How to Select the Suitable Mode of International Transport in International Trade and Incoterm 2010

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Abstract
This article is related to overview mode of international transport in international trade and delivery term, Incoterm 2010 rules. The international transport can be separated into four modes: air, water, road and rail transport. Furthermore, this article aims to study the factors affecting the selection of suitable mode of international transport and incoterm 2010. From the literature review, several factors affecting the selection of the mode of international transport are cost of service, nature of commodity, regularity of service, safety, speed of transport, goods quantities and other factors, such as, warehouse, packing, flexibility, and logistic feasibility and the last part of the article mentions about the factors to consider when choosing the Incoterm 2010 rules. There are six factors including value of product, degree of control, freight purchasing power, legal and finance restriction, company policy and revenue recognition.

Keywords: *Export-import procedures; mode of international transport; Incoterm 2010*

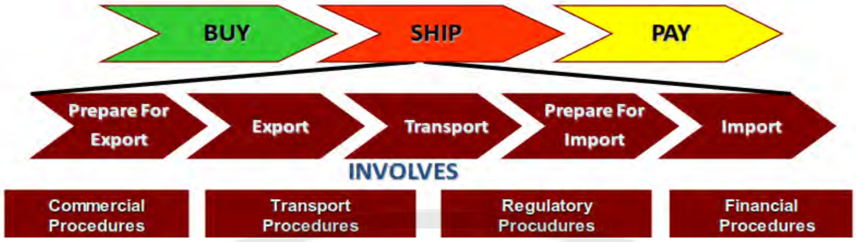
1. Introduction

Selecting mode of international transport and incoterm are very important part of export-import procedures. Selecting the right mode of international transport and incoterm are essential to ensure the export-import operation is efficient and cost of transport-effective. In international shipping, it is essentially a choice between air, water, road and rail transports and each mode has its advantages and disadvantages. For the delivery term, Incoterms 2010 is the latest version of the ICC official rules for the interpretation of trade terms. Now there are 11 different terms, each of which helps users deal with different situations involving the movement of goods. This article explain the basic mode of international transport and incoterm 2010 rules and aims to study factor affecting to select the suitable mode of international transport and incoterm 2010.

2. Overview of Export-Import Procedures: The Buy-Ship-Pay Model

The Buy-Ship-Pay model developed by the United Nations Centre for Trade Facilitation and Electronic Business or (UN/CEFACT) describes the main processes and parties in the international supply chain. The Model identifies the key commercial; transport; regulatory and payment activities involved in export-import procedures and provide an overview of the information exchanged between the parties throughout its various steps as shown in Figure 1.

Figure 1: The Buy Ship Pay Model



Source: UN/CEFACT International Supply Chain Reference Model
From the Figure 1: Use the buy ship pay model describes export-import procedures. It can be roughly divided to 3 groups.

1) Buy

This step related to cover all commercial activities related to the ordering of goods (UN/CEFACT, 2011). Sales contract is an agreements need to exist between exporter and importer (John J. Capela, 2015) and the following key points need to be included in those agreements include the detail of products, price, payment term and delivery term

2) Ship – covering all transport & regulatory procedures as include prepare for export, export, transport prepare for import, import procedures.

3) Financial Procedures depend on payment term such as advance payment, open account, bill for collection and letter of credit.

3. Mode of International Transport

The United Nations Economic Commission for Europe (UNECE) distinguishes eight transport modes for international trade can be maritime, inland water, rail, road, air, pipelines, mail and multimodal transport (Jonas Malfliet, 2015). This article focused only four modes of international transports, which includes sea freight, air freight and land freight as follows.

3.1 Water Transport /Sea Freight

Sea Freight is one of the most sought after options of shipping and has been around for centuries, with various trading routes that have only improved in the modern world. When exporter/importer takes container shipping, FCL and LCL shipping are the choices when sending shipments overseas. FCL or Full Container Load is container shipping option where a container is exclusively used for a single shipment and the container is not shared with other cargo shipments, and the costs are borne by one party but LCL or Less than Container Load is another shipping term when various cargo shipments share the same container as well as the container shipping costs (Transco Cargo, 2016).

Sea Freight is suitable for the transport of consignments of large volume or large amounts of objects transported, especially over long distances, when the delivery time is not much important.

3.2 Air Transport / Air Freight

Air Freight is mainly characterized by safety, high speed and high level of customer service, but its availability is limited. This fact alone may significantly extend transport "from door to door". Air Freight is also considerably expensive. Air Freight is suitable for transport of goods of high values for long distances. In this case, the higher cost is acceptable in view of the requirement for speed and reliability of the delivered consignments (Jozef, Stefan and Michal, 2015).

3.3 Road Transport

Road transport excels by excellent access, the ability to deliver cargo "from door to door" without need for further transshipment and by high flexibility. It’s possible to choose own vehicles. Operating with own vehicles, needs to consider licenses, fuel costs, regulations, driver training and taxes.

3.4 Rail Transport

Among the advantages of rail transport belongs that it can carry relatively large quantities of goods, and the goods large and heavy, relatively low transport costs, environmental aspect and higher reliability compared to road transport, especially in poor weather conditions. The disadvantages is routes and timetables available can be inflexible, especially in remote regions, mechanical failure or industrial action can disrupt services and further transportation may be needed from a rail depot to the final destination, increasing costs and affecting delivery schedules.

The advantages and disadvantages of different transportation modes are summarized in Table 1.

Table1. A comparison of the advantages and disadvantages of international transport modes

Mode of transport	Advantages	Disadvantages
Air transport	Speed Safety Reliability Level of customer services	Costs Availability
Water transport	Low costs High transportation capacity Safety	Low speed Availability
Road transport	Flexibility Availability	Costs Low transportation capacity Safety
Rail transport	Ecology High transportation capacity Safety	Availability Reliability

Source: Jozef, Stefan and Michal (2015)

4. How to select the suitable mode of international transport in international trade

According to Keith W. Roberts (2012) studied “Key factors and trends in transportation mode and carrier selection”, the result found that cost, product or service, relationship and environment factors which affect selecting the mode of transportation. Francesco and Sara (2011), there are four major factors influencing to select the mode of transportation, such as, product’s price, delivery distance, time sensitiveness and transportation fares, In addition to RC Agarwal (2015) suggested that the concept of selecting mode of international transport, such as, cost service, speed of transport, safety and nature of commodity. Therefore, this article summarizes the factors that affect to choose mode of international transportation as follows.

4.1 Cost of Service

The cost of transportation adds to the cost of the goods so it should always be kept in mind. Rail transport is comparatively a cheaper mode of transport for carrying heavy and bulky traffic over long distances. Road transport is best suited and economical to carry small traffic over short distances. Road transport saves packing and handling costs. Water transport is the cheapest mode of transport. It is suitable to carry only heavy and bulky goods over long distances where time is not an important factor. Air transport is the most costly means of transport but is particularly suited for carrying perishable, light and valuable goods which require quick delivery.

4.2 Nature of Commodity

Rail transport is most suitable for carrying cheap, bulk and heavy goods. Perishable goods which require quick delivery may be carried through road transport or air transport keeping in mind the cost and distance.

4.3 Regularity of Service

Railway service is more certain, uniform and regular as compared to any other mode of transport. It is not much affected by weather conditions. On the other hand, road transport, ocean transport and air transport are affected by bad weather such as heavy rains, snow, fog, storms, and others.

4.4 Safety

Safety and security of goods in transit also influence the choice of a suitable means of transport. Road transport may be preferred to railway transport because losses are generally less in road transport. Water transport exposes the goods to the perils of sea and, hence from safety point of view, sea transport is thought of as a last resort.

4.5 Speed of Transport

Air transport is the quickest mode of transport but it is costliest of all. Road transport is quicker than railways over short distances. However, the speed of railways over long distances is more than that of other modes of transport except air transport and is most suitable for long distances. Water transport is very slow and thus unsuitable where time is an important factor.

4.6 Goods Quantities

When goods quantities are reduced, air transport is usually the best choice, while the stowage factor was low, weight high. So much so, that air transport is the most widely used for shipping sample goods and low quality goods shipment that do not warrant the use of another mode of international transport.

The author thinks that other factors to consider include: warehouse, packing, flexibility, logistic feasibilities are also taken into consideration while choosing mode of transport.

For example, fruit and vegetable products are perishable, so the exporter/importer choose mode of transportation by air.

5. Overview of Incoterm 2010

The International Chamber of Commerce (ICC) established Incoterms as the official rules for interpreting trade terms. Incoterms clearly define, for both parties involved in an international transaction, the point at which risk and responsibility pass from the seller to the buyer. Incoterms 2010 are the latest version of the ICC official rules for the interpretation of trade terms. Now there are 11 different terms, as follow;

5.1 EXW : Ex Works (…named Place)

EXW represents the minimum responsibility on the seller. The seller has to make the goods available, suitably packaged, at the specified place, usually the seller's factory or depot and the seller need to clear for export custom clearance. The buyer assumes all risks and costs from the delivery point at seller's premise.

5.2 FCA : Free Carrier (…named place)

Under FCA rule, the seller delivers goods to delivery point where the buyer arranges for the main carriage, in addition to the seller is responsible for export custom clearance and the buyer assumes all risks and costs after the goods have been delivered at the agreed place.

5.3 FAS : Free Alongside Ship (…named port of shipment)

The seller is responsible for export clearance; the buyer is responsible for import clearance. In this case the seller's risk at alongside ship and the buyer's rick start from alongside ship to final destination.

5.4 FOB : Free on Board (…named port of shipment)

FOB means that the seller fulfills his obligation to deliver when the goods have passed over the ship's rail at the named port of loading. The seller is responsible for export custom clearance. Cost and risk transfer from seller to buyer when goods pass the ship's rail.

5.5 CPT : Carriage Paid to (…named place of destination)

CPT means that the seller pays the freight for the carriage of the goods to the named destination. The risk of the goods, as well as any additional costs due to events occurring after the time the goods have been delivered to the carrier is transferred from the seller to the buyer when the goods have been delivered into the custody of the carrier.

5.6 CIP : Carriage and Insurance Paid to (…named place of destination)

CIP is very close to CPT, the delivery point is into custody of first carrier. The seller is responsible for arranging carriage to the named place, make custom clearance, but not for insuring the goods to the named place. Risk and cost transfer from seller to buyer when goods have been delivered to the carrier.

5.7 CFR : Cost and Freight (…named port of destination)

Seller arranges and pays for transport to named port. Seller delivers goods, cleared for export, loaded on board the vessel and buyer's cost start from Port of Destination. However risk transfers from seller to buyer once the goods have been loaded on board, i.e. before the main carriage takes place.

5.8 CIF : Cost, Insurance and Freight (…named port of destination)

Seller arranges and pays for transport to named port and delivers goods, cleared for export, loaded on board the vessel. The risk transfers from seller to buyer once the goods have been loaded on board, i.e. before the main carriage takes place. Seller also arranges and pays for insurance for the goods for carriage to the named port.

5.9 DAT : Delivered At Terminal

The seller is responsible for arranging carriage and for delivering the goods, unloaded from the arriving conveyance, at the named place. Risk transfers from seller to buyer when the goods have been unloaded. “Terminal” is means any place such as, quay, container yard, warehouse or transport hub and buyer is responsible for import clearance and any applicable local taxes or import duties.

5.10 DAP : Delivered At Place (…named place of destination)

The seller is responsible for booking carriage and delivering the goods, ready for unloading from the arriving conveyance, at the named place. Risk transfers from seller to buyer when the goods are available for unloading; so unloading is at the buyer’s risk. The buyer is responsible for import clearance and any applicable local taxes or import duties.

5.11 DDP : Delivered Duty Paid (..named place of destination)

The seller is responsible for booking carriage and delivering the goods at the named place, cleared for import customs and all applicable taxes and duties paid. Risk transfers from seller to buyer when the goods are made available to the buyer, ready for unloading from the arriving conveyance. This rule places the maximum obligation on the seller, and is the only rule that requires the seller to take responsibility for import clearance and payment of taxes and/or import duty (Mantissa, 2017).

Figure 2 is a general summary of the responsible of the buyer and seller based on incoterm 2010 rules

	EXW Ex Works	FCA Free Carrier	FAS Free Alongside Ship	FOB Free Onboard	CFR Cost & Freight	CIF Cost Insurance & Freight	CPT Carriage Paid To	CIP Carriage Insurance Paid To	DAT Delivered At Terminal	DAP Delivered At Place	DDP Delivered Duty Paid
Services	Mode: All	Mode: All	Mode: Water	Mode: Water	Mode: Water	Mode: Water	Mode: All	Mode: All	Mode: All	Mode: All	Mode: All
Packing	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Loading Charges	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Inland Freight	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Terminal Charges	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Insurance	Buyer	Buyer	Buyer	Buyer	Buyer	Seller	Buyer	Seller	Seller	Seller	Seller
Loading on Vessel	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Freight	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller	Seller	Seller
Arrival Charges	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller	Seller	Seller	Seller	Seller
Duty & Taxes	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller
Delivery to Destination	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Buyer	Seller	Seller

Source: YFTLOGISTICS CO., LTD., UK

In addition to, the incoterm 2010 are divided two groups based on mode of international transportation as shown in Figure 3.

Figure 3: Classification of the Incoterms 2010 according to Mode of Transpiration

Rules for any mode or modes of transport	Rules for sea and inland waterway transport
EXW, FCA, CPT, CIP, DAT, DAP, DDP	FAS, FOB, CFR, CIF

6. Factors to consider when selecting the Incoterm 2010 rules

Olga Alexandrovna Shangina (2007) studied “Main Factors in Choice of Delivery terms : A multiple Case study of Japanese and Russian Importers is Seafood Trade with

Norway", the result found the most common factors affecting the choice of delivery term from incoterm are the value of product, control over delivery and legal and Finance Restriction. In addition, Scott Brunelle (2016) and Lenny (2014) found the factors affecting to choose incoterm rules are freight purchasing power, company policy and revenue recognition.

6.1 Value of Product

If the product is low value of product, such as, brick, stone, sand, iron and etc, seller or buyer may not require additional insurance coverage as per CIF or CIP.

6.2 Degree of Control

Degree of control refer to the buyer wants to better control deliveries than the seller, the buyer or the buyer may want high control, so the buyer chooses EXW for transportation.

6.3 Freight Purchasing Power

If the seller can obtain the lowest freight, got a service discounts from carrier. The seller would take on the responsibility for the freight cost, so the seller chooses CIF or CIP term. If the buyer can obtain the lower freight cost than the seller, the buyer pays for freight cost, so this shipment is used EXW, FCA or FOB term.

6.4 Legal and Finance Restriction

Some country regulations may demand that the buyer pays the freight and insurance within their own country.

6.5 Company Policy

Companies may want to standardize all contracts with one incoterm to avoid confusion and maintain consistency.

6.6 Revenue Recognition

Revenue Recognition is mean "When does your company want to recognize the revenue: on the seller's side or the buyer's side?" The terms EXW, FOB, FCA, FAS, CFR, CIF and CPT are all shipment contracts. The seller delivers by handing over the contract goods to a carrier somewhere on the seller's side. The "C" terms (CFR, CIF, CPT) are the most seller friendly, as they allow the sellers to choose the carrier and forwarder. They are accompanied by places on the buyer's side as the seller pays for main carriage. The terms DAT, DAP and DDP are destination contract terms as the seller delivers somewhere on the buyer's side. Delivery on the buyer's side means deferred revenue recognition.

7. Conclusion

There are four mode of international transports included air, water, road and rail transport. In the export-import procedures, buyer and seller has to choose the mode of international transportation and delivery term in contracting process. Factors to consider while choosing the most suitable mode of transport in international trade included cost of service, nature of commodity, regularity of service , safety , speed of transport ,goods quantities and other factors, such as, warehouse, packing, flexibility, and logistic feasibility. In addition to, the last part of this article mentions about the Incoterms, The incoterm 2010 are the latest version of the ICC official rules for the interpretation of trade terms and factors to consider when choosing the Incoterm 2010 rules, there are six factors include value of product, degree of control, freight purchasing power, legal and finance restriction, company policy and revenue recognition.

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