Journal of Business and Management Sciences, 2018, Vol. 6, No. 4, 179-186
Available online at http://pubs.sciepub.com/jbms/6/4/6

DOI:10.12691/jbms-6-4-6

Engaging Appropriate Human Capital for Operational Efficiency in Mitigating Petroleum Shortages in the Nigerian Deregulated Downstream Supply Industry

Itsekor Lucky Ubini*

College of Management and Technology, Walden University, Minneapolis, USA
*Corresponding author: dr.litsekor@gmail.com

Received September 19, 2018; Revised October 26, 2018; Accepted November 19, 2018

Abstract The continual shortages of petroleum products in Nigeria cripples business activities, resulting to underdevelopment of the economy. The purpose of this multiple case study was to identify the strategic role of human capital in mitigating petroleum shortages in the petroleum supply chain and to sustain business development in Nigeria. The sample for the study included 10 senior leaders from two 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. The findings indicate that petroleum leaders should be involved in engaging competent personnel, skill and unskilled, roll out programs for training and development, and remunerate employees judiciously. Findings may be used by petroleum business leaders and investors to create effective and efficient human resource management strategies in the supply chain, leading to product availability, sustainability, poverty reduction, and economic development.

Keywords: *petroleum shortages, human resources, business development, Supply chain, Nigerian downstream*

Cite This Article: Itsekor Lucky Ubini, "Engaging Appropriate Human Capital for Operational Efficiency in Mitigating Petroleum Shortages in the Nigerian Deregulated Downstream Supply Industry." *Journal of Business and Management Sciences*, vol. 6, no. 4 (2018): 179-186. doi: 10.12691/jbms-6-4-6.

1. Introduction

Nigeria is blessed with abundant crude oil resources. A member of OPEC and ranked 6th in world oil production. Regardless of the availability of petroleum resources, shortages of refined petroleum products exist in Nigeria since the 1980s [1,2]. Nigerian National Petroleum Corporation (NNPC), the nation's petroleum regulatory and supervisory body, has not been able to meet up with the supply challenges of the ever growing Nigerian population and social economic activities [1,2,3].

The petroleum downstream sector was deregulated in 2003, to usher in private sector participation for a sustainable petroleum supply framework to enhance business development in Nigeria [2,3,4]. In collaboration with the NNPC, activities of the private sector has grown to include depot ownership with supply chain activities such as petroleum importation, bulk storage, haulage or distribution, and bulk or retail outlet sales [2]. The support activities of the depot petroleum supply chain includes administration, finance and accounting, technology, marketing, security, and human resources (HR).

HR is the bedrock of any organization, industry, or a nation [5]. Olukoju [6] noted that the Nigerian oil and gas industry lacks the required human capital to efficiently and effectively manage the affairs of the Nigerian Downstream Petroleum Supply Industry (NDPSI) to enhance petroleum sustainability to the economy. Furthermore, Monday [7] affirmed that an increase in 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 Nigerian oil and gas industry.

The purpose of this article/ study was to identify the strategic role of human capital in the petroleum supply chain to mitigate petroleum supply shortages and enhance business development in Nigeria. Findings from this study may provide petroleum organizational leaders with sustainable supply chain management (SCM) strategies regarding contribution of human resources for increased business development, increased revenue, and enhanced economic growth.

1.1. Conceptual Framework

The conceptual framework for this study was the resource based view theory (RBV). 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 [8,9,10]. Barney [8] 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 [8,10,11]. Creating competitive advantage automatically generates value for a firm [8].

Resource and capability management in the areas of human capital, affect the NDPSI [3,12]. In the NDPSI, inefficiencies in human 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 [2,3,12,13]. Resource and management inefficiencies contribute to refined product shortages, which negatively affect transportation and power, crippling business activities in Nigeria [2,3,12].

Organizational leaders achieve positive results by applying RBV to create efficiency and attain a comparative advantage [8]. 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 [1,2]. Business leaders may solve the problem of petroleum supply shortages through the application of appropriate human resource management to all supply chain segments of the NDPSI. RBV is one of the renowned modern theories applied in supply chain management (SCM) concept to achieve success in resource management [14].

2. A Review of the Professional and Academic Literature

2.1. Nigerian Oil and Gas Industry

Oil discovery in commercial quantities occurred in 1956 at Oloibiri in the Niger Delta region of Nigeria [1]. The first oil export took place in 1958, and since then oil has become the mainstay of the Nigerian economy [12]. Shell-D'Arcy (later Shell Petroleum Development Company) was the leading international oil company (IOC) that made the oil discovery [15]. 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 [2]. 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 [15].

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 [2,3]. 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 [12]. 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 [1].

2.2. Production

Nigeria has four refineries: the Port Harcourt Refinery Company1and 2, the Warri Refinery and Petrochemical Company, and the Kaduna Refinery and Petrochemical Company [4,15]. The refineries have a total installed production capacity of 445,000 barrels per day [12,16]. The refineries process crude oil into different refined products such as petrol or premium motor spirit (PMS), diesel (AGO), dual purpose kerosene (DPK), lubricants, jellies, and coal tar [4,17]. Nigeria's four refineries are small in relation to the country's population when compared to other members of oil-exporting countries [12].

Since the 1980s, poor management of resources by business leaders occurred at the refineries, leading to low productivity [16]. As of 2014, the refineries were producing less than 25% of the required 30 million liters of daily local demand [16]. The low-capacity production has resulted from the moribund state of the refineries, lack of maintenance, neglect, and improper resource utilization [17]. Aminu and Olawore [12] 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 [1,3]. The low productivity of the existing refineries resulted in sourcing petroleum through importation from abroad [16].

Multinationals dominate Nigerian oil and gas production with little indigenous participation [17]. 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) [17,18]. 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 [17]. 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 [18,19,20]. 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 [17,19,20].

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 [1,17]. The Nigerian government granted licenses to private investors to build refineries and depots to mitigate shortages [17]. Private investors include major oil marketers, independent oil marketers, and private depot owners [16]. Private investors and oil marketers have built depots across the country; however, they have not succeeded in establishing refineries [16].

2.3. Shortages

The Nigerian economy has experienced several eras of refined petroleum product shortage since the 1980s

[1,3,12,21]. Almost every business enterprise depends on petroleum product for either transportation or power generation [1]. Petroleum product shortages have therefore resulted in underdevelopment and crippling of business activities in Nigeria [1].

Nigeria ranked sixth among the 11 Organization of Petroleum Exporting Countries (OPEC) is plagued with the continual scarcity of petroleum products [12,21]. In Nigeria, fuel scarcity or shortages are the results of inefficiencies in the downstream sector of the petroleum industry [3,19]. 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 [1,3]. Aminu and Olawore [12] 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.

2.4. Economy and business development

The oil and gas industry is the lifeblood of Nigeria [12,22]. The Nigerian economy is heavily dependent on the oil industry for survival [1]. Nigerian electricity and transportation depends largely on diesel and petrol products [1]. Economic development in Nigeria revolves around resources management from the petroleum industry [12]. Nigeria is a mono-economy state that depends on oil for over 95% of foreign exchange earnings and 65% budgetary reserves [23].

Despite huge revenues accrued from petroleum sales, Nigeria has not achieved a developed and sustainable business economy [4,24,25]. According to Ambituuni et al. [20] and Anyanwu and Erhijakpor [26], 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 [4,22]. To enhance sustainable business development and grow the Nigerian economy, adequate private partnership must be involved in the NDPSI [1].

2.5. Human Resources

Human resources (HR) are a fundamental and crucial asset of any organization, industry, or a country [5]. Monday [7] 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 [7].

HR is the main reason why organizations succeed and fulfill goals [5]. HR success can be achieved by using human resource strength, expertise, knowledge, skills and education on the organizations objectives [5]. HR leaders should focus on leader and employee characteristics, and the HR practices of the firm [27]. Furthermore, Navimipour et al. [5] stated that an efficient device for managing human organizations is the management of HR and professionals.

HR are a fundamental component of the NDPSI [2,15]. HR constitutes leadership and work personnel of firms in the NDPSI [7]. Policies, strategies, and decision of petroleum business leaders determine success or failure of supply chain management in organizations in the NDPSI [2].

According to Okwanya et al. [22], the Nigerian literacy level is low. The Nigerian educational system lacks basic amenities required to generate HR to develop the oil and gas industry [7]. Also, Nigeria lacks behind in the indigenization of the oil and gas sector and harnessing resources for efficient supply systems to enhance business development [6]. 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 [6,7].

The NDPSI has a pool of resources from different stakeholders [17]. Stakeholder cooperation in the NDPSI affects the efficiency of petroleum product supply [17]. The Nigerian downstream sector consists of major oil marketers, independent oil marketers, private depots, and numerous petroleum industry unions [1,17]. According to Oladepo [17], 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 [4]. Incessant industrial actions by stakeholders stop supplies and paralyze the Nigerian business economy [4]. 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 [17].

3. Research Method and Design

Marshall and Rossman [28] asserted that researchers obtain a broader and deeper perspective of a problem by applying qualitative research methods. I chose the qualitative method for this study. Researchers use a qualitative method to understand and solve in-depth problems related to a phenomenon [29].

I used a case study design for this study. 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 [29]. The case study design was applicable for this study because I collected data from multiple sources of interviews, archival documents, and existing literatures.

3.1. Study Population and Sample

The population for the study was petroleum business leaders who work for private oil marketing companies (Depots) 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 [30]. I interviewed 10 business petroleum leaders (Five each) from two organizations in NDPSI (Company A and B) situated in Oghara, Delta state of Nigeria. In a qualitative case study, a sample of 10 participants could be sufficient to achieve data saturation [31]. I ensured data saturation by interviewing participants until no new themes emerged. Fusch and Ness [32] affirmed that researchers achieve saturation when the same responses come from different participants without gaining new information.

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. Moustakas [33] reiterated that research participants must exhibit experience and knowledge of the research subject and reflect on the study topic.

3.2. Data Collection

I collected data using semistructured interviews, with open-ended questions, in a face-to-face setting. I was the primary instrument for data collection in this study. In qualitative studies, the researcher serves as an instrument to collect data, build trust, and assure credibility with the participants [34]. Yin [29] asserted that researchers use semistructured interviews to obtain individual perspectives and firsthand explanations of the topic under study. Rowley [35] affirmed that researchers use open-ended questions during semistructured interviews to generate rich data. Furthermore, Doody and Noonan [36] noted that researchers use face-to-face interviews to generate information from participants to develop knowledge.

In addition to semistructured interviews, I reviewed archival operational and policy documents with interview responses from participants for methodological triangulation. Canales [37] 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 [28].

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 [38]. To ensure that all the participant's responses align with the interview questions, I utilized an interview protocol. Dikko [39] posited that interview protocols are a combination of procedural guide and questions for directing novice qualitative researchers through the interview process.

3.3. Data Analysis

In qualitative research, data analysis involves coding, thematic analysis and theme building into research findings [40]. I employed methodological triangulation process for the research analysis. The use of methodological triangulation assists researchers with ability to control self-reporting and bias from interview data [41]. I analyzed the interviews and archived documents using QSR NVivo®, computer-assisted qualitative data analysis software (CAQDAS) tool. According to QSR International [42], researchers utilize NVivo® for data collection, organization, and analysis of audio and textual data. I interviewed business leaders in the two organizations to obtain patterns and themes that may lead to the provision of human resource strategies for sustainable petroleum product supply in Nigeria. 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 companies A and B.

4. Discussions and Findings

Navimipour et al. [5] stated that human resources (HR) are a fundamental and crucial asset of any firm, industry, or a country. Monday [7] 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. [43] 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 [43].

4.1. 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. [44] 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 [45]. Additionally, Leuschner, Rogers, and Charvet [46] noted that managers apply supply chain collaborations to ensure operational coordination, information distribution, and payments to improve productivity.

4.2. Skilled Workforce

Monday [7] 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. [27] 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. [47] 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. [43] 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 [48].

4.3. Training

Navimipour et al. [5] 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. [43] 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 [49] 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 [44]. In Table 3, I present the frequency at which participants mentioned the need for engaging the appropriate human capital for operational efficiency.

Table 1. 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

4.4. Archival Document Analysis

Navimipour et al. [5] 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 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., [44] stated that HR department of organizations should train and educate their personnel on systems to create efficiency in operation. Barrick et al. [43] noted that the tactical implementation of HR practices, personnel motivation, and a firm's leadership behavior, create improved firm performance. Furthermore, Monday [7] 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.

4.5. Application to Practice

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 [50]. The petroleum business is an international business which requires skilled personnel to be involved in research, forecasting and planning abilities [7]. 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 [51].

5. Recommendations and Conclusion

Refined petroleum product shortages have crippled business and economic development in Nigeria [2,12]. The Nigerian government deregulation and involvement of the private sector participants in the downstream petroleum activity is a way to improve refined petroleum supply [1]. Based on the research findings, I recommend the following actions:

- Leaders should engage the right skilled and unskilled human capital to occupy every position of the supply value chain to ensure supply efficiency
- Petroleum business leaders should provide opportunities for continuous training and skilled development to employees.
- Organizations should be involved in competitive activity, forecasting, planning, and continuous researches on the international petroleum industry to be abreast of industrial dynamics.
- Organizations should be involved in cross functional collaboration among personnel and competitors to ensure operational coordination and information sharing to improve supply.
- Employees should be well motivated, remunerated, and incentivized to enhance organizational supply performance.
- Organizations should embark on process improvement, equipment upgrade, retreats, seminars, and partner with foreign firms to obtain innovation, create process, and develop technologies

Implementation of these strategies by petroleum business leaders will mitigate petroleum shortages from the human resource perspective as also affirmed by Itsekor [52]. The findings indicate that petroleum leaders should be involved in engaging competent personnel, skill and unskilled, roll out programs for training and development, and remunerate employees judiciously. The personnel development will enhance supply sustainability and improve economic development in Nigeria.

Acknowledgements

'Engaging Appropriate Human Capital for Operational Efficiency in Mitigating Petroleum Shortages in the Nigerian Deregulated Downstream Supply Industry' is one of the themes identified in my doctoral study. This paper is a dissemination of this findings using a journal article. Once again, I appreciate my chair (Dr. Ghormley

Y.) and all committee members at Walden University [52] for the role, support and guidance they played towards the success of my doctoral journey.

References

[1] Chigbu, U. S., Ubah, C. P., & Chigbu, E. E., Deregulation of the petroleum downstream sector and Nigerian economy: An econometric investigation. *International Journal of Business and Applied Social Science, 2* (9), 16-27. (2016). Retrieved from www.ijbassnet.com.

[2] Osuala, U. S., The sublimeness of sleaze in the NNPC in the fourth republic, 1999–2007: A historical conspectus. *Journal of Culture, Society and Development*, *2*, 52-59. (2013).

[3] Adelabu, N. S., The political economy of oil deregulation in Nigeria's fourth republic: Prospects and challenges. *Journal of Emerging Trends in Educational Research and Policy Studies, 3*, 193-198. (2012).

[4] Akinwotu, S. A., A comparative study of the discursive strategies in the media interviews of participants in the January 2012 fuel subsidy removal crisis in Nigeria. *Journal of Arts and Humanities*, *3*(7), 21-33. (2014).

[5] Navimipour, N. J., Rahmani, A. M., Navin, A. H., & Hosseinzadeh, M., Expert Cloud: A Cloud-based framework to share the knowledge and skills of human resources. *Computers in Human Behavior*, *46*, 57-74. (2015).

[6] Olukoju, A., The challenges of sustainable development in Nigeria. *International Journal of Management Sciences and Humanities*, *2*(2), 1-10. (2014).

[7] Monday, J. U., Local content policy, human capital development and sustainable business performance in the Nigerian oil and gas industry. *Journal of Management and Sustainability*, *5*(1), 75-83. (2015).

[8] Barney, J., Firm resources and sustained competitive advantage. *Journal of Management*, *17*, 99-120. (1991).

[9] Barney, J. B., Purchasing, supply chain management and sustained competitive advantage: The relevance of resource-based theory. *Journal of Supply Chain Management*, *48*(2), 3-6. (2012).

[10] Zimmermann, F., & Foerstl, K., A meta-analysis of the "purchasing and supply management practice–performance Link". *Journal of Supply Chain Management*, *50*(3), 37-54. (2014).

[11] Crook, T. R., & Esper, T. L., Do resources aid in supply chain functioning and management? Yes, but more (and more precise) research is needed. *Journal of Supply Chain Management*, *50*(3), 94-97. (2014).

[12] Aminu, S. A., & Olawore, O. P., Empirical investigation of challenges of distribution of premium motor spirit (PMS) in federal capital territory (FCT), Abuja and environs, Nigeria. *International Journal of Management Sciences and Humanities*, *2*(2), 11-38. (2014).

[13] Odeh, A. M., Deregulation policy in the downstream oil and the Nigerian economy. *Journal of Social Science and Public Policy*, *3*, 87-100. (2011).

[14] Varsei, M., Soosay, C., Fahimnia, B., & Sarkis, J. Framing sustainability performance of supply chains with multidimensional indicators. *Supply Chain Management, 9*(3), 242-257. (2014).

[15] Nigerian National Petroleum Corporation. (2016). Profile/products. Retrieved from www.nnpcgroup.com.

[16] Alaba, O. C., & Agbalajobi, S. A., Evaluation of private refineries and depots in distribution of petroleum products in Nigeria. *International Journal of Engineering and Technology*, *4*, 118-126. (2014).

[17] Oladepo, I. O., Evaluation of petroleum products marketing in a globalizing economy: Conceptual evidence from Nigeria. *British Journal of Marketing Studies, 2* (2), 71-81. (2014).

[18] Adangor, Z., Petroleum industry bill and the principle of vicarious liability of oil producing states and local government councils for sabotage of petroleum facilities: Resurrecting an old colonial policy in the Niger Delta region of Nigeria. *Journal of Law and Conflict Resolution 8*(1), 1-14. (2016).

[19] Adamu, M. A., Ajienka, J. A., & Ikiensikimama, S. S., Evaluating the economic impact of fiscal provisions in the draft petroleum industry bill on offshore marginal oil field development. *International Journal of Science and Engineering Investigations, 4(5)*, 39-46. (2015).

[20] Ambituuni, A., Amezaga, J., & Emeseh, E., Analysis of safety and environmental regulations for downstream petroleum industry operations in Nigeria: Problems and prospects. *Environmental Development*, *9*, 43-60. (2014).

[21] Aminu, S. A., & Olayinka, K. A., Achieving petrol conservation through higher pump price in Nigeria: Evidence from the transport sector of Lagos State. *International Journal of Management Sciences and Humanities*, *2*(2), 102-122. (2014).

[22] Okwanya, I., Moses, O., & Pristine, J. M., An Assessment of the impact of petroleum subsidy on consumer price index in Nigeria. *Global Journal of Interdisciplinary Social Sciences*, *4*(1), 36-39. (2015).

[23] Akanle, O., Adebayo, K., & Adetayo, O., Fuel subsidy in Nigeria: Contexts of governance and social protest. *International Journal of Sociology and Social Policy*, *34*, 88-106. (2014).

[24] Gonzalez, A., Poverty, oil and corruption: The need for a quad-sector development partnership (QSDP) in Nigeria's Niger Delta. *Development Policy Review*. 34, 509-538. (2016).

[25] Tobor, J. O. *Urhobo culture and the amnesty program in Niger Delta, Nigeria: An ethnographic case study. (2014). Walden Dissertation and Doctoral Studies. Retrieved from www.scholarworks@waldenu.edu.*

[26] Anyanwu, J. C., & Erhijakpor, A. E., Does oil wealth affect democracy in Africa? *African Development Review*, *26*, 15-37. (2014).

[27] Junni, P., Sarala, R. M., Tarba, S. Y., Liu, Y., & Cooper, C. L., Guest editors' introduction: The role of human resources and organizational factors in ambidexterity. *Human Resource Management*, *54*, 1-28. (2015).

[28] Marshall, C., & Rossman, G., *Designing qualitative research* (6th ed.). Thousand Oaks, CA: Sage. (2016).

[29] Yin, R., *Case study research method: Design and method* (5th ed.). Thousand Oaks, CA: Sage. (2014).

[30] Bryman, A., *Social research methods* (4th ed.). (2012). Oxford, UK: Oxford University Press.

[31] Fugard, A. J., & Potts, H. W., Supporting thinking on sample sizes for thematic analyses: A quantitative tool. *International Journal of Social Research Methodology*, *18*, 669-684, 1-16.

[32] Fusch, P. I., & Ness, L. R., Are we there yet? Data saturation in qualitative research. *The Qualitative Report, 20*, 1408-1416. (2015).

[33] Moustakas, C. E., *Phenomenological research methods*. Thousand Oaks, CA: Sage. (1994).

[34] Erlingsson, C., & Brysiewicz, P., Orientation among multiple truths: An introduction to qualitative research. *African Journal of Emergency Medicine*, *3*, 92-99. (2013).

[35] Rowley, J., Conducting research interviews. *Management Research Review*, *35*, 260-271. (2012).

[36] Doody, O., & Noonan, M., Preparing and conducting interviews to collect data. NNurse Researcher, *20*, 5, 28-32. (2013).

[37] Canales, J. I., Sources of selection in strategy making. *Journal of Management Studies*, *52*(1), 1-31. (2015).

[38] Harper, M., & Cole, P., Member checking: Can benefits be gained similar to group therapy? *The Qualitative Report, 17*, 510-517.

[39] Dikko, M., Establishing construct validity and reliability: Pilot testing of a qualitative interview for research in takaful (Islamic insurance) *The Qualitative report, 21*, 521-528. (2016).

[40] Noble, H., & Smith, J., Qualitative data analysis: A practical example. *Evidence Based Nursing*, *17*(1), 2-3. (2014).

[41] Perkmann, M., & Schildt, H., Open data partnerships between firms and universities: The role of boundary organizations. *Research Policy*, *44*, 1133-1143. (2015).

[42] QSR International., NVivo 10. (2014). Retrieved from http://www.qsrinternational.com/.

[43] Barrick, M. R., Thurgood, G. R., Smith, T. A., & Courtright, S. H., Collective organizational engagement: Linking motivational antecedents, strategic implementation, and firm performance. *Academy of Management Journal*, *58*, 111-135. (2015).

[44] Ahmad, W. N., Rezaei, J., Tavasszy, L. A., & de Brito, M. P., Commitment to and preparedness for sustainable supply chain management in the oil and gas industry. *Journal of Environmental Management*, *180*, 202-213. (2016).

[45] Cross, R., Rebele, R., & Grant, A., Collaborative overload. *Harvard Business Review*, *94*, 74-79. (2016).

[46] Leuschner, R., Rogers, D. S., & Charvet, F. F., A meta-analysis of supply chain integration and firm performance. *Journal of Supply Chain Management*, *49*(2), 34-57. (2013).

[47] Jim Wu, Y. C., Kevin Huang, S., Goh, M., & Hsieh, Y. J., Global logistics management curriculum: Perspective from practitioners in Taiwan. *Supply Chain Management: An International Journal*, *18*(4), 376-388. (2013).

[48] Charles, A., & Darné, O., Volatility persistence in crude oil markets. *Energy policy*, *65*, 729-742. (2014).

[49] Thurner, T., & Proskuryakova, L. N., Out of the cold–the rising importance of environmental management in the corporate governance of Russian oil and gas producers. *Business Strategy and the Environment*, *23*, 318-332. (2014).

[50] Department of Petroleum Resources, Operations. (2016). Retrieved from https://dpr.gov.ng/index.

[51] Ittner, C. D., & Michels, J., Risk-based forecasting and planning and management earnings forecasts. *Review of Accounting Studies*, *22*, 1005-1047. (2017).

[52] Itsekor, L. U., Mitigating petroleum product shortages in the Nigerian downstream petroleum supply industry. *Walden Dissertation and Doctoral Studies* (2018). https://ezp.waldenulibrary.org/login?url=https://search-proquest-com.ezp.waldenulibrary.org/docview/2033044375?accountid=14872.