended fixing the existing dilapidated and building new refineries to enhance petroleum products sustainability.

Leadership in Nigerian petroleum industry. Nigerian petroleum business leaders did not utilize the petroleum resources, man and machines to develop the economy (Osagibovo, 2012). From inception, the Nigerian government through NNPC, controls and manages activities concerning petroleum in Nigeria (NNPC, 2016; Osuala, 2013). Nigerian government failed to translate the oil wealth into economic sustainability

and a higher standard of living because of issues of *Resource curse* and the *Dutch disease* (Aminu & Olawore, 2014; Esu, 2017). Anyanwu and Erhijakpor (2014) noted that a well-designed resource wealth management is the solution to the resource curse doctrine associated with oil-rich nations. Osagibovo (2012) emphasized on the judicious utilization of resources by Nigerian leaders to create jobs, and encourage participation of Nigerians in the supply chain to achieve national development. Nigerian policy makers should create policies, enabling the environment to attract foreign investors to build refineries in Nigeria to improve supply content, encourage export, and boost the Nigerian economy (Chigbu et al., 2016).

The passage of the Petroleum Industrial Bill (PIB) into law will encourage the establishment of new refineries and create enabling business environment in Nigeria (Adangor, 2016; Adamu et al., 2015). The new refineries will mitigate supply shortages and encourage export of refined products (Adangor, 2016; Adamu et al., 2015). The issuance of 20 licenses to oil majors and private investors did not yield building of new refineries since the Nigerian government insists on controlling the price of products (Abutu, 2014). A perfectly competitive market will ensure supply sustainability if private refineries operate alongside NNPC before the subsidy is removed (Abutu, 2014). Nigerian government should implement policies that will change the structure of the petroleum sector from import dependent to a self-sustaining (Chigbu et al., 2016).

Osagibovo (2012) recommended that petroleum business leaders in the oil industry should integrate workers to be coming stakeholders of refineries in the form of equity participation, which may reduce the risk of shortages, sabotage, and ensure

commitment to the survival of the NDPSI. Harnessing all available resources including human capital, finance, and machinery will lead to the success of the petroleum supply industry (Monday, 2015). Furthermore, Osagibovo reiterated the establishment of devices and measures to check mismanagement of oil-production and wealth by oil-marketing leaders. Good leadership is crucial for the development of the oil economy and to enhance sustainable petroleum supply in Nigeria (Olukoju, 2014). The NDPSI requires creative, loyal, sacrificial, well-informed and audacious leaders to manage the resources of the nation to building a healthy oil and gas industry (Olukoju, 2014).

Business development. Nigeria operates an oil based mono-product economy (Oriakhi & Iyoha, 2013). Oil is the main stay of Nigerian business economy (Chigbu et al., 2016). Continuous and sustainable supply of refined petroleum product will enhance business development and transform the Nigerian business landscape for productivity (Aminu and Olawore, 2014). Petroleum shortages retard business development while product availability activates business development (Chigbu et al., 2016).

Almost every business enterprise relies on petroleum products for survival in Nigeria (Aminu & Olawore, 2014). Petroleum is used either as a substitute source of energy to generate electricity, or as a means to power vehicles for transportation (Chigbu et al., 2016). The majority of the small, and medium enterprises (SMES) depend on petroleum to power their businesses since the national electricity source is unstable and unreliable (Adekomaya et al., 2016).

Petroleum products supply availability will lead to the development of business processes in Nigeria (Osuala, 2013). Electricity generation and supply have a negative

effect on industrialization in Nigeria (Osobase & Bakare, 2014). Aminu, Salau, and Pearce (2013) regretted that Nigerian business development is marred with poor power supply, a high cost of alternate power source among other weak infrastructures. Available and sustainable petroleum product activates energy source for large organizations, SMEs, and self-employed firms (Osobase & Bakare, 2014). Existing companies recruits more staffers, business activities open-up while starters succeed because of the low cost of energy for production (Osobase & Bakare, 2014).

In Nigeria, PMS is the most important energy source to power vehicles for transport (Aminu & Olawore, 2014). Both private and commercial vehicles use refined petroleum products to move from one location to another (Vempatapu & Kanaujia, 2017). Manufacturers transport goods from factory location to markets for sale. Farmers transport their produce from the farms to their storage locations and the market. Workers move from their homes to their places of work. Concisely, petroleum products drive the Nigerian economy (Abutu, 2014). With available supply sustainability, manufactured goods and farmer's products could reach the market at low cost. The resultant effect is low cost of production, better profitability, and employment generation (Abutu, 2014).

According to Adekomaya et al. (2016), SME provides the bulk of employment in almost every nation. SME constitute the bedrock of Nigerian economy (Adesanya, 2014). SME are a significant aspect of the supply chain in the oil and gas industry, where they contribute in supplying and manufacturing component to MNE (Yusuf et al., 2014). Nigeria is a developing nation where a large percentage of the population is either self-employed or work with SME outfit (Adesanya, 2014). A continuous supply of petroleum

products guarantees employment for most self-employed individuals or SME personnel. Energy is available to power shops, transport materials, and power factories. People retain their jobs, and the resultant effect is employment and wealth creation (Adesanya, 2014).

Every sector in the Nigerian economy has a direct effect of petroleum shortage since personnel, machinery, and money is affected (Chigbu et al., 2016). Cottage industries spring-up when petroleum product is available to substitute the unreliable national electricity supply. The net result is the development of business activities in Nigeria (Adelabu 2012).

Resource Management in Nigerian Downstream Petroleum Supply Industry

According to RBV, a firm's resources include; financial, physical, technological, human, and reputational resources (Barney (2012). Resources abound in the Nigerian downstream petroleum industry (Chigbu et al., 2016). Resource management is a key determinant of successful performance of supply chain organizations in the Nigerian petroleum industry (Monday, 2015).

Financial resources. Finance is a key resource in the NDPSI (Olukoju, 2014). The oil and gas industry is the main source of finance for the Nigerian petroleum industry. Financing activities in the petroleum industry is a function of the Nigerian federal government until inefficiency sets into the sector (Chigbu et al., 2016). The Nigerian economy is structurally defective as the economy depends solely on the oil and gas sector for revenue (Olukoju, 2014).

Financing developmental activities for petroleum supply initiatives in Nigeria is negatively affected by oil theft activities in the Niger delta region (Wilson, 2014). Wilson noted the effect of oil theft as (a) a fall in revenue to the Nigerian state, (b) a loss of human and natural resources, (c) an increase in state insecurity, and (d) poor financing of developmental projects in the petroleum industry. The consequence of oil theft is lack of crude supplies to the refineries and underdevelopment of the Nigerian business economy (Chigbu et al., 2016).

According to Alaba and Agbalajobi (2014), a limited inflow of investment occurs in the downstream sector because of low margin, uncompetitive pricing structure, and poor incentive mechanisms. The low level of investment has resulted in limited development of the NDPSI, which inhibits business development in Nigeria (Monday, 2015). Moreover, improving the Nigerian economy will necessitate proper financing of the petroleum sector, which will require development and liberalization of petroleum sector (Adelabu, 2012). Furthermore, Okwanya et al. (2015) posited that oil leaders should focus on market-oriented policies in the downstream sector. Market-oriented policies will make energy accessible to investors and consumers, which will increase shareholders incentive and encourage more investors into the sector (Okwanya et al., 2015).

Deregulation and privatization will free the Nigerian government from financing extensive projects, encourage private sector investments, and bring efficiency and effectiveness in resources management of the NDPSI (Chigbu et al., 2016). Moreover, Adelabu (2012) noted that deregulation and privatization would enhance effective

utilization of resources, promote competition, and provide the necessary fund for the development of the sector. The deregulation of the NDPSI has a strong relationship to the economic development of Nigeria (Chigbu et al., 2016). However, deregulation and privatization will not succeed in a country that imports petroleum products with non-functional refineries (Adelabu, 2012). The deregulation of NDPSI is to ensure a constant supply of products, reduce the price, enact competition, free up funds, and ensure efficiency in the supply of refined petroleum products (Chigbu et al., 2016).

Nigeria has earned huge petroleum dollars from the sales of petroleum products (Chigbu et al., 2016). Petroleum sales are subject to price volatility depending on international economic forces (Alimi & Fatukasi, 2014). Okwanya (2015) noted that change in oil price has no impact on GDP, consumer-purchasing index, money supply, but on the exchange rate of the U.S. dollar. The exchange rate of the U.S. dollar affects petroleum importation and hence supplies to Nigeria (Akinwotu, 2014; Alimi & Fatukasi, 2014).

Physical resources. Nigeria is endowed with abundant petroleum natural resources, which has generated billions of dollars for the nation (Chigbu et al., 2016). Nigeria exports petroleum and serves as a leading member among OPEC nations (OPEC, 2016). However, Nigerian oil wealth does not reflect the development of the NDPSI, national physical infrastructures, and product supply amenities (Osagibovo, 2012). According to Adelabu (2012), petroleum products are unavailable to Nigerians and are costly because refining of crude oil takes place overseas.

Nigeria does not have enough refineries to refine the desired quantity of products for the Nigerian population (Chigbu et al., 2016). If all four refineries are functioning, a gap of 15 million liters will still arise every day (Aminu & Olawore, 2014). Alaba and Agbalajobi (2014) asserted that the establishment of private refineries and depots would solve the problem of continual refined petroleum shortages in Nigeria. Furthermore, Aminu and Olawore (2014) noted that the obsolete nature of physical facilities such as pipelines, roads, rail, and jetty receiving equipment affect the supply chain of petroleum products in Nigeria. An upgrade of physical facilities will enhance petroleum supplies in the NDPSI (Aminu & Olawore, 2014).

Technological resources. Nigeria lacks the basic technological resources to effectively and efficiently manage the NDPSI (Monday, 2015). An indicator of technological underdevelopment in Nigeria is the failure to indigenize science and technology and the inability to maintain high technology standards (Olukoju, 2014). Because of lack of technological knowhow, oil infrastructures and facilities remain in a state of disrepair and moribund (Monday, 2015; Oladepo, 2014). Examples can be noted by the state of refineries, pipelines and reception facilities at the jetties (Aminu & Olawore, 2014).

The Nigerian government has spent billions of dollars on refinery maintenance without success (Aminu & Olawore, 2014). Adelabu (2012) and Aminu and Olawore (2014) affirmed that about $400m was used on rehabilitation of refineries within the 2000s without positive results. Nigeria imports technological experts and engineering firms for major construction works in the NDPSI, especially for repair of refineries and

turn around maintenance, to enhance supply of refined petroleum products (Olukoju, 2014). Monday (2015) affirmed on the shortage of technological personnel in the NDPSI as a major factor affecting the performance of refineries and hence, the short supply of refined petroleum products in Nigeria. Furthermore, Aminu and Olawore (2014) advised policy makers and leaders to employ technology in addressing problems of the NDPSI.

Human resources. Human resources (HR) are a fundamental and crucial asset of any organization, industry, or a country (Navimipour, Rahmani, Navin, & Hosseinzadeh, 2015). Monday (2015) defined human resource or capital as the skills level, education, and problem solving abilities that will facilitate an individual to be productive in an organization. In the Nigerian oil and gas industry, increased numbers of personnel with the desired education, skills level, and problem solving abilities, critical for industrial performance and economic growth, would serve as a positive human capital development for the country (Monday, 2015).

HR is the main reason why organizations succeed and fulfill goals (Navimipour et al., 2015). HR success can be achieved by using human resource strength, expertise, knowledge, skills and education on the organizations objectives (Navimipour et al., 2015). HR leaders should focus on leader and employee characteristics, and the HR practices of the firm (Junni, Sarala, Tarba, Liu, & Cooper, 2015). Furthermore, Navimipour et al. (2015) stated that an efficient device for managing human organizations is the management of HR and professionals.

HR are a fundamental component of the NDPSI (NNPC, 2016; Osuala, 2013). HR constitutes leadership and work personnel of firms in the NDPSI (Monday, 2015).

Policies, strategies, and decision of petroleum business leaders determine success or failure of supply chain management in organizations in the NDPSI (Osuala, 2013).

According to Okwanya et al. (2015), the Nigerian literacy level is low. The Nigerian educational system lacks basic amenities required to generate HR to develop the oil and gas industry (Monday, 2015). Also, Nigeria lacks behind in the indigenization of the oil and gas sector and harnessing resources for efficient supply systems to enhance business development (Olukoju, 2014). The Nigerian institutional system needs to provide citizens the educational background to generate the required HR skills and character needed for efficient operation of the oil and gas industry (Monday 2015; Olukoju, 2014).

The NDPSI has a pool of resources from different stakeholders (Oladepo, 2014). Stakeholder cooperation in the NDPSI affects the efficiency of petroleum product supply (Oladepo, 2014). The Nigerian downstream sector consists of major oil marketers, independent oil marketers, private depots, and numerous petroleum industry unions (Chigbu et al., 2016; Oladepo, 2014). According to Oladepo, the petroleum industry unions consist of; The National Union of Petroleum and Natural Gas Worker (NUPENG), Petroleum and Natural Gas Senior Staff Association of Nigeria (PENGASSAN), Independent Petroleum Marketers Association of Nigeria (IPMAN), Major Oil Marketers Association of Nigeria (MOMAN), and Depot and Petroleum Product Marketers Association of Nigeria (DAPOMA). The petroleum industry unions have a varying degree of influence on oil workers to go on industrial actions, which affect supply efficiency in the Nigerian downstream (Akinwotu, 2014). Incessant industrial

actions by stakeholders stop supplies and paralyze the Nigerian business economy (Akinwotu, 2014). To avoid industrial actions, Nigerian petroleum business leaders must find common grounds to a partnership with stakeholders and encourage a realistic approach to mutual understandings in the NDPSI (Oladepo, 2014).

Reputational resources. Mira, Lorenzo, and Navarro (2014) refers to reputation as a set of attributes consigned to a firm, which includes quality of products or services, assurance, management and leadership behaviors, ethical conduct, and social responsibility (economic, personal, environment). The Nigerian oil and gas industry has lost reputation before the Nigerian people (Osuala, 2013). NNPC, the major controller of the NDPSI, is characterized with inefficiencies resulting to continual shortages of refined petroleum products (Chigbu et al., 2016; Osuala, 2013). In Nigeria, most public laws are modified to favor a few who live above the law and has created a leadership culture of impunity, bigotry, selfishness, and alienation from the Nigeria masses (Olukoju, 2014). The failure of organizational reputation is visible in the management of Nigeria oil economy and may serve as a hurdle for positive development (Osagibovo, 2012).

Resource Based View Theory

Organizational leaders do not determine performance by sales alone but by supply chain management (Varsei, et al., 2014). Resource and capability management are fundamentals in determining the success of supply chain organizations (Crook & Esper, 2014). RBV is one of the renowned modern theories applied in SCM concept to achieve success in resource management (Varsei et al., 2014).

In 1991, Barney used RBV to describe the relationship between a firm resources and sustained competitive advantage (Barney, 1991). RBV holds that firms achieve sustainable competitive advantage when the firm has resources (financial, human, physical, technological, organizational, and reputational) and the capability to combine two or more of these resources (Barney, 1991, 2012; Zimmermann & Foerstl, 2014). Esper and Crook (2014) described firm resources to be both tangible such as people, cash, and machines, and intangible such as information, processes, routines, and organizational culture. To achieve sustainable competitive advantage, a firm must have a resource with (a) values for creating strategies that are effective and efficient, (b) rare in the industry, (c) imperfectly imitable, and (d) non-substitutable, known as VRIN (Barney, 1991, 2012). The coordination of relational resources yields sustainable competitive advantage through SCM (Varsei et al., 2014).

Esper and Crook (2014) affirm that a firm critical resource extends beyond the boundary of the firm by creating competitive advantage among firms. Firms apply RBV principles in SCM to achieve improved performance and competitive advantage (Varsei et al., 2014). Business leaders consider RBV decisions in SCM based on core competences, which generates competitive advantage (Varsei et al., 2014). Creating competitive advantage automatically generates value for a firm (Barney, 2012).

Comparative theories. Hunt and Davis (2012) preferred the application of the resource advantage theory (RA) to RBV for determining efficiency and effectiveness in a supply chain. Hunt and Davis argued that the VRIN conditions of Barney (1991) are not applicable in real world markets. The RA theory combines RBV with demand

heterogeneous theory of the firm, which makes RA closer to real world markets (Hunts & Davis, 2012).

Other comparative theories include the resource management theory, the dynamic capability theory, and the knowledge based view theory of a firm. Resource management theory posits that successful organizations possess strategic resources, which create outputs that are more valuable with proper harnessing (Crook & Esper, 2014). The dynamic capability theory affirms that organizations attain competitive advantage on achieving unique sets of routines, unique relationships, and special knowledge (Handfield et al., 2014). The knowledge-based view of a firm relies on the precept of RBV to create value for an organization (Handfield et al., 2014; Ambulkar et al., 2015)

Summary

Oil-producing nations are countries whose economies depend on production and sale of petroleum products (Colqan, 2014). Crude oil production took place predominantly in the Middle East, South America, Africa and shipped to other parts of the world for consumption. Supply and price volatility of crude oil affect world economies, including Nigeria. The Nigerian downstream oil and gas industry has characteristics inefficient resource management in refineries, retail outlets, and the supply chain. Private sector participation; deregulation, privatization, and liberalization policies were suggested to enhance efficient resource management to create sustainable refined petroleum supply in the NDPSI to achieve economic development.

PSC management involves coordination of activities from crude oil exploration, transportation, processing, distribution and consumption to attain competitive advantage.

Refined product availability enhances economic growth, impact business development, create employment, and generate wealth. The Nigerian PSC has weak linkages leading to refined product shortages. Business leaders apply RBV to achieve resources and capability management of a firm.

Transition

Section 1includes the foundation, background, problem and purpose statements, research and interview questions, conceptual framework, operational terms, and significance of the phenomena under study. Section 1 also includes the review of literature from different authorities on the scarcity and supply of petroleum products to the Nigerian economy. Petroleum products drive the Nigerian economy. The shortages and scarcity of refined petroleum products may cripple business activities in the Nigerian economy. The objective of the study is to explore supply chain management strategies needed by leaders to sustain business development in Nigeria. Continuous availability of petroleum products translates to continuous growth of business opportunities in almost every sector of the Nigerian economy.

Section 2 begins with the purpose statement and contains an in-depth discussion of the study components. The components include the role of the researcher, participants, research methods and design, population and sampling, ethical research, data collection, organization, and analysis techniques, and the reliability and validity of the research. Section 3 will contain the presentation of findings, application of findings to professional practice, the implication of the findings to social change, and recommendation for action to improve the supply of refined petroleum products. Section 3 will also contain the

research results and end with my reflections, conclusions, and recommendation for further research.

Section 2: The Project

Section 2 begins with a restatement of the purpose statement, followed by the role of the researcher and participants. I discuss in detail the research method and design and the data collection, organization, and analysis. Section 2 also includes the ethical research section and the reliability and validity standards for the research.

Purpose Statement

The purpose of this qualitative multiple case study was to explore supply chain management strategies needed by petroleum business leaders to sustain business development in Nigeria. The target population consisted of petroleum business leaders of private oil marketing companies in NDPSI. The study was conducted in the Niger Delta region of Nigeria. The implications for positive social change include the potential for business leaders to develop sustainable strategies to increase petroleum products supply, create employment opportunities, and enhance the country's economy.

Role of the Researcher

The researcher is the primary data collection instrument to collect and analyze the data and present the findings in an organized, objective, and ethical format (Marshall & Rossman, 2016). As the researcher, I participated in all aspects of the study including the data collection process. I possess 10 years of experience working with Nigerian downstream petroleum marketing, holding positions of network, sales, and area business manager, including extensive interviewing experience. However, I did not have a direct personal or professional relationship with the research participants. Vaccaro (2012)

affirmed that a researcher's expertise in a study area promotes credibility with participants.

The role of the researcher is to adhere to ethical research standards, and research that involves human participants is an ethical issue (Hardicre, 2014). I adhered to the ethical principles and guidelines in the Belmont Report and Walden University's institutional review board (IRB). The content of the Belmont Report indicates that researchers are required to maximize study benefits while minimizing risk and providing justice for participants (Cseko & Tremaine, 2013). I completed the protecting human research participant's course offered by the National Institute of Health (NIH) Office of Extramural Research (Certification #1426577, Appendix A). Resnik, Miller, Kwok, Engel, and Sandler (2015) asserted that the NIH participant-protection training program supports researchers in understanding the informed consent process, protection of participants, and ethical challenge resolution.

I remained unbiased throughout the research process by avoiding familiarity with participants, applying member checking, and triangulating data. According to Becker (2013), avoiding participants before commencement of the interview reduces the chances of bias. Furthermore, researchers mitigate bias by triangulating sources, conducting member checking, and maintaining rigor with reliable research instruments (Carter, Bryant-Lukosius, Dicenso, Blythe, & Alan, 2014).

I used an interview protocol (Appendix B), which served as my guide for consistent collection of reliable data from all participants. Yin (2014) noted that the interview protocol serves as a format and a guide for the interview process. Foley and

O'Connor (2013) affirmed that an interview protocol adds consistency and reliability to the qualitative research process.

Participants

Participants were required to be petroleum business leaders of private sector companies in the NDPSI. The participants must have served for a minimum of 3 years in a leadership position with a company involved in distribution, importation, and sourcing of petroleum products in Nigeria. Furthermore, the participants needed to be willing to participate in a face-to-face interview. Researchers select meaningful participants based on their roles in the required field of study (Burchardt, 2013). Selected participants advance research by providing relevant evidence that addresses the research question and contributes positively to the study (Sargeant, 2012). Elo et al. (2014) noted that researchers choose participants by stating the criteria and principles for selection to enable other researchers to assess the transferability of the study.

Alaba and Agbalajobi (2014) affirmed that petroleum business leaders are required to improve petroleum product supply in Nigeria. In Nigeria, petroleum business leaders import, market, and distribute petroleum products, which are a basic requirement to ending petroleum scarcity (Chigbu et al., 2016). A key function of the private sector petroleum business leadership involves efficient management of the oil industry to eradicate shortages (Oladepo, 2014).

The public database of DPR contains profiles of organizations in the NDPSI (DPR, 2016). DPR is in charge of supervisory, regulatory, and research-related functions in NDPSI (DPR, 2016). After receiving IRB approval (06-02-17-0403903), I established

communication with an authorized representative of DPR via e-mail to assess interest in participation (Appendix C). The authorized representative of DPR e-mailed petroleum business leaders of companies in the DPR database to request their participation (Appendix D) and ask those who met the criteria to contact me directly.

I established a working relationship with the participants through the informed consent process and by disclosing the interview questions before the interview meeting. Haahr, Norlyk, and Hall (2014) affirmed that the participant and researcher relationship during the research process enhances confidentiality and trust. Marshall and Rossman (2016) noted that the informed consent process builds trustworthiness, which allows researchers to have adequate cooperation with the participants. Chilisa and Tseko (2014) emphasized that the establishment of a relationship between researchers and participants is essential for collection of data during study interviews. Yin (2014) affirmed that the use of the informed consent procedure creates familiarity between participants and researchers, which enhances the interview process.

Acquainting participants with the research topic prior to conducting interview produces better results (Nowiski, Brown, & Stepien, 2013). Andersen et al. (2012) posited that participants with prior knowledge of interview questions are more confident in their responses and provide detailed feedback that benefits the study. Revealing interview questions to participants before the interview process often results in high-quality responses (Englander, 2012).

Research Method and Design

Research Method

There are three classifications of research methodology: qualitative, quantitative, and mixed methods (Denzin, 2012). I chose the qualitative method for this study. Researchers use a qualitative method to understand and solve in-depth problems related to a phenomenon (Yin, 2014). According to Harrison (2013), researchers use qualitative methods to explore human experience and meaning related to a phenomenon. Marshall and Rossman (2016) asserted that researchers obtain a broader and deeper perspective of a problem by applying qualitative research methods. A qualitative method was appropriate for this study because I explored participant experiences to answer the research question.

In quantitative studies, researchers depend on experimental designs to test hypothesis and theories (Antwi & Hamza, 2015). Quantitative researchers rely on statistical inferences and mathematical models to arrive at study findings (Ketokivi & Choi, 2014). Denzin (2012) noted that quantitative researchers examine relationships between variables to test a hypothesis. Because I did not test a hypothesis in this study, the quantitative method was not appropriate.

A mixed methodology is useful when researchers require a combination of statistical and textual analysis of data to arrive at study result (Griensven, Moore, & Hall, 2014; Siddiqui & Fitzgerald, 2014). Researchers combine qualitative and quantitative methods to collect, analyze, and merge data to provide deeper understanding of the phenomenon under investigation (Chilisa & Tsheko, 2014; Heyvaert, Maes, & Onghena,

2013). Bryman (2012) affirmed that mixed methods are appropriate for studies that involve mitigating weakness of a single method. The mixed-methods approach was not appropriate for this study because the study considerations did not require a combination of quantitative and qualitative methods to answer the research question.

Research Design

I used a case study design for this study. Punch (2013) affirmed that researchers use a case study design to provide multiple views of real-world context and enhance social change. Researchers use case study designs to explore and gain valuable insights into a single complex phenomenon (Petty, Thompson, & Stew, 2012). The qualitative case study is a research process that facilitates exploration of a problem within a context by applying different data sources such as interviews, observations, and documents (Yin, 2014). The case study design was applicable for this study because I collected data from multiple sources.

Researchers use a phenomenological design to explore participants' lived experiences based on their meaning ascribed to a phenomenon (Hou, Ko, & Sho, 2013). Finlay (2013) affirmed that researchers use the phenomenological design to obtain detailed descriptions of the lived experiences of participants rather than generalities. Researchers use the phenomenological approach to identify the meaning of human experiences regarding a phenomenon as described by the participants (Moustakas, 1994). I focused on the how and why of participant strategies in petroleum supply as opposed to assigning meaning to lived experiences of individuals; therefore, the phenomenological design was not suitable for the study.

Ethnographic researchers explore real-life cultural elements such as language, beliefs, and behaviors of participants to generate data (Jansson & Nikolaidou, 2013). Ethnographic researchers observe, study, analyze, and describe a culture or group setting based on participants' guiding behaviors and activities (Lauring & Klitmøller, 2015). In ethnographic studies, researchers immerse themselves in the sample population as active participants (Samnani & Singh, 2013). The ethnological approach was not suitable for this study because I did not study languages or behaviors and did not immerse myself into a culture.

I continued to interview participants until I received the same responses from different participants. Data saturation occurs when different participants during the interview process provide the same response without the researcher gaining new data (Shuttleworth, 2014). Repeatability of participants' responses ensures the achievement of data saturation (Fusch & Ness, 2015). Researchers achieve data saturation when interviews with participants produce no new themes (Higginbottom, Rivers, & Story, 2014).

Population and Sampling

The population for the study was petroleum business leaders who work for private oil marketing companies and who had successfully implemented strategies of petroleum supply in Nigerian downstream. I used purposeful sampling to select participants based on the study criteria. Purposeful sampling guarantees the relevance of participants to the research question (Bryman, 2012). Purposeful sampling allows researchers to select participants who will provide the best responses to address a study problem (Smith,

Colombi, & Wirthlin, 2013). Petty et al. (2012) asserted that purposeful sampling mitigates personal bias and helps generalize findings to a larger population.

I interviewed 10 business petroleum leaders from two organizations in NDPSI. In a qualitative case study, a sample of 10 participants could be sufficient to achieve data saturation (Fugard & Photts, 2015). According to Sharp et al. (2014), the number of participants for a case study ranges from 5 to 25 depending on the research requirement. O'Reilly and Parker (2013) noted that qualitative researchers use sample size to guarantee richness of information, and the number of participants depends on the subject and availability of resources. Interviewing a small number of participants often results in a deeper understanding of the phenomenon, leading to better analysis of responses and identification of themes (Marshall & Rossman, 2016).

I ensured data saturation by interviewing participants until no new themes emerged. Fusch and Ness (2015) affirmed that researchers achieve saturation when the same responses come from different participants without gaining new information. Researchers achieve data saturation when participants produce the same information during the interview process and the researcher focuses on parameters and particular areas of the subject (O'Reilly & Parker, 2013). Furthermore, researchers achieve optimal sample size when the study attains data saturation (Logan et al., 2013).

My focus was on petroleum business leaders in NDPSI. Participants had supply experience and had been tasked with (a) decision-making in sourcing of refined petroleum products within Nigeria and abroad, (b) storage of petroleum products, and (c) sales and marketing of petroleum products. Sargeant (2012) affirmed that selection of

research participant depends on the candidate's capacity to provide answers to the research questions. Moustakas (1994) reiterated that research participants must exhibit experience and knowledge of the research subject and reflect on the study topic. O'Lynn and Krautscheid (2011) noted that selecting competent participants with an understanding of the research question is essential for the study.

Rowley (2012) affirmed that a face-to-face interview setting allow researchers to obtain valuable responses by enhancing participant confidentiality. Face-to-face interviews in natural settings compel small talk, nonverbal communication, and polite routines, which encourage participants to provide in-depth responses (Irvine, Drew, & Sainsbury, 2013). According to Doddy and Noonan (2013), researchers obtain successful results when conducting face-to-face interviews in serene settings. I conducted face-to-face interviews with participants in a private office within the business setting.

Ethical Research

I followed IRB ethical standards and used the informed consent process. IRB ethical requirements ensure that researchers (a) respect participants, (b) maximize study benefits, (c) minimize risk, and (d) provide justice for participants (Cseko & Tremaine, 2013). Researchers use the informed consent process to inform the participants of the context of the study (National Institute of Health, 2014). All participants in the study signed a copy of the informed consent form to confirm their agreement to participate, as suggested by Yin (2014).

In conducting research, participants should have the opportunity to withdraw from the study without any penalty (Hadidi, Lindquist, Treat-Jacobson, & Swason, 2013). I

informed the participants of their rights to participate and withdraw voluntarily before member checking is complete by notifying me via e-mail. The withdrawal of participants does not attract any penalty. Participants did not receive payment for participating in the study.

Yin (2014) asserted that researchers protect the confidentiality and privacy of participants to avoid exposure to a harmful situation. I protected participants by using an alphanumeric unique identifier to mask identities. All data are stored in a fireproof safe for 5 years, after which destroyed, to protect participant's and organization's identity.

Assigning alphanumeric unique identities to participants in a study provides confidentiality for the research process (Sandelowski, 2014). I assigned letters and numbers to each participant for anonymity purposes. The letter *L* and a number represent petroleum business leaders (i.e., *L1*) in the NDPSI.

Data Collection Instruments

I was the primary instrument for data collection in this study. Marbash (2013) noted that researchers are the primary instrument for data collection in qualitative studies. Haahr et al. (2014) affirmed that researchers must recognize themselves as the major instrument when conducting research. In qualitative studies, the researcher serves as an instrument to collect data, build trust, and assure credibility with the participants (Erlingsson & Brysiewicz, 2013).

I primarily used semistructured interviews for this study. Yin (2014) asserted that researchers use semistructured interviews to obtain individual perspectives and firsthand explanations of the topic under study. Stuckey (2013) indicated that the semistructured

interview process can provide a clear set of instructions for researchers along with dependable and comparable qualitative data. Moreover, Wilson (2014) affirmed that semistructured interviews allow generation of new ideas by participants during the interview process.

The semistructured interviews format incorporates using open-ended question to elicit information from participants. According to Bernard (2013), semistructured interviews with open-ended questions are reliable instruments for generating responses from a participant in qualitative studies. The semistructured open-ended data collection process provides researchers with options to collect data that are relevant to research problems (Bryman, 2012). Rowley (2012) affirmed that researchers use open-ended questions during semistructured interviews to generate rich data.

In addition to semistructured interviews, I reviewed archival operational and policy documents with interview responses from participants for methodological triangulation. Collating data from multiple sources allow researchers to have access to more information, check consistency and enhance the robustness of results (Wahyuni, 2012). Canales (2015) affirmed that combining multiple sources of data such as archival documents and participant interviews creates comparison in a study, which aids data validation. With methodological triangulation, data from different sources are used to corroborate, illuminate and explore research questions (Marshall & Rossman, 2016).

I employed member checking to enhance reliability and validity of the data collection instrument and the research process. Participants received a copy of my interpretation of transcribed interview to ensure correct representation of responses.

Member checking is a quality control process by which researchers improve credibility, accuracy, and validity of participant's responses (Haper & Cole, 2012). Birt, Scott, Cavers, Campbell, and Walter (2016) affirmed that qualitative researchers use member checking to explore the credibility of study results through participant's checks for accuracy and quality on interpreted data. Member checking, or respondent's validation involves ascertaining data correctness by participants to insure truthfulness and authenticity (Reilly, 2013)

To ensure that all the participant's responses align with the interview questions, I utilized an interview protocol (Appendix B). Dikko (2016) posited that interview protocols are a combination of procedural guide and questions for directing novice qualitative researchers through the interview process. A well-organized interview protocol is necessary for information retrieval from research participants (Leins, Fisher, Pludwinski, Rivard, & Robertson, 2014). Furthermore, the interview protocol adds reliability and consistency to the qualitative research process (Foley & O'Connor, 2013). Yin (2014) noted that an interview protocol guides the researcher in data collection and increases the reliability of case study research.

Data Collection Technique

Data collection commenced after receiving Walden University IRB approval (06-02-17-0403903). Face-to-face semistructured interviews with open-ended questions served as my data collection technique. Yin (2014) affirmed that the interview process is a good source of evidence for a case study, which generates insights into human affairs or actions. Fogarty, Augoustinos, and Kettler (2013) posited that an interview process is

essential to develop understandings and information exchange between the investigator and the participant. Marshal and Rossman (2016) reiterated that interviews have the benefit of yielding data quantity quickly, and have means for immediate follow-up and clarifications. Furthermore, researchers use semistructured interviews to conduct predetermined open-ended questions where participants have opportunity to elicit detail and rich responses (Zhou & Nunes, 2013).

Researchers use face-to-face interviews to generate information from participants to develop knowledge (Doody & Noonan, 2013). Face-to-face interviews in natural settings compel small talk, non-verbal communication, and politeness routines, which encourage participants to provide in-depth responses (Irvine et al., 2013). Rowley (2012) affirmed that face-to-face interview setting allows the researchers to obtain valuable responses by enhancing the participant confidentiality.

Semistructured interviews are associated with a high degree of flexibility, which enhances the researcher's ability to elicit detailed responses from participants (Peredaryenko & Kraus, 2013). Milne (2014) noted that during the semistructured interview process; (a) participants may provide large quantities of responses, (b) researchers can resolve response ambiguities immediately, and (c) researchers can offer detail information of participant's perceptions. However, semistructured interviews are limited by participant's communication abilities and the trust relationship between the researcher and participant (Marshall & Rossman, 2016).

By using e-mail communication with an authorized representative of DPR, I gained permission to conduct the study and interview at least five participants in two

organizations in the NDPSI (Appendix C). The research interview took place in a private office on the premises of the respective organizations. Conducting interviews in natural settings compel small talk, politeness routines, and non-verbal communications, which encourage participants to provide in-depth responses (Irvine et al., 2013). Researchers obtain successful results when conducting face-to-face interviews in natural settings (Doddy & Noonan, 2013). Rowley (2012) affirmed that natural interview settings allow the researchers to obtain valuable responses by enhancing the participant confidentiality. I e-mailed all potential participants a letter of introduction (Appendix D) and the informed consent form (Appendix E). The informed consent form includes the study overview, rights of participants, withdrawal process, and data security information (Horwitz et al., 2013). Participants replied to the informed consent through e-mail, stating *I consent*. On receipt of the e-mail, I requested a convenient date and time for a face-to-face interview.

I audio taped participant's responses using a primary and backup digital recording device. Doody and Noonan (2013) noted that audio recording is valuable in capturing data during the interview process. Yin (2014) posited that interview responses are subject to problems of bias, poor recall, and inaccurate articulation if recording is not conducted. Neal, Neal, VanDyke, and Kornbluh (2015) affirmed that researchers take advantage of interview recordings to capture accurate description of participant responses.

I transcribed and interpreted the interview responses and send a summary copy of my interpretation via e-mail to participants for member checking. Member checking is a quality control process where participants have the opportunity to review their responses

for credibility, accuracy, and validity (Haper & Cole, 2012). Houghton, Casey, Shaw, and Murphy (2013) affirmed that the research process gains credibility when participants acknowledge their contributions on receiving a summary of the interview transcript for validity. Member checking offers participant an opportunity to clarify information on errors and change possible misinterpretations (Reilly, 2013).

Data Organization Technique

During the interview, I took field notes, which I recorded in a research journal. Field notes are an integral component of a case study database (Yin, 2014). Hand written notes support audio recording devices during qualitative interviews (Jacob & Ferguson, 2012). Doddy and Noonan (2013) affirmed that note taking is a valuable technique in capturing data during the interview process. Robert-Holmes (2011) noted that researchers utilize research journals as reflective log to track data and emerging understandings during a research process. In qualitative studies, researchers utilize journal logs to enhance the conformability of the study (Lin, Pang, & Chen, 2013). Furthermore, Hickling (2012) affirmed that using research journal during a study enables reflexivity of the research process, which improves the quality of the study.

I used a Microsoft Word® application to organize the data into different file catalogs comprising of the interviewed data and notes. Marshall and Rossman (2016) noted that the use of application software such as Microsoft Word® in gathering and organizing a research process, yields better results. Microsoft Word® is widely applied in research analysis and has advantage of instant compatibility with word processors and databases (Wang & Huang, 2012). Yin (2014) affirmed that computer application assist

researchers with coding and organization of large amount of data. Technological tools support qualitative research processes to enhance robustness and indebt inquiry of the study (Paulus, Lester, & Dempster, 2013). Qualitative research analysis tools such as NVivo® are useful in both data analysis, literature analysis, and data organization (Paulus, Lester, & Britt, 2013).

All study data are stored in a locked fireproof safe for a period of 5 years. I will maintain sole access and destroy all data after 5 years to preserve confidentiality. Researchers have a responsibility to protect participants' raw data as a means of protecting the participant's identity, privacy, and confidentiality (Johnson, 2014). Researchers have the responsibility to guarantee privacy of collected research data (Adinoff, Conley, Taylor, & Chezem, 2013). Lurila et al. (2012) asserted that participant's responses remain secured and confidential when researchers provide data security.

Data Analysis

The data analysis process involves an in-depth review of interviews, and other sources of data to gain a deeper knowledge of the study research question (Yin, 2014). I employed methodological triangulation process for the research analysis. Guion, Diehl, and McDonald (2013) affirmed that case study researchers apply methodological triangulation in finding new themes during data analysis. Case study researchers use triangulation to test the validity of a study through the convergence of information from different sources (Carter et al., 2014). Houghton et al. (2013) posited that researchers utilize methodological triangulation to confirm information and enhance the rigor of the

research process. The use of methodological triangulation assists researchers with ability to control self-reporting and bias from interview data (Perkmann & Schildt, 2015).

In qualitative research, data analysis involves coding, thematic analysis and theme building into research findings (Noble & Smith, 2014). Yin (2014) affirmed that the objective of data analysis is to provide an indebt assessment of themes that arises during the interview stage. Marshall and Rossman (2016) stated that qualitative data analysis is a process whereby researchers search for patterns, themes, and relationships. Furthermore, Vaismoradi, Turunen, and Bondas (2013) noted that thematic analysis involves exploring study data to gain knowledge and understanding of the phenomenon. I interviewed participants in the NDPSI to obtain patterns and themes that may lead to the provision of chain management strategies for sustainable petroleum product supply in Nigeria.

I analyzed the interviews and archived documents using QSR NVivo®, computer-assisted qualitative data analysis software (CAQDAS) tool. According to QSR International (2014), researchers utilize NVivo® for data collection, organization, and analysis of audio and textual data. Castleberry (2014) affirmed the use of NVivo® software to process data from different sources such as Microsoft word® into useful codes and themes. Leech and Onwugbuezie (2011) posited that researchers using NVivo® increase the reliability and validity of the study. NVivo® package supports storage and analysis of large data, enhance the quality of data and collaborate with other software packages like Microsoft® Word and Excel (Paulus et al., 2013). Bowen et al. (2012) used

NVivo® software to code reports from open-ended interview questions to generate nodes, tree nodes and then useful themes.

I correlated the key themes of the conceptual framework and literature by using strategies contained in the thematic analysis process. The process of thematic analysis involves searching and identifying patterns, which evolved from the study interview and related documents (Vaismoradi, Turunen, & Bondas, 2013). Clark and Braun (2013) noted that themes are consistent patterns that emerge from interview data and have relevance to the research question. Rowley (2012) noted that qualitative researchers link key themes that emerge from study research into a focused meaning. Researchers identify key themes by guiding the data collection and result from analysis with the study conceptual framework and literature (Cameron, Nagile, Silver, & Gignac, 2013). Furthermore, Durham, Sykes, Piper, and Stokes (2015) affirmed that a combination of the research conceptual framework with the literature review, research question, methodology, data collection, analysis and developed themes assist researchers in shaping doctoral studies.

Reliability and Validity

Research validity and reliability are key components that ascertain the integrity of study results (Bölte, 2014). Reliability and validity processes determine the trustworthiness of research findings in case studies (Yin, 2014). The criterion for dependability, confirmability, transferability, and credibility determines the reliability and validity of a study in qualitative research (Elo et al., 2014; Lotfi, Ramezanii, Merghati, Yaghmaei, & Dworkin, 2013).

Reliability

Yin (2014) refers to reliability as the ability and stability to reproduce a study, while reducing errors and bias. Syed and Nelson (2015) affirmed that reliability relates to the accuracy of data in a study. Moreover, Grossoehme (2014) posited that researchers obtain reliability in their studies by having similar outcomes to previous studies.

Dependability is the degree to which a researcher could obtain the same result if the research were repeated (Mariam, 2014). The dependability of a research signifies that the research study is replicable (Matamonasa-Bennett, 2015). Furthermore, Morse and Coulehan (2015) noted that the dependability of a study is high if another researcher can accurately trail the decision path used by the initial researcher.

I applied member checking to ensure dependability of the study results. Thomas and Magilvy (2011) noted that researchers establish dependability through member checks to avoid deviations from original findings. Member checking allows participants to authenticate their responses and ensure correctness of the findings (Tong, Chapman, Israni, Gordon, & Liang, 2013). Furthermore, the member checking or respondent validation process gives participants an opportunity to correct errors and wrong interpretations to ensure the authenticity of the study (Reilly, 2013).

Validity

According to McHenry (2016), research validity is the process of reducing internal and external threats through procedural checks to ensure accuracy of findings. Humphry and Heldsinger (2014) posited that researchers employ validity to reduce threats that may affect the outcome of a study. Furthermore, Lub (2015) affirmed that

validity is the process of ascertaining whether the result of the study is accurate considering the position of the researcher, participant, or the reader.

Credibility. Houghton et al., (2013) affirmed that credibility occurs in a research process when different data source presents the same information. Cope (2014) referred to credibility as the truthfulness of a research data or participant's views and the correct interpretation of the data. Thomas and Magilvy (2011) posited that credibility in research occurs with the precise depiction of the interpretation of participant's responses. Furthermore, Lub (2015) noted that in research, credibility enhancement occurs when researchers have direct communication with participants, such that accurate responses are captured.

I assured credibility by using the member checking process for accurate interpretation of the summary of my interview data. Marshall and Rossman (2016) stated that during member checking, researchers request participants to verify the correctness of their interview interpretations. The member checking process enhances credibility of research findings by eliminating possible researcher's bias, and permits participants an opportunity to review the interview conclusions (Lotfi et al., 2013). Furthermore, Dunn (2012) affirmed that researchers create credibility in studies by submitting a summary of their interview interpretations to participants for member checking. Harper and Cole (2012) noted that researchers use member checking to ensure accuracy, credibility, and validity to control the quality of the study.

Transferability. I used a thick description process to provide transferability of the research findings. Transferability is the extent of generalization of the results of a

research to other circumstances (Matamonasa-Bennett, 2015). Bennett explained that transferability takes place when researchers provide rich descriptions of the study such that other researchers can apply the findings to a similar research problem. Transferability requires thick descriptions to enable the transfer of the context of one research to another with adequate data (Reilly, 2013). Furthermore, Thomas and Magilvy (2011) noted that a strategy to provide transferability of research is to provide a thick description of parameters such as population and study delimitations.

Confirmability. Confirmability refers to the degree of corroboration of the results of research by other researchers (Kisely, 2015). Confirmability occurs when researchers take measures to verify that the research findings are based on the data, and not from personal bias (Matamonasa-Bennett, 2015). I ensured confirmability by establishing an auditable process for the research activities as defined in the data collection, data organization, and data analysis procedures. Researchers achieve confirmability by keeping track of data, documents, and research progress for an audit trail (Wahyuni, 2012). Moreover, Thomas and Magilvy (2011) noted that confirmability occurs in research only if transferability, credibility, and dependability have occurred.

Data saturation. Data saturation is a necessary criterion for assuring the reliability and validity of research (O'Reilly & Parker, 2012). Data saturation occurs when participant responses no longer yield new themes or patterns (O'Reilly & Parker, 2012). Data saturation transpires when researchers receive same responses from different participants in the course of an interview (Fusch & Ness, 2015). When saturation occurs, the addition of another interview response does not result in the identification of new

concepts (Sargeant, 2012). I attained data saturation by continuing to interview participants until no new data or themes arises from the interviewee responses.

Transition and Summary

Section 2 included the purpose of the study, the role of researcher, methodology, participants, and ethics of the research. Section 2 also contains data collection, organization, analysis and trustworthiness of the research. The research is an exploratory qualitative case study. The purpose of the study was to explore supply management strategies needed by leaders to sustain business development in Nigeria. In the study, I used purposeful sampling and face-to-face interviews to solicit responses from private sector participants in the NDPSI. Coding and theme generation in addition to the NVivo® software assisted in the data organization and analysis.

Section 3 contains the presentation of findings from the study data analysis. Section 3 also include the application of the findings to professional practice and implications for social change. Furthermore, I concluded section 3 with recommendations for action and future research.

Section 3: Application to Professional Practice and Implications for Change

Introduction

The purpose of this qualitative, multiple case study was to explore supply chain management strategies needed by petroleum business leaders to sustain business development in Nigeria. Ten petroleum business leaders from two private sector companies (Company A and Company B) who had successfully implemented strategies for petroleum supply in the NDPSI participated in the study. I used participant interview responses and collected operational and policy statement documents from the two private sector companies to answer the research questions. The findings suggested the need for appropriate allocation of resources to all segments of the supply and value chain system. Business leaders should embark on efficient banking and foreign exchange operations while utilizing appropriate human capital for operational efficiency. Also, leaders should ensure application of technology in both operational and nonoperational segments and maintain a good organizational reputation with all stakeholders in NDPSI. Furthermore, huge opportunities exist for leaders and new investors to invest in crude oil refining and infrastructures in the Nigerian oil and gas industry.

Presentation of the Findings

The central research question for this study was the following: What petroleum supply chain management strategies are needed by petroleum business leaders to sustain business development in Nigeria? I conducted semistructured interviews with open-ended questions (Appendix B) and collected Company A's operational and policy statement documents (Appendix F) and Company B's operational and policy statement documents

(Appendix G) as archival data sources. I analyzed the data using QSR NVivo 11. The six themes that emerged were the need for (a) appropriate allocation of resources to all segments of the supply value chain system for efficiency, (b) efficient banking and foreign exchange operations, (c) engaging appropriate human capital for operational efficiency, (d) appropriate technological application in both operational and nonoperational segments, (e) efficient and effective maintenance of a good organizational reputation in NDPSI, and (f) adequate investment in Nigerian crude oil resources refining and infrastructures.

Theme 1: Appropriate Allocation of Resources to All Segments of the Supply Value Chain System for Efficiency

Varsei et al. (2014) described supply chain management (SCM) as the process of coordinating the transformation and movement of goods, services, and resources from (a) raw materials to finished products, (b) wholesalers to retailers, and (c) retailers to consumers to meet planned objectives. Pereira de Carvalho and Barbieri (2012) explained that SCM is the medium for creating and sustaining organizational competitive advantage from the extraction of raw material through processing, distribution, and consumption. Furthermore, Yesmin (2013) described the value chain as all activities needed to bring a product or service from conception through the process of production and delivery to the final consumer. The supply chain is a value addition to the business process (Handfield et al., 2015).

The complete supply value chain system consists of all supply chain operations that involve sourcing of the product from international trade or NNPC to getting the

product to the end user or consumer (DPR, 2017). In the petroleum downstream sector, the complete supply value chain system comprises four segments: (a) the marine or vessel segment, (b) the bulk storage or tank farm segment, (c) the logistic or transportation segment, and (d) the retail outlet segment where products are dispensed to the customers. All participants agreed that a firm's participation and appropriate allocation of resources to all segments of the value supply chain could lead to efficiency in the supply and hence business development in Nigeria. The resources include human, financial, technological, and equipment or machine resources depending on the segment. According to Morali and Searcy (2013), SCM is a business philosophy used to integrate the dependent activities, actors, and resources between the different levels of the points of suppliers, manufacturers, and consumers. Also, business leaders take managerial decisions to clarify the links between the different resources of a firm to implement strategies for optimal value creation (Barrick et al., 2015).

Eighty percent of participants noted that efficient resource allocation to the supply value chain starts from sourcing the right quality of product at the right price from the international traders. Participants L1A and L6B emphasized that products should be imported with the right shipping company to deliver on time and avoid paying demurrage, even though this type of shipping increases landing cost. Embracing sustainable logistics and supplier management strategies is fundamental to the distribution of products, which has an effect on the total supply chain performance (Ahmad, Rezaei, Tavasszy, & De Brito, 2016).

The ship-to-ship operation involves discharging products from mother (large) vessels to daughter (small) vessels (Otto, 2015). According to Participant L5A, the daughter vessel conveys the product to shallow waters where jetties are located, and products are discharged into the tank farms or bulk storage depots. Several regulatory and clearance activities between the government agencies, the shipping company, and the receiving depot company take place (Ambituuni et al., 2014; DPR, 2016; Nigerian Maritime Administration and Safety Agency [NIMASA], 2017). The government agencies include Customs, Immigration, Navy, Nigerian Ports Authority (NPA), NIMASA, DPR, PEF (Petroleum Equalization Fund), and the Petroleum Product Pricing Regulatory Agency (PPPRA). The activity of these agencies involves quality control and collection of statutory levies, which also add to the landing cost of the product. After clearance, the product is received into storage tanks at the depot. Participant L3A emphasized that companies should have reliable suppliers or traders abroad to avoid epileptic supplies (see Fazli, Mavi, & Vosooghidizaji, 2015).

Delays in discharging product from the ship add costs known as demurrage (Arjit, Sri Krishna, Angnappa, & Manaoj, 2017). According to Participants L6B and L7B, marketers pay demurrage to ship owners when the product spends more than the required number of days (10) on the ship. The demurrage penalty adds to the landing cost of the product. Besides importation, 40% of participants noted that marketers also receive products from NNPC vessels through quarterly allocation.

In products haulage, Organizations A and B have company-owned trucks numbering over 90. Owning trucks makes the organization less dependent on third-party

trucks, which drastically reduces the cost of the supply chain as noted by Participants L4A and L8B. All participants agreed that private depots with company trucks have the advantage of delivering the right quantity and quality of products to retail outlets or customers without delay and complaints. Participant L4A noted that the advantage of motorized trucks, while costly, has helped companies with efficient product distribution to different parts of Nigeria.

The last segment of the supply value chain network is the retail outlet, where products are dispensed to customers. All participants agreed that depot owners with retail outlets have a smooth flow of products from importation to end users, which increases supply to the nation and enhances economic development. Company A and B have retail outlets across Nigeria, which enhances efficient distribution of refined products. Eighty percent of participants agreed that increasing the numbers of retail outlets is paramount to efficient product distribution across the country.

Monday (2015) posited that putting together all available resources including human capital, machinery, technology, and finance will lead to the success of the petroleum supply industry. All participants affirmed that the right combination of finance, personnel, machinery, and technology is needed in the different segments of the supply value chain network to achieve a sustainable supply of petroleum products that will enhance sustainable business development in Nigeria. Participant L7B stated that

> we have our vessels, which creates efficiency in the business. Our investment in vessels reduces transportation cost in the sea, reduce timing and shipping delays, and also avoid paying demurrage in Jetties. We have our storage depots and do

> not have to pay throughput charges in hiring storage tanks from other private depots. Throughput charges cost one to two naira (about half a cent) per liter for a tenor, and also attract demurrage for extra days. We are also increasing the numbers of our retail outlets to improve our supply delivery.

The complete supply value chain process creates efficiency in resource utilization and enhances the improved supply of refined petroleum product to the Nigerian economy (Monday, 2015). According to Werner, Bair, and Fernández (2014), improving the value chain is a critical part of business discourse in the area of private sector development. In Table 1, I present the frequency at which participants mentioned the need for an appropriate allocation of resources to the complete value chain system.

Table 1

Appropriate Allocation of Resources to All Segments of the Supply Value Chain (Frequency)

Participants	Interview questions	Total number of references
LIA	1,3,5,7,8,11	8
L2A	1,3,5,7	4
L3A	1,3,7	3
L4A	1,5,7,11	5
L5A	1,3,7,8,11	6
L6B	1,3,5,7,8,11	10
L7B	1,3,7,8,11	9
L8B	1,3,5,7	7
L9B	1,3,5,7,11	8
L10B	1,3,5,7,11	6

Barrick et al. (2015) posited that supply chain leaders make managerial decisions to enhance linkages between the different resources of a firm to implement strategies for optimal value creation. I reviewed Company A's and Company B's operational and

policy statement documents (Appendix F & Appendix G, respectively) for contents regarding resource allocation to all segments of the supply value chain for efficiency. The archival documents revealed that Company A and Company B have a business strategy for supporting their company's achievements, goals, and values by combining financial, human, and equipment resources to the different segment of the supply value chain. Additionally, examination of archival documents showed that Companies A and B invest resources to support the shipping operations, tank farm operations, logistics, and retail outlet operations to create efficiency to further enhance all segments of the supply chain. Furthermore, the organizational archival documents showed that the organizations are involved in combining operations in all supply chain segments by matching management abilities for value allocation to yield successful results. Morali and Searcy (2013) noted that supply chain managers integrate the dependent segments and resources between the different levels of the points of suppliers, manufacturers, and consumers to maximize value for the firm.

Theme 2: Efficient Banking and Foreign Exchange Operations

The banking sector plays a significant role in the development of any country through financial intermediation such as offering of credits and distribution of funds (Menicucci & Paolucci, 2016). Banks facilitate economic growth by lending funds to creditors at an appropriate rate to optimize profit in business dealings (Tennant & Tracy, 2014). According to Obamuyi (2013), the gains of the real sector of the Nigerian economy depend on how well banks play financial intermediary roles. Furthermore,

Menicucci and Paolucci (2016) noted that only sound banks can effect economic growth in a country.

All participants affirmed that the NDPSI is capital intensive and requires a huge amount of financial resources to operate (Giwa-Osagie & Ehigiato, 2015). Also, all participants agreed that the business is 100% dependent on availability of the U.S. foreign exchange dollars (USD) and the operation of good banks. The exchange rate of the U.S. dollar affects petroleum importation and product availability in Nigeria (Akinwotu, 2014; Alimi & Fatukasi, 2014; Oriakhi & Iyoha, 2013). According to Participant L4A, finance is scarce in the NDPSI, and most marketers acquire finance through a loan from banks.

Eighty percent of participants stated that the petroleum importation business is transacted with the aid of Nigerian banks. According to Participants L1A, L2A, L8B, and L10B, banks are needed for (a) funding procurement of products, (b) having a memorandum of understanding with the international trading partner to agree on terms of payment, (c) issuance of letters of credit (LC), and (d) sourcing USD for marketers from the Central Bank of Nigeria (CBN) at good exchange rate. Participants L1A, L2A, L8B, and L10B noted that the availability of USD to business leaders for importation of refined petroleum products depends on the regulatory role of CBN and other banks. The CBN performs the regulatory and supervisory role over all banks, including maintaining an effective monetary and financial system in Nigeria (Ajibo, 2015; Giwa-Osagie & Ehigiato, 2015).

Alberto (2015) noted that banks are very important to society, and only banks with good standards can effect economic development. Business leaders need the backing of a good bank to support LC procurement to avoid hitches with the supplier or international traders (Giwa-Osagie & Ehigiato, 2015). To create efficiency, marketers liquidate LC on time to avoid incurring more charges, as emphasized by Participants L1A, L6B, and L7B. Participant L1A further explained that Nigerian business leaders may not be able to buy on credit from abroad; therefore, they need the support of banks through letters of credit. Participants L1A and L2A emphasized that insurance companies cover transactions because of the risk nature of the business, including volatile and flammable properties of the products. According to Participants L1A and L2A, the cost of the petroleum product insurance increases the final landing cost of the product.

Adeniran, Yusuf, and Adeyemi (2014), Rajhans and Jain (2015) posited that the exchange rate is the value of one currency expressed in terms of some other currency. Obansa, Okorafor, Aluko, and Millicent (2013) noted that the exchange rate system is an important requisite in global business especially for developing countries embracing globalization concepts for economic development. Obansa et al. and Adeniran et al. affirmed that there is a positive relationship between the exchange rate and the economic development in Nigeria. Nigeria foreign exchange policies are characterized by inconsistencies, which affects business growth in the country (Adeniran et al., 2014). Adeniran et al. further noted that an increase in exchange rates leads to increases in imports, and reduced exports, while a decrease leads to reduction in importation and increases exports.

The business of purchasing petroleum products overseas is transacted in foreign exchange USD (Akinwotu, 2014). All participants affirmed that the availability of the U.S. dollar and the prevailing exchange rate of the currency affect products importation. Participants L3A, L5A, L9B, and L10B declared that if the exchange rate is high, marketers may not be able to import because of the high cost and product scarcity looms. If the exchange rate is low or favorable, petroleum product availability and sustainability is achieved. Participant L7B noted that different banks offer different foreign exchange rates, and business leaders go for best rates to enhance efficiency and profitability.

According to Participant L6B "marketers establish a credit line with reputable banks to guarantee the trader to supply the products. Interest is paid on the dollar. Companies sell products and liquidate back to L.C. The line of credit takes between 30 to 40 days for liquidation." Furthermore, Participant L6B noted that the deregulation of the dollar from #199.00 (one hundred and ninety-nine naira) to #306.00 (three hundred and six naira) negatively affected the supply industry; creating instant credits from marketers to banks. The naira (local Nigerian currency) devaluation negatively affected importation and hence the availability of petroleum products. Also, Participant L6B stated that because of the high cost of doing business and difficulty in accessing foreign exchange, not all marketers are importing petroleum products in Nigeria.

According to Participant L7B, petrol is an international product and there is a platform for petrol price in the international business. Ji, Geng, and Fan (2014) noted that the Western Texas Intermediary (WTI) platform is often employed in determining

international petroleum prices. For optimal resources utilization, Participant L7B reiterated that business leaders lock the purchase price at a good rate to create efficiency.

Suliman, Elmawazini, & Shariff, (2015) advised that government should design policies to accommodate instability in exchange rate system to attract both local and foreign investors. Participant L8B emphasized that marketers do not have easy access to foreign exchange because of unfavorable government policies (Giwa-Osagie & Ehigiato, 2015). Government policies on dollar sourcing affect marketers (Obamuyi, 2013). According to Participant L8, the cost of a dollar in the black market is expensive, making several depot owners not to import products, leading to scarcity of products. However, participants L10B, L7B stated that organizations that are financially strong, do not rely on loans and government, instead invest company savings in procuring products, since charges on bank loans impart on landing cost or selling price of product. Furthermore, Participant L8 lamented the capping of petroleum prices by federal government, which discourages investment in the industry. Alaba and Agbalajobi (2014) posited that a limited inflow of investment occurs in the downstream sector because of low margin, uncompetitive pricing structure, and poor incentive mechanism. The low level of investment has resulted in limited development of the NDPSI, which inhibits business development in Nigeria (Monday, 2015).

Participant L10B narrated that in the year 2016, the U.S. dollar was scarce and expensive and created product shortages across the country because of high importation cost. By intervention, the Nigerian federal government paid subsidy to importers and also paid PEF to transporters to ensure that the product was circulated through the country. In

Nigeria, the government subsidizes refined petroleum products to the citizens (Abutu, 2014; Okwanya et al., 2015). The landing cost of the imported refined petroleum is higher than the local cost hence the federal government subsidizes the product to create a balance in the economy (Abutu, 2014). In Table 2, I present the frequency at which participants mentioned the significance of excellent banking and foreign exchange operations in NDPSI.

Table 2

Efficient Banking and Foreign Exchange Operations (Frequency)

. Participants	Interview questions	Total number of references
L1A	1, 2, 7	11
L2A	1, 3, 8, 10	12
L3A	1, 2, 5, 6, 12	8
L4A	2	2
L5A	2	6
L6B	1, 2, 6	9
L7B	1, 2, 5, 9, 11, 12	10
L8B	1, 2, 5, 6	10
L9B	1, 2	4
L10B	2	7

Giwa-Osagie and Ehigiato (2015) affirmed that the NDPSI is capital intensive and requires a huge allocation of financial resources to operate efficiently. I reviewed the operational and policy statement documents of company's A and Company's B (Appendix F & G, respectively) regarding content on banking and foreign exchange operations. The archival documents showed that leaders in both companies have a core

strategy for improving operational funding cost, reducing the cost of sales, and driving down business manual cost, with the aid of strict financial backings. Banking operations include charging interest on funds and issuance of foreign exchange, impact profitability on international business (Ajibo, 2015; Giwa-Osagie & Ehigiato, 2015). Giwa-Osagie and Ehigiato (2015) postulated that petroleum business leaders need the backing of good banks to secure funds for international business. Furthermore, Alberto (2015) posited that good banks are necessary organizations needed for societal and economic development.

Theme 3: Engaging Appropriate Human Capital for Operational Efficiency

Navimipour et al. (2015) stated that human resources (HR) are a fundamental and crucial asset of any firm, industry, or a country. Monday (2015) defined HR as the skills level, education, and problem-solving abilities that will facilitate an individual to be productive in an organization. Furthermore, Barrick, et al. (2015) explained that HR engagement is employee wiliness to completely invest themselves in terms of physical, behavioral, cognitive, and emotional abilities into their job function to create positive outcome in the firm. Employees are engaged at work by harnessing firm's resources to generate shared perceptions leading to creation of value for the firm as shown by the improved performance (Barrick et al., 2015).

Human resources. Eighty percent of participants stated that HR and adequate training of personnel are a fundamental resource to the success of organizations in the NDPSI. Fifty percent of participants discussed that the organization is made up of operational and nonoperational (support) personnel. Participants L5A, L9B explained that the operational staffs are the personnel concerned with the actual supply value chain

operations; the vessel or marine, bulk storage or tank farm, logistic or transportation, and retail outlet operations while the support staffs are those concerned with administration, marketing, sales, information technology, finance, safety, security and management. Fifty percent of Participants emphasized that because of the sensitive nature of the products (volatility, flammability, quality concerned), capable and well-trained professionals are needed to occupy every position of the supply value chain to achieve safety and efficiency. To address operational risk in the petroleum industry, Ahmad et al. (2016) suggested that companies should train and educate their personnel on systems to create efficiency in operations backed with leadership commitment and strategies for sustainability.

Participant L9B noted that the issues of product sourcing and re-ordering of stock to meet customers demand are interwoven among operational and nonoperational personnel. Fifty percent of participants explained that personnel in the trading, accounts, and administrative departments ensure the right sourcing of product from international traders; the cost price, logistics, cost of the dollar, exchange rate, quantity, and the overall landing cost. Participants LIA, L2A, and L7B affirmed that the total landing costs impart the sustainability of the supply and hence the profitability of the firm. Also, Participants L1A, L7B mentioned that the accounts and finance department facilitates payment with the banks. According to Participants L1A, L4A, L7B, and L9B collaboration exists between the sales team and operations team to deplete stock through sales. In cross functional organizations, collaborations among personnel are paramount to organizational success (Cross, Rebele, & Grant, 2016). Additionally, Leuschner, Rogers, and Charvet

(2013) noted that managers apply supply chain collaborations to ensure operational coordination, information distribution, and payments to improve productivity.

Skilled workforce. Monday (2015) posited that in the Nigerian petroleum industry, personnel with the preferred education, skills level, and problem-solving abilities, significant for industrial performance and economic growth, would serve as a positive human capital development for the country. Eighty percent of participants affirmed that organizations in the NDPSI hire and train intelligent people to form a team of experts in the various segment of the supply value chain. According to Participant L5A, organizations must have well-trained professionals who receive the products, pamper the products, dispense the products into trucks, transport products to bulk customers or retail the products to end users in the outlet. Mistakes in any of these operations could result in fire or loss of products to evaporation. Participant L5A emphasized that the best hands are employed to engage in these operations.

Junni et al. (2015) noted that HR leaders should focus on employee characteristics and HR practices of the firm. Eighty percent of participants emphasized the invaluable contribution of skilled workforce in the areas of research, planning, and forecasting. Participants L2A, L6B explained that forecasting and planning are two parameters that affect organization's allocation of resources towards achieving efficiency in supply sustainability and hence the economic development of Nigeria. Fourty percent of participants avowed that organizations forecast effects of happening events, government policies and international volatility of products availability in the downstream sector. Participant L2A emphasized that industrial research and forecast assist organizations to

be well positioned, and also to swing to favorable positions because of high dynamics in the industry. Participant L1A and L2A stated that firms regularly research on the global business position such as the international oil market, OPEC, and the United States to determine product price, product availability, and supply shortage possibilities. Skilled personnel are involved in industrial research, which enable the organization to order, stock up, or deplete stock to manage scarcity or shortage situation in the industry. To ensure efficient global supply network, Jim et al. (2013) suggested that supply managers must correspond, integrate, and analyze supply chain initiatives from international perspectives, understanding laws and regulations of different nations. Furthermore, Barrick et al. (2015) noted that business leaders should be involved in the management of the HR and other combined resources to create maximum value for the firm.

Participants L2A, L3A noted that forecasting and good timing of procurement of product are associated with success in the business. L2A stated that with forecasting, marketers determine when to import specific products based on demand in the local market and avoid a glut. Also Participant L2A, avowed that forecast is used to determine what is happening in the international market, foreign exchange fluctuation and global output positions. Participants L2A and L3A maintained that seasonal changes affect sales of petroleum products. Fifty percent of participants agreed that with a good forecast, leaders can plan and program purchases, product arrival, and sales to overcome scarcity and enhance profit and economic development. Firms employ superior forecasting techniques in petroleum marketing to stay abreast of price and product volatility, avert business risk, and enhance profitability (Charles & Dame, 2014)

Training. Navimipour et al. (2015) affirmed that firm success can be achieved by using human resource strength, expertise, knowledge, skills, and education on the organization's objectives. L10B affirmed that the success of companies in the NDPSI depends on the competence of human resources. Organizations should have a team of professional managers and employees who will optimally manage funds and machinery to yield desired results. The right caliber of personnel is crucial for the success of every segment of the supply value chain. Disgruntled personnel will disrupt activities and create inefficiency hence organization must ensure excellent recruitment. Participants L5A, L9B, and L6B stated that after recruitment, staffs are usually given orientation, trained and are appraised monthly for effectiveness and efficiency. Participants L4A, L9B, and L10B emphasized that training and re-training of personnel and good remuneration always enhance efficient and optimal utilization of resources among personnel. Participant L3A emphasized that good employee incentives will bring out the best of personnel in the industry. However, L8B exclaimed that HR cost is expensive. Furthermore, 50% participants affirmed that personnel are engaged in training activities such as talk shops, seminars, and workshops where performance targets and Key Performance Indicators (KPI) are discussed to create efficiency in the supply chain. L2A mentioned that personnel are also involved in retreats to improve overall capability and productivity. Barrick et al. (2015) noted that the strategic implementation of human resource practices, training, employee motivation, and a firm's leadership behavior, generate improved organizational performance.

Seventy percent of participants affirmed that the resources and capability strength of the organization depends on human resources. L2A emphasized on certification of personnel to create capacity on productivity. In building resources and capacity for the firm, Participants L6B, L7B, and L8B stated that training, process improvement, and equipment upgrade are fundamental. Participant L7B specified that experts are invited for seminars to improve the organizational resources knowledge of personnel while Participant L4A noted that organizations employ expatriates to train personnel on intervals to be abreast of industrial information. Thurner and Proskuryakova (2014) affirmed that firms can achieve supply chain efficiency by using internal knowledge and partnering with foreign firms to obtain innovation, create processes, and develop technologies.

Participants L7B, L9B noted that firms have a policy to send staff to a minimum of one external training or course per year. On a shorter medium, personnel of different organizations are involved in competitors' activities where firms compare notes of prices, stock position and new development in the industry. Furthermore, Participant L9B emphasized that high information sharing among personnel of different organization enhances profitability in the industry. The implementation of supply chain management strategy is made achievable by leadership decisions and actions selected to manage resources, and collaboration with supply chain members to achieve sustainability goals (Ahmad et al., 2016). In Table 3, I present the frequency at which participants mentioned the need for engaging the appropriate human capital for operational efficiency.

Table 3

Engaging Appropriate Human Capital for Operational Efficiency (Frequency)

Participants	Interview questions	Total number of references
L1A	1, 3, 10	10
L2A	1, 3, 8, 10, 11	13
L3A	1, 3, 8, 10	7
L4A	1, 3, 8, 10	6
L5A	1, 3, 8, 10, 5	11
L6B	3, 8, 10	6
L7B	1, 3, 8, 9, 10, 11	11
L8B	1, 3, 8, 11, 10	11
L9B	1, 3, 8, 10	9
L10B	1, 3, 8, 10	8

Navimipour et al. (2015) posited that an organization's success can be attained by using human resource strength, expertise, knowledge, skills, and education on the firm's objectives. The operational and policy statement documents for Company's A and Company's B (Appendix F & G, respectively) regarding human capital, showed that petroleum business leaders have the strategy of engaging educated, certified, and skilled, personnel that offer training opportunities for recruits to obtain maximum operational performance. In addition, the archival documents demonstrated that leaders improve efficiency by ensuring employee's satisfaction and reward performance excellence. Ahmad et al., (2016) stated that HR department of organizations should train and educate their personnel on systems to create efficiency in operation. Barrick et al. (2015) noted

that the tactical implementation of HR practices, personnel motivation, and a firm's leadership behavior, create improved firm performance. Furthermore, Monday (2015) noted that the Nigerian petroleum industry requires personnel with the ideal education, skills level, and problem-solving abilities to serve as a positive human capital development for the country.

Theme 4: Application of Technology in Both Operational and Nonoperational Segments

Wu (2013) affirmed that technological products (i.e., computers, software, communication equipment, and semiconductors) are increasingly being developed, thereby, bringing undeniable convenience to different aspects of the business. Setia, Venkatash, and Joglekar (2013) posited that the application of technology into organizations improves the entire business process. Besk and Seuring (2014) affirmed that the absence of technological communication and coordination in firms could lead to ineffective and inefficient performance. The petroleum supply chain operation involves technologically intensive activities in different environments across the world (Ahmad et al., 2016).

All participants affirmed that technology plays a key role in alleviating petroleum product scarcity. Participant L7B stated that the oil and gas industry is technology driven. All participants noted that technology is applied to all segments of the supply and value chain to achieve efficiency. Participants L5A and L9B emphasized that technology is applied in operations, such as: marine or vessel operations, discharge operations, tank

farm operations, loading into trucks, motorized trucking, truck tracking, transportation, and dispensing in the retail outlets.

Participants L1A and L2A noted that different software is utilized in the nonoperational segment of the supply value chain. These segments include the accounts, sales, IT, security, safety, and administrative departments that uses software to monitor operations, such as: sales, stock volume, re-order quantities, and logistics parameters. Furthermore, Participant L5A explained that without technology, the private bulk storage depots cannot operate. The private depots operate with the aid of computer systems, measuring and dispensing instruments, safety instruments, fire extinguishers, fire arrestors, gas detectors, and gloves; besides several technological gadgets for improving the supply process like ERP, Microsoft package, and the other operational software. Participants L1A and L5A noted that other examples of software employed in the supply chain operations include power enterprise, micro-load software, Depotman, and Microsoft dynamics. Ahmad et al. (2016) noted that petroleum business leaders apply technology for operations across all segments of the supply chain system. Also, organizations integrate work operations by aid of technology to enhance flexibility, share information, reduce cost, and improve performance (Rajaguru & Matanda, 2013).

Organizations are adopting technologies to improve business efficiencies and increase value (Caniel, Lenaert, & Gelderman, 2015). Information management is fundamental to every business organization, and firms are using IT to improve efficiency (Rajaguru & Matanda, 2013; Nicho & Muamaar, 2016). Participant L10B emphasized that, with technology, transactions are made faster and secured. Participant L10B noted

that technology like computer and automation of processes, help to reduce time wastage in document processing and enhance communication with internal and external customers. Participants L4A, L9B, and L10B emphasized on the use of technological resources on truck tracking to prevent diversion of products from the assigned destination. According to participant L10B, the logistics segment uses technology such as tracking devices, speed limiters, and GSM phones to enhance the efficiency of truck diversion. Participant L7B noted that technology minimizes fraud and improves efficiency across the supply chain. Innovation, such as GSM phones, Internet, and computer systems, help to streamline business communication and offer opportunities and challenges (Adu, 2016).

According to participant L9B, technology helps petroleum depot operators and leaders to track records of stock, truck loading, and sales on a daily basis within the depot and the retail outlets. Sales operation and accounts must have the same records at all times (L9B). Also, participant L8B attested that organizations use technology to monitor products, both in trucks and underground in retail outlets. Some outlets use Automatic Tank Gauge, which is a control device for accurate underground discharge. Also, Participant L8B noted that for diesel consumption in trucks, there is equipment for monitoring fuels, which is cost control equipment. Do Nascimento and de Lucena (2017) noted that a number of technological equipment, when connected to the Internet, interact to share information.

Monday (2015) affirmed that Nigeria lacks the basic technological resources to effectively and efficiently manage the NDPSI. The lack of technological knowledge has

resulted in refineries, oil infrastructures, and facilities that remain in a state of disrepair and moribund (Monday, 2015; Oladepo, 2014). Sixty percent of participants stated that Nigeria does not have the prerequisite technology to drive the oil and gas industry, and that Nigeria needs to import technology to meet up with the capacity utilization of the petroleum industry, especially the refineries. Also, 60% of participants agreed that there is a need for improvement or advancement in technology in Nigeria, as good technology will bridge the gap of supply shortages. Participants L2A and L4A emphasized that technology brings efficiency and effectiveness into the business process of the NDPSI.

All participants agreed that natural resources of crude oil would impart positively on the availability of petroleum products, which will enhance business development in Nigeria. Unfortunately, private depots do not refine the crude oil natural resources. Sixty percent of participants avowed that Nigeria lacks the basic technology to operate refineries. Monday (2015) affirmed on the lack of technological personnel in the NDPSI is a major factor affecting the performance of refineries and, hence, the supply shortages of refined petroleum products in Nigeria. The existing government refineries are moribund, coupled with the failure of the turnaround maintenance (TAM) to revive them. The oil and gas industry has technological resource problems, hence, the failure of TAM. Nigeria imports technological professionals and engineering organizations for major construction works in the NDPSI, especially for repairing refineries and TAM, to enhance the supply of refined petroleum products (Olukoju, 2014). Ninety percent of participants lamented that Nigerians do not enjoy the benefits of the endowed natural resources of crude oil, because the nation refineries operate below the expected capacity.

According to participants L3A, L6B, and L7B, Nigeria consumes about 40 million liters of petroleum daily, while the refineries produce less than 20% of the quantity.

Eighty percent participants lamented that Nigeria export crude and imports refined petroleum products at international prices such that the fluctuation in the international petroleum prices affects product availability in Nigeria. Participants L1A, L2A, L6B and L7B emphasized that when crude oil price is high, procurement cost is high, which in most cases lead to scarcity of products in Nigeria. Also, 40% participants noted that if Nigeria has functional refineries, the availability of refined petroleum products will not depend on importation or international prices; instead, Nigeria will export refined products to earn foreign exchange and enhance economic development. Alaba and Agbalajobi (2014) stressed that the lack of efficiency in the existing Nigerian refineries resulted in the sourcing of petroleum products from abroad.

Participants L5A and L6B noted that the importation of refined petroleum product depletes Nigerian foreign reserves, which negatively affects economic development. Refining abroad leads to high cost, resulting from importation and associated cost (L6B). Seventy percent of participants agreed that, with the right technology, the Nigerian refineries would function, leading to the local refining of demanded products instead of importing. Aminu and Olawore (2014) advised Nigerian policy makers and leaders to employ technology in addressing problems of the NDPSI. In Table 4, I present the frequency at which participants mentioned the need for employing technology in all business operations of the NDPSI.

Table 4

Application of Technology in Both Operational and Nonoperational Segments (Frequency)

Participants	Interview questions	Total number of references
L1A	3, 7	4
L2A	1, 7	3
L3A	1, 3, 7,	6
L4A	7	4
L5A	1, 7, 8	7
L6B	7	4
L7B	7	3
L8B	7, 12	6
L9B	1, 3, 7	5
L10B	7, 12	5

I reviewed and analyzed the operational and policy statement documents of Company's A and Company's B (Appendix F & G, respectively) regarding the application of technology in improving supplies in the NDPSI for economic development. The archival documents revealed that the organizations have a business strategy to use online software for job assignment, auditing, and HR operations. Also, Company A's archival document showed that the firm has a strategy to develop a sound basis for technological professionalism, through assurance and information to attain real-time solutions for efficiency. Caniel, Lenaert, and Gelderman (2015) posited that firms are implementing technologies to improve business efficiencies and increase value. Wu (2013) noted that to enhance firm's performance, leaders should benchmark trends in the

market place and maintain high technological links with supply chain partners. Furthermore, Kongoso (2015) advised that organizations should employ technology in their operations to check fraud, secure vital information, and improve performance.

Theme 5: Maintaining Good Organizational Reputation in the Nigerian Downstream Petroleum Supply Industry

Ahmad et al. (2016) noted that to maintain organizational reputation, firms should engage in management practices that emphasize on responsible business practices, manage critical social and environment situations, and facilitate efficient, safe logistic results. Zhang, Tse, Doherty, Li, and Akhtar (2016) maintained that organizations adopt internal and external supply chain practices to reduce negative environmental impact and improve stakeholder relationship. Firms with organizational culture, directed towards open communication, team collaboration, and innovation, are much likely to succeed in supply chain performance (Ahmad et al., 2016)

Eighty percent of participants agreed that reputation is a key resource that fundamentally plays a significant role in the success of the firms in NDPSI. Seventy percent participants noted that the reputation and integrity of the organization affects positive performance of the firm. According to participants L8B and L10B, reputation is predicated on sound organizational culture, built on core values of the firm. Ahmad et al. (2016) posited that firms should develop reputable cultures that enhance team collaboration and proactive behaviors needed for innovative, sustainable actions that can convert commitment to actions to produce positive supply chain results. Participants L8B and L10B also maintained that a good customer service, respect for customers, sincerity,

and high integrity are tenets of reputation in the business. Furthermore, Participants L8B and L10B reiterated that their company's reputation has positively enhanced the supply and value chain of the organization, leading to efficiency and increased customer base. The resultant effect is national economic development. Mira et al. (2014) affirmed that an organization's reputation is associated with higher quality ratings for the firm's products and services.

Participant L1A noted that organizational reputation is concerned with human capability and operational management. Monday (2015) noted that human capability constitutes leadership and work personnel of organizations in the NDPSI. Osuala (2013) affirmed that strategies, policies, and decisions of petroleum business leaders determine success or failures of SCM in organizations in the NDPSI. Organizations should engage employees of high expertise and integrity, who are faithful and sincere in their business dealing. Participant L2A stated, "reputation is based on your ability to perform properly in your operation and services." Participants L2A and L3A noted that stakeholders and new entrants always learn from an organization that has integrity, with credible, effective, and efficient ways of doing business. Participants L2A and L3A noted that maintaining integrity grows the business. Participant L3A affirmed that his organization dwells on good reputation for success and return on investment for stakeholders. According to participant L6B, good reputation advertises for a company.

Participant L4A noted that costumers take time to check for quality, quantity, and standards of products before making a purchase. Seventy percent of participants affirmed that organizations maintain a high level of reputation in the industry by selling high-

quality products, no adulteration of products, and no importation of substandard products. Onojake et al. (2013) refers to petroleum product adulteration as diluting a quality-refined product with a less quality product to increase the volume for more profit. Product adulteration can result in machine damages, explosions, and deaths (Onojake et al., 2013). Furthermore, successful organizations engage in high business integrity, sincerity, and excellent customer service (Ahmad et al., 2016). Eighty percent of participants stressed that the result of their organization's good reputation is an increased customer base, which has helped to increase supply distribution through the company. Participant L6B emphasized that a company's brand awareness influences a customer's decision, and organizations improve reputation by building brand functions and value to increase the customer base. Participant L1A and L6B noted that their company engages the host communities with corporate social responsibility (CSR) activities, which has imparted positively on their reputation. Companies involved in practices related to brand image and quality concerns enhance their reputation (Ahmad et al., 2016).

Participant L4A noted that private depots without integrity exist, often displaying non-ethical behaviors, resulting in a negative reputation. Also, Participant L4A stated that the negative reputation has decreased effect on organizational performance because suppliers and customers avoid such companies. Accordingly, Mira et al. (2014) asserted that reputation is based on suppliers, customers, and employee's perception of a firm's ethical conducts. The non-ethical behavior includes selling fake products, adulterating products, over-pricing, and diverting products (L4A). Product diversion occurs when business leaders redirect a product meant for a specific destination to another destination

(David et al., 2014; Osuala, 2013). Other areas of non-ethical business behaviors include inaccurate dispensing of products into trucks and retail outlet sharp practices (Aminu & Olawore, 2014). To maintain a good quality standard of imported products, organization must adhere to DPR standards of quality, in terms of density, flash point, color, sulfur content, and viscosity (DPR, 2016). Participants L5A and L9B noted that in dispensing, high accuracy is maintained both in the tank farm and at the retail outlets. According to participant L1A, a good name attracts investors and customers to an organization among competitors, while participant L7B posited that sharp practices destroy reputation.

Participant L8B narrated that reputation lies on the core values of the organization that involves the entire team. The company values are built on respect for stakeholders, with emphasis integrity, quality, and excellent service delivery. Participants L8B and L9B maintained that for over 20 years; no customer has been swindled or defrauded in transacting business with their organization. Also, participants L7B and L9B avowed that their organization has not been involved in any scandals, which have positively affected the relationship between the NNPC and their firm. However, Adelabu, (2012) and Chigbu et al. (2016) noted that the NDPSI has cartels who determine prices, the volume of importation, and proportion of supply quantity to the market, while other marketers hoard products, resulting to supply shortages in the economy. In Table 5, I present the frequency at which participants mentioned the need for good organizational reputation in the NDPSI.

Table 5

Maintaining Good Organization Reputation in NDPSI (Frequency)

Participants	Interview questions	Total number of references
L1A	3, 9	5
L2A	3, 9	6
L3A	1, 8, 9	6
L4A	9	5
L5A	5, 9	4
L6B	8, 9	4
L7B	9	8
L8B	9	4
L9B	9	2
L10B	3, 9	5

Ahmad et al. (2016) noted that successful organizations engage in high business integrity, sincerity, and excellent customer service. I reviewed the operational and policy statement documents for Company's A and Company's B (Appendix F & G, respectively) regarding maintaining organization's reputation in improving supplies in the NDPSI for economic growth. The archival documents revealed that the organizations have a business strategy of pursuing positive outcomes on safety, quality of products, integrity, and customer's satisfaction. Also, Company A supports customer's needs such as interest, values, and strategies with organizational needs to achieve superior performance (archival document F). The core values of the organizations are in business integrity, safety, and excellent quality service delivery (archival documents F, G).

Furthermore, the organizations have a niche for CSR activities to enhance their reputation among stakeholders and host environments (archival document F, G).

Ahmad et al. (2016) posited that to sustain a firm's reputation, business leaders should adopt management practices that accentuate on best business practices, manage significant social and environment situations, and facilitate efficient, safe logistic outcomes. Zhang et al., (2016) noted that besides economic and environmental aspects, a firm should focus on improving social performance of the organization in the supply chain context. Frankel and Mollenkopf (2015) posited that sustainable reputable cultures encourage firms to adopt CSR practices along with all segments of the supply chain. Also, Zhang et al. (2016) affirmed that organizations are extending their CSR activities from internal production to supply chain stakeholders. The implementation of CSR activity in organization supports the organization of successful supply chain activity in the long run (Zhang et al., 2016).

Theme 6: A Need for Investment in Nigerian Crude Oil Refining and Infrastructures

Participants L10B and L2A stated that Nigeria is an OPEC country, endowed with abundant crude oil natural resources, as affirmed by Aminu and Olawore (2014) and Chigbu et al. (2016). Ninety percent participants referred to the federal government of Nigeria in the area of distributing crude oil natural resources and functioning refineries. The government of Nigeria owns the crude oil natural resources and also control, monitor, and supervises the exploitation, exploration, and production of crude oil and other refined petroleum products through the agency, the NNPC (DPR, 2016; NNPC,

2016). All participants affirmed that crude oil natural resources impart positively on the availability of refined petroleum products, which enhance business development in Nigeria. The petroleum industry is the mainstay of the Nigerian economy (Adamu et al., 2015; Ambituuni et al., 2014). The effective and efficient function of the Nigerian economy depends on the sustainable supply of petroleum products (Aminu & Olawore 2014; Chigbu et al., 2016). Eighty percent participants noted that NNPC regulates the refineries, produces petroleum products, and distributes products to the private depot and other consumers. Participant L2A stated that government policies, laws, and regulations have a direct effect on the industry. The government provides petroleum import permits, gives quarterly allocation to marketers to lift products from NNPC, and provides licenses to build private refineries (L2A). Participant L6B affirmed that NNPC is the main manager of oil and gas business in Nigeria. Alaba and Agbalajobi (2014) emphasized that the Nigerian federal government and the NNPC are the major managers and importers of petroleum products into Nigeria.

Ninety percent of participants mentioned that the Nigerian refineries are moribund and produce below the required local consumption quantity. Chigbu et al. (2016) affirmed that Nigeria does not have enough refineries to refine the desired quantity of products for the Nigerian population. The low capacity utilization of the refineries is because of the moribund and parlous state of the refineries, lack of maintenance, neglect, and improper resource utilization (Oladepo, 2014). Oladepo (2014) stressed that Nigeria relies on exporting crude oil and importing refined petroleum product, which is not healthy for the economic development of the nation. Participant L7B noted that crude oil

is an international product and the Nigerian government or NNPC act to cushion price variations. Participants L1A and L7B stated that the high cost of crude oil in the international markets affects the cost of refined products and the Nigerian economy. Participants L5A and L6B mentioned that the importation of refined petroleum products depletes the Nigerian foreign reserves, which is negatively affecting economic development. David et al. (2014) avowed that international oil price volatility determines the national or local retail price of petroleum products across the world. The Nigerian economy and business development depend directly on activities of the oil and gas industry (Akinwotu, 2014; Osuala, 2013). Participants L5A and L6B noted that if refining is done in Nigeria, cost per liter will be lower as the product will be readily available.

Chigbu et al. (2016) advocated the use of private sector participation to improve business development in the NDPSI. Eighty percent of participant suggested the private sector taking over of the NDPSI and for the government to play only a supervising role. The establishment of private sector participation by Nigerian government was to improve production and distribution of refined petroleum products and also to develop the economy (Chigbu et al., 2016; Oladepo, 2014). Governments should leave the management of petroleum supply companies in the hands of private strategic partners to ensure optimum resource allocation and efficiency of the sector (Chigbu et al., 2016). Eighty percent participants asserted that neither the Nigerian federal government nor their NNPC can satisfy the increasing petroleum demands of the Nigerian population. Aminu and Olawore (2014) acknowledged that Nigeria's demand for refined petroleum product

had outgrown the nations supply, because of the growth in population and socio-economic activities. Eighty percent of participants stated that the government should deregulate, privatize, liberalize the NDPSI, and provide an enabling environment for private investors to operate and play the supervising role on regulatory, quality, and controls. Deregulation and privatization of the Nigerian oil and gas industry will lead to a reduction in prices of product and guarantee product supply availability (Adelabu, 2012; Chigbu et al., 2016). Furthermore, Chigbu et al. (2016) and Oladepo (2014) suggested the deregulation and privatization of the Nigerian petroleum sector for steady supply of products to enhance national economic development. Participant L8B acknowledged that government must empower private business owners to invest in the refinery process. Participant L8B noted that private refineries will liberate the country from international oil companies and create economic development. Oladepo (2014) further noted that international oil companies dominate the Nigerian oil and gas production with little indigenous participation.

Ninety percent participants supported the notion that an increase in the number of refineries by the private sector will improve the supply situation, alleviate scarcity, and automatically change the dynamics of the NDPSI. The passage of the Petroleum Industrial Bill (PIB) into law will encourage the establishment of new refineries and create an enabling business environment in Nigeria (Adangor, 2016; Adamu et al., 2015). The new refineries will mitigate supply shortages and encourage the export of refined products to earn foreign exchange (Adangor, 2016; Adamu et al., 2015). Participants L6B and L9B affirmed that the establishment of more refineries would change the current

model on the ground, lower cost, create product sustainability, and enhance economic development. Alaba and Agbalajobi (2014) asserted that the establishment of private refineries and depots would solve the problem of continually refined petroleum shortages in Nigeria. Also, 60% of participants mentioned that privatization of the existing moribund refineries would create efficiency in these organizations. Chigbu et al. (2016) recommended fixing the existing dilapidated refineries and building new refineries to enhance the sustainability of petroleum. Ninety percent participants declared that with private sector investment in refineries, the multiple effects are enormous to economic development, including, but not limited to the following: employment and job creation, export of refined products to earn foreign exchange, growth in GDP, etc. A well-developed NDPSI will have a multiplier effect on almost all forms of business activity, including agriculture, power generation, health, cottage industry, transportation, small and medium enterprises, banking, schools, and manufacturing industries (Adelabu, 2012; Okwanya et al., 2015). Participant L6B emphasized that the government should only provide oversight function in the industry and allows private investors to run the business of establishing refineries, depot storage, and distribution of petroleum products in Nigeria.

Participant L3A stated that Nigeria needs to partnership with foreign investors to build more refineries and more private depots. This will translate to more products, more employment opportunities and, hence, economic development in Nigeria. Nigerian policy makers should create policies, enabling the environment to attract foreign investors to build refineries in Nigeria to improve supply content, encourage export, and boost the

Nigerian economy (Chigbu et al., 2016). Continuous and sustainable supply of refined petroleum product will enhance business development and transform the Nigerian business landscape for productivity (Agbede, 2013). Participant L8B stated that firms should be given a license and the capacity to build and operate private or modular refineries. With more private refineries, the cost of a product is reduced, the agency cost is removed, the product is available, and the vandalism of pipelines will also be reduced. Forty percent of participants encouraged the establishment and development of pipelines and the revival of the old pipeline system, because products could be pumped to all depots in Nigeria to ease distribution challenges. Anifowose et al. (2014) stressed that a pipeline facility is an easy means of transporting petroleum products to and from refineries and to depots across the country.

Participants L7B and L8B stated that the federal government of Nigeria is responsible for the scarcity of products, because of the non-favorable policies and grounding of refineries, pipelines, and the depot system. Participant L8B emphasized that there should be sincerity and consistency in goods policies to encourage investors into the industry. Participant L9B mentioned that there should be an improvement of government policies toward the oil and gas industry. Olukoju (2014) emphasized that good leadership is crucial for the development of the oil economy and the enhancement of a sustainable petroleum supply in Nigeria. The NDPSI requires innovative, sincere, sacrificial, well-informed, and impudent leaders to manage the resources of the nation and build a healthy oil and gas industry (Olukoju, 2014). Seventy percent participants agreed that the federal government of Nigeria should assist the private sector in creating a conducive business

environment and good policies for the establishment of private refineries and depots. Chigbu et al. (2016) emphasized the judicious utilization of oil and gas resources, advising Nigerian petroleum leaders to create jobs and encouraging participation of Nigerians in the supply chain to achieve national economic development.

The Nigerian state is plagued with low-level infrastructure, poor electricity, bad roads, and persistent scarcity of refined petroleum (Akinwotu, 2014; Okwanya et al., 2015). To enhance a sustainable business development and grow the Nigerian economy, an adequate private partnership must be involved in the NDPSI (Chigbu et al., 2016). Fifty percent of participants agreed that the government should come to the aid of private sectors in terms of funding, providing infrastructure (i.e., road networks and electricity), and abolish duplication of activities by agencies, such as the Nigerian Customs, Nigerian Navy, Nigerian Immigration, NIMASA, NPA, PEF, DPR, and PPPRA. Participant L7B emphasized that government should provide loans, mortgages on retail stations, and trucks to facilitate the development of the sector. According to participant L10,

> Nigeria is an OPEC country producing crude oil. Our refineries are producing less than expected, which cannot meet the demands of the economy. There is pressure on the foreign exchange. NNPC alone cannot meet the demands of the country. The building of private refineries and depots will help product availability, create jobs, and enhance economic development. Refineries should be privatized and deregulated.

In Table 6, I present the frequency at which participants mentioned the need for private sector investment in crude oil refining and infrastructures.

Table 6

Need for Investment in Private Sector Crude Oil Refining and Infrastructures (Frequency)

Participants	Interview questions	Total number of references
L1A	4, 6, 12	13
L2A	1, 4, 6, 12	9
L3A	4, 6, 12	6
L4A	4, 6, 12	12
L5A	4, 6, 12	8
L6B	4, 6, 11, 12	11
L7B	4, 6, 12	9
L8B	4, 6, 12	13
L9B	4, 6, 12	7
L10B	4, 6, 11, 12	11

I reviewed the operational and policy statement documents of Company's A and Company's B (Appendix F & G, respectively) regarding petroleum refining and business areas of operation. The archival documents revealed that the organizations are involved in the downstream supply value chain activities, excluding refining of crude oil. According to the archival documents, the business focus areas of both companies include petroleum importation, bulk storage, marketing, sales, distribution, transportation, logistics, retailing, and services consulting, which cuts across the private and public sectors, in the Nigerian oil and gas industry. Furthermore, the archival documents showed that the private sector downstream companies are not involved in refining of the available crude oil resources, instead, import from abroad. Aminu and Olawore, (2014)

acknowledged that Nigeria's demand for refined petroleum product had outgrown the nations supply, because of the increase in population and business activities across the country. Chigbu et al. (2016) attested that Nigeria does not have enough refineries to refine the desired quantity of petroleum products for the Nigerian population. Akinwotu (2014) and Okwanya et al. (2015) revealed that the Nigerian nation is afflicted with low-level infrastructure, bad roads, poor electricity, and continual scarcity of refined petroleum. Investments in building more refineries, privatization of the existing moribund refineries, are definite solutions to eradication of petroleum shortages in Nigeria (Aminu & Olawore 2014; Chigbu et al. 2016)

Findings Related to Resource-Based View Theory

Business leaders apply RBV to optimize resources to create value, leading to organizational effectiveness and efficiency (Barney, 1991; Crook & Esper, 2014; Zimmermann & Foerstl, 2014). Barrick et al. (2015) asserted that firm resources are obtained, developed, and combined together to create rare organizational capabilities that can generate value for the organization. Furthermore, Varsie et al. (2014) posited that leaders apply RBV for the SCM process to create value through resource management and capability management.

All identified themes correlate to RBV. All participants agreed that business leaders should allocate human, financial, technological, and equipment resources to the different segments of the supply chain for efficiency. RBV postulates that business leaders achieve a sustainable organizational competitive advantage by possessing resources (financial, human, physical, technological, and reputational) and the capability

to combine two or more of these resources for efficiency (Barney, 1991, 2012; Zimmermann, & Foerstl, 2014). RBV provides a unique means of examining activities along the supply chain, which requires specific resources and capabilities to complete a task and create a competitive advantage (Hitt, Xu, & Carnes, 2016). All participants emphasized on the efficient utilization of financial resources by engaging effective and efficient banking operations and having the best value for foreign exchange transactions. Hitt, Xu, and Carnes (2016) noted that RBV focuses on the effective and efficient internal use of resources by a firm to maximize profit. RBV view of performance management helps business leaders to understand financial performance, financial resource flows, and competitiveness (Hitt et al., 2016).

Eighty percent of leaders affirmed that organizations will improve supply productivity by engaging appropriate human capital to manage the sensitive tasks involved in the petroleum supply industry. Hitt et al., (2016) noted that RBV is a leading paradigm in strategic management and has become widespread in fields such as human capital development. All participants attested to the fact that the application of technology in both operational and nonoperational segments of firms in the NDPSI is strategic to the success of the organizations. Applying RBV to operations strategy involves the use of technology to develop, protect, and leverage a firm's unique resources towards achieving a competitive advantage (Hitt et al., 2016). RBV stressed that firms need to build capabilities for coordination and incorporation of physical and information flow among the different segment of a supply chain (Sancha, Longoni, & Giménez, 2015)

Reputation is the perspective by which stakeholders view an organization (Mira et al., 2014). Eighty percent of leaders agreed that organizational reputation is a key strategy for enhancing supply efficiency in the NDPSI. RBV enhances supply chain collaborations to develop valuable resources and capabilities such as organizational reputation (Morali & Searcy, 2013). Hitt et al., (2016) noted that intangible resources like reputation are more likely to generate a competitive advantage, an RBV strength for business profitability. RBV recognized the possession of valuable, rare, imperfectly imitable, and non-substitutable (VRIN) resources by firms to attain competitive advantage (Barney, 1991). Nigeria is endowed with abundant crude oil resources; a VRIN commodity. All participants strived for an improved refining capability of the Nigerian crude oil resources by private sector investors, as a means to end the perennial petroleum shortages and enhance economic development. According to Morali and Searcy (2013), RBV strives for improved efficiency and effectiveness of a firm by controlling VRIN resources to gain and sustain competitive advantage.

RBV links organizational resources to the profitability of firms (Morali & Searcy, 2013). Since Nigeria's economic growth depends on resource management from the oil and gas industry, business leaders applying RBV may reduce inefficiencies in the NDPSI and enhance economic development (Chigbu et al., 2016; Osuala, 2013). Doki (2012) affirmed that harnessing all available resources, including human capital, finance, technology, and machinery, will lead to the success of the NDPSI.

Applications to Professional Practice

Petroleum business leaders may apply the strategies revealed in the research findings regarding how to utilize resources in SCM to mitigate petroleum supply shortages and enhance economic development in Nigeria. The clamor for the federal government of Nigeria or the NNPC, to leave the business of petroleum marketing for the private sectors and play only a regulatory and supervisory role, is gaining momentum in the economy (Adelabu, 2012; Chigbu et al., 2016). The federal government of Nigeria, in a step-wise process of deregulation, has issued licenses to private sector investors for the establishment of private depots and refineries; though, only a few have succeeded in operation (Chigbu et al., 2016). A fundamental challenge facing the NDPSI is resource management (Olukoju, 2014). With the ongoing deregulation of the NDPSI, business leaders may find the contents of this research discovery invaluable to improve the availability and sustainability of petroleum product supplies that can enhance the economic development of Nigeria.

In all the themes, participants provided strategies for use, the process of use, or the harnessing of a combination of resources to yield optimum result towards enhancing and stabilizing a petroleum supply needed for the development of the Nigerian economy. The supply and value chain consist of four segments, which can be operated independently for efficiency and profitability. Participants emphasized on the appropriate application of financial, human, and technological resources to each of these segments to facilitate efficiency. Since private sector depends largely on importation, acquiring foreign exchange through bank becomes paramount; marketers can be successful only if

foreign exchange is obtained at existing low rates. A high rate will transact to doing business at a high cost, which will impact the landing cost of the products. Participant L6B noted that most firms do not import because of the high cost of foreign exchange. Furthermore, marketers use loans in the form of a LC to purchase products from international traders (Giwa-Osagie & Ehigiato, 2015). Marketers must transact business with banks at good interest rates to liquefy the LC and make profits. In Nigeria, banks finance oil and gas business through letters of credits, whose customers in turn pay interest to the banks (Giwa-Osagie & Ehigiato, 2015). Moreover, Menicucci and Paolucci (2016) affirmed that only good banks can affect profitability to business organizations.

All participants agreed that HR is the bedrock of any organization. Engaging, training, and acquiring skilled personnel are an integral part of success, as noted by the study participants. Besides being capital intensive, the nature of the petroleum business involves high risk, because of the volatility, flammability, and quality characteristics of the products (DPR, 2016). The petroleum business is an international business which requires skilled personnel to be involved in research, forecasting and planning abilities (Monday, 2015). These processes ensure availability and sustainability of product supply at a minimal cost, which guarantees the economic development of the nation. Business leaders may improve a firm's profitability by incorporating the challenges and risk into a forecasting and planning model, to establish realistic estimates and attainable goals that aligns with the firm's strategic position (Ittner & Michels, 2017)

Participant L6B mentioned that "a company with good reputation advertises for itself." The Nigerian oil and gas industry is bedeviled with corruption and bad reputation,

which has led to operational inefficiency and, in turn, the shortage of petroleum products. (Chigbu et al., 2016; Osuala, 2013). Osagibovo, (2012) noted that the failure of a firm's reputation in the NDPSI is evident in the management of the Nigerian oil economy and may deter the development of the sector. Investors and stakeholders are always unwilling to do business with firms with negative reputation. While the private sector industry is still growing, stakeholders are wary on whom to do business with. Banks, the NNPC, and customers will not want to be associated with companies without clear dealings and business integrity. Shapiro (2014) warned that the Nigerian business landscape lacks trustworthiness as to the integrity of individuals and corporations. Firms with good performance are known to have a set of values, sustainable principles, and good decision abilities that shapes the business for positive results (Ahmad et al., 2016).

According to Monday (2015), Nigeria does not have the basic technology to effectively and efficiently manage the NDPSI. Participants emphasized on the application of technology to every segment of the NDPSI business, whether operational or nonoperational. All participants agreed that the NDPSI is technology driven. Organizational operational and nonoperational segments are interwoven with the aid of technological abilities (Rajaguru & Matanda, 2013). Participants explained that business starts with the nonoperational segment, where the administrative and accounts personnel transact with banks to purchase products from abroad or the NNPC. The appropriate technological software is needed to aid these transactions. The ship-to-ship, tank farm, and retail outlet operations are all driven and interconnected by technology. Each of these segments applies software to achieve real-time and on-time operations within the firm.

Integration of information systems across segment of organization has become the backbone of SCM as the process enhances information sharing and improves productivity (Rajaguru & Matanda, 2013).

Nigeria is endowed with crude oil natural resources but lacks the capacity to refine (Chigbu et al., 2016; Glyba et al., 2013). Participants noted moribund and inadequate refineries as the major cause of shortages and Nigeria importing refined petroleum product at international prices, which depletes the nation's foreign reserves. The availability of local crude oil natural resources can only be harnessed if Nigeria has adequate refining capacity (Chigbu et al., 2016). The deregulation of the downstream sector by the Nigerian federal government and the involvement of private sector participation in refining is a good leap in the right direction (Chigbu et al., 2016). With more refineries (i.e., modular and regular refineries) Nigeria will create employment opportunity, reduce poverty, export refined petroleum products, earn foreign exchange, and enhance economic development (Akinwotu, 2014; Aminu & Olawore, 2014; Chigbu et al., 2016).

Implications for Social Change

Business leaders, marketers, and prospective investors in the NDPSI may use the findings from this study to optimize human, financial, technological, reputational, and crude oil natural resources in the petroleum SCM to ensure sustainable products availability for economic development in Nigeria. Judicious management and application of all resources by firms will avert shortages and translate to product availability, creating continuous power generation and transportation fuel to all sectors of the Nigerian

economy, thus leading to sustained business development (Okwanya, 2015). Werner et al. (2014) affirmed that petroleum products are a major energy source for heat, power, and transportation across the world.

Petroleum product is the main stay of the Nigerian economy (Chigbu et al. 2016). The Nigerian economy and business development depend directly on the availability of petroleum products (Akinwotu, 2014; Osuala, 2013). The sustainable availability of petroleum product translates to an improved GDP for the Nigerian nation, since different sectors of the economy may have power for manufacturing activities (Akinwotu, 2014; Alimi & Fatukasi, 2014; Orhiaki & Iyoha, 2013). The improved GDP may further translate to poverty reduction and economic empowerment for the Nigerian citizen (Alimi & Fatukasi, 2014). Additionally, exporting refined petroleum product will lead to increase in foreign reserves for the country, which may also enhance economic development for the nation. Okwanya (2015) noted that the high cost of importing petroleum product increases the country's external spending and under develops the Nigerian economy.

Theme six of the research findings indicate the need to establish more refineries, privatize the existing moribund refineries, and build more infrastructures. Singularly, establishing more refineries will change the dynamics of the NDPSI and enhance the economic development of Nigeria as emphasized by participant L6B. Building more refineries will lead to the local use of the nation's crude oil (instead of exporting to refine), massive employment generation through the value chain system, availability of

refined products to power the economy, reduction in poverty, and hence economic development of Nigeria (Aminu & Olawore, 2014; Chigbu et al., 2016; Okwanya, 2015).

According to Glyba et al. (2013) and Abutu (2014), every business enterprise in Nigeria (i.e., health, agriculture, transportation, banking, school, small and medium enterprises, manufacturing industries, telecommunication, and power generation firms) rely on refined petroleum products for either power source or transportation. The petroleum industry is fundamental to achieving global, sustainable development goals, because the products drive national economic and social activities (Ahmad et al., 2016). The findings from this study may enhance the continuous and sustainable availability of refined petroleum products, which will lead to more employment generation, reduce poverty, and enhance Nigeria economic development.

Recommendations for Action

Refined petroleum product shortages have crippled business and economic development in Nigeria (Aminu & Olawore, 2014; Osuala, 2013). The Nigerian government deregulation and involvement of the private sector participants in the downstream petroleum activity is a way to improve refined petroleum supply (Chigbu et al., 2016). Based on the research findings, I recommend the following actions:

- Petroleum business leaders (i.e., private depot owners or marketers) should be involved in all segments of the supply value chain (i.e., vessels, bulk storage, transportation, and retailing) to create economies of scale and efficiency.
- Marketers should appropriate optimal human, financial, equipment, and technological resources to all segments of the supply value chain.

- Petroleum business leaders must engage with efficient banks to obtain loans or LC at good rates, and transact international business without problems and delays.
- Marketers should liquidate LC on time to avert further charges that will increase product landing cost.
- Petroleum business leaders should obtain foreign exchange at the best rates.
- Leaders should engage the right skilled and unskilled human capital and provide opportunities for continuous training and skilled development.
- Organizations should be involved in competitive activity, forecasting, planning, and continuous researches on the international petroleum industry to be abreast of industrial dynamics.
- For effectiveness and efficiency, leaders should apply the required technology to every segment of the supply value chain (i.e., operational and nonoperational segments).
- Organizations should establish a reputation by developing acceptable business ethics and integrity in all ramifications of the business.
- Marketers should capitalize on available crude oil natural resources to build refineries.
- Private sector investors should advise the Nigerian federal government to completely deregulate, liberalize, and privatize and to serve only a regulatory and supervisory role on NDPSI.

The study findings are useful to petroleum business leaders, marketers, private deport owners, and prospective investors. Furthermore, petroleum consultants to the federal government of Nigeria may also be interested in this study. I intend to disseminate the result of my findings through petroleum conferences, academic journals, and industrial publications that are focused on petroleum supply. Saracho (2013) noted that the essence of dissemination of research findings through other sources is an essential element of the research process. I may also disseminate the result of this research through seminars and training, concerning petroleum product supply shortages to effect supply sustainability and enhance economic development.

Recommendations for Further Research

Ahmad et al. (2016) emphasized that a gap exists in studies on: (a) alignment of different supply chain functions; and (b) different segments of the petroleum supply chain. Because of the complexity and political issues associated with the petroleum industry, the SCM is less researched (Ahmad et al., 2016). Academic scholars should consider the findings, recommendations, and conclusion of this study in further research.

I encountered limitations in the course of this study. First, I used a small sample size, whose result cannot be generalized to a broader population; two private sector petroleum supply companies located in the Niger Delta region of Nigeria. Future researchers could expand the sample size to include a large number of participants from the public sector or government NNPC and other subsidiaries. Furthermore, while the Niger Delta is known to be the hub of petroleum business activity in Nigeria (Enuoh &

Inyang, 2014; Gonzalez, 2016), researchers can also extend the study to other locations, like Lagos state, where several private depots are located.

Next, I limited the research to executives and senior leadership members of the organizations, which may limit the research breadth. I encourage prospective scholars to include the participation of lower managers and the workforce to increase the breath of the study. Finally, the use of case study limited insights that are obtained in other qualitative designs. The use of phenomenological design may provide deeper insight on petroleum supply strategies as lived by participants.

The findings of this study indicate SCM strategies utilized by petroleum business leaders to eradicate petroleum product shortages, improve supply sustainability, and enhance national economic development. Prospective researchers could expand on the findings of this research through additional investigation on leader's ability to: (a) allocate resources to all segments of the supply value chain system, (b) ensure efficient banking operations, (c) optimize human capital in the organization, (d) apply technology in all segment of the business, (e) ensure good organizational reputation in the NDPSI, and (f) expand business by investing in crude oil refining and infrastructures.

Reflections

During the period of my Walden DBA program, I had experience on different fronts, as the program progressed. The experiences involved using critical thinking abilities to a changed approach toward conducting business in the NDPSI. Because of the cartel and secretive nature of the NDPSI, I went through rigorous challenges before identifying ten eligible participants for the study. I met my participants after IRB

approval, and I had no form of familiarization to create bias during the interview. As a practitioner in the oil and gas industry, I made no assumptions about the industry and allowed participants to exhaust their responses during the open-ended, semi-structured interviews.

The participants were interested and excited about the study. Even after member checking, most of them told me their doors were open for questioning. The participants want an improved refined petroleum supply in the Nigerian economy. During the interview stage, I realized I had little experience of the NDPSI, compared to participant responses and the identified strategies of my findings.

I underestimated the workload and the time required for data collection, transcription, member checking, analysis, and the process of theme development. Though these stages were tedious and time-consuming, the overall experience strengthened and improved my research skills and critical thinking abilities. Besides the theme of investment in refineries, all other themes were discoveries to me.

Conclusion

The purpose of this qualitative multiple case study was to explore SCM strategies, needed by petroleum business leaders to sustain business development in Nigeria. The study population consisted of 10 petroleum business leaders from two private oil marketing companies (i.e., Company A and B) in the NDPSI. Utilizing open-ended questions, operational and policy statements as archival documents, I collected and triangulated data to answer the research question. Six themes emerged during data analysis, illustrating the strategies needed by petroleum business leaders to sustain

business development in Nigeria. The themes include: (a) allocating appropriate resources to the complete supply value chain system; (b) utilizing efficient banking and foreign exchange operations; (c) engaging appropriate human capital for operational efficiency; (d) applying appropriate technology in both operational and nonoperational segments; (e) maintaining good organization reputation in the NDPSI; and (f) supplying the need for investment in crude oil refining and infrastructures.

My findings indicated that petroleum leaders should be involved in the complete value chain operation to create an economy of scale and efficiency in all segments. Appropriate allocation of resources to each of these segments is encouraged to optimize results. The firm must be engaged with efficient and effective banks to aid smooth transactions with international suppliers, secure LC, and obtain foreign exchange at good prevailing rates. Firms should also engage competent personnel, skill and unskilled, and roll out programs for training and development. The personnel development will enhance productivity. Applying appropriate technology to both operational and nonoperational segments of the firm will create real-time, on-time, and seamless operations. Technological application will lead to the alignment of sales, accounts, and operations, thereby checking fraud and enhancing productivity.

Furthermore, the nature of the business requires good reputation among stakeholders to survive. Petroleum is the mainstay of Nigeria; hence, investors, customers, suppliers, and host communities are sensitive to the ethical conduct of firms. Finally, a huge gap exists in the refining sector of the NDPSI. Petroleum business leaders are encouraged to invest in establishing more refineries and infrastructures, meet local

demand, export, increase revenue, create jobs, reduce poverty, and enhance national development.

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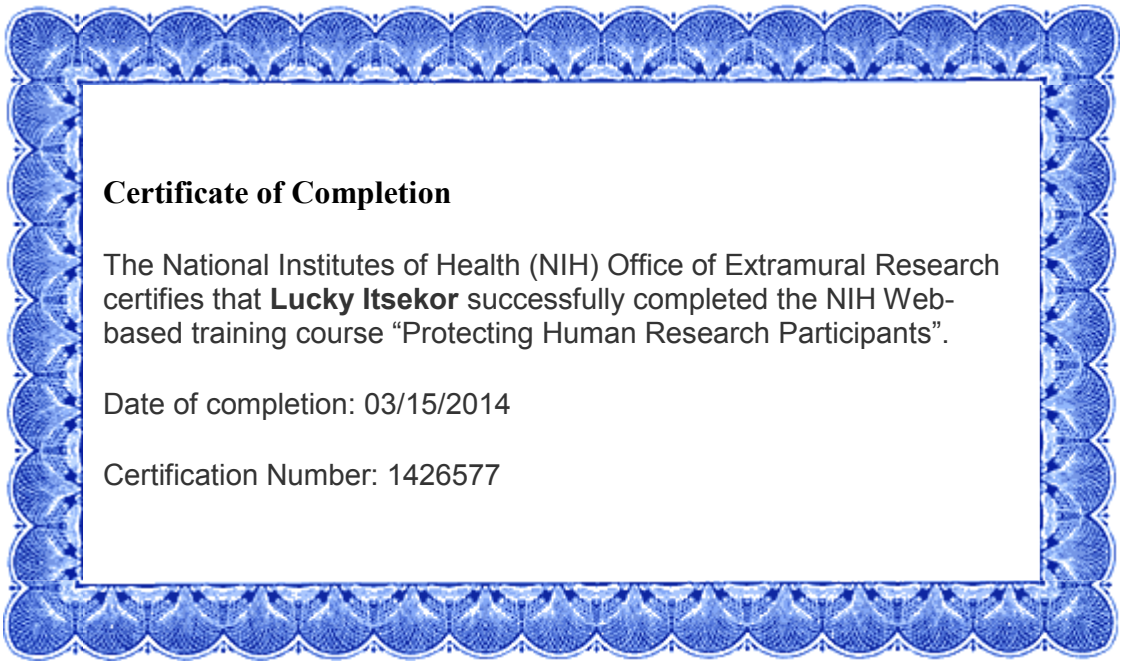
Appendix A: Human Research Certificate of Completion



Certificate of Completion

The National Institutes of Health (NIH) Office of Extramural Research certifies that **Lucky Itsekor** successfully completed the NIH Web-based training course “Protecting Human Research Participants”.

Date of completion: 03/15/2014

Certification Number: 1426577

Appendix B: Interview Protocol

Interview: Mitigating Petroleum Product Shortages in the Nigerian Downstream Petroleum Supply Industry	
What you will do	**What you will say—script**
• Introduce the interview and set the stage	My name is Lucky Itsekor, and I appreciate you taking time out of your schedule to participate in this research project. I am studying sustainable supply chain management of refined petroleum products to the Nigerian deregulated downstream industry, with emphasis on private companies like yours. My central research question that will drive this study is: What petroleum supply chain management strategies are needed by petroleum business leaders to sustain business development in Nigeria? I have 12 questions to ask you.
• Give the applicant the opportunity to introduce themselves	I have been a student of Walden University for approximately 4 years. I have spent the past 11 years working with ……. I am currently the Area Business Manager for kwara state, Ondo state, and Ekiti state. Just a recap, you have consented to become part of this research project by agreeing to be interviewed. Please keep in mind that your participation in this project is voluntary, and you may withdraw from the study at any time prior to data analysis stage. Let me know if you have any question concerning the informed consent process or the informed consent form earlier sent to you. I will audio record this interview along with taking notes. Your participation in this interview is private. Your responses will be kept confidential for this research purpose only. Do you have any questions or concerns about the confidentiality of your participation? Do you have any questions or concerns about anything that I have discussed with you thus far? Let us begin with the questions.

• Watch for non-verbal queues • Paraphrase as needed • Ask follow-up probing questions to get more in-depth	1. How do you, as a petroleum business leader, combine resources to achieve efficient petroleum supply chain management strategies in Nigeria?
	2 What financial resources do you use to enhance refined petroleum supply chain management strategies?
	3. How do you utilize human resources for development of petroleum supply chain management strategies?
	4. How do you utilize natural resources to improve petroleum supply chain management strategies for enhanced business development?
	5 What are your specific strategies to enhance petroleum supply sustainability in Nigeria?
	6. How do you utilize private sector participation in petroleum supply chain management to enhance sustainable refined petroleum products availability?
	7. How do you utilize technological resources to improve petroleum supply chain management strategies for sustainable business development?
	8. What resource and capability management strategies do you use to create an effective and efficient supply chain management system?
	9. How can your organizational reputation enhance petroleum supply chain management strategies toward sustainable business development?
	10. How do you improve organizational resource knowledge of supply chain management to mitigate shortages and enhance business development?
	11. How do you improve petroleum supply chain management in your industry?
	12. What other information would you like to share regarding supply chain management strategies to sustain business development in Nigeria?
	Thank you very much. This is the end of our interview session.
	I will make available to you a transcribed version of your responses via email within three business working days from today to ensure that I have captured the real meaning of your responses to the questions. If you observe inconsistencies in my transcription and the intended meaning of your responses, we will have a follow-up interview where you may provide further clarification.

	Once again, thank you for your time and support for this research.

Appendix C: Approval to Conduct Research

Walden University

Mitigating Petroleum Product Shortages in the Nigerian Downstream Petroleum Supply Industry

Department of Petroleum Resources
Warri, Delta State, Nigeria.

{Dear Authorizing agent}

My name is Lucky Itsekor and I am a doctoral candidate at Walden University, U.S.A. working to complete my doctor of business administration degree. I am conducting a dissertation research study on supply chain management strategies needed by petroleum business leaders in Nigerian downstream petroleum companies (private depot, major oil marketers) to achieve supply sustainability of refined petroleum products to mitigate shortages in the Nigerian economy. My research will involve interviewing ***petroleum business leaders (i.e executive leaders and managers) associated with strategic decision making on supply of refined products***, and review of ***archival documents assessing current strategies in supply of products to mitigate shortages***. Your organization is the research regulatory institution in Nigeria. I hereby request a letter of introduction from you to downstream petroleum supply companies in Niger delta region, informing them of my research intention and offer to assist in the interview process.

Upon approval, I will deliver a letter of introduction and of informed consent to each participant. All interviews will occur in private (i.e. participant office, designated office) and the schedule will not disrupt work activity. The desired archival document would include assessing available documents on current strategies, operations, policies, and practices on supply of refined products.

After the study completion and approval by Walden University, I will provide a summary of the findings for review. The names of organization, participants, and assessed documents will not be published but kept in confidence. I look forward to a favorable cooperation from your organization.

Sincerely,

Itsekor, Lucky

If you offer to assist, kindly acknowledge by completing the next section

Name:……

Organization:……

Date:……

Signature:……

Appendix D: Participant Introduction Letter

Dear Mr/Mrs XXXXX

My name is Lucky Itsekor and I am a doctoral candidate at Walden University, U.S.A. working to complete my doctor of business administration degree. I am conducting a research on supply chain management strategies needed by private sector petroleum business leaders to enhance supply sustainability of refined petroleum product to mitigate scarcity in Nigeria.

I believe that your participation and knowledge on petroleum supply chain management strategies will make an important contribution to the research and academic literature. I am requesting your participation in a face-to-face interview and only ask for about 40 minutes of your time.

If you agree to participate in the research, you will receive a summary of the findings, which will provide an opportunity to learn more on strategies employed in the industry to achieve sustainable supply of products. You and your organizational confidentiality will be protected.

If you are willing to participate in the interview process, please contact me at +2348060317984 or via email at lucky.itsekor@waldenu.edu. Feel free to contact me for any question and clarification. I will send you an informed consent form, which contains additional information about the study. Upon receipt of your response to the informed consent of "*I consent"* I will contact you to arrange a time and date for the interview. I look forward to hearing from you soon.

Thank you

Lucky Itsekor

Appendix F: Operational and Policy Statements (Company A)

We create new frontiers

is all about …….energy to soar.

was incorporated on to carry on the business of supply, trading and productivity support in the down, mid and up-stream sub sector of the petroleum industry. The company is renowned for its importation, warehousing and distribution of massive volumes of petroleum products in Nigeria. Armed with a sizeable fleet of motorized tanker trucks and strategic positioning of our retail outlets, we have excelled in effective distribution of petroleum products to meet the ever rising demand of the Nigerian market. We are also responsible for coastal supply of Petroleum Products to several establishments including but not limited to, renowned oil majors within the country on purchase order supply contracts. Being a company of founded on technical expertise, versatility and a sound financial system, our business strategy lies at the heart of all that we do. Driving down business costs, improving funding costs and reducing costs of sales are our key objectives. Exploring opportunities, visionary leadership, proactive and result oriented strategies, best practices and effective customer relationship management, have given us leverage for success.

Our underlining approach to business is implementing a flexible work pattern to meet the varying demands of our clients. Typically, the key approach is underscored by:

- Building a sound empirical basis for professionalism, by gathering consistent and structured information to deliver real time solutions.
- Use of online tools for auditing performance, work tasks, business needs and staff attitude.
- Bringing together the entire team – Operations, Marketing, Logistics, Legal, HR/ADMIN, Audit & control and Finance functions with management, to provide comprehensive solutions.
- Measuring and evaluating results against demand, safety, quality and customer satisfaction.
- Always demonstrating an understanding of customer's needs, requirements, values, interests, and strategies. We do this by understanding the customer's business, and aligning it with ours to achieve a common goal.
- Understanding and supporting the Company's priorities, objectives and values through maintenance of a network of resources and contacts to assist in completing our work.
- Rewarding excellence within the organization.

Corporate Social Responsibilities

Solutions to everyone

has apart from providing jobs for a good number of Nigeria taken up some corporate social responsibilities as a way of giving back to the society. We at take delight in reaching out to needs of both the old and young especially women and children: Some of the prominent corporate social responsibilities include:

- Skill Acquisition Centre, …… state
- Provision of pipe borne water at …… State
- Free Health Outreach, 2014 …… State
- SOS Outreach, at Sought-After Women & Children foundation Orphanage,
- Scholarship Scheme – For a good number of eligible undergraduates
- Operation clothe the widows in different parts of the country

Appendix H: Operational and Policy Statements (Company B)

is an integrated downstream oil and gas company. A prominent player in the Nigerian industry, the company's operations span across the downstream value chain i.e. Petroleum Product Storage, Haulage/Distribution and Retail Sales. Our primary products include Petrol (PMS), Diesel (AGO) and Kerosene (DPK).

Commencing business as a petroleum products marketing company in , the company's assets base has grown over the last 20 years to include:

• Bulk Storage - 2 ultra-modern petroleum product storage depots i.e. a 50 million litre capacity multi-product depot …… State and a 50 million litre capacity multi-product depot in the ……. State.

• Retail Services - 53 retail outlets spread across the country. Our stations are strategically located in major cities such as Lagos, Abuja, Kaduna, Port Harcourt, …….., Enugu, Onitsha,…… etc. We have a large and diverse customer base of retailers who rely on us for supply of products.

• Logistics - A fleet of over 80 tank trucks for efficient delivery of products to our network of stations and customers across the country. The fleet is frequently renewed through a deliberate truck acquisition policy.

• Marine Services - 5 shipping vessels; with a total carrying capacity of over 117,000 metric tonnes.

Our Mission

To provide energy products and services in an efficient & sustainable manner while creating superior value for all stakeholders.

Our Vision

To be a leading energy products and services company.

Core Values

Respect	Giving due regard to each other, customers, suppliers and other external stakeholders, in all situations.

Integrity	Being trustworthy, honest and fair.
Teamwork	Achieving efficiency and effectiveness by working together through communication, collaboration and knowledge sharing.
Excellence	Distinguishing ourselves through innovation, accountability, discipline and commitment.
Safety	Ensuring adherence to regulations and procedures intended to prevent accident, injury and environmental degradation.

Corporate Social Responsibility (CSR)

operates a number of different programs and initiatives aimed at positively impacting the communities we operate in, on a sustainable basis.
Such CSR initiatives include the following:
a) Financially supporting orphanages, motherless babies homes and other identified areas of need in our local communities. will consider community requests for supporting meaningful causes which serve the public interest.
b) Our corporate volunteer services focus on caring for the less privileged and disabled and elderly
c) Sponsorship of sports initiatives
d) Financial support to different educational programs where these programs demonstrate a role in developing the community.
Initiatives will be considered on their individual merits.
An annual budget will be dedicated for this purpose and disbursement approval will be made by the Executive Director.