# Logistics Outsourcing and Success of Physical Distribution Management: A Study of Clearing and Forwarding Companies in Rivers State.

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#### Abstract

In this study, the influence of logistics outsourcing on the success of physical distribution management was examined. The study operationalized the assessment of a firm's logistics outsourcing as business process outsourcing, business function outsourcing and facility/manpower outsourcing. The paper adopts the transaction cost economics TCE and the Resource-based view (RBV) as its theoretical underpinnings. The study employed the descriptive research design and the target population was clearing and forwarding firms in River State, Nigeria. A survey was conducted which adopted the simple random sampling technique. Out of the 85 registered clearing and forwarding companies in the River State Business Directorate, a sample of 55 clearing and forwarding companies was used. We empirically tested our research model using data from 258 valid survey responses. The results provide support for the hypotheses that there are both significant and direct effects of the dimensions of logistics outsourcing on the success of physical distribution management. Most important was the significant interaction effects between businesses function outsourcing and the success of physical distribution management. Some research contributions were made and directions for future research suggested.

**Key words:** Clearing and forwarding companies Logistic outsourcing, Nigeria, Physical distribution management,

## Introduction

The globalization of business and the competitive pressures have led companies to the growing strategic importance of the logistics function within the organization (Kumar, Vrat & Shankar, 2006). Outsourcing being an important area of any kind of business activity and one of the fastest emerging trends in the world (Grewal, Sareen. & Gill 2008), is playing a good role in the spread of globalization concept. Deepen (2007:3), describes logistic outsourcing as "the use of a third party provider for all or a part of an organization's logistics operations" and as "long and short term contracts or alliances between manufacturing and service companies and third party logistics providers".

The primary basis for logistics outsourcing is very much related to the theory of the firm. This theory has been exhaustively covered in economics literature. The concept of logistics outsourcing is driven by a number of factors which include: Globalization of businesses, improve productivity, cost reduction, improved customer service, downsizing, mergers and acquisitions and availability of third party Logistics Providers (Stock & Lambert, 2001). Management of Logistics functions in modern organizations involves decision making for complete distribution of goods and services in the marketing function (Watson & Pitt, 1989).

The decision and the process to obtain the supply of a product or service external to the organization are called outsourcing. Logistics outsourcing is an important option for companies that perceive the existence of gaps between what they want to accomplish with their logistics operations, and what they can achieve with their in-house expertise (Buxbaum, 1995). Outsourcing is used with or without geographical constraint in literature. In some cases, outsourcing describes the sourcing of products and/or services from external firms within the same country, while in others, outsourcing can also involve external firms in foreign countries (sometimes referred to as "International Outsourcing" (Park, Nayyar & Low, 2013). Regardless of the geographical boundaries, the key component of outsourcing is that a previously internal activity is now being outsourced from an external firm. The basic driver of outsourcing is lower cost and outsourcing borders on the transfer of a function previously performed in house to an outside provider.

By outsourcing, logistics companies can leverage the expertise of logistic service providers while concentrating on their core competencies (Mitra, 2009), but is the sufficiency of logistics outsourcing imperative in physical distribution management?

Although, there are empirical studies (e.g., Bahha etal., 2015; Tilokavichai etal., 2012; Akili, 2011; Chen, 2010; Contractor, 2010) in which logistics outsourcing are examined as the artifact of interest, few studies have discussed in depth, the issue of the adequacy of logistics outsourcing in addressing the success of physical distribution management in the context of clearing and forwarding companies.

The International Federation of Freight Forwarding Association (2016) states that freight forwarding and logistics services connotes services of any facet associated with the carriage (performed by single mode or multimodal transport means), consolidate storage, handling, packing or distribution of the goods as well as ancillary and advisory services. However, the adequacy of logistics outsourcing in physical distribution management is minimal. The reason being that today's logistics service providers take goods from various sources and then bundle them for the same or similar destinations or sort them for different destination. Further, today, business organizations across the world are struggling for competitiveness, not only for growth but also for survival alone. Moreover, the customers have become more demanding and look for value added services from prospective suppliers, business organizations across the world have started reviewing their business processes and have realized that cost cutting and differentiations value delivery are solutions to current problem, but the current logistics outsourcing in Nigeria is found to be inadequate and businesses cannot perform all the logistics functions on their own and often need to outsource logistics functions.

Therefore, this study empirically investigates the adequacy of logistics outsourcing on the success of physical distribution management in clearing and forwarding companies in Nigeria in order to add to literature and guide managerial decisions. The remainder of this paper is organized as follows: In the next section, we describe the theoretical background of the current study, develop a set of hypotheses that address relationships between logistics outsourcing and success of physical distribution management. Then we outline our methodology. Next, we report the results of the quantitative analysis of our study. Our discussion section followed next. Finally, the paper concludes with a brief summary of limitations and contributions and highlights opportunities future investigation in this area.

# **Literature Review and Hypotheses Theoretical Underpinning**

The theoretical underpinning for this paper is anchored on the transaction cost economics (TCE) from microeconomics and the resource-based view (RBV) from strategic management. Langlois and Foss (2009) confirms that the transaction cost economics originated from Ronald Coase who introduced it in his distinguished 1937 paper "the nature of the firm" a new vision to insight to business strategies, by depicting that, there exist cost linked to the operations of the markets operation costs. However, TCE was developed and operationalized by Oliver Williamson and has become one of the most conspicuous and powerful developments in the social sciences. The main point of discussion TCE is concerned with is why firms exist? In supply chain management contexture, TCE aims to minimize the cost linked with carrying out a transaction in a decision involving make or buy.

The decision whether to perform a transaction internally or externally depends on the difficulties and costs associated with the transaction. Transaction difficulties refer to factors arising because of contractual hazards under uncertainty including bounded rationality, opportunism, small numbers bargaining and information impactedness (Mclvor, 2000, Reve, 1990). The logic of TCE approach in studying outsourcing is that firms need to consider the degree of investments being asset-specific in the economic exchange as the critical determinant of whether a transaction needs to be managed within the organizational boundaries (Mclvor 2009, Williamson, 1975).

Although asset specificity, uncertainty and frequency are all important for characterizing a transaction, asset specificity is the critical factor in determining the transaction (Tekay & Wang 2011 Mclvor, 2009). Practically, if the company outsources an asset specific activity, transaction cost increases because of the fear of any possible opportunistic behaviour as a result of the deployment of this highly specific-asset (Grover & Malhotra, 2003.

On the other hand, the origin of the resource-based view (RBV) can be traced to the seminal work of Penrose (1959) theory of the growth of the firm. Penrose conceptualized the firm as a set of unique internal resources through which firms are differentiated from each other and are able to excel. Rubin (1973) supports Penrose's view in that the firm consists of a bundle of resources. The emergence of the RBV theory represents disagreement with the five forces analysis model popularly known as Porter's theory (Dyer & Singh, 1998). The RBV Theorists argue that firms consist of a collection of heterogeneous resources and that these resources are the source of competitive advantage + (Pete raf 1993; Barney 1991). In other words, generating a competitive advantage depends on what unique internal resources a firm possesses. The RBV explains why human, tangible, and intangible skills are important for the firm (Wernerfelt, 1984). The RBV argument in studying outsourcing is to outsource resources that have low strategic value and to retain in-house resources that are strategically important. The outsourcing decision is explained in terms of core competence. Resources underlying core competencies should be protected by the organization through managing them in-house and the remaining competences to be managed through external contracts (Quinn & Hilmer, 1994; Prahalad & Hamel, 1990).

#### The Concept of Logistics Outsourcing

The origin of the term outsourcing can be linked to the 1980s as it was first used in the information systems (Burnes & Anastasiades, 2003; Espino-Rodriguez & Padron-Robaina, 2006) In Logistics outsourcing, several synonyms are often used. "Outsourcing", third party logistics" or "contract logistics" (Larson & Kulchitsky, 1999). Logistics outsourcing is

commonly known as the "make-or-buy" decision. Nevertheless, outsourcing is currently popular in most industries (Mclov, 2009), and considered one of the most significant areas of business activities (Burnes & Anastasiades, 2003). Espino Rodrigueze & Padron-Robaina (2006:52) refers to outsourcing as "a strategic decision that entails the external contracting of determined non-strategic activities or business processes necessary for the manufacturing of goods or the provision of services by means of agreements or contracts with higher capability firms to undertake those activities or business processes, with the aim of improving competitive advantage" firms have outsourced their activities to improve performance, cut cost and to benefit from higher economies of scale (Burnes and Anastasiadis, 2003; Mclvor, 2009). Outsourcing describes a situation where firms decide to buy products or services from external vendors as opposed to making them in house. This is referred to as the firm's "make or buy" decision (Contractor, et al., 2010; Sako 2006).

There are two points to clarify from these definitions. First, outsourcing is not just a decision of make or buy, but also a process that involves the potential suppliers, contractual negotiations, regular evaluation and review of the outsourced operation. Second, only the strategically significant operators can be classified as outsourcing and not all operations that are carried out by the external suppliers are suitable to be classified as outsourcing. Outsourcing therefore, describes a situation where firms decide to buy products or services from external vendors as opposed to making them in house. This is referred to as the firm's "make or buy" decision (Contractor, et al., 2010; Sako 2006).

Reviewing the definitions pointing at this concept (e.g.; Lieb, 2008; Murphy & Poist, 1998), allowed us to define logistics outsourcing as the act of entrusting all or part of the logistics chain, whose activities were previously performed in-house, to an external supplier on the long, with a potential transfer of resources and with an objective of performance. Logistics outsourcing is considered to be an excellent source of competitive advantage for companies. Its benefits are long praised in the specialist literature, but its risks are often briefly described. Lu (2011) classified the following as types of Logistics outsourcing;

- 1. Business Process Outsourcing (BPO)
- . Marketing/Call Centre Outsourcing
- . R & D Process Outsourcing
- . Engineering Process Outsourcing (EPO)
- . HR and Recruitment Outsourcing
- . Knowledge Process Outsourcing (KPO)
- 2. Business Function Outsourcing
  - . Financial Auditing
  - . IT Services
  - . Logistics Services
    - 3. Facility and Manpower Outsourcing
  - . Capital Equipment Outsourcing
  - . Free Length Experts Hiring.

## **Physical Distribution Management**

Physical distribution involves the broad range of activities within a company concerned with the efficient movement of goods and materials from the end of production line to the customers. This involves a broad range of activities which include transportation, warehousing, inventory management, material handling, packaging and order processing. The role of distribution is to provide to a company the accomplishment of the task of delivering the product at a right time, place, and quantity at a minimum cost (Bucklin, 1966). The focus

of physical distribution management is to manage finished goods distribution in a way that meets customer expectations at the lowest possible cost. In addition to transportation, physical distribution management involves close liaison with production planning, purchasing, order processing, material control and warehousing. All those must be managed so they can interact with each other to provide the level of services that the customer demands and at a cost that the company could afford.

In its broadest sense, when it refers to the whole economic system, distribution is the allocation of income and assets with in one society. In business economics, physical distribution relates to the allocation of goods to the recipients. In general, physical distribution includes all activities that enable the transfer of material and/or economic power over tangible and/or intangible goods from one economic subject to another. (Wirtschaftsleyikon24. Net. 2011). Physical distribution according to Domschke and Schield (1994), Physical distribution "encompasses a system of all activities that are related to the transfer of economic goods between manufacturers and consumers. It includes such a coordinated preparation of manufactured goods according to their type and volume, space and time, so that supply deadlines can be met (order fulfillment) or estimated demand can be efficiently satisfied.

## Logistics Outsourcing and Success of Physical Distribution Management

As a result, logistics outsourcing has become a megatrend in many industries, most popularly in logistics and supply chain management (Boissinot & Kacioui-Morin, 2009). Basically, decisions on outsourcing revolves around an organization considering the relative merits of carrying out a particular function themselves i.e. in-house, or contacting out the function to another company.

The extensive use of logistics outsourcing within the distribution channel has fostered the emergence of a new player, i.e. The LSP (Boissinot & Kacioui-Morin, 2009). LSP today increasingly offer activities in broad and specific areas of expertise. They work throughout the supply chain (upstream and downstream) from raw material transport storage product assembling, etc some of them have established themselves in developing activities closer to the heart of their customers' activities (Boissinot & Kacioui-Morin, 2009).

By coordinating production and logistics schedules, logistics outsourcing reduces inventory and improves inventory turnover rate (Lambert, Stock & Ellram, 2009) resulting in faster transit times, less damage, and less paper work. Logistics outsourcing also enables firms to respond quickly to marketing, manufacturing, and distribution changes and helps to improve on-time delivery (Chen et al., 2010).

Through mergers and acquisitions, logistics outsourcing enable a firm to expand its market share, channel of distribution, product portfolio, acquire or invest in strategic business units (SBU'S) which will offer specialized service to the sister agencies as well as other industry players (Lambert et al, 2009).

Physical distribution or outbound logistics system is an attempt to systematically manage a set of interrelated activities including transportation, distribution, warehousing, finished goods, inventory levels, packaging and materials handling, to assure the efficiency of delivery of finished goods to customers. The transportation physically moves products from where they are produced to where they are needed. This movement across space or distance adds value to products. Warehousing activities one an important link between the producer and the customer Blanchard (2004), notes that, the basic function of a warehouse is the movement, storage and information transfer. A major objective is to provide an ideal product

flow and acceptable level of service between the producer and the customer by providing warehouses at designated locations with various inventory levels based on local demand. Investment on logistics assets such as physical distribution centers.

From the review of literature, the following conceptual framework was developed.

#### LOGISTICS OUTSOURCING

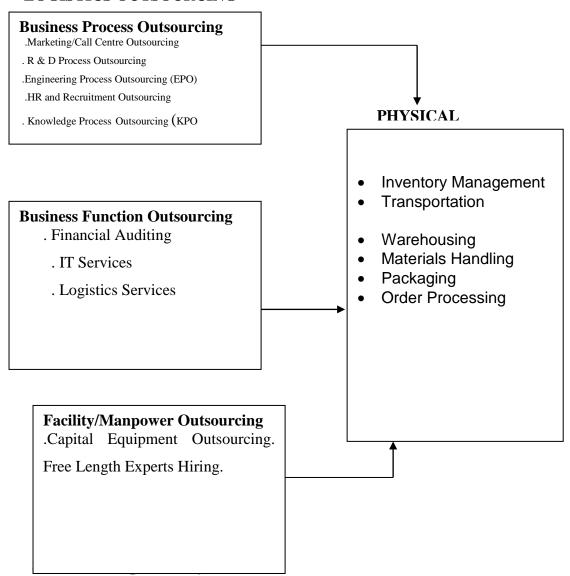


Figure 1.Proposed Research Framework . Source: Adapted from Lu, 2011 and Bucklin, 1966.

This study investigates the relationship between logistics outsourcing and

Physical distribution management. Based on the research framework in figure 1, logistics outsourcing encompasses business process outsourcing; business function outsourcing and facility/manpower outsourcing are significantly related to physical distribution management. Hence, the following hypotheses will be tested:

- H1: Business process outsourcing is positively related to success in physical distribution management.
- **H2:** Business function outsourcing is positively related to success in physical distribution management.

**H3:** Facility/manpower outsourcing is positively related to success in physical distribution management.

# Research Methodology

#### Measures

# **Background Variables**

The research is conducted based on the perspective of managers in a sample of 55 clearing and forwarding companies in Rivers State, Nigeria. Data are gathered using a questionnaire survey which is employed to 254 respondents. The measures used to test the relationships among business process outsourcing (BPO), business function outsourcing (BFO), facility/manpower outsourcing (FMO) and the success of physical distribution management (SPDM) are derived from Lu (2011) and who classified the framework to categorize 10 distinct SCM/logistics outsourcing processes by placing them into these three constructs. Each of these constructs contains some aspects of the processes which sums up to 10 distinct SCM/logistics processes. The first item business process outsourcing (BPO) consists of 5 items, the second construct, business function outsourcing (BFO) consists of 5 items, the third construct facility/manpower outsourcing (FMO) consists of 5 items, and 6 items are used to test the success of physical distribution management (SPDM). The respondents are asked to indicate on a-five-point Likert scale (1=strongly disagree, 5= strongly agree).

# Sampling Sample Size

The simple random sampling technique was employed in this study. The sample came from the clearing and forwarding companies who engage in carriage executed through single mode or multimodal transport means. To increase the chances that a company can have separate functions for business process outsourcing (BPO), business function outsourcing (BFO), facility/manpower outsourcing (FMO), as required by the current research; the respondents emerged from five positions (planning, marketing, sales, distribution and information system) whose functions are directly related to SCM/logistics outsourcing processes from 55 clearing and forwarding companies domiciled in River State, Nigeria. The number of completed and usable response is 258 out of 275 responses, with a response rate of 93.8%. It is found that all the companies in the current research have more than 100 employees.

# Results Reliability Analysis

Table 2 Test of Reliability

Scale	Dimension	Items	Reliability
ВРО	Business process outsourcing	5	0.905
BFO	Business function outsourcing	5	0.945
FMO	Facility/manpower outsourcing	5	0.894
SPDM	Success of Physical distribution management.	6	0.761

Source: SPSS window output, 2018.

Table 1 summarizes the reliability test of logistics outsourcing and success of physical distribution management, which also includes the individual item reliability test). Significantly, all items are reliable and are used to study logistics outsourcing and success of physical distribution management of clearing and forwarding companies in Nigeria. The extent of the relationship between logistics outsourcing and success of physical distribution management can be operationalized using Business process outsourcing (.905) with a 5-item measure; Business function outsourcing (.945) with a 5-item measure, Facility/manpower outsourcing (.894) with 5-items measure, and physical distribution management (.761) with a 6-item measure.

## **Stepwise Regression Analysis**

A stepwise regression analysis is performed to determine what dimension of logistics outsourcing (i.e. business process outsourcing, business function outsourcing, and facility/manpower outsourcing) are significant predictors of the success of physical distribution management.

Table 2 shows the model summary of the stepwise regression results for the logistics (LO) dimensions (business process outsourcing, business function outsourcing, and facility/manpower outsourcing) on the success of physical distribution management (SPDM)

Table 2: Dimension level stepwise regression results model summary for (LO) dimensions on SPDM

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Step	R	R2	R2adj	R2change	SigFchange	df1	df2
Business process outsourcing	.874	.764	.702	374.879	000	1	257
Business function outsourcing	.983	.969	.963	233.264	000	1	257
Facility/manpower outsourcing	.603	776	. 553	.424.	000	1	257

Source: SPSS 22.0 window output (based on 2018 field survey data)

The stepwise regression result shown in Table 2 indicates that three dimensions of LO construct (namely business process outsourcing, business function outsourcing, and facility/manpower outsourcing) predicts the (SPDM).

The most important dimension is business function outsourcing which has a strong significant positive correlation with the (SPDM) with ( $\beta$ =0.983, p=000<05) and explains 96.3% (R2 adj) of the variance in the (SPDM).

Business process outsourcing follows business outsourcing and has a strong significant positive correlation with the (SPDM) with ( $\beta$ =0.874, p=000<05) and explains 70.2% (R2adj) of the variance in (SPDM). This result interpreted that the greater the respondents gets interested in focusing the logistics outsourcing function on adopting the business process outsourcing, the greater the improvement of the SPDM will occur.

Facility/manpower outsourcing follows business process outsourcing and has a strong positive correlation with the (SPDM) with ( $\beta$ =0.776, p=000<05) which explains 55.3% (of the variance in (SPDM). This function reflects to what extent the respondent in these companies have enough interest in supporting the logistics outsourcing activities that focus on preparing strategic values to their companies, in determining the specification in terms of facility/manpower outsourcing in monitoring and controlling for improvement in (SPDM). Based on these interpretations, the model is sufficient to support and accept H1, H2 and H3.

#### **Discussion**

This research provides an empirical justification for a framework that explores the relationships among the three constructs of the (LO) and the SPDM. The reliability coefficients of all the constructs are greater than 0.70, which are considered acceptable. All the dimensions of the LO construct have higher reliability coefficients above (0.80) compared to SPDM. In addition, the result found that the highest reliability coefficient regarding the (LO) construct is the dimension of business function outsourcing (0.945). This is followed by business process outsourcing (905) and facility/manpower outsourcing (894).

The hypotheses testing results showed that the three hypotheses which are proposed in the study are accepted. Regarding the first hypothesis, the sample of Nigerian clearing and forwarding companies clearly demonstrate that the business process outsourcing dimension explained a high percentage of the variance 70.0% (R2 adj) in the (SPDM) and has a strong positive relationship with (SPDM). This result reflects the perception and efficiency of the managers in these companies to follow the best practices in performing the activities which are related to the business process outsourcing through the application of a strategy which is based on the enhancement of SPDM. These findings are not totally surprising; since some earlier studies reported similarities which are related to the improvement of logistics outsourcing (e.g., Bahha etal., 2015; Tilokavichai et al., 2012; Akili, 2011). Which found that many businesses are using the services of LSP to manage their logistics activities.

Among the interesting observations in the sample of Nigerian clearing and forwarding companies, the results of the second hypotheses revealed that the dimension of business function outsourcing of the LO construct reasonably predicts the behaviour of (SPDM) and explains the highest percentage of the variance 96.3 (R2 adj) in the (SPDM). This result is matched with the interpretation of the research to the high explanation of this dimension, and is in agreement with those of many other studies (e.g., Chen et al., 2010; Contractor et al., 2010; ) which found that business function outsourcing facilitates logistics services.

Regarding the third hypothesis, the sampled Nigerian clearing and forwarding companies clearly demonstrate that facility/manpower outsourcing dimension explained the percentage of the variance 55.3% (R2 adj) in the (SPDM) and has a strong positive relationship with (SPDM). This finding is in agreement with (Mekel etal., 2014; Meisel etat., 2011) who found that carrier freight rates, load of distance of shipments, transportation schedule, and order delivery time have strong impact in improving financial performance, customer loyalty, and perceived product value.

## Conclusion

This research underlines the test and support of the theoretical framework of the (LO) construct including (business process outsourcing, business function outsourcing and facility/manpower outsourcing) and their impact on the success of physical distribution management. After presenting a brief literature review on (LO) constructs and the success of physical distribution management, the data was collected through a questionnaire which was administered to a total sample of 258 managers in 55 clearing and forwarding companies in Nigeria. The significant findings of the research based on the regression analysis methods can be highlighted as follows: The empirical analysis revealed that three dimensions of the (LO) construct named as business process outsourcing, business function outsourcing and facility/manpower outsourcing have a strong positive relationship and contributes to explaining the variance in the success of physical distribution management. These results are consistent with the previous studies such as (Bahha et al., 2015; Tilokavichi etal.,2011; Akili 2011; Chen 2010; Contractor, 2010).

The research concluded that, Nigerian clearing and forwarding companies face decision making situations that borders on the adequate use of logistics outsourcing for successful distribution of products and services in the market. However, this depends on difficulties and costs associated with the transaction, because logistics outsourcing is driven by globalization of businesses, improved productivity, cost reduction, improved customer service, downsizing, mergers and acquisitions and the availability of third party logistics providers. Through mergers and acquisition, logistics outsourcing makes it possible for organizations to expand its market share, channel of distribution, production portfolio, acquire or invest in strategic business units and successfully enhance its physical distribution management systems. Thus, logistics outsourcing is imperative for the success of physical distribution management, but not adequate due to the low level of close collaboration amongst all trading partners and the realization that cost cutting and differentiations in value delivery are solutions to current problems.

#### **Limitations and Contributions**

Although the current study makes contributions in the realms of theory and practice, it nevertheless has limitations. First, our survey was limited to managers in 55 clearing and forwarding companies in Nigeria. We do understand that it is an incomplete sample and we cannot extrapolate or generalize our findings beyond these companies that participated in the research described herein.

In addition, the precise effect of logistics outsourcing on the success of physical distribution management is a multi-faceted and intricate issue, but this research is interested only on the model's construct and is components as described by Lu (2011) and Bucklin, (1966). The hypotheses were tested based on using regression analysis methods only to test the effects of each of the constructs of the (LO) on the construct of success of physical distribution management.

Despite these potential limitations, this study successfully integrated thorough theories to examine the significance of logistics outsourcing in supply chain firms, one would expect the importance of the subject addressed herein to increase with the passage of time. Second, our study provides a fertile foundation for large- scale quantitative studies that can examine specific factors that help organizations in balancing the need for successful physical distribution management with adequate logistics outsourcing.

#### **Future research**

As a result of our study limitations and discussion, we suggest the following future research directions:

- Extend our study to additional types of organizations and countries
- . Study details on different functions of logistics outsourcing by industries
- . Consider firms' current logistics outsourcing capabilities
- Use different analysis methods to confirm the results of our findings.

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