International Transport Route Planning
Case KBWright Trading Ltd (U.K.)

Bachelor’s thesis
Supply Chain Management
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The commissioning company of this thesis, KBWright Trading Ltd., is domiciled in the United Kingdom. It is an open secret that the UK is having a turbulent time as they are trying to separate from the European Union. This has created some uncertainties around the usual business clime of the country. It is against this backdrop that this project was commissioned to plan the transportation of cashew beans from Nigeria to the UK. Hence, this thesis aims to furnish KBWright Trading Ltd. with relevant statistics that will help in creating a working transport route design.

The study helps to understand importation process into the UK in brief and also discusses relevant incoterms and the need for transferring high-risk part of the inbound transportation and importation process. The theory also delve into transport modes and their characteristics.

Calls were made and also emails to freight forwarders and logistics companies to gather data about freight prices for different transport modes. This will help the owner of KBWright Trading Ltd. benchmark freight prices. The freight prices and data about the available transport modes for international cargo from Nigeria to the UK served as the primary data. Other transport statistics were collected from relevant websites as secondary data. The theory was combined with data collected and analysed.

The outcome was that sea transportation was the most viable transportation for the main carriage while air transportation is on the stand-by if expediting of delivery is required for the cashew beans. Delivery terms that are advisable were at least those that commit the seller up until loading point for the main carriage. Alternatively, all or the transportation process in Nigeria is to be outsourced because of uncertainties.

**Keywords**  
Cargo transportation, transport route planning, cashew beans.
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1 INTRODUCTION

The commissioning company of this thesis is interested in procuring agricultural produce for brokerage in the United Kingdom (UK) and Nigeria has been identified as a potential source of supply for this produce. The produce includes; cashew nuts, coffee beans, sesame seeds, charcoal, gum arabic, palm kernel, sorghum and ginger. Nonetheless, for simplicity, this thesis only addresses the importation of cashew nuts.

According to FAOSTAT (2018), Nigeria was the second largest producer of cashew nuts behind Vietnam in 2016 with a total production of 958860 tonnes. There are other reasons that make Nigeria desirable as a target for the importation of cashew nuts into the UK. For instance, Nigeria is a member of the Commonwealth of Nations (Commonwealth Secretariat, 2018).

1.1 Introduction of commissioner

This thesis was commissioned by KBWright Trading Ltd., a company based in the United Kingdom which aims to accomplish agricultural produce brokerage for food processing companies as well as non-food items such as coal and gum Arabic. The headquarters of the company is in Northampton, England. This company has also a brokering facility in Colchester under a lease agreement. The company was incorporated in 2014 but trading is yet to commence commercially and in fact being projected to start at the beginning of the 2019 fiscal year. The staff strength is currently limited to less than 10 employees, but more employees are expected to join the organization when full operation commences.

1.2 Objective of thesis

The proposed commencement of operation of KBWright Trading Ltd. roughly coincides with time the UK planned to leave the European Union. The UK voted in 2016 to leave the European Union by 29 March 2019 (Hunt & Wheeler, 2018).

The strategies that KBWright Trading Ltd. adopts now will culminate into success or failure in its attempt to break into the agricultural produce brokerage market in the UK. Hence this thesis aims to propose some alternative solutions should there be no deal in the UK-EU negotiations.

Other highlights embrace consideration of what kind of inbound logistics approach would suit the company including transportation arrangements to convey agricultural produce from Nigeria to the UK. This work also aimed at giving the commissioner a rough estimate of the freight prices of the most feasible transportation options analysed for this importation project.
1.3 **Research method**

The project started with a collection of theoretical information from different authors in to understand what the importation process entails, the terms of delivery, as well as the transportation and transportation modes.

Next, primary data was collected through interviews. The owner of KBWright Trading Ltd. was interviewed to understand the history and state of the company and to agree on what is needed from this thesis. Freight forwarders were also interviewed about freight prices and transportation options. Secondary data were mainly collected from government websites and other websites such as Eurostat, HM Revenue and Customs, National Inland Waterways and so on.

Next the collected data were analysed and combined with theoretical knowledge to infer some conclusions and recommendations.
2 IMPORTATION

This chapter comprises of the importation process of the goods from the country of origin to the destination, brief elements of contract between the supplier and the buyer, as well as terms of delivery. This chapter culminates in consideration of potential reasons for outsourcing some of the importation operations such as transportation.

2.1 Importation process in general

Importation of goods from another country involves processes that must be planned for seamless delivery to occur. The first aspect is the negotiations between a supplier and a buyer through consultations and a quotation. If there is any review that the customer wants on the goods, it must be communicated to the supplier at this point as it is difficult to change things after the contract has been signed. The terms of payment and the terms of delivery are also agreed upon. (Mushimiyimana, 2009)

Secondly, a contract must be signed between the supplier and the buyer as proof of the agreed terms and conditions. It must also be checked whether the good being transported is controlled, for instance, endangered species, or if quota restrictions apply. (Hamburg Chamber of Commerce n.d.) Prior enquiries must also be made to determine if an export or import license is required for this good. Apart from the export/import license, all other necessary documentation must be available and correctly filled. Failure in this aspect might result in a delay in the process, incurring of additional costs or even worse a denial of such a consignment from exiting the country of origin or entering the destination country. (Unal 2014).

Following the agreement on the contract, the goods must be transported to the point of shipping for the long haul where custom exercise and duties are applied. The goods must then be checked and verified by customs for any health inspection and charges. Subsequently, a code will be assigned to the package for tracking purposes.

Moreover, after the goods have reached their destination, a tariff (tax) will be applied to them using the commodity code if there is any or a general tariff charge will be used for calculations based on the product category before this, the goods will also be checked by the customs of the destination country for clearance. In addition, the importer will be notified or will be aware of the arrival of the goods by tracking. The product then will be put on delivery to the importer’s address or as previously agreed to in the contract and payment for the services made. If there is any foreign exchange payment that must be settled. Figure 1 illustrates the importation process.
2.2 Importing from a non-EU country into the UK

Currently, the UK uses Customs handling of import and export freight (CHIEF) to declare both inbound and outbound goods electronically in ports and airports. The CHIEF is a UK national computer system that help “Her Majesty’s Revenue and Customs to collect annual revenue, international trade and transport statistics as well control restricted goods and check smuggling”. Another alternative is the form “C88/ESS export security single administrative document (SAD)” for custom declaration.
SAD highlight the following: customs classification, commodity code, import value of the goods, and customs procedure code giving information about purpose of the goods. The SAD is to be supplemented with forms C1402 and C130EX, if the CHIEF is not available. All the forms are to carry the ‘Fallback’ heading printed in red and declarant is to keep copies of these forms. In future, the CHIEF is to be replaced by Customs declaration services (CDS) programme. (Gov.UK, 2016)

The European commission explains that a SAD is typically used to declare or move non-EU goods within the EU. This document is produced in sets of eight copies with each serving a unique purpose. It helps to both standardize and harmonise data collected on trade in the European Union. (European Commission, Online).

Goods entering UK from non-EU countries attracts VAT charges of the same rate as in the UK. Import duties must be paid as well depending on the type of goods been imported and its original country. (Gov.UK, 2016).

2.3 Determining responsibility within the importation process

Valjakka (2012, p24) describes delivery terms as of vital importance in the sales contract agreement as they determine the party responsible for the goods at each step of the delivery process. Consequently, the cost of transportation, the risks and responsibility for clearing the goods when required are all clearly assigned in the contract.

It can be agreed upon that the supplier should deliver the goods directly to the warehouse of the buyer at one end of the continuum or it could be determined that the buyer is responsible for the goods as soon as the goods are made available at the seller’s warehouse. Whatever was agreed upon in the contract will determine who bears the risks and the responsibilities in the importation process.

2.3.1 Terms of delivery (Incoterms 2010)

Incoterms simply mean international commercial terms and they determine “the charges paid by the buyer and the seller; where delivery takes place in order to fulfil the export contract and where the goods and risks passes from the seller to the buyer” (Branch, 2007, p 415). The incoterms are summarily categorized into four: groups E, F, C and D. Group E is the group in which all carriage is paid by the buyer. Similarly, group F comprises incoterms in which the long-haul transportation is not paid by the seller. Conversely, group C consists of incoterm in which the main carriage is borne by the seller. While, group C comprises of terms in which all the carriage is paid by the seller. The incoterm is usually denoted by three letters and the place or port agreed upon. (Branch, 2007, pp. 416-417)

The E group of incoterms consists of only ex works, EXW. E group requires the seller only to make the goods available at his own warehouse,
hence minimizing his risks. The buyer embraces maximum participation, risk liability together with a minimum price for the goods. Table 1 further illustrates the incoterms. The F group comprises of the free carrier, FCA; free alongside ship, FAS; and the free on board, FOB incoterms. The C group conversely consists of carriage paid to, CPT; carriage insurance paid to, CIP; cost and freight, CFR; and cost insurance and freight, CIF. Finally, the D group consists of the delivered at terminal, DAT; delivered at place, DAP and delivered duty paid incoterms. (International Chamber of Commerce, n.d.; Branch, 2007, p 417)

Table 1. Incoterms 2010. (DBS Group, 2011)

<table>
<thead>
<tr>
<th>Services</th>
<th>EXW</th>
<th>FCA</th>
<th>FAS</th>
<th>FOB</th>
<th>CFR</th>
<th>CIF</th>
<th>CPT</th>
<th>CIP</th>
<th>DAT</th>
<th>DAP</th>
<th>DDP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Packing</td>
<td>Buyer</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td></td>
</tr>
<tr>
<td>Loading Charges Inland</td>
<td>Buyer</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td></td>
</tr>
<tr>
<td>Freight</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td></td>
</tr>
<tr>
<td>Terminal Charges Insurance</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td></td>
</tr>
<tr>
<td>Loading on Vessel Freight</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td>Seller</td>
<td></td>
</tr>
<tr>
<td>Arrival Charges Duty &amp; Taxes</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td></td>
</tr>
<tr>
<td>Delivery to Destination</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td>Buyer</td>
<td></td>
</tr>
</tbody>
</table>

It is also possible that the party responsible for arranging the transportation: namely the supplier or buyer could choose to manage the transportation aspect as an internal operation or outsource it to a logistic company.

2.3.2 Outsourcing

Some factors that influence logistics arrangements of many companies include deregulation, improved handling, and introduction of new technologies especially in the information technology aspects of logistics. All these have shaped the development of logistics. (Rushton & Walker, 2007, p 235)

In recent years, there have been a shift in the way logistics is structured, organised and operated. For instance, customers expect more nowadays because competition is higher in the market. Other issues are that of “time compression within the supply chain” and globalization of both brands and markets as well as amalgamation of organizational structures to mention a
few. Consequently, there is pressure on the suppliers of both goods and services to deliver an excellent service to their customers by providing as much value as possible to them. (Rushton & Walker, 2007, p 235) This therefore may require focussing on one’s core competences and outsourcing other operations.
3 TRANSPORTATION OF CARGO

This chapter attempts to lay a foundation for transportation in the importation process. It defines transportation, enumerates the types of transportation modes and some of their characteristics. It further discusses about intermodal, multimodal and transmodal transportations.

3.1 Transportation

Transportation has been defined numerously by different sources. An online dictionary, Merriam-Webster (2018) renders a definition of transportation as “public conveyance of passengers or goods especially as a commercial enterprise”. This essentially tells that commercial transportation is broadly divided into human transport and cargo transport. See Figure 2.

Cargo is defined as articles, goods or materials shipped, whilst receiving from the carrier some form of receipt such as bill of laden or air waybill (Business Dictionary, 2018). Hence cargo transportation implies the commercial conveyance of goods from one point to the other.

![Figure 2. Classification of transportation.](image)

Transportation connects the trader-for instance farmer, supplier and the customer. It facilitates the movement of goods and services to the place where they are needed. As part of the utilities, time utility demands from the trader that the item being demanded must be available to the customer when needed (Cleary, 2012). Similarly, transportation is an added cost to the transaction, therefore, transportation should be fast, affordable and items are to be transported safely.
Advancement of firms and economies to operate on a global scale has lent some significance to the studies of the different modes of transportation (Baker et al, 2017 p424). Baker et al further posits that the “selection of the most appropriate transport mode is thus a fundamental decision for international distribution and logistics management, the main criterion being the need to balance costs with customer service” (Baker et al, 2017 pp. 369-370).

During the second half of the 20th century, increasing mobility and accessibility became more enhanced as a result of several factors. These factors include formation of economic partnerships, derived benefits of access to global work force and more effective utilization of assets to mention a few. All these factors being heavily dependent on improvement of transportation of goods and passengers whilst not ignoring their basic information streams. (Rodrigue, 2013)

When classifying the modes of transportation based on the medium on which the travel occurs, there are three major modes of transportation namely: land transportation, water transportation and air transportation. Land transportation modes comprises of road, rail and pipeline transportation. (Rodrigue, 2017).

This means that the major modes of transportation are road transport, rail transport, maritime transport, air transport and pipeline transport. Besides these major modes, there are other modes of transportation such as: cable transport, space transport and unmanned aerial vehicle transport.

3.2 Transport mode selection

There are different factors that influence the choice of the right transportation modes. Some examples of these factors are cost, service and quality. Quality can be further broken down to include how much care is required during handling, the nature of goods being conveyed, and how reliable the method is. (UNDP, 2008). Weight, and volume also play a vital role in determine suitable mode of transport. For instance, there is a maximum gross weight allowance for a truck in Europe is typically 40 tonnes (Znidaric, 2015, p4).

Nevertheless, the three most popular issues here are quality, cost and service. At most two of the three may be chosen as priority while the third one is sacrificed. Hence, if low a cost and a quick response is required, then the quality may be compromised. Similarly, if quick response and high quality was required, then one would not mind paying extra for these. Whereas, if low cost and high quality were required the delivery may be slower.

Considering that transportation cost is an added cost to the transaction. It is advisable to minimise transport costs as much as possible but not to the detriment of customer relationship. Further, if goods being transported fall in class of the 20% that bring 80% of the revenue to the company as
described in Pareto’s principle, then lowering the transport cost could be considered as a lower priority, hence faster transportation modes must be selected if necessary.

Reducing the frequency of orders is an alternative way of saving both transportation-related costs and ordering costs. Ordering costs include the freight cost, inspection fees, handling fees, certifications and insurance. However, reducing the frequency of orders means larger batch sizes and hence a need to store the goods in your own warehouse, incurring carrying cost for the inventory and tying down capital that could otherwise be useful elsewhere in the business. (Muller, 2011, p 98). Whereas expediting delivery in order to satisfy customers while maintaining a good quality incurs additional costs which weigh down on short-term profitability and perhaps long-time profitability if stock-out becomes too frequent.

Conversely, a good reputation for excellent service brings about repeat patronage and possibly recommendation to potential customers (Investopedia, n.d.). Similarly, a bad reputation leads to loss of sales and loss of customer eventually. For this reason, it is also important to keep one’s customers satisfied to guarantee reiteration of sales. One of the ways to jeopardise service and hence, customer relationship is to repeatedly not be able to deliver due delayed deliveries or stock-outs. Hence, transportation mode selection must suit the time requirement for delivery. Delivery must be prompt.

Whereas for quality, the higher the value of goods the more the need to ensure quality is monitored. Takeuchi and Quelch (1983) stated that quality is slightly broad in scope. Quality in terms of choosing transport option could mean tracking the expiry of especially perishable goods and expediting its shipping or packing fragile goods with protective material.

### 3.3 Maritime transportation

Maritime transportation has assumed a sustained relevance in global trade due to the trendy shift of tactics by many companies to globalise their operations. This drift has different effects on various modes of transportation, sea transportation inclusive.

The choice of this mode of transport is governed by the significance of a set of factors which include the cost economies, speed, risk of damage, delay, flammability (Hazard status) to mention a few (Baker et al, 2017). The most common unit load in sea transportation is containers which could either be Twenty-foot Equivalent Unit (TEU) or Forty-foot Equivalent Unit (FEU). Due to the volume transported, it is usually considerably much cheaper than airfreight for example. Figure 3 shows the volume of sea freight worldwide in million metric tonnes from 1990 to 2015.
Baker et al (2017) further posits that sea freight is slow for a few reasons which includes the handling time at both ports of origin and destination, the voyage time, delay problems and others. It is also bit more prone to damage than other modes of transport. Figure 4 illustrates what a container ship at sea looks like.
3.4 Air Transportation

Air freight as a means of cargo transportation has seen a recent upsurge and rise and this is due to a few factors. For instance, Rodrigue (2017) points to an emerging trend of freight-only planes by traditionally passenger-focused airlines, example of which is Singapore airline as well as growth of existing all-freight airlines.

“Major developments in the areas of integrated unit loads, improved handling systems and additional cargo space, together with the proliferation of scheduled cargo flights have increased the competitiveness and service capability of air freight” (Baker et al, 2017). The advantages of airfreight are attached to its limitless connections, speed of service as well as greater product security but this mode of transportation does not come without its own limitations. Some of the limitations are the high costs of investment and the fact that airplanes can only carry a fraction of what a ship typically can accommodate. The design of a cargo planes is structurally different from a passenger planes as can be seen from Figure 5.

![Airplane Cargo](image)

Figure 5. Air transport/Airfreight (Singapore Airline Cargo, n.d.)

3.5 Rail Transportation

Rail transportation tends to be common in countries with a wide geographical expanse or where there are environmental problems and limitations to road transportation (Rushton, Croucher, & Baker, 2014). The opportunity to use rail, however, is dependent on the rail network available within a country.

The benefits of rail freight are that it accommodates the movement of heavy and bulky consignments over medium to long distances where speed is not of necessity. Conventional rail freight is also seen as a relatively low-cost mode of transport. There is less disruption to rail transportation from bad weather compared to other land-based transportation modes as well as being able to carry more freight than any other land-based transport mode. (Rushton, Croucher, & Baker, 2014).
Figure 6 displays a similar trend in rail freight transport tonnes and tonne-kilometre (tkm) from 2009 to 2013. However, from 2014 onwards, there was a small increase for tkm and a decrease for tonnes, which was due to a reduction in goods transported by rail but on lengthier distances (Eurostat, 2018).

According to Rushton, Croucher and Baker (2014) there is limited availability of tracks in many countries. Some may have mainline tracks but lacking enough railheads, or the railheads may not be in a location suitable for commercial use. International rail transportation can also be unreliable due to the irregular arrival of wagon batches and if a whole shipment is on one customs document, it can cause additional delays for international traffic (Rushton, Croucher and Baker 2014). Using rail freight for international movement brings about compatibility challenges. These challenges include differences in track gauge dimensions, bridge heights etc. Rail networks are also susceptible to economic downturns, whereby reliance on the mode reduces however the fixed cost remains the same (Rushton, Croucher and Baker 2014).

3.6 Road Transportation

Road freight is the leading transportation mode for many countries (Rushton, Croucher, and Baker, 2014). Road freight also plays an important role in international distribution even within geographic areas with major limitations, for instance sea crossings. The advantages of using road freight are that there is a reduction of double handling and trans-shipment of goods. This is eliminated in direct, full-load deliveries, thereby saving time and reducing the possibility of damage. Loads are also
less prone to intense transit shocks as compared to other modes therefore, packaging costs are minimized (Rushton, Croucher and Baker, 2014).

Figure 7 shows the divide in national and international road transportation used by the EU countries except for Malta (Eurostat, 2017).

![Figure 7. National and International road transport of goods, 2015 (% based on million tkm of laden transport). (Eurostat, 2017)](image)

It is also important to consider environmental legislation surrounding road transport and the restrictions that may apply. These include size of vehicle restrictions, time of day restrictions and load restrictions. If less than lorry-sized loads are used, then the speed advantage of road freight can be lost as it involves groupage which requires double handling (Rushton, Croucher, and Baker, 2014).

Road transportation is very costly for long distance travel and the risk of a vehicle breakdown is higher with a long distance than for short runs. In contrast, it is possible to combine two or more modes of transportation. This is referred to as multimodal transportation.

### 3.7 Intermodal, Multimodal and Transmodal Transportation

Intermodal transportation with respect to cargo as defined by Rodrigue (2017) is the movement of freight from an origin making use of more than one mode of transportation to this effect. This transfer from one mode to the other usually occurs at a terminal or depot which has the primary function of doing that. The term intermodal has been used in various ways and is closely related to multimodal transport, the significant characteristic of intermodal transport being that each operator issues their own contract for the freight. Figure 8 displays the make-up of an intermodal transport. Multimodal transport on the other hand is essentially same as intermodal
transport except that the integration of the players is at a higher level which essentially makes it possible to get the cargo from origin to destination but on a single ticket/contract. The various players do not need to issue separate tickets/contacts.

Figure 8. Intermodal Transport Chain (Rodrigue, 2017)

Some mutual advantages of both multimodal and intermodal transportation are the ability to efficiently combine multiple transport modes, optimization of lead-times, and keeping down the costs related to inventory. Carbon footprint reduction becomes achievable due to these benefits, which increases the environmental sustainability (Macandrews, 2017).

Figure 9 graphically explains the differences among intermodalism, multimodalism and transmodalism.

Figure 9. Intermodalism, Multimodalism and Transmodalism. (Rodrigue, 2018).
4 PLANNING THE TRANSPORTATION ROUTE FROM NIGERIA TO THE UK

This chapter introduces the practical transportation realities between Nigeria and the UK. It briefly explains the domestic transportation options available in Nigeria, the transportation modes that are suitable for the main carriage of goods on the long-haul and the inland transport opportunities of the UK especially in consideration of where the Warehouse of KBWright Trading Ltd. is situated. Other aspects of this chapter discuss the freight prices for the shipment of goods on the long haul and the estimated voyage time. The chapter closes by highlighting some risk areas of this import-export transportation.

4.1 Transport possibilities between Nigeria and the U.K

Planning the transport route took place in this project in three parts. The first part is the inland transportation within Nigeria culminating at the port of origin. The second part is the long haul between Nigeria and the UK. This formed the emphasis of the analysis here. The concluding part of the conveyance is the inland transportation within the UK.

4.1.1 Inland transportation in Nigeria

Nigeria inland transportation has been mainly dominated by road transportation for many years. Although, rail transportation had been in use in Nigeria during the colonial era, it was subsequently neglected and completely dwindled over time. However, through the unrelenting efforts of the government, the rail transportation has returned to relevance in Nigeria and so has rail cargo (AllAfrica, 2018).

In addition, there are also inland waterways in Nigeria to support the movement of cargo according to Nigeria Inland Waterways Authority, NIWA (2018). NIWA further postulates that Nigeria has about 10 000km of potentially navigable waterways for bulk cargo as well as passenger transportation, 3 000km of which is navigable now spanning across 28 out of 36 states of Nigeria. Finally, there is also a possibility of using domestic air freight services. However, this would greatly impact the cost.

4.1.2 Long-haul transportation from Nigeria to the UK

The distance to be covered from Lagos, Nigeria to Colchester in the United Kingdom is approximately 7000km by direct road travel (Google Map, 2018). Due to the magnitude of the distance between Nigeria and the UK, road transportation is not viable for the long-haul.

Furthermore, the railway infrastructure is not developed enough for international cargo transportation between West Africa and Europe. Hence, that leaves practically just sea transportation and air transportation to move agricultural produce between Nigeria and the UK. Therefore, air
transportation and sea transportation options are discussed in the following.

4.1.2.1. UK inbound international air freight

Figure 10. The amount of tonnage carried by scheduled aircraft in major airports near Colchester, the United Kingdom (Civil Aviation Authority, 2018).

Figure 10 shows a graphical representation of air freight in tonnes entering the major airports of the UK since January 2015 till November 2018 from both the EU and other inbound international airfreights. Table 2 illustrates the volume of annual airfreights from the EU and other international origin from 2015 to 2017 as well as December 2018. It can be seen that air freights entering from other international origins into
Gatwick airport in Dec 2018 almost one-third the annual freight volumes for 2015. Hence there has been a steady increase in volume of airfreights entering from other international origins into Gatwick airport from 2015.

Table 2. Scheduled cargo movement through London airports from 2015 to 2017 including December 2018. (Civil Aviation Authority, 2018)

<table>
<thead>
<tr>
<th>Airport</th>
<th>EU Freight (tonnes)</th>
<th>Other International Freight (tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gatwick</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>Heathrow</td>
<td>2933</td>
<td>24862</td>
</tr>
<tr>
<td>Luton</td>
<td>1005</td>
<td>10740</td>
</tr>
<tr>
<td>Stansted</td>
<td>13996</td>
<td>66078</td>
</tr>
<tr>
<td>London Total</td>
<td>17934</td>
<td>101680</td>
</tr>
</tbody>
</table>

4.1.2.2. U.K sea freight statistics

The UK ports industry ranks second in Europe in terms of tonnage, handling approximately 500 million tonnes per annum. 470.7 million tonnes of tonnage moved through 51 of UK major ports in 2017 while 11.1 million tonnes passed through minor ports. 8.3 million tonnes came from Africa, an 11 percent increase from 2016 while 207.6 million tonnes were from EU. (British Ports Association, 2018; Department of Transport, 2018, pp. 4-8)

Table 3. Top 10 UK Sea ports by tonnage in 2016 and 2017 (Department of Transport, 2018)

<table>
<thead>
<tr>
<th>Port</th>
<th>2016(Million Tonnes)</th>
<th>2017(Million Tonnes)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Grimsby &amp;Immingham</td>
<td>54,4</td>
<td>54,4</td>
</tr>
<tr>
<td>London</td>
<td>50,4</td>
<td>49,9</td>
</tr>
<tr>
<td>Southampton</td>
<td>36,0</td>
<td>34,5</td>
</tr>
<tr>
<td>Milford Haven</td>
<td>34,8</td>
<td>32,0</td>
</tr>
<tr>
<td>Liverpool</td>
<td>31,9</td>
<td>32,5</td>
</tr>
<tr>
<td>Felixstowe</td>
<td>28,2</td>
<td>29,0</td>
</tr>
<tr>
<td>Forth</td>
<td>27,4</td>
<td>27,5</td>
</tr>
<tr>
<td>Dover</td>
<td>27,3</td>
<td>26,2</td>
</tr>
<tr>
<td>Tees &amp; Hartlepool</td>
<td>26,9</td>
<td>28,4</td>
</tr>
<tr>
<td>Belfast</td>
<td>17,6</td>
<td>18,2</td>
</tr>
</tbody>
</table>
The biggest seaports in terms of tonnage in the UK in the years 2016 and 2017 are displayed in Table 3. Figure 11 also shows some of the biggest seaports in the UK. These ports are marked by blue circles.

The Crown copyright (2018) also mentioned that 386.8 million tonnes of the 481.8 million tonnes that passed through UK ports were international while 95 million tonnes were domestic (p 12). Hence 80.28 percent of the tonnage was international.

British Ports Association (2018) further explained that “95 percent of imports and export by volume and 75 percent by value move through UK ports”.

4.1.3 Inland transportation in the UK

Figure 11 shows key points of interest to KBWright Trading Ltd. The points marked with blue circles are potential sea ports that are viable due to their annual tonnage and/or proximity to the warehouse of KBWright Trading Ltd. in Colchester. The head office is in Northampton has been highlighted by a black circle. While the area marked by the red circle is where the warehouse of KBWright Trading Ltd. is situated.

Figure 11. Map of England, UK. (Google map, 2018)

Felixstowe port, also referred to as Hutchison Ports Port of Felixstowe is the closest one to where the brokerage facility of KBWright Trading Ltd.
is. Felixstowe is described as the biggest and the busiest container port in the UK and as one of the biggest in Europe. The port handles over 4 million TEUs and roughly 3000 ships annually. About 17 shipping lines offering 33 services operate to and from 700 ports across the world to Felixstowe. Felixstowe is also accessible by rail and road transport. In 2017, Felixstowe handled 1 million TEU by rail in a single year. (Hutchison Ports Port of Felixstowe, n.d.)

Table 4. Closest airports to Colchester and their distances (Closest Airport, 2018).

<table>
<thead>
<tr>
<th>Code in Map</th>
<th>Airport</th>
<th>IATA code</th>
<th>Approximate distance from Colchester (miles)</th>
<th>Approximate distance from Colchester (kilometres)</th>
</tr>
</thead>
<tbody>
<tr>
<td>A</td>
<td>London Southend Airport</td>
<td>SEN</td>
<td>23,7</td>
<td>38,2</td>
</tr>
<tr>
<td>B</td>
<td>London Stansted Airport</td>
<td>STN</td>
<td>28,6</td>
<td>46,0</td>
</tr>
<tr>
<td>C</td>
<td>London City Airport</td>
<td>LCY</td>
<td>45,1</td>
<td>72,5</td>
</tr>
<tr>
<td>D</td>
<td>Luton Airport</td>
<td>LTN</td>
<td>54,3</td>
<td>87,5</td>
</tr>
<tr>
<td>E</td>
<td>Norwich Airport</td>
<td>NWI</td>
<td>56,7</td>
<td>91,3</td>
</tr>
</tbody>
</table>

Figure 12. Closest Airport to Colchester. (Closest Airport, 2018).

Table 4 shows a list of airports (A to E) near Colchester and their distances while Figure 12 displays a graphical representation of these airports coded with letters A to E while Table 3 shows the closest airports to Colchester and their respective distances in miles and in kilometres.
Some cargo airlines also operate to and from London Heathrow. Hence, road transportation from London Heathrow should also be considered. The fastest route from London Heathrow airport to Colchester by road is about 92.3 miles or 148 kilometers by road via M25 and A12 (Google Map, 2018).

4.2 **Freight prices between Nigeria and U.K**

The data gathered from shipping companies and freight forwarders was mainly by phone interviews although a few companies asked that email detailing the data needed be sent to them. Several calls were made, some were unanswered while others were reluctant to oblige, and only 3 responses were useful. The useful responses are presented below:

**Sea freight rate**
- Shipping cost: USD 900 (POL to POD)
- OCR EUR 94 per 40’HC
- Local charges apply both ends
- Maximum payload is 28 600 kg per container (This implies USD 0.031469 per kg)
- Delivery promise of 24 days. (Lam, 2018)

**Air freight rate according to freight forwarder Sheriff (interview, 11 September 2018)**
- Shipments less than 20kg: NGN 1000 per kg (USD 2.75463 per kg)
- Shipments more than 20kg up to 50kg: NGN 750 per kg (USD 2.06603 per kg)
- Shipments between 500kg and 2000kg: NGN 420 per kg (USD 1.15695 per kg)
- For even bigger shipments: NGN 390 per kg (USD 1.07435 per kg)
- Delivery is made within 1-2 days after clearing customs.
- Additional NGN 70 per kg for documentation.

**Air freight rate according to freight forwarder Shogunro Babatunde (interview 3, 7 September 2018)**
- Shipping cost: NGN 296 per kg (USD 0.81538 per kg)
- Documentation: NGN 175 per kg
- Delivery promise of 1 day.

USD 1 = NGN 363.020 (Source: XE 2018).

The freight rates and options discussed above are further compared in Table 5.
### Risks factors to consider

Risk is not always negative, sometimes risk present opportunities when they are well managed or well prepared for. However, risk not properly handled can result in loss of one’s resources. (World Bank, 2013)

Risks could either be accepted, mitigated or removed. Managing risk could be in the form of transference of the risk or sharing of the risk. Sharing the risk can come in the form of insurance in order to minimize loss or outsourcing such risky operations to a third party who is more competent in that area. Other forms managing risk could be in the form of proper planning of one’s strategies, policies and operations.

#### 4.2.1 Possible delay and uncertainties in transportation in Lagos Nigeria

Lagos is described as the largest city in Africa with a population of between 17.5 million people to 21 million people and a population density of almost 7000 people per square kilometre (World Population Review, 2019).

As a result of this, there are lots of vehicles in Lagos which makes traffic congestion a frequent sight within the state. Also, the high number of vehicles in the state means accidents are also not an uncommon thing. These factors translate to a higher chance of the transportation not happening when it should happen either through delays or accidents.

#### 4.2.2 Political risk: Brexit

The proposed exit of the United Kingdom from the European Union (Brexit) is a potential risk factor with uncertainties about the future trade climates depending on the eventual result of on-going negotiations between UK negotiators and their EU counterparts.

The UK now have the following of options to address Brexit. The first option is to revoke the notification of withdrawal from the EU, that is, to cancel Brexit. Secondly, the UK can exit the EU with a deal which allows continued access to the single market or the custom union. Finally, the UK may also leave the EU without a deal, that is, leaving on WTO terms. Leaving on WTO terms means the UK loses access to the custom union.

<table>
<thead>
<tr>
<th>Transport Option</th>
<th>Sea</th>
<th>Air 1</th>
<th>Air 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cost per kg (USD)</td>
<td>0.031469</td>
<td>1.07435</td>
<td>0.81538</td>
</tr>
<tr>
<td>Transport time (days)</td>
<td>24</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Inverse of the time (progress per day)</td>
<td>0.0417</td>
<td>0.5</td>
<td>1</td>
</tr>
<tr>
<td>Progress per day (%)</td>
<td>4.17</td>
<td>50</td>
<td>100</td>
</tr>
<tr>
<td>Overall payload</td>
<td>Enough</td>
<td>Limited</td>
<td>Limited</td>
</tr>
</tbody>
</table>
If Brexit eventually happens without an agreement being agreed with the EU (leaving on WTO terms), it presents an opportunity to further increase trade volumes with other parts of the globe not represented in the European Union including Africa.
5 CONCLUSIONS AND RECOMMENDATION

Based on the analysis of the transportation situation in Nigeria, it can be concluded that transportation in Nigeria may not be as developed as that of Europe, hence it is possible to expect accidents, damage to goods or delays due to the strain on the available transport infrastructure due to the population density especially around Lagos. The proposed solution to this would be to use the F group incoterm which mandates the seller to bear the ownership and risk of the goods until they are loaded or at least placed alongside the vessel for the long-haul. Hence FAS or preferably FOB would be recommended.

It can be said that the transportation route to be used is the summation of the transport modes selected for the whole trip from the origin of goods to the destination. The choice of transport mode for the long-haul bears down to sea transportation as seen from the UK freight statistics that 95 percent of the import and export by volume are achieved by Sea transportation, preferably through the Felixstowe port. Cashew nuts are not so valuable and are relatively not so susceptible to damage especially when they have been vacuum-packed and there is a possibility of moving higher volumes as much as the company needs at relatively very low prices with sea transportation as main carriage.

However, if there is an urgent demand which requires a lead-time shorter than the regular ocean freight lead-time or if there has been disruption of any kind significantly delaying the shipment from Nigeria and potentially significantly affecting service, then air freight should be used to fulfil the delivery to shorten the lead time and paying a premium price for the expedient delivery. Hence, air freight should be considered as part of the transportation mix for the long haul as a backup plan. There are few airports around London through which the goods could be moved into the UK. These air ports are also not so far away from the warehouse of the company. Among these airports, Stansted should be the preferred port of entry. It handles most of the non-EU international freight and it is one of the closest airports to Colchester. Road transport would then be used to complete the ‘last mile’.

The rail network is not well developed for international shipping in Western Africa and some parts of North Africa as well hence this mode of transport is not viable as the main carriage. Meanwhile the distance between Nigeria and the UK is too great for road transport alone. The comparative advantage of road transport disappears as distances increase. Hence, road and rail transports are only feasible for the ‘first and last mile’ in this case.

Finally, the EU is currently the biggest trade partner with the UK is visible from the statistics. If the UK withdraws her notification of exit or if the UK emerges out of the European Union with a deal and continues to remain in the single market, there might be no major changes to the present situation. However, if the UK emerges out of the EU without a
deal, there is a possibility of increase in trade with other non-EU countries. This poses an opportunity for strengthening trade with Africa and indeed the rest of the world, and hence a further development of transportation between Africa and UK.

Also, if the UK remains in the single market, there is also a possibility of routing the goods through some European countries like France, Nederland or Germany if they offer more inexpensive rates and if it does not impact too much on the lead-time.

Exploring the possibility of routing the goods through other European Union countries by combining transport can be further developed should the UK remain in the EU single market.
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