Worldwide shipping has no boundaries¹,²

Zineb Lahreche

ABSTRACT

Nowadays inter-connected modern world, International trade became integral part of many Projects. In order to stay competitive, companies need to employ Global Project Manager with strong International transport knowledge and skills. The purpose of this research is to provide guidance and help to future Global Project Manager, so they can choose the best shipping option for the long-crossed distance goods they need to bring. The question arising is the following: “How can a Global Project Managers Determine the Best Shipping Solution”. Helped by multiple comparison tools we have considered all the existing options and kept narrowing our choice until we had enough justifications to choose the best alternative.

Keywords: International, Import, Trade, Maritime transport, Law, Incoterm, Liability, Risks, Contract of carriage by sea.

INTRODUCTION

“7bn”³, this is the number of people in the world sharing very poorly distributed resources.

“149 400km² of land and 360 700km² of ocean, 30% soil, 70% water”⁴ this is how the world looks. How can we re-distribute these resources equally? One potential solution: International trade of goods by sea.

As one of the most internationalized industries, Maritime transport plays a big role in the global economy. Industry laws and history have shed light on maritime transportation as “being the most

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predominant mode of transportation”. Indeed, overland transportation has proven to be “slower, more costly and dangerous”.

Moreover, the fact that countries are not self-sufficient (meaning they cannot avoid penuries, high costs and other issues), makes import a need for the economy. Indeed, many domestic markets suffer from a lack of goods and services that might be abundantly available in other markets and at lower prices. Today’s globalization requires project managers to be able to bring goods and services from different countries to a single market. Import facilitates that while also saving time, money and energy.

Now let’s assume a Project Manager running a big Project in a remote African area needs to bring some bulky goods from another continent to achieve its project. For that he will need to undertake an import operation. To do so the Global Project Manager needs to conclude an agreement with the foreign supplier which is the contract.

Carriage’s contracts can come in various shapes and some of them might fit better others for a specific project. In Import and export operation’s legal frame we find sales contracts and transport contracts. The sales contract goal of negotiations is to reach an agreement which materializes the agreement determining the rights and obligations of the parties. This agreement facilitates the management of disputes related to the wrong interpretation of different legal systems and languages.

The sales contract must therefore be carefully prepared: it is concluded between 2 (natural or legal) persons located in different countries - the buyer and the seller - and come to finalize the negotiation.

There are infinite declinations of contract but all of them must include the selected MODE OF TRANSPORT as well as the applicable INCOTERM rule chosen.

“The Incoterms or International Commercial Terms represent a serie of 11 pre-defined commercial terms relating to contractual sales practices”. “They are regularly incorporated into sales contracts worldwide and widely used in international commercial transactions or procurement processes”.

“These rules and policies communicate the tasks, costs, and risks associated with international transportation for a smooth delivery of goods”. Some of them are designed for carriage by sea, others can fit any mode of transport.

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Considering the previous considerations, a question arises: Under which mode of transport should a Global Project Manager procure himself goods for his project?

In order to find our answers, we will look into the best and safest ways to ship voluminous goods across the sea (long distance) in accordance to international laws and legislations and find out how can a project manager optimize its import operation.

METHODOLOGY

STEP 1 - PROBLEM STATEMENTS

A fishbone diagram can help us visualize the potential causes of the problem in order to recognize its root causes (provenance).

**Fishbone Diagram:** By author

![Fishbone Diagram]

**Contract**
- The transportation terms of the contract are not respected
- The transportation modalities inside the contract weren’t well stated or unclear

**Misunderstanding**
- One or both parties did not understand correctly what they must do
- Neither party knows how the risk endorsement is allocated

**Disputes about the transport terms and conditions**
- Delay in the delivery process
- Transportation costs can be revealed higher than what expected
- Wrong delivery to port/place

**Times**

**Money**

**Ambiguity**
This paper addresses a very specific situation. Different modes of transport are associated with different business settings. The purpose of this research is to answer the following questions:

- How can a Global Project Managers Determine the Best Shipping Solution?
- In accordance to the context (long distance crossed + voluminous goods) what is the best mode of transport?

### STEP 2 – FEASIBLE ALTERNATIVES SOLUTIONS AND ATTRIBUTES

#### Feasible alternatives solutions:

- “Ship by Air”
- “Ship by Road”
- “Ship by Rails”
- “Ship by Sea”
- “Ship by some Combination” (air, road, rails, sea)

#### Attributes to measure, assess or evaluate each alternative

In this research we are focusing on the GLOBAL project manager who sometimes need to achieve goods from continents to others, especially for projects located at remote sites.

To compare and analyze these alternatives, the following attributes will be used:

- “Optimization of the time of delivery”
- “Road networks in international exchanges”
- “Optimization of the transport cost”

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17 What is a MOQ? (2009, October 4). Retrieved from [https://www.salehoo.com/blog/what-is-a-moq](https://www.salehoo.com/blog/what-is-a-moq)
- “Convenience in terms of full container MOQ”\(^{18}\) (Minimum Order Quantity)
- “Number of pallets/Volume available”\(^{19}\)
- “Free time”\(^{20}\) (Time you have to pick up your goods at the delivery place/port before you need to pay charges: storage and parking)
- “Safety of the goods Packaging”\(^{21}\) (How is it wrap in the vehicle. Ex: in sea transportation we use containers)

**STEP 3 – DEVELOPMENT OF THE FEASIBLE ALTERNATIVES SOLUTIONS**

Shipping options comparative table: -By author

<table>
<thead>
<tr>
<th><strong>Air transport for international trade</strong></th>
<th><strong>Road transport for international trade</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ADVANTAGES</strong></td>
<td><strong>ADVANTAGES</strong></td>
</tr>
<tr>
<td>- “Deliver items quickly over long distances”(^{22})</td>
<td>- “Can be the most flexible option”(^{25})</td>
</tr>
<tr>
<td>- “Give high levels of security for sensitive items”(^{23})</td>
<td>- “Quick”(^{26})</td>
</tr>
<tr>
<td>- “Feats for high added value products”(^{24})</td>
<td>- “Low cost”(^{27})</td>
</tr>
<tr>
<td><strong>INCONVENIENCES</strong></td>
<td><strong>INCONVENIENCES</strong></td>
</tr>
<tr>
<td>- “Higher costs than other options”(^{30})</td>
<td>- “Long distances overland can take more time”(^{33})</td>
</tr>
</tbody>
</table>


Sea transport for international trade

**ADVANTAGES**
- "Can transport the largest quantities" 36
- "Feats for long distance travels" 57
- "Possibility to ship large volumes at low costs" 38
- "Shipping containers can also be used for further transportation by road or rail" 40

**INCONVENIANTS**
- "Shipping by sea can be slower than other transport systems and bad weather can add further delays" 44
- "Routes and timetables are usually inflexible" 45
- "Further transportation overland might be needed to reach the final destination" 48

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Ship by Rails

**ADVANTAGES**
- "Cost-effective and efficient" 40
- "Fast rail network throughout Europe" 41
- "Environmentally friendly compared with other transport systems" 42
- "One of the safer transport" 43

**INCONVENIANTS**
- "Routes and timetables available can be inflexible, especially in remote regions" 47
- "Can be more expensive than road transport" 48
- "Further transportation may be needed from a rail depot to the final destination, increasing costs and affecting delivery schedules" 49

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STEP 4 – SELECTION CRITERIA

In order to evaluate the alternatives mentioned above, we are going to use the Multi Attribute Decision Making (MADM) Process. This method allows us to assess the alternatives using the acceptance criteria also detailed above. We will grade the alternatives from 0 (low), 1 (medium) to 2 (high) and will use the red and green colors to highlight their positivity. Alternatives with a total score inferior to 8 will be rejected.

This considering the attributes we selected before. Remember we are looking at this from the perspective of a Global Project Manager who needs to bring long crossed distance goods and sometimes to remote areas.

Multi Attribute Decision Making (MADM) Process: - By author

<table>
<thead>
<tr>
<th></th>
<th>Ship by Air</th>
<th>Ship by Road</th>
<th>Ship by Rails</th>
<th>Ship by Sea</th>
<th>Ship by some Combination of 1-4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road networks in international exchanges</td>
<td>BEST CHOICE 2</td>
<td>WORST CHOICE 0</td>
<td>WORST CHOICE 0</td>
<td>BEST CHOICE 2</td>
<td>BEST CHOICE 2</td>
</tr>
<tr>
<td>Optimization of the time of delivery</td>
<td>BEST CHOICE 2</td>
<td>NEUTRAL CHOICE 1</td>
<td>NEUTRAL CHOICE 1</td>
<td>WORST CHOICE 0</td>
<td>NEUTRAL CHOICE 1</td>
</tr>
<tr>
<td>Optimization of the transport cost</td>
<td>WORST CHOICE 0</td>
<td>NEUTRAL CHOICE 1</td>
<td>NEUTRAL CHOICE 1</td>
<td>BEST CHOICE 2</td>
<td>NEUTRAL CHOICE 1</td>
</tr>
<tr>
<td>Convenience in terms of full container MOQ</td>
<td>BEST CHOICE 2</td>
<td>BEST CHOICE 2</td>
<td>BEST CHOICE 2</td>
<td>NEUTRAL CHOICE 1</td>
<td>NEUTRAL CHOICE 1</td>
</tr>
<tr>
<td>Number of pallets/Volume available</td>
<td>BEST CHOICE 2</td>
<td>WORST CHOICE 0</td>
<td>NEUTRAL CHOICE 1</td>
<td>BEST CHOICE 2</td>
<td>NEUTRAL CHOICE 1</td>
</tr>
<tr>
<td>Free time</td>
<td>WORST CHOICE 0</td>
<td>NEUTRAL CHOICE 1</td>
<td>NEUTRAL CHOICE 1</td>
<td>BEST CHOICE 2</td>
<td>NEUTRAL CHOICE 1</td>
</tr>
<tr>
<td>Safety of the goods Packaging</td>
<td>WORST CHOICE 0</td>
<td>WORST CHOICE 0</td>
<td>NEUTRAL CHOICE 1</td>
<td>BEST CHOICE 2</td>
<td>BEST CHOICE 2</td>
</tr>
<tr>
<td>RESULTS</td>
<td>8 Kept</td>
<td>5 Get rid of</td>
<td>7 Get rid of</td>
<td>1 Kept</td>
<td>9 Kept</td>
</tr>
</tbody>
</table>

We agreed previously we would only select the feasible alternatives >/= 8 so we eliminate “Ship by Road”(5) and “Ship by Rails”(7) which are all <8 and we narrow down our choices to “Ship by air” (8), “Ship by sea” (10) and “Ship by some Combination ” (9) which are >8 .
FINDINGS

STEP 5: ANALYSE OF THE TWO LAST ALTERNATIVES

Among the questions relating to the material organization of international transport, Global Project Manager “must take into account the nature of products, quantity, urgency, distance, geographical location”\(^\text{50}\). All these elements will make it possible to determine accessibility conditions.

In this case we are considering a Global Project Manager who needs to bring large quantity of voluminous goods from a continent to another. Since Projects are planned way in advances with a good organization there is normally no time pressure for him.

At the end of STEP 4 we have decided to eliminate 2 alternatives and we kept 3. Between the two left “Ship by Air”, “Ship by Sea” and “Ship by some Combination” we need to determine which one is the most adequate for our Global Project Manager.

In order to find our answer, we’ll be helped by the “Compensatory Model Technique 2: Additive Weighting Technique”. The aim here is to compare the two-last feasible solution. In relation with the Multi Attribute Decision Making Table the grading statement will proportionally change from “Green, Yellow, Red” to “1, 2/3, 1/3”.

**Figure 1: Additive relative technique:** – By author

<table>
<thead>
<tr>
<th>Attributes/Comparison</th>
<th>Ship by Air</th>
<th>Ship by Sea</th>
<th>Ship by some Combination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Road networks in international exchanges</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Optimization of the time of delivery</td>
<td>1</td>
<td>0,33</td>
<td>0,67</td>
</tr>
<tr>
<td>Optimization of the transport cost</td>
<td>0,33</td>
<td>1</td>
<td>0,67</td>
</tr>
<tr>
<td>Convenience in terms of full container MOQ</td>
<td>1</td>
<td>0,67</td>
<td>0,67</td>
</tr>
<tr>
<td>Number of pallets/Volume available</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Free time (time to get the goods out: storage and parking)</td>
<td>0,33</td>
<td>1</td>
<td>0,67</td>
</tr>
<tr>
<td>Safety of the goods Packaging</td>
<td>0,33</td>
<td>1</td>
<td>0,67</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>4,99</strong></td>
<td><strong>6</strong></td>
<td><strong>5,35</strong></td>
</tr>
</tbody>
</table>

Best Choice = 1 Neutral choice = 0,67 Worst Choice = 0,33

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\(^{50}\) Retrieved from https://us.sagepub.com/sites/default/files/upm-binaries/79290_Chapter_8_Supply_Chain_Design_and_Location_Planning.pdf
After building the Additive relative technique table to grade the attributes we now need to rank them. To do so we are now going to use the “Non-Compensatory Model technique 3: Pair wise Analysis”. This comparison will help us rank them from the less important to the most relevant.

**Figure 2: Compensatory Model Technique 3: Pair wise analysis** - By author

<table>
<thead>
<tr>
<th>Road networks in international exchanges</th>
<th>Optimization of the time of delivery</th>
<th>Optimization of the transport cost</th>
<th>Convenience in terms of full container MOQ</th>
<th>Number of pallets/Volume available</th>
<th>Free time</th>
<th>Safety of the goods Packaging</th>
<th>Total</th>
<th>Ordinal Ranking</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>6</td>
<td>5th</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1st</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>5</td>
<td>4th</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>1st</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>4</td>
<td>3rd</td>
</tr>
<tr>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>0</td>
<td>1</td>
<td>1</td>
<td>2</td>
<td>2nd</td>
</tr>
<tr>
<td>0</td>
<td>1</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>2nd</td>
</tr>
</tbody>
</table>

1: Row of the more important objective  
0: Row of the less important objective

The result of the table gives us the following ranking – the highest number considered as the most important:

- 5 - Road networks in international exchanges
- 4 - Optimization of the transport cost
- 3 - Number of pallets/Volume available
- 2 - Free time / Safety of the goods Packaging
- 1 - Convenience in terms of full container MOQ / Optimization of the time of delivery
This result is in accordance with the Global Project Manager’s operation profile previously described.

Finally, as a third comparison tool we are choosing this time the “Compensatory Model Technique 2: Additive Weighting Technique”. In this step we are going to capture the last missing information to narrow down our choice and get the final answer.

**Figure 3: Compensatory Model technique 2: Additive Weighting Technique:** - By Author

<table>
<thead>
<tr>
<th>Attributes</th>
<th>Step 1</th>
<th>Step 2</th>
<th>Ship by Air</th>
<th>Ship by Sea</th>
<th>Ship by some Combination of</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Relative Rank</td>
<td>Normalized Weight (A)</td>
<td>(B)</td>
<td>(A)x(B)</td>
<td>(C)</td>
</tr>
<tr>
<td>Road networks in international exchanges</td>
<td>5</td>
<td>5/24</td>
<td>= 0,208</td>
<td>1</td>
<td>0,208</td>
</tr>
<tr>
<td>Optimization of the time of delivery</td>
<td>1</td>
<td>1/24</td>
<td>= 0,042</td>
<td>1</td>
<td>0,042</td>
</tr>
<tr>
<td>Optimization of the transport cost</td>
<td>4</td>
<td>4/24</td>
<td>= 0,167</td>
<td>0,33</td>
<td>0,055</td>
</tr>
<tr>
<td>Convenience in terms of full container MOK</td>
<td>1</td>
<td>1/24</td>
<td>= 0,042</td>
<td>1</td>
<td>0,042</td>
</tr>
<tr>
<td>Number of pallets/Volume available</td>
<td>3</td>
<td>3/24</td>
<td>= 0,125</td>
<td>1</td>
<td>0,125</td>
</tr>
<tr>
<td>Free time</td>
<td>2</td>
<td>2/24</td>
<td>= 0,083</td>
<td>0,33</td>
<td>0,028</td>
</tr>
<tr>
<td>Safety of the goods Packaging</td>
<td>2</td>
<td>2/24</td>
<td>= 0,083</td>
<td>0,33</td>
<td>0,028</td>
</tr>
<tr>
<td>SUM</td>
<td>24</td>
<td>1</td>
<td>1</td>
<td>4,99</td>
<td>0,528</td>
</tr>
</tbody>
</table>

**STEP 6: SELECTION OF THE PREFERRED ALTERNATIVE**

In *figure 3* we used the Additive Weighting Technique which showed us a true ratio scale. According to the results we got we now can say how much worse or better an option is compared to another.

In this case, “ship by air” and “ship by sea” options were compared. Using $\frac{0,708}{0,528}=1,39 \times 100=139,37\%$. What we conclude is that “ship by sea” is a better choice by 139,37% than ship by air”.

As well as $\frac{0,613}{0,528} = 1,161\times 100=116$ which makes “Ship by some Combination” a better choice by 139,37% than ship by air”.

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For the specific case we are studying the recommendation to the Global Project Manager would be to use “ship by sea” mode of transport if there is a shipping port available nearby. In the case the final place of delivery is located in a remote area which doesn’t hold a port service activity the best advice is to use “Ship by some Combination” option: first send the goods by boat to the nearest port available and then forward the goods by truck to the reception point.

STEP 7: PERFORMANCE MONITORING AND POST EVALUATION OF RESULTS

The purpose of this research was to define the best possible alternative for a Global Project Manager’s importation operation. We went together deeply through the 5 possible shipping options to decide which one feats the best. After considering them all we used a Multi Attribute Decision Making (MADM) Process so we could narrow down our choice to only 3 possible shipping options. To reach a conclusion we were helped by different comparison techniques which results demonstrated to us that “ship by sea” and “ship by some combination” were the two best alternatives depending whether there is a port or not.

CONCLUSIONS

In nowadays inter-connected world boundaries become more and more thin. International shipping industry is responsible for the carriage of around 90% of world trade and all kind of goods are trade between the four corners of the world. A great number of projects from different sectors participates in International exchanges to be more competitive. It is fundamental that a Global Project Manager is able to perform an import operation cleverly. He must also hold the appropriate knowledge to always choose the best appropriate shipping option.

Since international shipping requires methodology is it valuable for future Project Manager to clearly understand the strategic issues arising while directing an operation.

We tried here to demonstrate under which mode of transport a Global Project Manager should procure goods for the project.

Through the different step’s results, we conclude seaway was the most relevant, sometimes combined to roadway to forward the delivery to the port.

This should be stated in the sales contract and carriage contract as well as the agreed INCOTERM which is a topic who deserves its own follow-on research.
BIBLIOGRAPHY


17 (Must know) import and export procedure(s) and documentation. (2018, July 1). Retrieved from https://exportimportpractical.com/2017/12/03/export-import-procedures-and-documentation/

About the Author

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**Zineb Lahreche** is a Master’s degree student in Project and Program Management and Business Development at SKEMA Business School in France. Born and raised in Morocco she experienced the international adventure at an early age. After she got her Baccalaureate at 18 she made the decision to move to France to keep on her university studies. From that moment she has chosen to seize new opportunities worldwide and has studied in South Korea and the United States as well.

She is currently completing her last year of studies and will be graduating in December of 2019. This year, she is furthering her education via a distance learning mentoring course, under the tutorage of Dr Paul D. Giammalvo, CDT, CCE, MScPM, MRICS, GPM-m Senior Technical Advisor, PT Mitrata Citragraha, to attain Guild of Project Controls certification.

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