Building tomorrow's markets; WAFMAX case study

MAXimising West Africa's trade potential

About Maersk Line

Maersk Line is the world's largest shipping line with a fleet of more than 600 container ships. We sail every major trade lane on the globe and make about 35,000 port calls every year. With a global market share of 15%, Maersk Line is an integral part of the supply chains of thousands of companies. Our goal is to help our customers optimise their supply chains. Ensuring that our customers' cargo arrives safely and on time is at the core of this.

About Copenhagen Economics

Copenhagen Economics delivers economic counselling to authorities, policy makers and companies in the fields of competition, regulation, international trade, impact assessment and regional economics. According to Global Competition Review, Copenhagen Economics is among top 20 economic consultancies in the world. The firm employs more than 30 economic experts, making it one of the largest groups of professional economists on continental Europe.

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MAERSK LINE

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About this study

Maersk Line is introducing 22 new container ships in West Africa in response to the growing trade relations between Far East Asia and West Africa. Designed to enable higher port productivity in West Africa, the 'WAFMAX' vessels will help improve conditions for West African businesses and support future trade growth in the region.

West Africa is heavily dependent on international trade to stimulate economic development and alleviate poverty, yet West African ports are among the least efficient and most congested in the world.

A 2012 study by Copenhagen Economics has looked into the impacts of Maersk Line's new WAFMAX vessels on local port operations in two central ports in West Africa by 2013; Apapa in Nigeria and Tema in Ghana. The study found that:

- Maersk Line's new WAFMAX vessels will support the ports and terminals of Tema and Apapa in reducing their port turnaround times, thereby allowing West African exporters and importers to reduce their total logistic costs and creating conditions for continued trade growth.
- Challenges still remain to be addressed to prepare West African economies for future growth, e.g. port capacity constraints, hinterland connectivity, corruption and cumbersome customs handling procedures.

	TEMA, GHANA	APAPA, NIGERIA
Increased trade potential worth: Because WAFMAX helps boost port productivity signifantly it has the potential to realise significant trade flow increases.	+ $490 million	+ $760 million
Reduced logistics cost worth: Transportation and logistics costs in West Africa are among the highest in the world. WAFMAX can help bring down shipping, inventory and congenstion costs.	+ $80 million	+ $131 million
Reduced CO_2 footprint by: The energy efficient WAFMAX will enable trade at a lower CO_2 footprint per container moved compared to the industry average on that trade.	- 30 %	- 30 %
Reduced sulphur emissions by: WAFMAX will also reduce absolute sulphur dioxide emissions thereby improving the air quality in the ports.	- 13 %	- 20%

Africa rising

Africa's economy is growing rapidly. Over the past decade six of the world's ten fastest-growing countries were African and in the period 2011-2015, seven of the top 10 fastest growing economies will be in Africa. West Africa stands out in this respect. In 2011, Ghana's economy was predicted to be the fastest growing in the world and in Nigeria annual growth has been around 9% during the last 10 years[1].

Significant challenges remain for West Africa's economic development as large inequalities continue to persist in income and human development. While economic growth is likely to reduce the proportion of the population living on less than USD 1.25 a day, the African Development Bank estimates that poverty will remain a fact of life for around a third of the people living in Africa for the next 40 years. The Bank concludes that a long-term average of 7% annual GDP growth is needed across the continent for poverty to decline significantly.

Barriers to growth

In West Africa, ports and container terminals are among the least efficient and most congested in the world. Dwell times – the time between a container is discharged from a vessel and till it exits the port facilities – are nearly quadruple those of Asian ports[2]. Low port productivity contributes to high trade cost and inflated pricing of consumer goods.

Transportation and logistics costs in West Africa are among the highest in the world and imported goods are out of reach for many West African consumers. At the same time, the economy continues to be heavily dependent on commodity exports of oil and mineral reserves, resulting in a significant outflow of empty containers. Ultimately, the West African population bears the costs of the current system and its inefficiencies.

Introducing WAFMAX

In response to the trade growth between Far-East Asia and West Africa, Maersk Line is upgrading its services to West Africa by introducing 22 new container ships from 2011 to 2013. The WAFMAX vessels are the biggest container vessels to ever serve the region. They can carry 4,500 containers (TEU) and have been designed specifically to accommodate the lower drafts in West African ports and enable a more efficient operation.

By delivering almost twice the number of containers in one vessel call, the WAFMAX vessels will support important West African ports and terminal operators such as Apapa in Nigeria and Tema in Ghana in increasing their capacity and reducing port turnaround times. This in turn will help reduce logistic costs for West African businesses and enable increased trade in the region.

1 International Monetary Fund
2 Sub-Saharan Africa Transport Policy Program (SSATP), 2007

Growing trade relations between Far East Asia and West Africa

In 2011, container volumes between Far East Asia and West Africa grew by 25%, mainly due to large GDP growth in Ghana. In comparison, container volumes grew by approximately 6% between Europe and West Africa.

For the coming 1-2 years, growth in container volumes are expected to continue but at more moderate levels due to lower economic growth in West Africa with an estimated 9% in 2012 and 5% in 2013.

China's need for resources and commodities is a key driver of increased trade flows between Far East Asia and West Africa along with growing demand for lower-priced Chinese products in growing West African markets such as Ghana and Nigeria.

WAFMAX impact on port productivity in Apapa

REDUCED waiting time

WAFMAX will help reduce the time it takes to get the vessel into the port with up to 30% by delivering twice the number of containers on one round-trip than the average vessel and due to the installment of fixed berthing windows

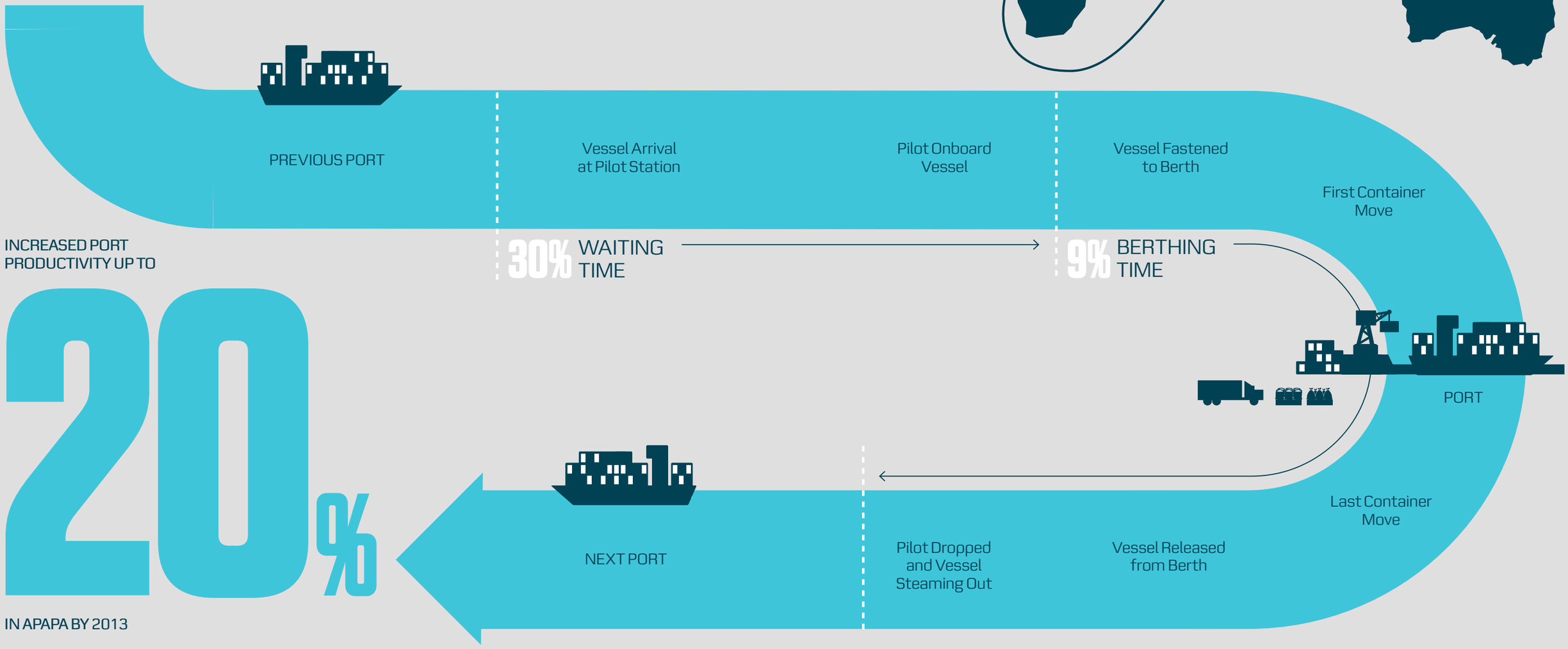
REDUCED berthing time

WAFMAX will reduce the time it takes to load and unload containers by up to 9% due to careful stowage coordination and a fully automated container lock technology which can help speed up load and discharge moves

INCREASED port productivity

As a result of the reduction in waiting and berthing time, port turn-around time will be reduced which means an increase in port productivity with up to 20% per annum. This is equivalent to around 1 waiting day less per vessel call.

MAXIMISING WEST AFRICA'S TRADE POTENTIAL



INCREASED PORT PRODUCTIVITY UP TO

20%

IN APAPA BY 2013

The environmental and human health impacts of sea-borne trade

While environmental pollution and emissions from trade remains a peripheral priority for many people living in West Africa, environmental impacts of trade are not negligible and a significant share of this derives from maritime transportation.

One major pollutant from shipping is sulphur dioxide, causing acidification and impacting the health of the people who live close to ports. The port of Apapa is located within 2 km of the city-centre of Lagos and the port of Tema is located approximately 5 km from the city-centre of Tema.

More than 12 million people live within a radius of 25 km of the two ports. Due to the port productivity benefits and the increased efficiency of the WAFMAX vessels, sulphur emissions will decrease by 20% in Apapa and 13% in Tema from 2013 onwards.

While of a more global nature, CO_2 emissions from shipping on the Far East Asia – West Africa trade are also significant. West African customers using the WAFMAX vessels will be able to reduce CO_2 emissions of their goods by up to 30% compared to the industry average.

Partnering with ports and terminals for MAXimum effect

Getting ready to receive the WAFMAX vessels requires close collaboration between Maersk Line and the receiving ports and terminals in West Africa. Examples of joint efforts include training of pilots and stevedores to handle the WAFMAX vessels along with careful stowage planning to ensure that the vessels are navigated safely to shore and containers are discharged safely and efficiently. Furthermore, in some ports such as Walvis Bay in Namibia dredging has been conducted to accommodate a fully loaded WAFMAX vessel.

One of the most critical elements in realizing the full productivity potential of the WAFMAX introduction is the implementation of so-called fixed berthing windows which is essentially a scheduling system that allows vessels to berth at a fixed time rather than on a first-come-first-serve basis. According to the study by Copenhagen Economics, without fixed berthing windows the port productivity gains of introducing WAFMAX in Apapa and Tema would be reduced with close to one third.

In the port of Tema, an important milestone was reached in October 2011 when the terminal delivered an all time high productivity of 64 berth moves per hour on a WAFMAX vessel. This should be compared to the average berth productivity for region Africa which according to the African Development Bank is around 25 moves per hour

Another important implication from the introduction of fixed berthing windows is that it creates the basis for shipping lines to deliver their customers' containers on time, thereby enabling West African importers to reduce their logistics costs through better inventory management. The annual reduction in waiting and berthing time from WAFMAX combined with improved on-time delivery is estimated to provide the basis for West African customers to reduce their inventory costs.

Of the USD 131 million logistic cost savings that can accrue to customers in Apapa by 2013, around USD 57 million are estimated to derive from inventory cost savings while the remaining amount derives from reduced congestion charges (see page 9).

The value of time for West African businesses

Time and predictability are scarce resources for West African businesses. The longer time a container is held up in a port and the higher the uncertainty is in terms of delivery times, the more costs are added to their operations.

When goods are delayed in ports and arrive later than planned, West African importers are for instance forced to keep higher stocks to meet their customers' demands. Furthermore, the long waiting times in West African ports and terminals means that local importers and exporters are more prone to the risk of paying extra fees – so-called congestion charges – to compensate shipping lines for their added fuel and operating costs.

All in all, each additional day spent in a West African port comes with a significant penalty for local importers and exporters and drives up the cost of doing business in the region.

The cost of holding up a vessel one extra day is estimated to be more than USD 35,000 for a 2,200 TEU vessel[3]. By contributing to reduced port turnaround times, WAFMAX will minimize the risk of congestion fees for West African importers and exporters. In Apapa, for instance, the estimated congestion charge saving is up to USD 74 million per annum by 2013.

3 Pálsson, Harding & Raballand, 2007: Port and Maritime Transport Challenges in West and Central Africa

Fouani

For Nigerian-based importer of electronics, Fouani, transportation time and reliability are key to the success of the company. Fouani imports its products from Asia and assembles them locally before distributing them to its more than 1,200 customers nationwide. For this purpose, the company is highly dependent on the timely arrival of its goods. Sometimes delays in the port of Apapa can be as high as 20-30 days. For customers with a turn-over of USD 10 million per month, the financing costs of keeping an extra 30 days inventory can amount to a cost of more than USD 2 million per year based on a 20% interest rate which is the going rate in Nigeria. In cooperation with our partners in key West African ports, Maersk Line will be able to deliver on-time for 75-85% of the WAFMAX shipments in 2012 and expect to reach 95% reliability of WAFMAX shipments from 2013 and onwards.

fouani

"With Maersk Line's new WAFMAX service we have already seen variation go down to as low as 1-2 days. This saving is an important piece in making our business more efficient in the long run and helping us to offer a more competitive price to our customers."

Mohammed Hassan Fouani
Managing Director, Fouani Nigeria Limited

Sunda

Guangzhou Sunda Intl Trading (Sunda) is a Chinese owned multinational trading company established in 2000. Sunda exports mainly construction materials, sanitary products and fast moving consumer goods from China to Africa and South America. In 2011, the company exported 16,000 TEU of goods. Being confident of on-time delivery is one of the main reasons Sunda uses Maersk Line to ship their products.

Sunda International

"In Sunda´s business, time is of the essence and must be reduced as much as possible to remain competitive. A stable and fast delivery of WAFMAX service is very important for Sunda. Every day we check the estimated time of arrival (ETA) of our cargo on Maersk Line's website. Any delay of shipment impacts our inventories, sales and cash flow. If our competitors get the products first, we will run the risk of losing our market. WAFMAX may also have an important impact on the future growth of our business and we hope it will enable us to export from China to West Africa more than ever. With the support of the WAFMAX service, we may have a more healthy cash flow and can expand our market share in Ghana, thereby beating our competitors who are not accommodated with such level of assurance in transit reliability and vessel space."

Mr. YC Shen
President of Sunda

Improvements still needed

Important challenges remain to be addressed across the entire transportation chain in order for West African businesses and their dependent communities to benefit from the full 'WAFMAX effect'. Some of these challenges include the physical capacity constraints in key West African ports which prevent further expansion; cumbersome customs declaration procedures; wide-spread corruption and facilitation payments and poor hinterland connectivity. All of these are factors that contribute to driving up costs of doing business in the region and hampering trade.

Investments and collaborations that can help increase efficiency and effectiveness in the West African transportation system are critical to support the region's future development and provide the basis for future prosperity and poverty alleviation efforts.

"Transport is one of the key sectors that play crucial roles in achieving the goals of poverty eradication and sustainable development. The transport sector is very much linked and influences developments in other sectors of the economy. Indeed, it affects attainment of all eight Millennium Development Goals (MDGs)."

United Nations Economic and Social Council for Africa
African Review Report on Transport, 2009