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The Role of Transportation in the Sustainability of E-Commerce in Africa: Evidence from Ghana

Samuel Antwi

July 2020

Abstract

Transportation has been the backbone of e-commerce as the two moves at par and it has the potential of shaving e-commerce in Africa. Ghana as a country has seen a number of infrastructural developments in the area of transportation and logistics. The country is coupled with both domestic and foreign transport and logistics companies. The government of Ghana introduced the one district one factory initiative to boost the industrialization in the country of which the transport sector would have a greater benefit on it. In this paper the researcher attempted to find out the role of transportation in the sustainability of e-commerce with the focus on Ghana. Internet based research was used to collect existing data in addition to observation method. On top of this, the researcher employed descriptive survey design to solicit data from respondents who work in the logistics and transport industry via an interview. The literature data were reported and the data obtained from the interview session were analyzed using thematic analysis. The findings from the study revealed that, among other things, the transport industry in Ghana and for that matter Africa is lagging behind due to poor infrastructure, capital and others. The future of transportation and logistics in the continent looks promising as the participants revealed that in future the technologies employed by the advanced countries shall be fully utilized in the continent.

Keywords

Transportation; E-Commerce in Africa, Transport and logistics companies

1.0 Introduction

This part gives an overview of the transportation and e-commerce activities in Ghana and Africa at large.

1.1 Background

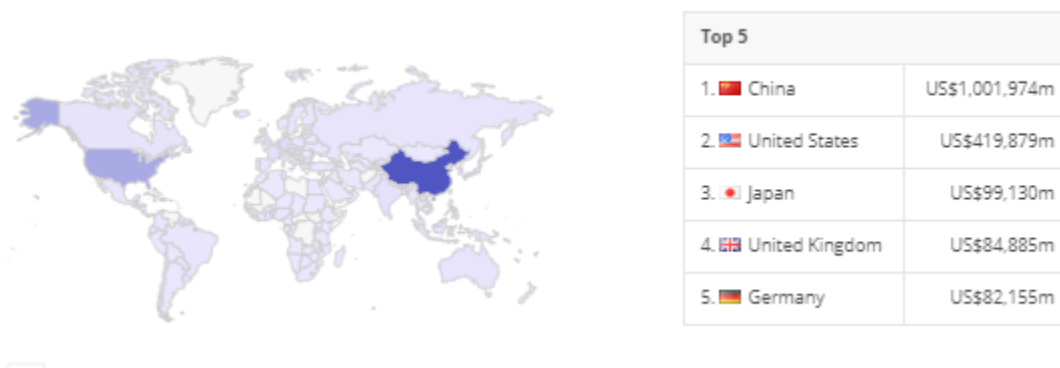
Transportation is a vital component as far as e-commerce is concerned. After a buyer purchases goods, there is the need for the goods to be delivered to him via the address provided and this is done with the help of transport. It appears e-commerce cannot be complete without the help of transportation. Electronic commerce draws on technologies such as mobile commerce, electronic funds transfer, supply chain management, Internet marketing, online transaction processing, electronic data interchange (EDI), inventory management systems, and automated data collection systems (Chvaralakshmi. & Srivani 2017). The transport industry over the past years has experienced a significant improvement as a result of an improvement in the existing methods as well as an introduction of new transportation methods such as using drones to deliver products. These days, customers require that the goods they purchase are delivered to them on time. This has resulted in the need to improve the transportation system. This demand for more

immediate delivery also requires retailers to be more nimble and radically changes warehousing logistics (Rutter, Bierling, Lee, Morgan & Warner 2017).

The transportation system in Ghana and for the matter Sub-Saharan Africa is lagging behind as compared to other continents like the Europe, Asia and the America. As a result, it has had a direct impact on the e-commerce industry in the continent. Manufactures and/or suppliers are coupled with some challenges in the transportation of goods to the continent. Most of these challenges are attributed to inadequate transportation infrastructure. In support of this, some researchers attribute the conjunction of bad geography and poor infrastructure as the main obstacle to trade expansion in Africa (Radelet and Sachs 1998; Lim~ao and Venables 2001; Buys, Deichmann, and Wheeler 2010).

Data from Statista revealed revenue in the eCommerce in Africa market amounts to US\$27.6 billion in 2020 and is expected to show an annual growth rate (CAGR 2020-2024) of 14.2%, resulting in a market volume of US\$46.9 billion by 2024. The market's largest segment is Fashion with a market volume of US\$8,345m in 2020. Although the e-commerce industry in Africa is increasing, it is doing so at a decreasing pace as the entire continent value in e-commerce do not even match to that of Germany who made US\$82 billion as at 2020.

In 2005, Sub-Saharan Africa had 0.002 km of railroad track per 1000 sq km and Ghana had 4.2 km, while China had 6.5 km, India 21.3 km, the United States 24.8 km and Europe 50.5 km per 1000 sq. km (World Bank 2010). World Bank further revealed that Sub-Saharan Africa had 85 km of roads per 1000 sq. km and Ghana had 239 km, while China had 200.6 km, India 1115.4 km, the United States 702.2 km and European countries 1377.0 km per 1000 sq km. From these stats, it is obvious that African countries are underprovided with transport infrastructure and that is why international organizations are advocating massive investments in Africa.

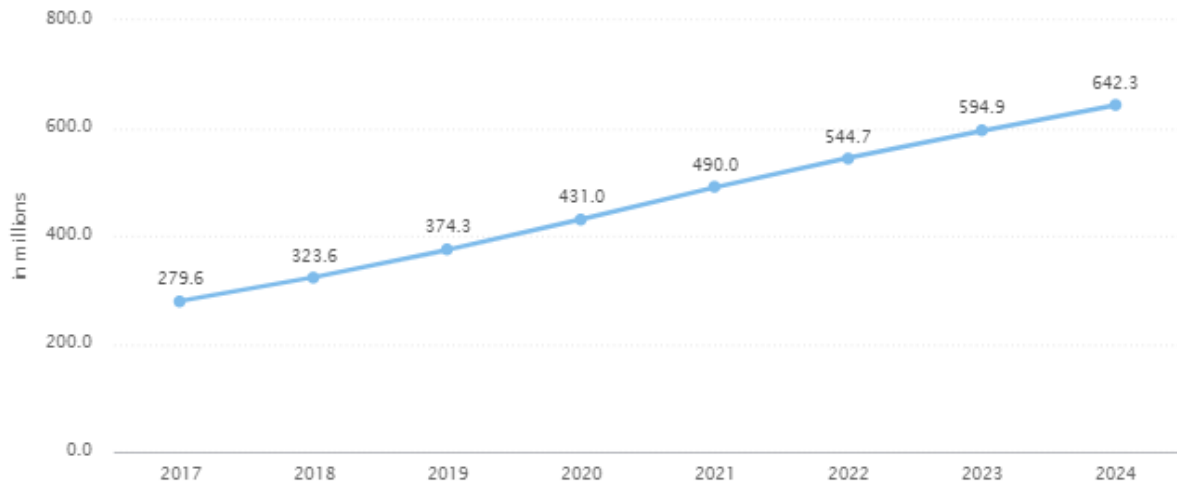


Global transport infrastructure

The Trans-Highway network is a set of transcontinental road projects being promoted by the United Nations Economic Commission for Africa, the African Development Bank and the African Union to develop road-based trade corridors in Africa (African Development Bank 2003). The African Union is also working out modalities on how to link all railways in the continent (African Union 2006).

The number of Africans who engages in e-commerce have increase from 276.6 million in 2017 and is expected to be 431 million by the end of 2020. The figure is expected to rise to 642 million by the end of 2024 which is almost half on the entire continent population.

In this study, the researcher attempts to find out the role of transportation in the sustainability of e-commerce with the focus on Ghana. In attempt to address this, the researcher reviewed some past contents and also employed descriptive survey design to solicit data from participant through an interview session.



Number of Africans who engages in e-commerce

2 Research Methodology

The study adopted a descriptive survey design to obtain data from participants. The descriptive survey research is used to collect data systematically and describe the behaviors, thoughts, and attitudes of a representative sample of individuals at a given point in time and place (Mathiyazhagan & Nandan, 2010). The researcher opted for descriptive survey design because the design primarily concerns observing, describing, and documenting situations as they naturally occur (Kothari, 2004). It is one of the most important research designs, and survey methods are frequently used to collect data for the either quantitative, qualitative, and mixed research designs. This design, according to Kothari (2004), also has the tendency to produce good amount of responses from a wide range of people. It however has a limitation of producing unreliable results at certain times because it delves into people's privacy and personal issues which they may not want to disclose. Under the descriptive survey design, the researcher employed interview to collect data from the respondent. The researcher also used internet-based research, specifically existing data, and observation method to solicit data in addition to the descriptive survey design. An 'interview' basically means a face-to-face conversation between a researcher and a participant involving a transfer of information to the interviewer. However, as a result of the dramatic growth of new communication forms such as e-mail, other interview techniques can be introduced and used within the field of qualitative research (Opdenakker 2006). The interview was analyzed using thematic analysis where the responses were grouped into themes. The researchers interviewed seven respondents five of them were customers of a transport and logistics company and two of them were staff of a transport and logistics company. The interview was conducted via phone call and was used to obtain response from the participants on some challenges of transportation in African e-commerce as well as the future of Ghana and for that matter African transportation system.

3 History of Transportation in Ghana

The part is mainly built on Pedersen (2001), Gould (1960) and Taaffe, Morrill and Gould (1973). The transportation infrastructure in Ghana has grown through daily use where people cut down trees and made a path, permanent paths developed. The colonial transport system started in the sixteenth century; by the eighteenth century some 40 small landing points had been established along the coast. European countries and companies traded with the local people who served as middlemen in the commerce between the interior and traders on the coast, among them the "Fante" with Cape Coast as their central location. After 1869,

Britain became the sole colonizer and the trade was concentrated in fewer ports. The British made the coastal states a colony in 1874, and the Ashanti surrendered in 1896, making the whole of Ghana a British Crown Colony. In 1900, about 81 % of the country's exports left from six ports, with imports nearly the same.

For many years the British used the tracks for their transportation, including hammock bearing, but in 1894 they set up a roads department to build and maintain roads. In 1873, the British made a road for soldiers from Cape Coast to Kumasi, and it was improved and extended to the north. They also built a road from Accra north to the "Akim" Goldfields. Railways were the focus from 1900 to 1920. Railways went from the port in the twin-town of Sekondi-Takoradi and into the gold mine areas. A lot of new gold fields were found in the 1880s. The railway was the only way to industrialize the gold production with heavy equipment for steam power to handle lifts, pumps, mechanical drills and other tools. In spite of the "Ashanti" surrender, the railway engineers were in danger during the construction of the railway around 1900 (Luntinen, 1996). The first section of the railway was finished in 1901, and the railway continued up north, with a line to Kumasi built in 1907.

An eastern line was started in 1909 from Accra that reached Kumasi in 1923. The western line was built by Europeans for Europeans for transportation to and from the gold mines, and two-thirds of the volume of the traffic was for this purpose with machinery and coal to the gold mines. There was initially no cocoa production in the area, but the railway made it convenient to start plantations and the cocoa freight had increased to 19,191 tons by 1915. The lines made it possible for import companies to send goods into the markets in Ghana. The internal trade grew, too, with agricultural products for the mining areas. The road network continued to expand, but the roads became feeder roads for the railway. In the 1920s, the fast expansion of the railway slowed down and the road system was improved, especially in the northern region. Some of those trunk roads went north into the French territories, opening the interregional trade. For instance, salt could now be exported by trucks instead of the traditional transportation by canoes on the Volta River.

In 1928, Takoradi got a modern harbor that reduced the loading and turnaround times dramatically. The loading time of manganese went down from three weeks to three days. The importance of small harbors lessened in World War II because of the fear of attacks from German submarines. The larger harbors in Takoradi and Accra dominated, and the railway regained some of its lost power. Manganese was exported in large quantities and the railways remained important after the war and some improvements were made.

The western line was still a bottleneck; therefore, a new harbor in "Tema" was constructed in 1962 to serve the eastern part of the country. This was part of a big plan that included a large dam over the Volta River for a power plant. This created a new waterway on the dam and brought electricity to a number of large industries. Road transportation continued to grow. It was estimated in 1951 that the turnover of the truck transportation was 4-6 times larger than the turnover of the railways. Food crops were transported to urban areas by trucks, while the mining industry and cocoa transportation (one-third of the freight revenue) were still transported by rail. In 1960 some truck roads were upgraded and new feeder roads were built, especially in the south where the building of roads had been suppressed to protect the railway. This area around the railway had missed the trunk roads and feeder roads, too. A lot of secondary roads were built, often by local initiatives.

Presently, Ghana uses road, air, sea, rail and water bodies as a means of transportation although there are some deficiencies in the use of it. According to Bloomberg (2010), Ghana signed a \$6 billion contract to rehabilitate the existing network and build a railroad to the country's northern border and it was to be the largest rail investment in Africa since at least 50 years.

4 E-Commerce in Africa

The current e-commerce in Africa is lagging behind. Kaplan (2018) attributed the challenges coupled by the sector to factors such as internet access, poverty, a high rate of illiteracy and logistical inefficiencies. As the second largest continent (after Asia), covering one-fifth of the total land surface of the earth, it is expected that the continent would have a significant growth in e-commerce. According to Desvaux and Poignonnet (2019), there are more than four hundred million (400m) internet users in the continent. Even though Africa countries and companies are not ranked high when it comes to the global ranking of e-commerce, the continent is gradually improving. A report from Statista as cited by Goldstein (2019) revealed that in 2017, e-commerce in the continent was valued at sixteen billion and five-hundred million United States Dollars (\$16.5bn). A separate report from McKinsey, a consulting firm, as cited by Goldstien also indicates that e-commerce in Africa has the potential of reaching seventy-five billion United States Dollars (\$75bn) by 2025.

The popular e-commerce business based in Africa is Jumia and it was launched in 2012 with it headquarters in Nigeria. The company operates in more than 10 different countries in Africa. Aside this company, there are other African e-commerce companies such as DealDey, Takealot, Konga, Vconnect, Yudala, MoBofree and so forth. Most of Africans import comes from Asia, Europe and America. Data from World Integrated Trade Solution (WITS), a system managed by the World Bank in collaboration with the United Nations Conference on Trade and Development (UNCTAD) and in consultation with organizations such as International Trade Center, United Nations Statistical Division (UNSD) and the World Trade Organization (WTO) revealed that African top five import between 2014 to 2018 were China (USD 37.570 billion) followed by India (USD 26.316 billion). This was followed by The Netherlands (USD 14.785 billion) and then United States of America (USD 14.636 billion). Only one African country made it to the list, South Africa and they have a trade value of USD 12.771 billion. In all, Africa had 220 trade partners with China having the biggest share of 13.33%. These data suggest the Africa have a lot to do with regards to the inter-continental e-commerce.

5 E-Commerce Logistics Mode

Xianglian and Hua (2013) proposes four main logistics development mode: the mode of Self-Logistics, Third Party Logistics Mode, Logistics Alliance mode and Logistics Integration.

5.1 Self-Logistics Model

Self-logistics mode is the e-commerce businesses to set up their own logistics distribution system, the entire logistics operation process of the operation and management of enterprises. This model has two main advantage; an easy coordination and also high stability. The e-commerce company's self-logistics required generous inputs, and after the completion of a required high large scale, after the completion of staff with professional logistics management capabilities. The overall quality of personnel within the enterprise engaged in logistics management is not high, the theory of logistics and logistics education in china seriously lagging behind, resulting in our logistics personnel is a serious shortage, cannot solve a variety of complex and diverse e-commerce logistics problems.

5.2 Third-party logistics mode

The third-party logistics mode also is known as outsourcing logistics or contract logistics. Third Party Logistics is a kind of business mode inside which a specialized logistics company provides logistics service to both supplier and demander. It does not have the goods, but through cooperation agreements or partnering with a coalition, personalized logistics agent service to customers in accordance with a specific price in a specific period of time. Due to advanced technology, more complete distribution system, third-party

logistics for its fast delivery speed, high efficiency become one of the ideal solutions for e-commerce logistics distribution.

5.3 Logistics Alliance

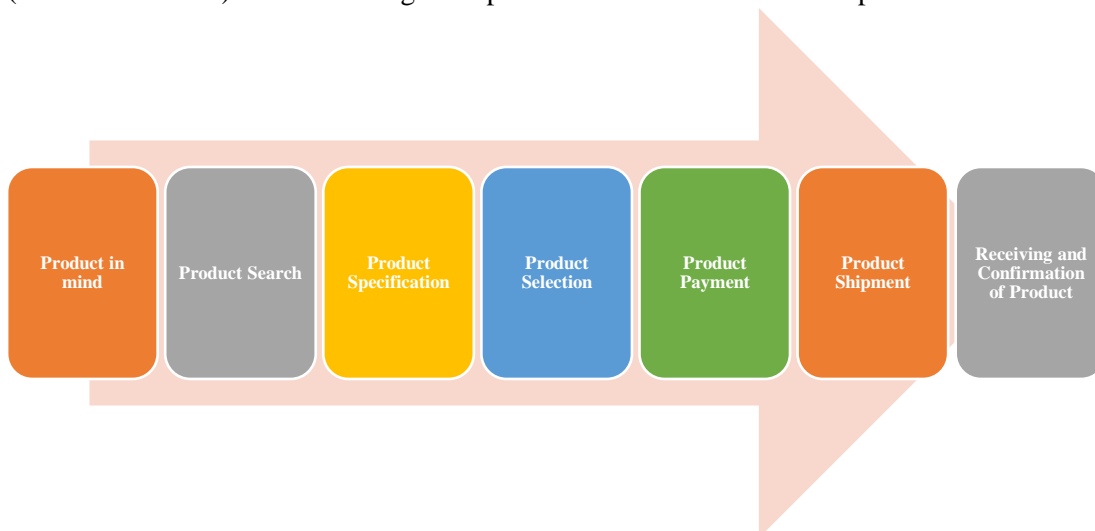
Logistics Alliance is a cross logistics mode, set up in the front between the two modes, can reduce the risk of the first two modes, and easier to operate for enterprises. Logistics Alliance is a long-term joint cooperation of two or more of the economy taken by the organization to achieve the specific logistics goal. The aim is to achieve participate Union in the party win-win, the characteristics of interdependent, core specialization and emphasizing the cooperation. Logistics alliance is manufacturing and sales enterprises, logistics enterprises based on formal mutual agreement to establish logistics cooperation between the enterprises participating in the alliance brings together, exchange or a unified logistics resources in order to seek common interests, meanwhile, cooperative enterprises still keep their independent.

5.4 Logistics integration

Integration of logistics is the logistics system as the core, by the producers, through logistics, marketing companies, until the consumer supply chain as a whole and systematic. The Logistics Integration is the new logistics model developed on the basis of the third-party logistics. In this mode, the logistics enterprise manufacturing enterprises to establish a wide range of agent or buyout relationship to form a more stable contractual relations and marketing enterprises, manufacturers of goods or information unified combination of processing orders require delivery by department to the shop. This mode also showed extensive exchanges supply information between users, and thus plays a surplus and deficiency, rational use of shared resources. The essence of logistics integration is a problem of logistics management, specialized logistics management and technical personnel, and makes full use of the specialized logistics equipment, facilities, to play specialized logistics operations management experience, in order to obtain the overall optimal effect. At the same time, the trend of logistics integration to provide a good environment for development and huge market demand for the development of third-party logistics.

6 How the Transportation System in E-Commerce Works

Before a manufacturer or a supplier will send a product to someone (buyer), it passes through some processes. First of all, the buyer should have a product in mind. The product is what he (the buyer) probably need to solve a problem. What the buyer does after that is to contact a supplier and/or visit an online platform (E-Commerce site) where he can get the product and then search for the product.



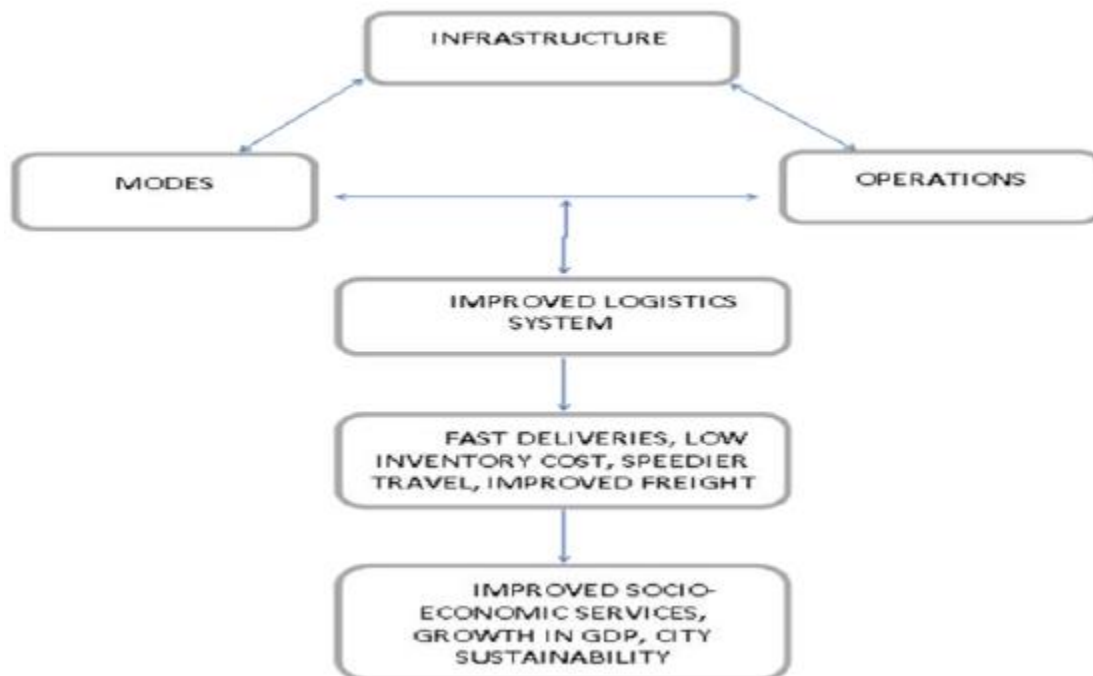
How transportation system works

E-Commerce website such as Taobao have a whole range of products of similar kinds. What the buyer mostly does is to go through the product lists and check the specification of each products. The buyer can also ask the seller to provide to him an additional informal information or explain some technicalities on the product. The buyer then decides on which of the product to buy and then proceed to make payment. Usually, these E-Commerce sites have a third-party company in charge of the payment. When a buyer pays for an item, the money is usually not sent to the seller directly but it is transferred to an escrow account. Payment is only released to the seller after a confirmation from the buyer of receiving the product.

The seller then arranges for the shipment of the product once payment have been made and confirmed by the third party. The shipping method is dependent on what the buyer and the seller agreed on. It may be express shipping mostly by air which usually takes a few days or by sea, which can take a long days before the goods arrives at the port. Alternatively, a buyer and a seller can agree on shipment by delivery van, in the case where the delivery address is relatively not far from the seller's location. Usually, goods shipped by a seller are delivered to the address provided by the buyer. After receipt and inspection of the goods, the buyer provides a feedback that he has received the goods and then a further update on the conditions of it. Transportation plays a key role in this process because without it, it would be impossible for the seller to ship/send the product to the buyer.

7 Conceptual Framework for an Effective Logistics System

Eastern Asia Society for Transportation Studies, mentions that Logistics services, information systems and infrastructure/resources are the three components of logistics and they are closely linked Logistics services support the movement of materials and products from inputs through production to consumers, as well as associated waste disposal and reverse flows. They include activities undertaken in-house by the users of the services including storage or inventory control of a manufacturer's plant and the operations of external service providers.



Conceptual Framework for an Effective Logistics System

Logistics services comprise physical activities (e.g. transport, storage) as well as non-physical activities (e.g. supply chain design, selection of contractors, freightage negotiations). Most activities of logistics services are bi-directional. Information systems include modeling and management of decision making, and more important issues are tracked and tracing. It provides essential data and consultation in each step of the interaction among logistics services and the target stations. Infrastructure comprises human resources, financial resources, packaging materials, warehouses, transport and communications. Most fixed capital is for building those infrastructures. They are concrete foundations and basements within logistics systems.

According to planning and design for sustainability urban mobility in its Global Report on human settlements GRHS (2013) it was argued that there are three main components of city Logistics namely the modes that carry the freight, the infrastructures supporting freight flows and the operations related to their organization and management as depicted in the framework above. Each component has subcomponents with their own characteristics and constraints. The interaction of the three main components in the logistics system and the subcomponents are elucidated as transport terminals, roads and distribution centers are infrastructure subcomponents of city logistics. Scheduling, routing, parking and loading/unloading, are operational subcomponents. While trucks remain, the dominant mode supporting city logistics.

8 The One District One Factory Initiative (1D1F Initiative) by the Government of Ghana and the Transportation System

The One District One Factory initiative is a key component of the Industrial Transformation Agenda of the government of Ghana. The concept of 1D1F was first introduced by the Ministry of Trade, Industry and Special Initiatives as part of an integrated program for accelerated growth and industrial development for Ghana. Originally, the program was designed as the Rural Enterprises Development Programme and later rebranded as the District Industrialization Program (DIP). It was designed as a comprehensive program for rural industrialization, involving the setting up of at least one medium to large scale factory in each of the administrative districts of Ghana. While previous attempts at rural economic revitalization in Ghana had focused mainly on the provision of physical infrastructural facilities, the DIP focuses on the promotion of commercially viable business development initiatives, to generate sustainable and accelerated economic development in rural communities.

The program seeks to address the challenge of severe poverty and underdevelopment among rural communities through the establishment of an institutional framework that will attract private sector investments in rural development activities. The initiative aims to achieve this through a massive private sector-led nationwide industrialization drive, which will equip and empower communities to utilize their local resources in manufacturing products that are in high demand both locally and internationally. This will allow the country to reap the rewards of industrialization, increase agricultural and manufacturing output, reduce reliance on imports and increase food availability.

The program is designed to achieve some specific objectives which include the following:

- To create massive employment particularly for the youth in rural and peri-urban communities, thereby improve income levels and standard of living, as well as reduce rural-urban migration.
- To add value to the natural resources of each district and exploit the economic potential of each district based on its comparative advantage.
- To ensure even and spatial spread of industries and thereby stimulate economic activity and growth in different parts of the country.
- To promote exports and increase foreign exchange earnings to support the government's development agenda.

The success of the 1D1F to some extent depends on the transportation system in Ghana. This is because, these factories and/or manufacturing companies would have to transport raw materials and other resources to their premises and as well as finished goods to the market. The initiative in the long run seeks to exports some finished product to other African countries and the world at large. All in all, it is evident the transport system would play a major role in order to make the initiative a success.

9 Transport and Logistics in Ghana

Ghana is one of the African countries with best transportation and logistics services although the continent is coupled with a number of challenges in the logistics sector. The country boasts of some domestic transport logistics companies and as well as foreign some foreign transport and logistics companies. The country's infrastructures include two seaports in Takoradi and Tema and these are the two major port or harbor. The country also boasts of an International Airports such as the Kotoka International Airport in Accra, Kumasi International Airport in Kumasi and the Tamale International Airport in Tamale. The country on top of this also boost of roads, railways, sea transportation and also pipeline transportation.

9.1 Major Domestic Transport and Logistics Companies in Ghana

BAJ logistics is one of the licensed logistics companies in Takoradi, Ghana. The company has achieved great success in the business and has won itself awards in 2014, 2015, and 2016 Oil and Gas Logistics company of the year; in 2015, Best freight forwarding company of the year among others. BAJ ensures safety in all its operations and in fact it was the first company to be permitted to transport radioactive materials in Ghana.

Crown Transport Logistics is one of the logistics companies in Tema. The company offers logistics services for hazardous and none hazardous chemicals. The company owns a fleet of vehicles capable of transporting goods regardless of their size. It has achieved great success in training and developing its management and staff. The company's vision is to be the leading logistics company of hazardous chemical and disposers in the West African sub-region.

AT Logistics Limited is a logistics company in Tema, Ghana. The company was incorporated in 2010 in Ghana as an international company offering freight forwarding and transport services. AT logistics has one of the best sea freight services for its clients. They offer assistance in transporting goods in containers from the country to any part in the West African sub-region. They have well trained staff that ensures your goods are well handled while being at sea. AT logistics has a wide range of vehicles for all the trucking services you may require from small sized vehicles to large trailers.

McDan is one of the widely renowned shipping and logistics companies in Ghana. The company is located in Accra. Established in 1999, McDan has branches in Tema and Takoradi. It offers services in; Warehousing – McDan outdoes most shipping companies in Ghana because it has one of the best warehousing companies in the country. It has warehouses of over 47,000 square meters in total and another 80,000 square meters of open area for goods to be stored out in the open. The company also offer Transport services. They have a well-trained professional for movement of cargo to almost every destination in the country. Another service is the Chartered flight. The company was the first logistics company to get an air carrier license for handling chartered flights in the country. The company has been offering all-inclusive ship agencies in all the major 2400 air and seaports in the world. Other services offered by the company include vessel handling and customs brokerage.

Achievers logistics Ghana was established in Ghana back in 2012. Since then the company has been offering fast and reliable services to its customers. The company claims to rank top three in freight

forwarding, removal, and relocation services. The company do offer clearing and forwarding service, air freight, sea freight, road transport, bulky and hazardous goods movement, project logistics, heavy lifts, oversize cargo, sea barges and module movements.

Sackson Ohmes Firma is a logistics company in Ghana established back in 1995. Sackson Logistics has a great team of professional logicians who ensure quality service delivery to their clients. The company offers logistic services through air, sea and road. They have a fleet of vehicles, machinery, cranes and other equipment needed in the organization and handling of cargo. The following are some of the services that the company offers; Sea freight, Breakbulk cargo transport, Full load container transport, Nonvessel operating common carrier, Airfreight charters, Consolidation service, Assembling and supervision of flexi tanks, Citric shipments and Transport logistics tank containers for liquids, food grade, and chemicals.

9.2 Major Foreign Transport and Logistics Companies in Ghana

DHL Ghana Ltd is an International express that delivers; global freight forwarding by air, sea, road and rail; warehousing solutions from packaging to repairs, to storage; mail deliveries worldwide; and other customized logistic services – with everything DHL does.

Global Cargo and Commodities Ltd. handled 48 fully chartered commercial aircrafts from Belgium, Dubai, UK and South Africa in 2010. GCCL handled more than all the Freight Companies in Ghana especially air freight goods. Global Cargo & Commodities Ltd. also has enough International Freight Forwarding experience in shipments in full ship loads across the world especially tramp shipping.

FedEx Express invented express distribution and is the industry's global leader, providing rapid, reliable, time-definite delivery to more than 220 countries and territories, connecting markets that comprise more than 90 percent of the world's gross domestic product within one to three business days. Unmatched air route authorities and transportation infrastructure, combined with leading-edge information technologies.

Others include the United Parcel Service (UPS), TNT Express Company and Cargo flight from the international airlines to comes to Ghana such as Emirates Airline, Kenyan Airways, Ethiopian Airlines and others.

10 Results from Interview

This section presents the qualitative results from the respondents who were interviewed.

10.1 Challenges of Transport System in Ghana

In this section, the researcher attempts to find out some challenges facing the transportation sector by soliciting responses from the workers in the transportation and logistics industry. The findings from the respondents are presented below.

Respondent **Gold** was of the view that, the capital city of Ghana has been congested with a lot of people and the road and rail transport system have not seen any significant improvement. This is how he puts it.

Accra is very congested, ...and you know it really affects our business a bit. Sometimes, we are unable to deliver goods to our clients on time because of the heavy traffic. I think the government must consider expanding the road network, ...and maybe the government must also improve on the rail network.

On the part of Respondent **Brown**, he stressed that capital is one of the challenges facing the transport sector. This was how he put it.

The transport and logistics sector requires a very huge investment. If Ghana and for that matter Africa want to do business at the highest level, then more capital ought to be pumped into the system. we need to buy more cars, ...big trucks and small trucks, ...and other logistics equipment to make it a success.

Also, Respondent **Blue**, also said the presence of technology in the transport sector is very low as compared to the European and Asian country.

Let me tell you this, ...there is presence of technology in our operations but it is not enough. Customers can track their order online and find out the status of it, ...well I don't think that is enough. What we need, ...I think we need massive technology in the work, ...our practice is quite outmoded ...you know elsewhere they use drones to deliver packages. Not forgetting about our address system, I think we can do better.

Respondent **Yellow, Green, Ash, Pink and White** all talked about similar challenges discussed above.

10.2 The Future of African Transportation System

This section presents the future of transportation system in Ghana and for that matter Africa as a whole and its impact on e-commerce activities on the continent. Responses were solicited from respondent who works in the transport and logistics industry.

Respondent **Yellow** was of the view that the future of the transport and logistics industry for Ghana and for that matter all African countries looks promising. The respondent further said that the changes shall occur but at a decreasing rate. This is how the respondent said:

I don't think the industry will remain the same say 3 or 5 or maybe 10 years to come. The industry looks very promising because more people and also companies continue to buy more goods online both in Ghana and in abroad, ...we need to deliver it to them. I expect enhanced GPS accuracy in Ghana in the future ...this will bring an improvement in the industry.

On the part of Respondent **White**, he opined that the future of the transport and logistic industry looks promising as well. The respondent further stressed that more transportation networks shall be build in the continent and made reference to the Belt and Road initiative by the Chinese Government. This is how he put it:

In the future, Africa transportation system can reach that of US, China, Europe and other Advanced countries ...yes, ...the future looks very promising. Also with the One Belt One Road Initiative by the Chinese Government, more roads, airport, sea ports shall be build in Africa ...I believe this will significantly improve the transportation system in the continent.

Respondent **Yellow** made mention of some technologies and innovations that the foreign countries do use and expects that these technologies shall be fully implemented in the continent. This is what the respondent said:

In the future I expect the technologies, ...and also the innovations that is used by China, US and co to be fully used here. We need to start using automated trucks and drones, electric trucks, ...I mean they are awesome and makes the work very attractive. Talk about the RFID (Radio Frequency Identification), Artificial Intelligence, Improved tracking systems and co, ...yes, we will have it in future.

The responses given by other respondents were all in line or similar to the ones given by these respondents.

11 Conclusion

E-commerce presents a lot of opportunities for the African continent. It has made it possible for countries to share resources with another country via cross-border. The logistics system in the continent needs to be improved in order to capitalize on the benefits that e-commerce presents to the continent as they move hand-in-hand.

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Interview for Data Collection

Sir/Madam, I am conducting a research on the role of transportation in the sustainability in Africa with an emphasis on Ghana. I am looking forward to your positive corporation.

Questions

- Are there any challenges facing the transport/logistics sector in Ghana? If your answer is yes, can you give a further clarification?
- Looking at the current level of transport/logistics system in Ghana and for that matter Africa as a whole, how would the future look like?