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IMPLICATIONS OF THE AFRICAN CONTINENTAL
FREE TRADE AREA FOR DEMAND FOR
TRANSPORT INFRASTRUCTURE AND SERVICES

SUMMARY REPORT



Theme: “Investing in multimodal transport infrastructure to optimize the benefits of the African Continental Free Trade Area: a focus on air transport and tourism”

Summary report

Implications of the African Continental Free Trade Area for demand for transport infrastructure and services

1. Introduction

The Agreement Establishing the African Continental Free Trade Area entered into force in 2019 with a view to increasing intra-African trade by eliminating import duties, and even doubling intra-African trade through the reduction of non-tariff barriers. However, inadequate transport infrastructure and services could hamper the full realization of the benefits of the African Continental Free Trade Area (AfCFTA), whose implementation began in 2021. Reaping the full benefits of AfCFTA, therefore, requires the integrated planning of trade and transport. To facilitate such planning, the Economic Commission for Africa (ECA) has conducted a study on the implications of AfCFTA implementation for demand for transport infrastructure and services.

Specifically, the study aimed to answer the following questions in respect of AfCFTA implementation:

- How would AfCFTA implementation affect demand for transport infrastructure and services on the continent?
- What would be the impact on demand for the various modes of transport, and what are the implications thereof for investment in infrastructure?
- What would be required in terms of infrastructure and equipment for the various modes of transport?

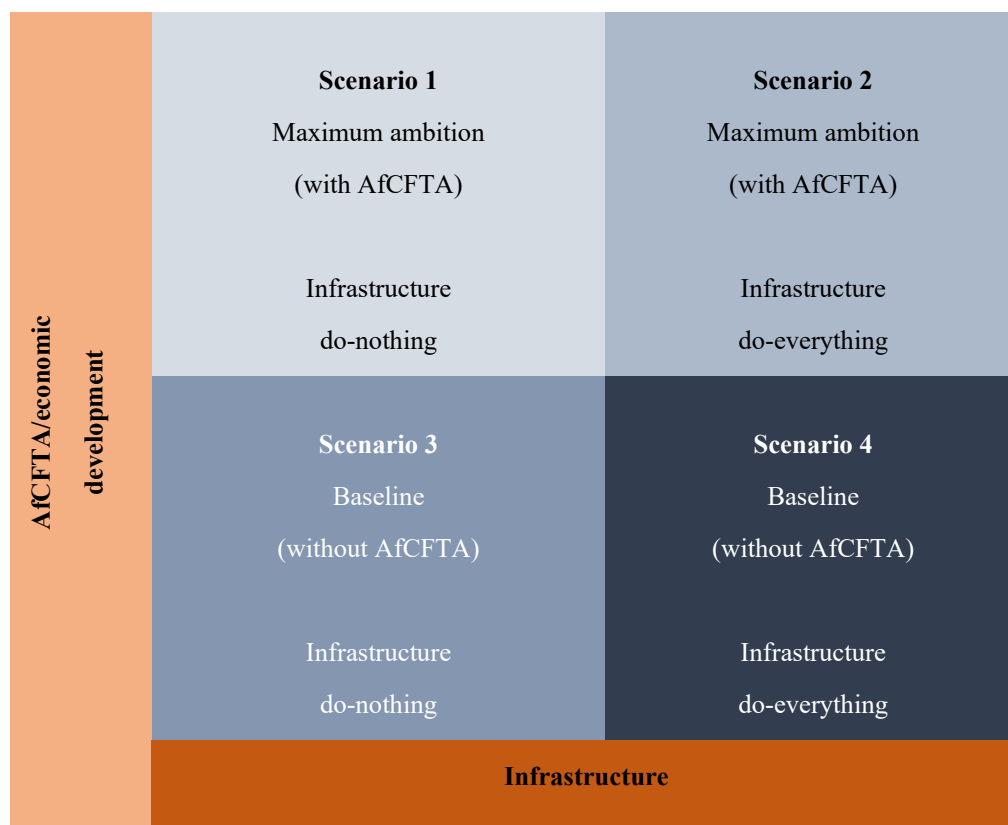
2. Methodology

The methodology used to answer the above questions included trade-flow modelling and freight-mode-choice modelling. The time horizon of the analysis is the year 2030, and the scenarios in the analysis were constructed based on factors that fall into the following categories:

- AfCFTA implementation and socio-economic development
- Supply of transport infrastructure

The scenarios with full AfCFTA implementation are referred to as the maximum-ambition scenarios. The counterfactual scenarios (i.e. those without implementation) are referred to as the baseline scenarios. The following scenarios were considered based on the supply of transport infrastructure: do-nothing scenarios, with existing infrastructure and services being used wherever possible; and do-everything scenarios, with planned infrastructure and services being realized to the extent possible. The classical quadrant representation of the potential combinations of future scenarios is shown in figure I.

Figure I
Potential future scenarios



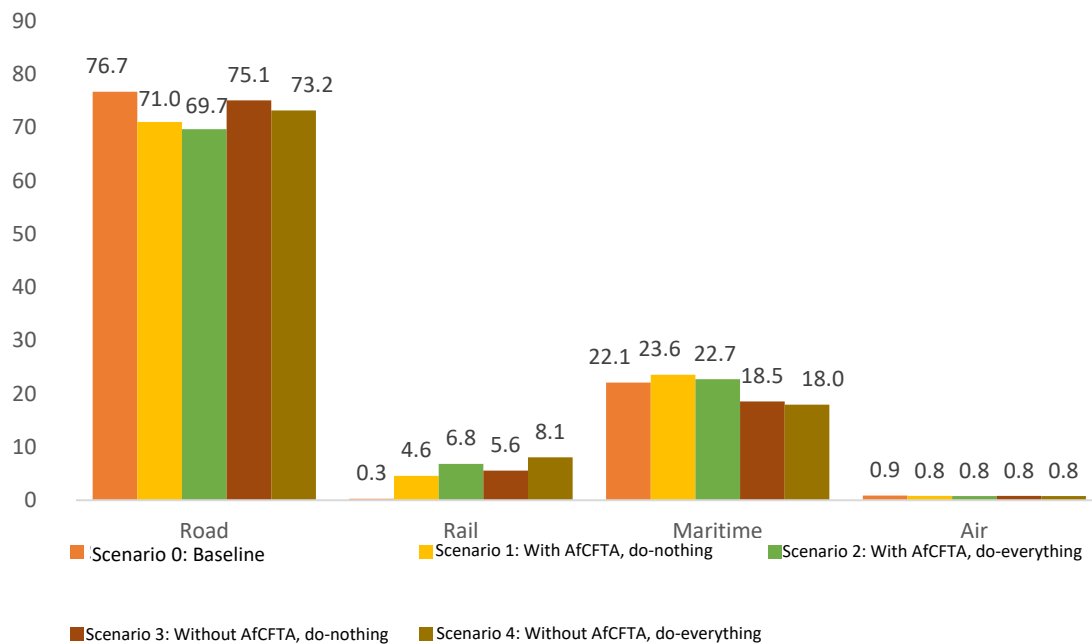
3. Summary of key findings

3.1. Impact of implementation on transport demand distribution

The study showed that AfCFTA implementation would lead to a general increase in demand for intra-African freight of around 28 per cent compared to the scenarios without implementation.

In 2019, intra-African demand for freight transport was heavily skewed in favour of road transport (76.7 per cent), with the share for rail transport being close to zero (0.3 per cent) (figure II). Policies to expand rail networks combined with AfCFTA implementation policies are expected to change this distribution. The study showed that, in scenario 2 (where AfCFTA is implemented and planned infrastructure and services are realized), the share of demand for rail transport would increase from 0.3 to 6.8 per cent. In contrast, the share for road transport would decrease from 76.7 to 69.7 per cent. The share for maritime transport would increase with implementation and decrease without implementation. Finally, the share for air transport would remain almost unchanged under the various scenarios. However, the number of tonnes transported by aircraft with AfCFTA implementation would nearly double, from 2.3 to 4.5 million tonnes.

Figure II
Distribution of intra-African freight transport demand, by transport mode
 (percentage)

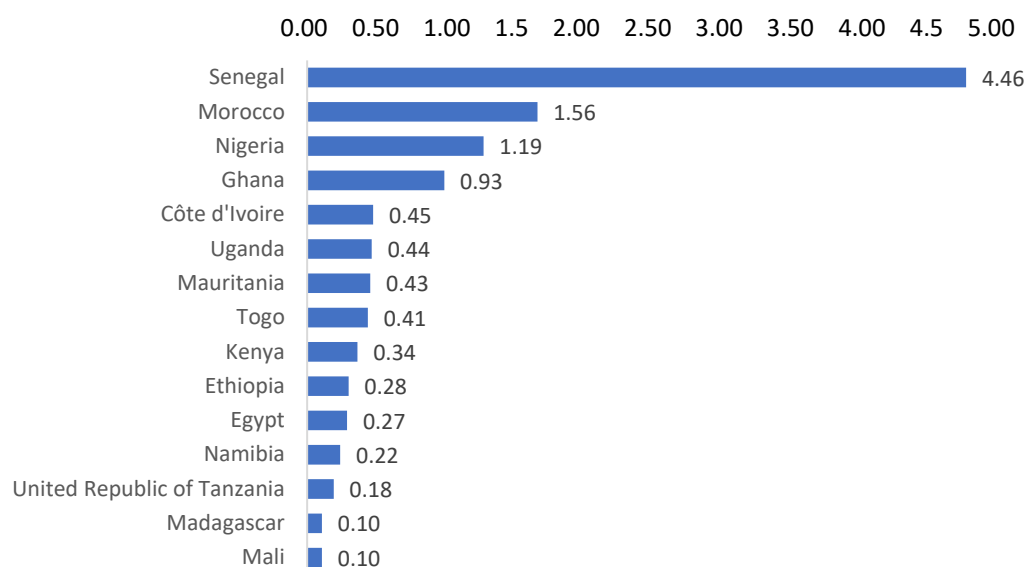


The study investigated whether implementation would lead to a concentration of trade flows in specific countries, and whether that would be associated with decisions by those countries to become logistics hubs. In this regard, countries such as Côte d’Ivoire, Ghana, Kenya, Mozambique, Nigeria, Rwanda, South Africa, Uganda, the United Republic of Tanzania and Zambia have invested in logistics and industrial parks that serve as logistics hubs. It was determined that not all those countries would have a higher concentration of exports in the AfCFTA implementation scenario.

The assessment was undertaken by calculating the proportion of intra-African export trade for each country in 2019 and 2030 under a full implementation scenario. The absolute change in the proportion of total intra-African export trade by country is shown in figure III. A total of 15 countries showed an increase of greater than 0.1 per cent.

Senegal, Ghana, Morocco and Nigeria would each experience an absolute increase close to or greater than 1 per cent in their total intra-African export trade. According to the 2018 World Bank Logistics Performance Index, although Ghana, Morocco and Nigeria are not the best logistics performers on the continent, they do perform above the African average. Whereas Senegal is the country among the four with the lowest performance in terms of logistics. To improve its performance, the national trade strategy of Senegal should prioritize the development of intra-African trade and logistics.

Figure III
Estimated absolute change in total intra-African export trade with implementation, 2019–2030
 (percentage)



3.2. Impact of implementation on critical elements in freight transport infrastructure

The identification of critical elements in transport supply for each origin-destination pair is based on the comparison of estimates of existing trade flows with those following AfCFTA implementation. An element is defined as critical if, under the implementation scenario, yearly freight traffic relevant to that element is expected to grow more than total demand at the continental level (from 2019 to 2030, in percentage terms). When an element has been deemed critical, its function in the improvement of transport infrastructure and services requires particular evaluation.

Road transport: The total length of critical road links in scenario 1 is 61,540 km. High densities of critical links are located in Central and West Africa (Cameroon, Central African Republic and Nigeria) and in East Africa (Ethiopia, Eritrea and Somalia). Several links are part of trans-African highways such as the Cairo-Dakar highway, the Tripoli-Windhoek-Cape Town highway and the Cairo-Gaborone-Cape Town highway.

Rail transport: The total length of critical rail links in the scenario 1 is about 8,760 km. Those critical links are located in North Africa (Algeria, Morocco and Tunisia), East Africa (Sudan), West Africa (Mali and Senegal) and Southern Africa (Mozambique, Namibia and South Africa).

Maritime transport: The critical maritime ports are located in Central Africa (Gabon), West Africa (Gambia and Ghana), East Africa (Comoros, Djibouti, Mauritius and Somalia) and Southern Africa (Madagascar, Mozambique and Namibia).

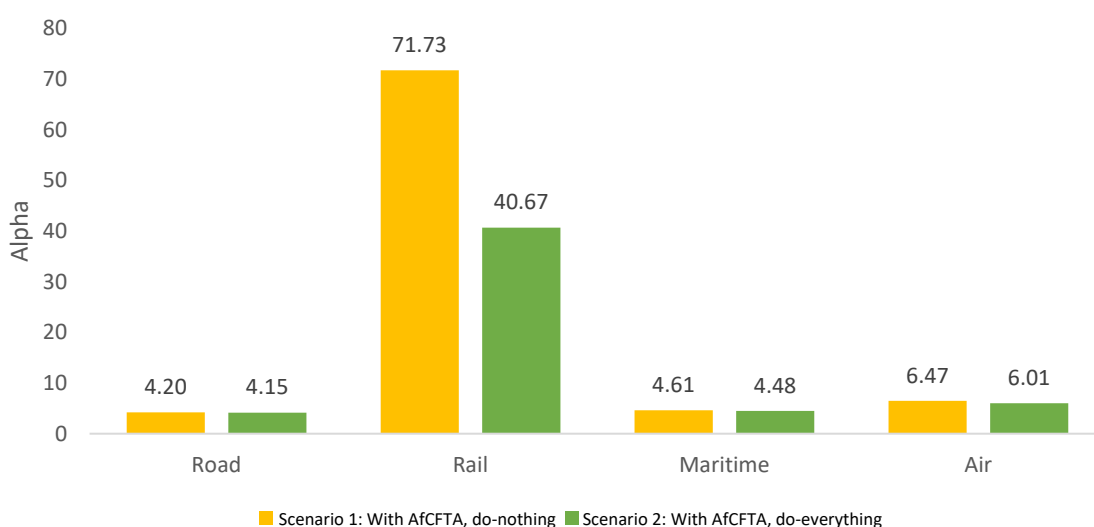
Air transport: The critical airports are located in North Africa (Mauritania), Central Africa (Democratic Republic of the Congo and Gabon) and East Africa (Djibouti, Eritrea, Ethiopia and Somalia).

Where critical links and nodes are identified, it is suggested that further detailed local studies be conducted.¹

One of the effects of an upgrading in transport networks and the development of new road infrastructure under scenario 2 (AfCFTA and do-everything) is the creation of added capacity, which would help to reduce the critical burden on transport networks by meeting the new demand created by AfCFTA implementation.

This can be verified by comparing the critical values (i.e. alpha) of the growth rates over the period 2019–2030 in scenario 1 (AfCFTA do-nothing) and scenario 2 (AfCFTA do-everything) (figure IV).

Figure IV
Comparison of alpha in scenarios 1 and 2, by transport mode



Except for rail transport, the decrease in alpha ranges from 1.2 per cent for road transport to 7.1 per cent for air transport. Rail transport shows the greatest decrease, of around 43 per cent, thanks mainly to the implementation of the Trans-African Belt Way.

3.3. Impact of implementation on demand for freight transport equipment

The demand for equipment used in the various modes of transport – road (trucks), rail (rail cars), air (airplanes) and maritime (vessels) – as a result of AfCFTA implementation is reported in table 1.

¹ An example in respect of a critical road link could be a follow-on study to determine the feasibility of adding lanes.

TABLE 1
EQUIPMENT NEEDS IN SCENARIO 2 (WITH AfCFTA, DO-EVERYTHING)

Unit	Trucks	Rail cars	Vessels	Aircraft
Bulk	1,945,141	132,857	121	243
Container	268,438	36,482	14	-

When looking at the transport equipment needs of the five African subregions, North Africa seems to be the one with the greatest demand. This can be explained in part by the fact that North Africa has the longest network of main roads, the highest number of international airports, and the highest number of maritime ports.

Road transport: The largest demand for trucks to support trade flows is within West Africa, with 39.3 per cent; from West Africa to Southern Africa, with 19.8 per cent; and from Southern Africa to West Africa, with 9.9 per cent.

Rail transport: The largest demand for rolling stock to support trade flows is within West Africa, with 48.4 per cent; within Southern Africa, with 19.6 per cent; and within North Africa, with 11.5 per cent.

Maritime transport: The origin-destination pairs of subregions that would require the largest number of vessels to meet demand are from Southern Africa to North Africa, with 26.7 per cent; from Southern Africa to East Africa, with 12.6 per cent; and from Southern Africa to West Africa, with 10.3 per cent.

Air transport: The largest aircraft demand to support trade flows is within West Africa with 13.2 per cent. The other origin-destination pairs of subregions that would require the largest number of aircraft to meet demand are from North Africa to West Africa, with 12.9 per cent; and within Southern Africa, with 12.2 per cent.

4. Investment opportunities

Investment in critical infrastructure (requiring upgrading to cope with AfCFTA-related freight growth)

Areas with critical road network links

- Central Africa and West Africa (Cameroon, Central African Republic and Nigeria)
- East Africa (Eritrea, Ethiopia and Somalia)

Areas with critical rail network links

- Central Africa (Chad, Congo and Democratic Republic of the Congo)
- East Africa (Kenya, Uganda and United Republic of Tanzania)
- Southern Africa (Botswana, Malawi, Mozambique, Namibia, South Africa and Zimbabwe)
- A section of the railway network in Mali

Areas with critical maritime links

- Central Africa (Gabon)
- West Africa (Gambia and Ghana)
- East Africa (Comoros, Mauritius and Somalia)
- Southern Africa (Madagascar, Mozambique and Namibia)

Areas with critical airport links

- North Africa (Mauritania)
- Central Africa (Democratic Republic of the Congo and Gabon)
- East Africa (Djibouti, Eritrea, Ethiopia and Somalia)

Regional investment opportunities

- Expected high demand for trucks in Southern Africa and West Africa
- Expected high demand for rolling stock in North Africa and West Africa
- Expected high demand for aircraft in North Africa, Southern Africa and West Africa
- Expected high demand for vessels in East Africa, North Africa and West Africa

Table 2

Transport fleet investment: equipment requirements upon implementation and realization of planned infrastructure

Units	Trucks	Rail cars	Vessels	Airplanes
Bulk	1,945,141	132,857	121	243
Container	268,438	36,482	14	-

Table 3

Estimated costs for the equipment required, by transport mode
(millions of United States dollars)

Parameter	Trucks	Rail cars	Vessels	Airplanes
Bulk	291,771	26,571	4,235	25,758
Container	53,688	9,120	420	

