

Study on items shipped for reuse and Extended Producer Responsibility fees

Two case studies for used electronics and used cars

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for the
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Case Study 1

Old tech, new market: a comprehensive study of the importation of used electronics in Ghana

Introduction

Lapaz, a suburb of Accra, Ghana, is a major hub for buying and selling imported second-hand goods, including clothing, electronics and furniture. This is a representative example of the importation of second-hand electronics to Ghana, where an estimated 150,000 tonnes of electronics are imported every year.

Despite challenges such as guaranteeing the authenticity of goods and quality control, this industry has contributed to the local and national economy and provided opportunities for entrepreneurship and employment.¹

The area's status as a centre for second-hand products attracts many skilled dealers, who further trade these goods within the region or transport them to neighbouring countries. The town is also home to scrap dealers who obtain valuable materials from end-of-life products and further handle them down the value chain.

An overview of the value chain

Origin of electronic goods

The supply chain of used electronics in Lapaz starts with the importation of the goods from across the globe. A significant quantity of imported electronics originates in the EU, predominantly in Germany, Italy and the Netherlands. Other significant sources of used electronics imported to Ghana are China, Japan, South Korea, Taiwan, the United Kingdom and the United States.

¹ Graphic Online. (2019, May 7). Abeka Lapaz: A hub for second-hand goods. Graphic Online. <https://www.graphic.com.gh/features/features/abeka-lapaz-a-hub-for-second-hand-goods.html>

Value chain actors

The actors involved in the import of used electronics and its value chain in Lapaz include suppliers and exporters in the countries of origin, dealers and importers, the Ghana Ports Authority, import and third-party agents, consumers, repairers and scrap dealers. In some cases, there are additional actors like repair and refurbishment companies that prepare the goods upstream for shipping, shipping companies and freight forwarders that transport them, and customs agents that navigate import-export regulations. In addition, the Ghanaian government is a significant stakeholder as it sets the policies that regulate the importation of goods, including used electronics.

This analysis is mostly based on interviews with four importers:

- ▶ Yaw, who has been in the industry for 30 years and imports goods in 40-foot containers. He sells 20% of the goods at his store, while the rest is sold to other retailers (Yaw prefers not to divulge the number of containers he imports);
- ▶ Inusah, who started operations in 2016 and currently imports up to two 40-foot containers a month;
- ▶ Obeng, who has been in the industry for 10 years and is able to import a 40-foot container three times annually;
- ▶ Collins, who has been in the trade for 15 years and imports 4-5 containers a year.

The authors also interviewed three scrap dealers, one imported electronics repairer and two experts, and conducted desk research to supplement the interview findings.





What is imported and sold

Imported goods are typically televisions (the most popular items), washing machines, rice cookers, irons, blenders, kettles, espresso machines, microwaves, ovens, and toasters.

The imported goods are mostly used, with up to 30% of imported goods that are faulty and in need of repair on arrival. Electronics that are faulty beyond repair get sold to scrap dealers who recover useful materials like copper and plastic for recycling locally or further export.

Imported appliances that are fit for resale are sold at import dealers' stores. An importer revealed that the imported brands tend to differ depending on the country of origin. For instance, in the case of goods imported from Germany, the top brands brought in are Panasonic, Hyundai and Telefunken. Typically, import dealers collaborate with retailers who buy these electronics in bulk upon arrival. From accounts of scrap dealers, it was revealed that up to 2 tonnes of e-waste are collected every 2 weeks, with most coming in the form of TVs from import dealers.

Used electronics imported from EU countries have a significant price advantage. For instance, dealers can sell a used LG washing machine, which would cost around 12,000 Ghanaian cedis (GHS) (ca. 880 Euros) if it were new, for GHS 3,000 (ca. 220 euro) for the second-hand machine. However, purchasing from accredited shops also comes with the added advantage of a warranty, which is not offered when buying second-hand products from dealers.

While dealers face several challenges, including high clearance fees and a volatile exchange rate for the local currency, the demand for used electronics remains high because of the lower prices compared to brand new items. Interviews indicate that users generally favour imported pre-owned electronics because of their perceived higher quality as compared to new electronics available on the local market.

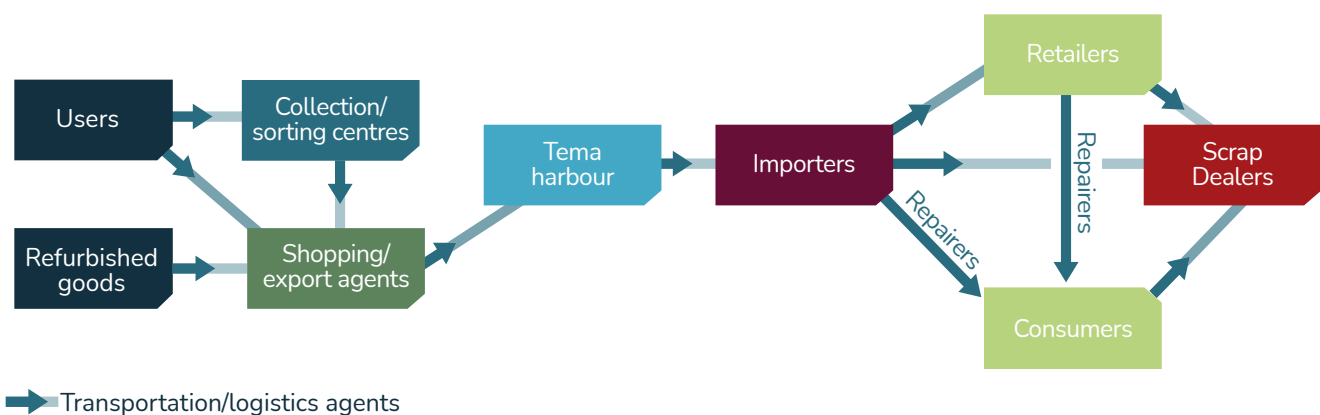
Steps in the value chain

- 1 In the countries of origin, electronics from various sources are aggregated and sorted to determine their condition, often in collection and donation centres. This sourcing is sometimes done directly by the receiving dealers. For example, a dealer mentioned he has a friend in Germany who sources goods through a network of people who contact him when they have

used appliances to sell or discard. Used electronics in Europe are sourced from households, businesses, and government agencies, then sorted based on their condition and functionality.

- 2 Working electronics are refurbished by specialised companies, then exported to Ghana through intermediaries such as trading companies or shipping agents.
- 3 Electronics are mostly imported in 40-foot containers and are brought to the harbour, where, through agents, verifications are done to make claims for goods which are then weighed to determine the net price. It typically takes between 2-3 weeks for the imported goods to arrive at the harbour from the supplier's country. Taxes and other fees are paid before the goods are cleared by customs officers.
- 4 Following clearance, the goods are transported to dealers' shops, where they are sold directly to consumers or other interested intermediaries.

Figure 1: Used Electronics Value Chain



Current developments

The Ghanaian government's attempt to ban the importation of used electronics poses a significant challenge to this market. Earlier in 2023, the Energy Commission of Ghana proposed a ban² on the importation of electronic and electrical waste in Ghana, aimed to reduce the environmental hazards caused by e-waste. The growth of e-waste in Ghana, largely due to the importation of used electronic items, has become a significant environmental issue. Additionally, the ban promotes the use of new and energy-efficient electronic devices, which will help to reduce energy consumption in the country. However, dealers, through their association, the Second-hand Dealers Association, took to the streets to demonstrate, arguing that this ban will negatively impact their livelihoods and the ones of those who benefit from this value chain.

Concerning scrap dealers, the primary challenge they face relates to the financial returns they obtain through the sale of recovered metals from electronic waste to recycling entities. These dealers argue that the purchasing rate per kilogram ought to be triple its current value.

² Ban on second-hand appliances: Energy Commission's statement full of 'lies' - dealers. GhanaWeb. (2023, January 28). Retrieved February 28, 2023, from <https://www.ghanaweb.com/GhanaHomePage/business/Ban-on-second-hand-appliances-Energy-Commission-s-statement-full-of-lies-Dealers-1703390>



To sum up, the importation of used electronics into Ghana has made a significant contribution to the local and national economy, fostering opportunities for entrepreneurship and employment.

However, the research also shed light on the challenges encountered by informal scrap dealers, who handle waste generated by imported used products. These dealers often cooperate and compensate informal waste pickers, burn non-valuable plastic materials to extract copper, and dispose of the remaining non-valuable materials in landfills. These informal workers are motivated to collect more scraps and may even choose to focus solely on this occupation instead of combining it with other work. Furthermore, they are not aware of Extended Producer Responsibility (EPR) policies and are uncertain if it affects the remuneration they receive for the waste materials they sell or manage.

While the importation of used electronics has positive implications, there remain hurdles in managing non-recyclable components as well as End of Life (EoL) stages of products, as all of them eventually become waste. It is crucial to address these challenges with effective measures, including proper handling of non-recyclable parts and materials, the education and training for scrap dealers, waste pickers and other informal workers, and the introduction of eco-tax regulations/EPR to ensure the appropriate treatment, recycling and disposal of electronic waste.

Case Study 2

Driven by demand: an exploration of Nigeria's imported used car industry

Introduction

Nigeria is the biggest destination for imported used cars in Africa. In 2018, the country imported about 240,000 vehicles, and about a 16% of the continent's total vehicle imports³. Lagos, a port city with an estimated population of 22 million people, is naturally the country's biggest market for vehicles. This study examines the value chain of imported cars, the stakeholders involved, the quantities imported, and the challenges associated with implementing Extended Producer Responsibility (EPR) for these vehicles.



³ Saleh, M. (2021, September 3). Africa: Used vehicle imports by country. Statista. Retrieved March 6, 2023, from <https://www.statista.com/statistics/1261496/number-of-used-vehicles-imported-into-selected-african-countries/>

An overview of the value chain

Origin of used cars

The United Nations Environment Programme (UNEP) reports that, out of a total of 240,000 used cars imported to Nigeria in 2018, over 154,000 came from the EU⁴. However, the discussions with research participants revealed that most of the used cars they import originate from Canada and the United States. A smaller proportion comes from other countries such as Japan, Korea, and Sweden. Nonetheless, the features and challenges related to the importation of used cars are similar, regardless of the country of origin.

Value chain actors

The stakeholders involved in the importation of used cars from European countries to Nigeria include:

- 1** Import dealers: the individuals or businesses who select the cars to be imported. It is possible that these dealers are not solely from Nigeria, but also from other neighbouring nations that use Nigeria's harbours as a gateway for importing goods.
- 2** Auctions and car dealerships: the sources of used cars.
- 3** Shipping companies/freight forwarders: the ones responsible for transporting the cars from European countries to Nigerian ports.
- 4** Clearing agents: the ones responsible for clearing the cars at Nigerian ports and handling all the necessary paperwork.
- 5** Nigerian customs: the ones overseeing the clearance process and ensuring that all necessary tariffs and taxes are paid.
- 6** Car dealerships and warehouses: the ones responsible for receiving and storing the imported cars until sale.
- 7** Customers: the individuals and organisations who purchase the imported cars.
- 8** Scrap dealers: the parties who seek out specific components for repurposing them either for reuse in other cars or for recycling.

This analysis draws heavily upon insights from three industry representatives, each bringing a unique perspective and experience. Malvin, a seasoned used car dealer with over a decade of experience, provided valuable insights into market trends and customer preferences. Jayden, who specialises in importing and selling cars to both individual buyers and other dealers, offered a unique perspective on international trade dynamics and cross-border transactions. Finally, Peter, a relative newcomer to the industry, shared his four years of experience and provided fresh insights into emerging trends. In addition, the authors interviewed a prominent expert in the field and run desk research to enrich the findings.

⁴ United Nations Environment Programme (UNEP), *Global Trade in Used Vehicles Report (2020)* (p. 26).

What is imported

The determining factor behind the number of imported cars by the interviewed industry representatives within a specific time frame is their available capital. For instance, Jayden indicated that their company's import volume fluctuates between 2 to 200 cars annually, depending on their financial resources. Their usual imports consist primarily of sedans, SUVs and pickups. Their selection of a particular brand and model hinges on various aspects such as customer demand, steering wheel configuration, vehicle design and spare parts availability.

Data from Nigeria's National Bureau of Statistics indicates that 169 billion Nigerian Naira (ca. 346 million Euro) worth of used vehicles were imported in the first half of 2022.⁵ Used cars constitute 95% of Nigeria's car market because of their affordability compared to new vehicles.⁶ Malvin's cars sell from as low as 3,500,000 naira (ca. 7,100 Euros) for a 2006 Acura MDX 2006 to as high as 34,000,000 Naira (ca. 69,500 Euro) for a 2015 Lexus LX 570. It is worth comparing these prices with the average annual salary earned by Nigerian workers, which stands at an average of 4,068,000 Naira (ca. 8,300 Euro) per year.⁷

Steps in the value chain

The importing of cars starts with Nigerian dealers selecting cars overseas. Dealers purchase the cars from auctions or car dealerships in exporting countries. According to Jayden, customers can purchase imported cars directly from previous owners or participate in online auctions via agents. However, he suggests that remote purchases should be made through a trusted intermediary agent. Malvin, a seasoned car importer with a decade of experience, echoes Jayden's advice, emphasising the risks of working with unknown agents who may defraud dealers. He cautions that previous engagements have demonstrated the importance of establishing a personal relationship with intermediaries to minimise the possibility of scams.

A common approach dealers use when sourcing cars is to go for salvaged cars from crashes as they come with a known, obvious issue that can be fixed. Non-salvaged cars may come with hidden faults which may prove more difficult to fix. To ensure that all vehicles are in top condition before being sold, they make arrangements with reliable local mechanics to carry out any necessary repairs upon arrival.

Once they are purchased and have undergone the necessary tests, the vehicles are towed to shipping agents who consolidate them into bulk shipments, typically with four to five cars per 40-ft container. Prior to shipping a car, the requisite documents, including the Bill of Lading, Customs Clearance documents and insurance documents, are procured. At the harbour in Lagos, Nigeria, agents are responsible for clearing the cars at the port's customs and handling the paperwork. The duty fees

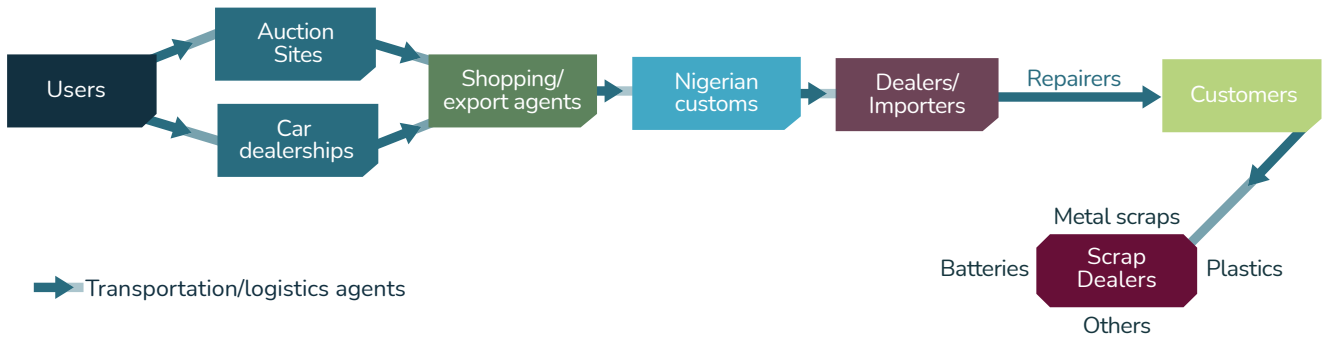
5 Beyond the data: Why Vehicle Importation is dropping in Nigeria. The Cable (2022, November 16). Retrieved February 24, 2023, from <https://t.ly/1xpb>

6 Nigeria, G. (2020, November 12). 'Used car constitutes 95 per cent of Nigeria's auto market.' The Guardian Nigeria News - Nigeria and World News. <https://guardian.ng/features/executive-motoring/used-car-constitutes-95-per-cent-of-nigerias-auto-market>

7 Guest. (2022, November 1). The average salary in Nigeria for 2023: Detailed comparison. Time Doctor Blog. Retrieved March 20, 2023, from <https://www.timedoctor.com/blog/average-salary-in-nigeria/>

at the harbour fall under Import Duty (20%) and National Automotive Council levy (15%) .⁸ Once cleared, the cars are transported to car dealerships or warehouses in Lagos and Abuja where our research subjects operate from.

Figure 2: Used Cars Value Chain



Recovery of value at end-of-life

Scrap dealers and mechanics perform a thorough dismantling process of the cars that have entered their end-of-life by removing valuable, reusable components. This includes wheels, tyres, and car batteries that may still be viable. Additionally, electronic components such as starter motors and entertainment systems are removed and sold, while engines and transmission systems may also be salvaged and resold. When it comes to salvage and scrap cars, the body alone can fetch a price ranging from 150,000 naira to 400,000 naira (ca. 300 to 800 Euros), depending upon their size.

Recycling is an essential process, but is often poorly carried out, resulting in unreliable repurposed materials such as concrete reinforcement rods, flat steel sheets and cooking utensils. Scrap-derived rods and sheets are of poor quality, which makes them unreliable for effective use in buildings. Polyurethane, which makes up 41% of all car plastics, is easily recycled together with other materials like polypropylene and polyethylene, as viable markets for these materials already exist.⁹ Tires have a high calorific value and are used as fuel in some instances, with steel wires extracted afterwards. However, some materials are either not recyclable or not valuable enough and are discarded or sent to the landfill. The disassembly and recycling process is not always straightforward, as some cars are abandoned on the streets or prematurely reach the end of their life for other reasons, including the cost of operating and disposing of vehicles, the cost and convenience of legitimate disposal, the cost of repair and insurance, and delays in towing by relevant agencies, as well as operators' neglect.¹⁰

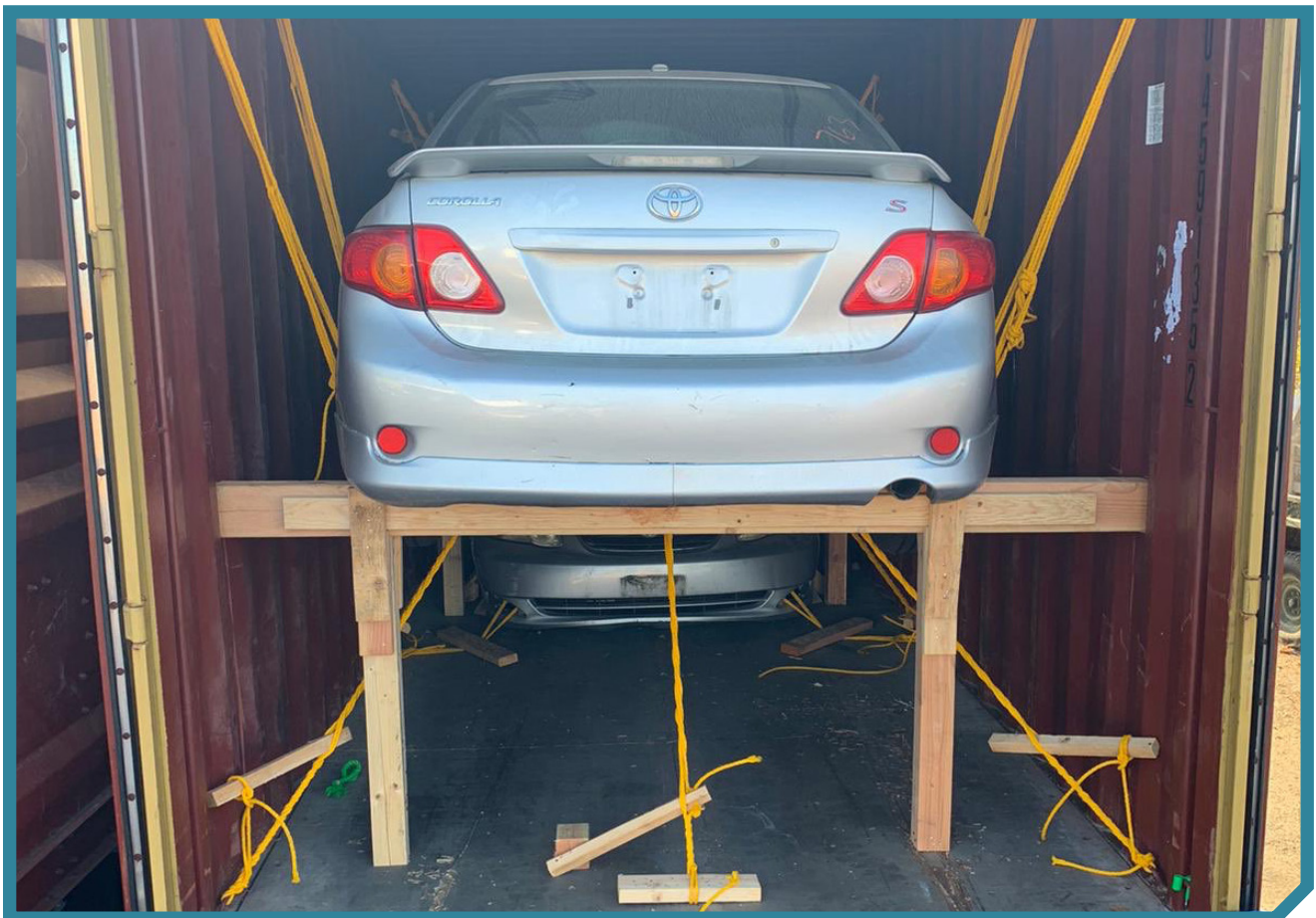
Nigeria generates around 110,000 tons of used lead-acid batteries (ULABs) yearly from automotive

⁸ Anagor, A. (2022) Trouble trails customs 15% NAC levy on imported used cars, *Businessday NG*. Available at: <https://businessday.ng/news/article/trouble-trails-customs-15-nac-levy-on-imported-used-cars/> (Accessed: February 26, 2023).

⁹ Cornelius, Agbo. (2011). *Recycle Materials Potential of Imported Used Vehicles in Nigeria*. *Nigerian Journal of Technology*.

¹⁰ Collins H. Wizer (Ph.D), Prof. Samuel B. Arokoyu, "Impact of Abandoned Broken Down Vehicles on Road Users in Port Harcourt Metropolis: Implications for Efficient Urban Transportation Planning", *International Journal of Research in Environmental Science (IJRES)*, vol. 5, no. 3, pp. 41-51, 2019.

and renewable energy sectors, with only 13% of this amount being recycled.¹¹ As much as 80% of the batteries are exported for recycling into new products without passing through recycling in Nigeria, depriving the country of maximising value from the industry. Despite Ibeto Group and Metal Recycling Industries Ltd buying used batteries for local production, the bulk of batteries are bought by artisanal miners, making it difficult for local companies to access enough batteries for recycling.¹² Additionally, the absence of a clear-cut policy on ULABs in Nigeria means that the country has been slow to develop a distinct regulatory code for the industry, with serious consequences for public health and the environment. Between 1980 and 2014, approximately 4.8 million tons of lead acid batteries were used in vehicles in Nigeria, with an average lifespan of five years. This means an additional 2.2 million tons reached the end-of-life stage by 2019. Out of the 2.6 million tons that reached end-of-life stages between 1980 and 2014, 2.3 million tons were recycled, and 0.3 million tons were landfilled. These batteries contained lead, cadmium, and arsenic as the most abundant toxic elements, while iron and copper had the highest levels among valuable elements.¹³



11 13% recycling of lead acid batteries in Nigeria too low - clean tech. *Businessday NG*. Retrieved March 24, 2023, from <https://businessday.ng/uncategorized/article/clean-tech-hub-raises-concern-poor-recycling-lead-acid-battery/>

12 Nigeria's N85 billion used lead-acid batteries market eludes regulation. *Businessday NG*. Retrieved March 24, 2023, from <https://businessday.ng/exclusives/article/nigerias-n85-billion-used-lead-acid-batteries-market-eludes-regulation/>

13 Ogundele, Damilola & Ogundiran, Mary & Babayemi, Joshua & Jha, Manis. (2020). Material and Substance Flow Analysis of Used Lead Acid Batteries in Nigeria: Implications for Recovery and Environmental Quality. *Journal of Health and Pollution*. 10. 200913. 10.5696/2156-9614-10.27.200913.

Current developments

In Nigeria, the new Vehicle Identification Number (VIN) valuation system restricts the importation to vehicles that are maximum 9 years old. This regime was brought in in May 2022 and it is used by the Nigerian Customs Service (NCS) to determine the value of a vehicle for taxation purposes. The NCS uses a database to determine the current value of a vehicle based on its VIN, considering factors such as the vehicle's producer, model, year, condition, and any additional features or modifications.¹⁴

In the context of product lifespan, it is worth noting that cars can last longer than used electronics, even after reaching the maximum age limit of 9 years. (Despite having these age restrictions on imported used vehicles, countries like Nigeria are known to still import older vehicles.) Car owners have the option to extend the life of their vehicles through repairs. Moreover, mandatory inspections and examinations are conducted at the point of purchase, which should reduce the likelihood of the vehicle arriving with defects, unless such issues were previously disclosed and acknowledged. However, even with these measures in place, waste can still occur when old parts need to be replaced with new ones. To ensure roadworthiness, EU vehicles must have a valid certificate to pass the test, but most used vehicles exported to Nigeria from countries such as the Netherlands lack this certification. Moreover, even those with certificates often have deficiencies such as defective wiper blades, headlamps, doors, hoods, bumpers and silencers.¹⁵

Recently, the NCS has faced criticism from auctioneers who claim that confiscated uncleared vehicles are being sold as scrap instead of being auctioned, thus hastening their entry into the end-of-life phase.¹⁶

In summary, the imported used car industry in Nigeria serves as an essential economic pillar by making affordable vehicles accessible to consumers. However, it is crucial to establish effective waste management practices to minimise environmental pollution and ensure sustainability. One potential solution is to set an appropriate age limit on imported vehicles and conduct mandatory inspections to reduce waste at the point of import. Furthermore, implementing coordinated recycling practices for salvageable components and establishing clear policies on materials that cannot be recycled at the end-of-life stage can help maximise the value obtained from these vehicles. Additionally, recycling ULABs locally instead of exporting most of them can benefit the economy through job creation and raw material availability.

Proper management and oversight are necessary to ensure that the imported used car industry contributes significantly to Nigeria's development in an eco-friendly manner. Adopting a circular economy approach with enabling factors like funding support can help reduce, reuse and recycle resources efficiently, thereby ensuring that the industry's growth does not come at the cost of the environment.

14 Wilson, W. (2022, April 30). Vin valuation in Nigeria; customs reinstates process. Vagmon e-Grup & Logistics Ltd. Retrieved March 17, 2023, from <https://clearingandforwardingnigeria.com/vin-valuation-in-nigeria/#:~:text=VIN%20valuation%20in%20Nigeria%20is,imported%20cars%20across%20Nigeria%20borders.>

15 Used Vehicles Exported to Africa, Netherlands Human Environment and Transport Inspectorate, Ministry of Infrastructure and Water Management, 2020

16 Adepegba, A., & Nnodim, O. (2022, September 20). Customs sell impounded vehicles as scraps, auctioneers kick. Punch Newspapers. Retrieved March 17, 2023, from <https://punchng.com/customs-sell-impounded-vehicles-as-scraps-auctioneers-kick/>