

# Measuring Logistics Performance of the Autonomous Port of Cotonou in Benin

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**Abstract** Logistics performance is impacted by several factors such as infrastructures and forth. Many scholars tend to emphasize quantitative factors such as transports, location factors, exchanges rate, labor rates and taxes. It is known that the assessment of logistics performance is a vital function for any organization, firm or society. Several researches have been elaborate about the Port of Cotonou in a vain attempt to reinforce national or regional economy. In this paper, the authors propose a framework that includes qualitative factors concerning logistics. These factors will be analyzed by calculating data collected from Benin and other reputable sources such as ECOWAS (Economic Community of West African States) and the World Bank. The authers findings show that even though Benin's port has high potentialities, the strategy of logistics management needs to be improved and especially reconsidered by taking into account certain variables in our framework.

**Key words** Logistics performance; Competitiveness; Autonomous port of cotonou (PAC)

## 1 Introduction

It is a known fact that without transportation, there is no commercial exchange. The competitiveness of a product depends primarily on the integrated transport logistic chain that takes into account factors such as institutional aspect, legal, administrative, technical, operational commercial and statistics. Better, technological advances and economic liberalization have created new opportunities for countries to harness globe markets for economic growth and sustainable development. However, it seems that the developing globe countries, those in Africa and especially Benin do not get any benefit from the IT and are still being in a vicious circle of poverty even though they are endowed with many potentialities. Since 1910, the Autonomous Port of Cotonou was built serve Benin, Togo and some landlocked countries such as Niger, Burkina Faso, and Chad. This port is said to be "the lifeblood of Benin's economy" and several studies and research have been elaborated (cited some of them here) in order to make this geographic gem, a lever for the social and economic development. According to World Trade Indicator and some statistics data, the PAC is Benin major income earner accounting for 90% of external exchanges and more than 60% of the nation's GDP.

In this paper, we are going to assess the logistics performance in the Autonomous Port of Cotonou (Benin) according to some variables address the question of which strategy could enhance the competitiveness of the logistic at the Benin's port. The rest of this paper is organized as follows. In the next section the overview about the PAC is presented, we review segments of literature focusing on the different of assessment of logistics Pin the port of Benin. The last two sections discuss the methodology and research framework. Analysis and findings are then presented and finally discussion of the results and conclusion.

## 2 The Overview of PAC and Literature Review

### 2.1 The overview of the autonomous port of Cotonou

Benin is an independent Republic with democratic government, which lies on the Gulf of Guinea and form part of the West Africa region. The capital city is Porto Novo although the commercial capital is Cotonou. Benin occupies the central position among West Africa costal countries. It constitutes a natural corridor for the transportation of goods to and from Niger, Burkina Faso, Mali, Chad, Togo and Nigeria via the port of Cotonou.

Until the late nineteenth century, the maritime trade is Benin was made in two points on the coast: Grand Popo and Ouida. Following the registration of many cases of material losses and human lives, the Wharf was built at Cotonou in 1891. Since that date, it has undergone numerous improvements from 1910 until 1980, which helped carry traffic up and modernization of the port. The PAC is a public institution with industrial and commercial company, legal personality and financial autonomy. The responsibility of the port is to maintain facilities in good conditions, to accommodate ships and goods, safeguarding the security and the expansion of facilities in line with the traffic growth. Commercial

enterprise, the PAC involves industry and maritime transportation, handling companies on board and group surveillance units and security organs of control and recovery. SAG, SDV, Group MAERSK, GRIMALDI, and CMA-CGM as Inter SEAS-Benin involve in port area. All these including structures within public sector, the national Shippers Council of Benin, Benin Company Dock, The Port of Cotonou, the Merchant Marine, the Company of Benin Shipping are the maritime transport chain in Benin. Since 2007, according to the United States Guard Monitoring, the PAC meets minimal requirement of the International Code of Safety for Boat and Port Facilities. Then, the port has recently received funding from Unites States under a program conducted by the Millennium Challenge Corporation, the Swedish International Development Agency, and Abu Dhabi Fund for the Development (ADFD), West Africa Development Bank and the ECOWAS Investment Bank. The vision of these funding is not only to achieve the port of Benin’s strategic road axes connecting the hinterland, the PAC and West African Monitories Union Inter-States highways but also allow to the PAC to play an essential role in the concretization of Benin’s strategic vision 2025 known as “Benin Alafia 2025”. That strategy sets out long-term goal notably with regard to socioeconomic, competitiveness and governance.

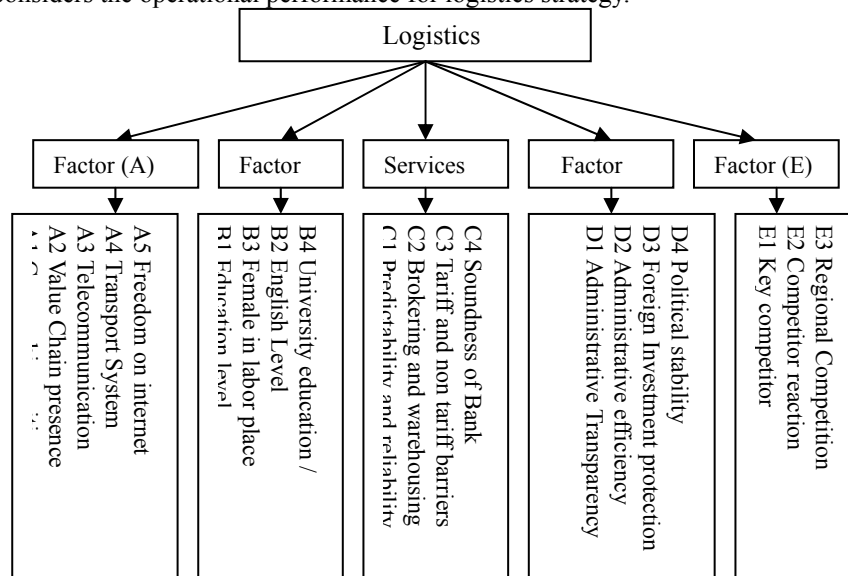
**2.2 Literature review**

Many researches have been reported about different performance measure in the literature to assess competitiveness of supply chain (Lee and Billington 1992), e-readiness (Bui and al. 2002), (Rohit Bhatnaga 2003) and some frameworks were elaborated in each situation to measure such as firms, government performance or country competitiveness. Some authors use productivity, performance and competitiveness interchangeably. From the research of A. T. Kearney, John T. Mentzer and Brenda P. Konrad, we could state performance or competitiveness is the ratio of actual output to standard output adding some variables. Also, in order to keep the task manageable some guarantee of quality of research, we used a scholar engine (scholar google.com), several online data bases (World Bank, ABI/Inform, INFODATA) that cover all leading journal not only the fields of logistics performance but also information system, e-business and others fields.

**3 Research Framework**

**3.1 Hierarchal construction**

From our review of literature, logistics performance is impacted by five important factors namely Infrastructure factors (A), Labor factor (B), Government factor (C), Business Services (D) and Competitor factor (E). Each major factor has a set a variable that are breakdown to twenty (20) variables. In computing the logistics, competitiveness (G) of Benin port could be:  $G = \sum \sum W_{ij}$ ; Where G, the goal, the overall Logistics Competitiveness score of port of Benin, W relative the weighs assigned each indicator and ij: relative score of the indicator according to Benin on a scale of 1 to 5 (1=the worst and 5 the best). The framework of our research is presented according to the model AHP (Analytical Hierarchy Process) which considers the operational performance for logistics strategy.



**Figure 1 Hierarchal Construction of Logistic Competitiveness**

### 3. 2 Explanation of index system

As earlier described, our framework indicates that the competitiveness of Port of Cotonou is impacted by five factors: infrastructure factors, labor factors, business services, government factors and competitor factors.

#### 3.2.1 Infrastructure factors

The good performance of the PAC requires some facilities and installations that are important for its functioning. Here, we identify five measures of infrastructure factors (geographical position, value chain presence, telecommunication service, transport system and freedom on the internet).

#### 3.2.2 Labor force

The competitiveness measures of labor force could be observed from several standpoints such as education level, the female in the labor force and the relation between the university education and economy needs.

#### 3.2.3 Business service

In order to achieve success on regional market the local business needs to be assessing according to some variables: predictability and reliability, brokering and warehousing, tariff and non tariff and soundness of the bank will be measured.

#### 3.2.4 Government factors

The administration transparency, administration efficiency foreign investment protection and political stability were among the most emphasized variables.

#### 3.2.5 Competitor factor

Finally, the framework proposed perceptions relating to competitors that includes key competitor, competitor reaction and the regional competition.

**Table 1 Measuring of Logistics Performance**

<b>Infrastructure Factors</b>	Benin
Geographical position	4
Value chain presence	3.5
Telecommunication	2
Transport system	1
Freedom on net	2.5
<b>Labor Factors</b>	
Education level	1.5
English level	1
Female in labor place (% of labor force)	2.5
University Education meets the needs of the Economy	2
<b>Business Services</b>	
Predictability and reliability	1
Brokering and warehousing	2
Tariff and non-tariff barriers	2
Soundness of bank	4
<b>Government factors</b>	
Administrative transparency	1
Administrative efficiency	1
Foreign investment protection	1.5
Political stability	4
<b>Competitor Factor</b>	
Key competitor	2
Competitor reaction	2.5
Local competition	3.75

Sources: INSAE-Benin, ECOWAS, TICP, World Bank.

**Table 2 Breakdown and Logistics Performance of PAC**

Factors	Coefficient
IF	2.6
LB	1.75
BS	2.25
GF	1.875
FC	2.75
$L = (IF+LB+BS+GF+FC)/5$	2.245

Sources: INSAE-Benin, ECOWAS, TICP, World Bank.

#### 4 Results

From the whole, the PAC does not reach the midpoint (3). Benin needs to improve its performance through specific approaches. The target of this research is not only to measure the performance of the PAC but also to show the contribution for the emergence of the Benin by enumerating of some perspectives or initiatives.

(1) Improve the quality of infrastructure through rational use of available funds of the various programs and especially the Millennium Challenges Corporate funds.

(2) Logistics capacity of the port in general and the number of the quay need to be increased in order to improve the quality of the handling.

(3) Telecommunication and information technology infrastructure need to hasten because there are an essential component of modern trade.

(4) Recruitment of new specialized agents and the training of the staff operant in the port sector that can increase the productivity and performance of the port.

(5) Infrastructure and superstructures of the Port must be managed according to the principle and requirement ISO 9000 normalized.

(6) The construction of the second deep water and dry port will have the advantage of attracting more foreign investment and operators economic.

(7) Harmonize the relation between private sector and government in the management of the port of Cotonou.

(8) An attractive pricing policy, reduction of incidental expenses, the strict control of corruption at the PAC and the struggle against administrative delays involve in competitiveness of the port and participate to the growth of the national economy.

#### 5 Conclusion

The analysis provided in this paper leads to several important insight. The assessment of the logistic competitiveness of the PAC allowed us to find out about its impediments. The assessment took into account some important factors related to service, production and productivity. The results showed that the level of the logistic of the PAC is low and therefore prejudicial to Benin's economy prosperity that derives primarily from revenues that come from the port charges. Consequently some measures of optimization must be envisaged with the view to facilitating trade and improving the port's performance. The modernization of the port doubled to a plan for monitoring performance evaluation.

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