MINISTRY OF HIGHER EDUCATION AND SCIENTIFIC RESEARCH

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Service Quality in Maritime Transportation

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Dedication

To My Dear Parents Who Have Always Supported Us

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List of abbreviations

Abbreviation	**Signification**
B/L	Bill of lading
CSC	Container Safety Convention
DWT	Deadweight tonnage
ISO	International Organization for Standardization
NVOCC	Non-Vessel-Operating Common Carrier
SQ	Service quality
TC	Transport Container
TEU	Twenty-foot equivalent unit
TIR	International Road Transportation
UIC	International Union of Railways
DEVCO	The Directorate-General for Development and Cooperation

Contents

Abstract

As the world's population continue to grow, consumption increases, and because no country is entirely self-sufficient, countries relay on maritime trade to sell what they have and buy what they need. Thus, a low-cost and efficient maritime transportation system plays an important role for sustaining development and world exchange.

Maritime transportation is an economic activity exposed to strong competition, which is constantly forcing shipping companies to improve their services. A shipping firm can satisfy its customers by offering low-cost or differentiated services, however one way to be at top of the competitor and retain its customers on the long-term is offering a high-quality service through different aspects.

Service quality is an abstract construct and even though numerous models were developed to measure service quality, mainly SERVQUAL Model, it was claimed to be generic and not adequate for the evaluation of service quality in the shipping industry.

This study attempted to identify and measure the important factors and dimensions used to assess the shipping service quality and its impact on the customer's choice of a liner shipping company.

Keywords: Maritime Transportation, Liner Shipping, Service Quality, Customer Satisfaction

Résumé

Alors que la population mondiale continue de croître, la consommation augmente, et comme aucun pays n'est entièrement autosuffisant, pour vendre ce qu'ils ont et acheter ce dont ils ont besoin, les pays s'appuient sur le transport maritime pour ces transactions, pour son efficacité et bas prix, ainsi, le transport maritime joue un rôle important pour soutenir le développement des échanges mondiaux.

Le transport maritime est une activité économique exposée à une forte concurrence, qui oblige en permanence les compagnies maritimes à améliorer leurs services. Une compagnie maritime peut satisfaire ses clients en proposant des services à bas prix ou différenciés, mais une façon d'être au sommet de la concurrence et de fidéliser ses clients sur le long terme est d'offrir des services de haute qualité sur différents aspects.

La qualité du service est une construction abstraite et même si de nombreux modèles ont été développés pour mesurer la qualité du service, principalement le modèle SERVQUAL, il a été prétendu être générique et inadéquat pour l'industrie du transport maritime.

Cette étude a tenté d'identifier les facteurs et les dimensions de la qualité de service dans le transport maritime qui définissent la satisfaction des clients de ce dernier, ainsi que de mesurer leur importance pour les clients dans le choix d'une compagnie maritime, enfin à partir des résultats de la recherche, des recommandations sont proposés pour l’amélioration des services des compagnies maritime.

Mots clés : Transport maritime, Compagnies maritime, Qualité de service, Satisfaction client, SERVQUAL.

GENERAL INTRODUCTION

International trade has been around for centuries, no country nowadays can survive on its own. This increase in trade is closely linked to the increase and changes in productivity, which is one of the indicators of economic globalization.

For the good progress of these international exchanges which do not cease to multiply, it has recourse to the most efficient means of transportation which is maritime transportation.

Water transportation primarily involves the transportation of goods from a port to another. This implies by its nature the participation of many auxiliaries besides of the main parties involved, namely the carrier, the shipper and the consignee, among all the auxiliaries, the ship's agent plays a very important role not because only he represents the ship owner, but also because he is a key factor for developing profitable and long-term relationships with customers which is a major objective in the business to business sector.

In view of the growing competition in the shipping industry, shipping companies are called to develop and modernize their fleets well and constantly improving their service quality which is critical in achieving a differential advantage over competition.

Service quality is in turn the customers' perception of how well the designed and provided service corresponds to their expectations at various points during the service process and in order to measure the shipping service quality, maritime carriers should be able to understand the needs of shippers and acquire the service quality to satisfy their needs.

Reasons of the choice of the topic is because maritime transportation is the backbone of the globalized economy and international trade, but unfortunately the Algerian sector due to the lake of export activities and unbalanced economy, have only transportation companies that belongs to state, with is no private sector, in addition the foreign companies represented in Algeria are not well managed, due to the lake of formations in this domain and the lake of interest, so we tried to give it more importance by choosing it as a theme, More personal reasons is because our interest was always deviated towards this field and we have a goal to be a part of this domain by practicing the job of shipping agent and in order to do so, we choose this theme as a start point in order to achieve our objective.

Problematic:

The problematic of the research is as follows: "**How can liner shipping companies offer and evaluate the service quality that their clients expect?"**

To answer this problematic we set the following sub-questions:

1. What are the factors and dimensions that determine the service quality in liner shipping company?
2. What are the most important factors and dimensions according to clients that determine their choice in choosing a maritime transportation company?
3. How is the service of maritime transportation companies in Algeria rated by Algerian customers?

Hypotheses:

H1: Quality of maritime transportation services is a construct of 30 factors associated with SERVQUAL five dimensions.
H2: The most important factors are transit time and frequency of transit, and the dimension is process dimension.
H3: customers are satisfied by the services they are getting.

Research structure

To demonstrate the service quality in maritime transportation, the first and the second chapter, will discuss the maritime transportation and service quality, and the third chapter will apply the factors illustrated in the second chapter.

Chapter one is entitled "International Maritime Transportation". It is Divided into three sections:

- Presentation of International Maritime Transportation
- Documents Used in International Maritime Transportation
- Shipping Agent for Liner Shipping Companies

Chapter two is entitled “Delivering Service Quality in Maritime Transportation”. It is divided into three sections:

- Generalities about quality and service
- Measuring service quality

Chapter three is entitled “Evaluating importance of SQ dimensions and factors in liner shipping”, it is divided into three sections:

- Presentation of the internship company
- Methodology and results of research

The objectives of our work are to develop our knowledge in the maritime transportation, first by understanding its basics then going further into the process of the service offered by the maritime companies. Secondly, we atonement is to understand the needs of its customers which are the core of maritime transportation’s service quality. Finally, we aim to develop the service by identifying the liner shipping client’s most important factors on which they are based before choosing the shipping company they will operate with for their import/export activities.

Limitation of the work

Our work was not done exactly in the way we wished it to turn out due to several reasons, essentially the pandemic that set a lot of obstacles. First, being unable to have access to library books resulted in a lake of references, hence we were unable to go deeper in our research, especially in the second chapter related to measuring client’s satisfaction in maritime transportation. Secondly. We were unable to go to the training place which was an obstacle in understanding the full process of the logistical chain of maritime transportation which could have helped us better in developing the theorical part in first chapter. Finally, we didn’t have access to data to do a satisfactory work in our case study as we couldn’t find enough answers to our survey from the targeted companies.

CHAPTER I : International Maritime Transportation

Introduction

Maritime transportation is an economic activity that occupies an important part in international trade, it is the carriage of goods from one port to another via water ways, maritime transportation requires different actors and implies a variety of documentation in order to facilitate the process and minimise the risk of loss and damage, the introduction of containerization and other developed techniques and technologies helped in the development of commercial relationships between counties around the world.

In this chapter, we divided the work into three sections. The first section is a general presentation of international maritime transportation of goods. The second section talks about the actors and documents used in international maritime transportation, while the third section is about liner shipping companies and shipping agents.

Section 1: Presentation of International Maritime Transportation

Maritime transportation is the backbone of the globalized economy and international trade, the extend of this type of transportation led to the development of its infrastructure as well as the need for international conventions and standard terms in order to facilitate the world trade.

In this section we will talk about history of maritime transportation, reasons for such predominance, types of: shipping trade, ships and ports, as well as conventions and incoterms used to facilitate the shipping process.

1.1. History of Maritime Transportation

Water navigation have been since millennia a way to move people and communicate between people of close countries, however even though water navigation goes back very far in time, it's only around 5,000 years ago the first sea trade network was developed between Mesopotamia (the land between the Tigris and Euphrates rivers), Bahrain and the Indus River in western India where the Mesopotamia exchanged their oil and dates for copper and possibly ivory from the Indus [1].

In the nineteenth century shipping changed more than it did in the previous two millennia with the introductions of steel ships and steam engines, that replaced the wooden ships and sail and transformed shipping from a loose run by traders to a tightly run industry specialising in the transportation of cargo by sea[2].

By the last third of the nineteenth century the shipping market that was once unified got divided into two categories[3]: liner and tramp shipping, liner ships carried general cargoes (finished or semi-finished manufactured goods) and tramp shipping carried bulk cargoes (like coal, ore, grain, fertilisers, etc.).

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[1] M. Stopford, «maritime economics», 3rd edition, P7
[2] Idem, P23
[3] C. Grammenos, «The Handbook of Maritime Economics and Business», 2nd edition, P47

For the next 100 years, until the 1970s, liner and tramp shipping markets continued more or less on the same lines, this one century of shipping operations can be distinguished into two subperiods[4]:

First Period, from the 1870s to the 1940s : liner ships could carry tramp cargoes and vice-versa. Although there was a substitution between the two distinct markets, the main structures of each one was diametrically different.

Second Period, from the 1940 to the 1970 : The unprecedented increase of world production and trade in the first post-World War II era brought more distinct changes in the structure of the markets that led to a gradual decrease of substitution between the markets.

The 1970s were the landmark decade for the liner industry with the unitisation of the cargoes, also called containerisation that brought a revolution in the transportation of liner shipping where while in 1970 the world container fleet was of 500,000 TEU, by 1980 it had increased by more than six times to reach 3,150,000 TEU[5].

Finally, in the last 50 years seaborne trade has seen a remarkable development where Shipping carries the vast majority of international trade with its share ranging between 80 and 90 per cent of trade[6].This predominance is particularly pronounced in developing countries where trade structures including the low volumes of intraregional trade leave limited space for land transportation and air transportation.

[4] C. Grammenos, «The Handbook of Maritime Economics and Business», 2nd edition, P47
[5] Idem, P48
[6] UNCTAD, « 50 Years of Review of Maritime Transport, 1968-2018», P4

Table I-1: International seaborne trade development in selected years (Millions of tons loaded)

Year	Crude oil, Petroleum products & Gas	Main bulks[a]	Dry cargo other than main bulks[a]	Total (all cargoes)
1970	1 440	448	717	2 605
1980	1 871	608	1 225	3 704
1990	1 755	988	1 265	4 008
2000	2 163	1 295	2 526	5 984
2005	2 422	1 711	2 976	7 109
2006	2 698	1 713	3 289	7 701
2007	2 747	1 840	3 447	8 034
2008	2 742	1 946	3 541	8 229
2009	2 642	2 022	3 194	7 858
2010	2 772	2 259	3 378	8 409
2011	2 794	2 392	3 599	8 785
2012	2 841	2 594	3 762	9 197
2013	2 829	2 761	3 924	9 514
2014	2 825	2 988	4 030	9 843
2015	2 932	2 961	4 131	10 024
2016	3 055	3 041	4 193	10 289
2017	3 146	3 196	4 360	10 702

Note: a: figures for "Main bulks" include iron ore, grain, coal, bauxite/alumina and phosphate. Starting in 2006, "Main bulks" include iron ore, grain and coal only. Data relating to bauxite/alumina and phosphate are included under "Dry cargo other than main bulks".

Source: UNCTAD, review of maritime transportation, 2019

1.2. Importance of Maritime Transportation

Maritime transportation is essential to the world's economy as more than four fifths of world merchandise trade by volume is carried by sea[7]. reasons for such dominancy are related to the low operating costs of ships and their ability to carry large volumes with small energy consumption and limited manpower requirements[8].

The systematic growth of maritime freight traffic has been fuelled by[9]:

[7] UNCTAD, Review of maritime transport 2019, p23
[8] Jean-Paul Rodrigues «The geography of transport system» 1st edition p 105
[9] Jean-Paul Rodrigues «The geography of transport system» 3rd edition p98

- **Increase in Energy and Mineral:** the rise in demand from advanced countries on energy sources such as the petroleum shipped from the middle east to Europe, north America and japan.
- **Globalization:** the division of production and the establishment of a global supply chain lead to aa wider trade between continentals.
- **Technical Improvements:** the development of ships and ports terminals played a role in the rise of freight flow.
- **Economies of Scale:** terminals and ships facilities has enabled a reduction of the unit cost of freight which is strengthened by containerization.

1.3. Shipping Market Types

The sea freight market is linked to ships that can carry different types of cargoes and It can be subdivided into two major categories[10]:

1.3.1. Tramp Shipping

it is an irregular shipping, any vessel engaged in tramp shipping and does not have a fixed schedule, it mainly carries dry cargoes in form of bulk from one or more ports to one or more ports.

tramp Shipps are slow so they ship cargoes that does not require a fast delivery and only carries one commodity at a time from one shipper, those cargoes are carried at a freight rate, whereby the terms and conditions are negotiated on a case-by-case basis.

The purpose of this type of shipment is to provide a convenient and economical means to transportation goods that require cross-ocean movement, it seeks cargoes all over the world and provide flexibility in sea transportation to satisfy the needs of world trade.

[10] Y. Lun · K. Lai · T. Cheng, «Shipping and logistics management», P3

1.3.2. Liner Shipping:

It is a regular shipping that operates according to a fixed schedule and maintain a regular service between a certain number of ports within the same continent.

liner shipping transport cargos that belong to many shippers and are made up of fully or partly manufactured goods that are carried in containers. Cargo liners are more expensive vessels than tramp ships because of their complex building and high operating costs.

1.4. Ships

A ship is a vessel of different shapes and sizes and different types: hydrofoil boats, air-cushion vehicles, submersibles, floating craft and fixed or floating platforms[11], it operates in the marine in order to carry and move objects

1.4.1. Ship Categories and Types:

There are different categories of ships, and each category include a variety of types[12]:

1.4.1.1.Oil Tankers

Also known as Petroleum Tankers it is designed for the transportation of large quantities of bulk oil and its products such as fuel and gasoline,

1.4.1.2.Bulk Carriers:

It is a merchant ship specially designed with holds to carry vast amounts of unpackaged bulk cargo. It includes two types[13]:

a) Bulk Carriers: it is designed to carry a single bulk product.

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[11] MARPOL - International Convention for the Prevention of Pollution from Ships, p5
[12]UNCTAD, «Review of maritime transport», 2001, P13
[13] Arben Mullai, « Maritime Transport and Risks of Packaged Dangerous Goods», P38

Bulk carriers are also sub-divided into four major classes based on their cargo carrying capacitance and the important marine channels through which they can easily pass[14].

- **The Capsize:** the largest dry cargo ships, their tonnage range is between 80.00DWT[15] to 170.00DWT, this type of ships is too large to be able to pass the Panama Canal. They are convenient for carrying coal and iron ore, but are not economical for fertilizer and grain shipments.
- **The Panamax**: named Panamax as they refer to the size limits for ships travelling through the Panama Canal, they are second largest dry cargo ships with a carrying capacity between 50,000DWT and 79,999DWT**,** the Panamax vessels are deployed on several routes, from east North America, Canada, South Africa, China, India, Sweden and Indonesia.
- **The Handymax**: described as large handy size and mostly equipped with good gears, it has a capacity range from 35,000 dwt to 49,999 dwt, convenient for less voluminous cargoes, such as coal ad grain, they are also ideal for smaller ports
- **The Handysize:** the smallest dry cargo ship with a capacity range from 20,000 dwt to 34,999 dwt. It is ideal for smaller shipments and for serving ports with limited draught and berth length.

b) Combination Carriers: it is designed to carry several bulk product types on the same voyage or on a subsequent voyage after the holds are cleaned. For example, OBO carrier that transport ore, bulk and oil.

1.4.1.3.General Cargo Ship:

Also called Freighters is a merchant ship to carry goods, equipped with cranes and other mechanisms to load and unload, it is designed with one deck or often having several decks because of the number of ports served and the range of products carried .

[14]A.Branch, M.Robarts, «Branch's Elements of Shipping», 9th edition, P63.
[15] Id, Dead Weight Tonnage, this is the weight in metric or long tons of cargo, stores, fuel, passengers and crew that can be carried by the ship when loaded to her maximum summer load line.

General cargo ships category includes these types of ships[16]:

a) Refrigerated Cargo Ship: also called Reefer ship is a specialised ship designed with a multi-deck hull that includes an arrangement of refrigerated holds, it is used to transport perishable commodities that needs a temperature control such as fruits vegetables, meat and also medicine.

b) Ro-Ro Cargo Ship: is a ship designed with one or multiple decks for the purpose of carrying wheeled cargo such as cars and trucks. Ro-Ro is a short for 'Roll-on, Roll-off', which describes how the cargos are loaded and unloaded from the vessel.

c) Passenger Ship: it is a merchant ship with a primary function of carrying passengers on sea.

1.4.1.4. Container Ship:

They are vessels that carry huge quantities of cargo, their loads are carried on a truck-size intermodal container, the process of sending cargo in special containers is known as containerization. The containers are loaded below deck into specially designed slots giving permanent stowage of the container during sea transport. While those that are loaded on deck are stacked and secured on special fittings. Fully cellular container ships carry only ISO containers[17].

There are also remaining ships that are not included in the previous categories such as: Chemical tankers, Tank barges, Fishing vessels, Offshore supply ships…

1.5. Ports

A port is a maritime facility that provides shelter to vessels, it is part of a countries' transport infrastructure that facilitate the loading and discharge of cargo between the ship and the shore[18], it is an intermediate where cargos exchange it means of transport from sea to land or vis versa.

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[16] UNCTAD, Review of Maritime Transport 2001, P13
[17] A. Mullai, « Maritime Transport and Risks of Packaged Dangerous Goods», P36.
[18] Y. Lun · K. Lai · T. Cheng, «Shipping and logistics management », P110

Ports are seen as poles for development, as through history they have been centres of commercial activities where large and developed cities have grown around[19].

1.5.1. Types of Ports

Ports are classified into 5 major types according to many factors such as: location, depth, ship size, and purpose[20]:

1.5.1.1. Sea Ports

Seaports are the most common types of ports around the world which are used for commercial shipping activities, these ports are built on a sea location and enable the accommodation of both small and large vessels.

Seaports also have a variety of terminals types depending on the vessel type such as container terminals, dry bulk terminals and Ro-Ro terminal.

1.5.1.2. Dry Ports

It is an inland intermodal terminal directly connected with seaports via road or rail transportation facilities[21], it provides services for the handling and temporary storage of containers, general and/or bulk cargoes that enters or leaves the dry port[22].

1.5.1.3. Inland Ports

it is a non-seaside hub where cargos are handled, warehoused and broken into smaller patches for further distribution[23], it is built on smaller water bodies such as river, canals and lakes which may or may not be necessarily connected to the sea.

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[19] T. Whittle, «Basic Concepts f maritime transport and its resent status in Latin America and the Caribbean», P26
[20] https://www.marineinsight.com/
[21] V.Roso, K.Lumsden, «Transport and Communications Bulletin for Asia and the Pacific», P91
[22] https://www.unescap.org/sites/default/files/11.%20tfforum11_c2_rasamit.pdf?fbclid=IwAR3rXUQjhWbK3UjhEUIeQBvF5ALPpLHsBARsk33uazdJaitb1jKvLMV0wQU
[23] North America inland ports logistics annual report, 2016, P4

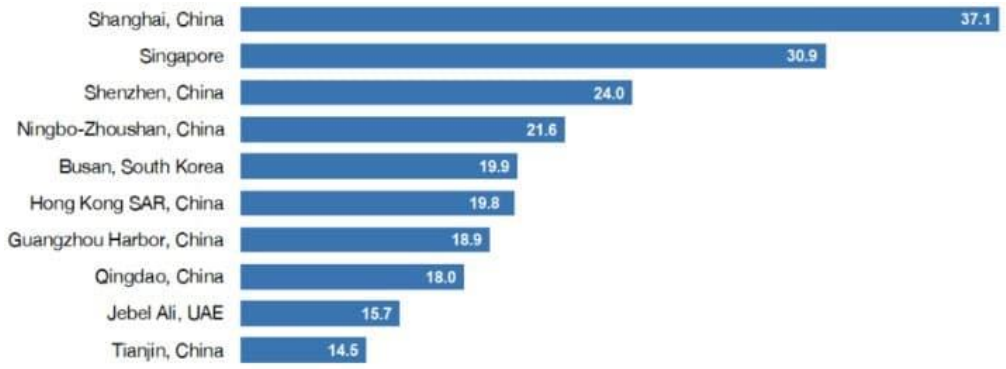
1.5.1.4. Warm Water Ports

Those ports are important in regions of the world where the temperature of water freezes during the frosty winters which shutdown the movement of ships in water, therefore maintaining the temperature of water at a warm level enable the port to operate freely all year long.

1.5.1.5. Fishing Ports

It is a harbour for landing and distributing fish, the existence of such ports relates entirely on the existence of fishes in that area of the ocean otherwise it is uneconomical.

Figure I-1: 10 largest ports in the world, volume of trade in millions of twenty-foot equivalent units (TEU)



Source: website weforum.org (22/08/2020,23h)

1.6. Maritime transportations Conventions and Laws

International Maritime transportation is governed by conventions and rules concerning security, safety, marine pollution, navigation and other Conventions covering liability and compensation, and the most important ones are [24]:

[24] http://www.imo.org/en/About/Conventions/ListOfConventions/Pages/Default.aspx

1.6.1. Hague Rules 1924

formally the "International Convention for the Unification of Certain Rules of Law relating to Bills of Lading, and Protocol of Signature"[25], introduced at the International Law Association meeting in Brussels, Signed august 25th, 1924, The Hague Rules are a short code of rules relating to contracts of carriage of goods by sea contained in bills of lading they deal mainly with the contentious problems as to the incidence of risks or loss or damage to which goods carried by sea are exposed and in effect state which of such risks are to be borne by the carrier and which by the owner of the goods[26].

1.6.2. Hamburg Rules 1978

Introduced at the united nation international conventions on the carriage of goods by sea signed in Hamburg march 31th, 1978, the Convention establishes a uniform legal regime governing the rights and obligations of shippers, carriers and consignees under a contract of carriage of goods by sea.[27] The Rules were devised with the intention that they should supersede the 1924 Hague Rules, It is applied to all contracts for the carriage of goods by sea between two states unlike the Hague rules that is applied only on bill of ladings[28].

1.6.3. Rotterdam Rules 2009

Formally, the United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea, signed in Rotterdam, September 23ed, 2009. The aim of this convention is to revise the maritime legal framework of carriage of goods by sea considering that that the current legal regime governing the international carriage of goods by sea lacks uniformity and fails to adequately take into account modern transport practices, including containerization, door-to-door transport contracts and the use of electronic transport documents[29].

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[25] http://www.admiraltylawguide.com/conven/haguerules1924.html
[26] C. R. Dunlop, «Journal of Comparative Legislation and International Law», 3rd edition, P24
[27] https://uncitral.un.org/en/texts/transportgoods/conventions/hamburg_rules
[28] A. Wanigasekera, «COMPARISON OF HAGUE-VISBY AND HAMBURG RULES», P4
[29] United Nations Convention on Contracts for the International Carriage of Goods Wholly or Partly by Sea, P1

1.7. Maritime Transportation Incoterms

Short for "international commercial terms ", there are a globally-recognised set of standards, used worldwide in international and domestic contracts for the delivery of goods[30].

created by the international chamber of commerce in 1936 and first revised in 1957 then regularly updated every 10 years since 1980 to stay in pace with the development of international trade.[31] Those standard terms used in contracts for the sale of goods, help traders by clarifying the costs, tasks risks and responsibilities to both buyer and seller[32].

The list of incoterms is divided into two sections. The first sections include Incoterms related to Any Mode of Transport while the second sections consist of incoterms related to Sea and Inland Waterway Transport Only[33].

Sea and inland waterway transport incoterms include FAS, FOB, CFR, CIF,[34]:

- **CFR Cost and Freight**

It means that the seller is responsible of loading the goods on board of the vessel and delivering them to the port of destination, the seller also pays for the costs and freight necessary to bring the goods to the foreign port. The risks of loss or damage passes at the point of delivery to the carrier. The insurance in CFR terms is optional.

- **CIF Cost, Insurance and Freight**

It means that the seller delivers when the goods are loaded on board of the vessel and pays for the costs of bringing the goods to the port of destination. The risk of loos or damage

[30] https://iccwbo.org/resources-for-business/incoterms-rules/
[31] J.Ramberg, «ICC Guide to Incoterms 2010», P8
[32] T.Cook .E.Alston.K.Raia, «MASTERING IMPORT & EXPORT MANAGEMENT», 2nd edition, P15
[33] Idem, P16
[34] J.Ramberg, «ICC Guide to Incoterms 2010», P159

passes when the goods are on board of vessel. The insurance in CIF must be provided by the seller too.

- **FAS Free Alongside Ship**

It means that the seller delivers and is responsible of cost and risk when the goods are placed alongside the vessel at the port dock, from that point the risk of loss or damages and all costs passes to the buyer.

- **FOB Free on Board**

It means that the seller delivers and is responsible for all costs and risks up until the goods are loaded on board of the vessel at the port named by the buyer, from that moment onwards all responsibilities passes to buyer.

The introduction of steamships was a big landmark in the history of maritime transportation followed by the division of market into liner and tramp shipping as well as the introduction of containerization, those elements enhanced the rise of the world exchange.

The rise of world exchange by waterways led to the development of different types of ships and ports as well as the need for conventions and standard terms in order to manage and facilitate the operations of export and import.

Section 2: Documents Used in International Maritime Transportation

The maritime transportation is a complex system linking different industrials, intermediaries and principals. in order to facilitate the process of the transports chain, a variety of documents are included.

2.1. Maritime transportation System Agent's

In the maritime industry, there are actors offering various activities and preforming different functions, the main ones are[35]:

- **Ship Owner**

Parties that own ships and make decisions on how to use existing ships to provide shipping services, when and how to buy new ships, and what ships to buy.

- **Ship Agent**

Companies that represent owners of the vessels, and are engaged in the routine business related to vessel arrival, operation, and departure of ships.

- **Charterers**

Entities that employ ships to transport cargoes.

- **Ship Broker**

Specialist intermediaries between shipowners and ship charterers, or between buyers and sellers of ships.

[35] A. Caliskan, Y. Ozturkoglu, «maritime logistics», P362

- **Freight Forwarder**

Also known as a non-vessel operating common carrier (NVOCC), they are a transport operator that have no operating vessels but coordinate the provision of shipping services.

- **Shippers**

The company selling the goods to a foreign market. The shipper may also be called the exporter or consignor.

- **Customs**

Customs role is protecting the shipping industry from abuse by preventing smuggling and illegal trade, customs officers will board and search suspicious ships, undertake inspections and searches of cargos and personnel as well as assessing and collecting taxes and duties.

- **Stevedores**

A stevedore, longshoreman, docker, or dockworker is a waterfront manual labourer who is involved in loading and unloading the ships.

- **Insurance**

insurance role is providing a coverage against all the risk of physical damage and loss of freight during the shipping from any external cause.

- **Banks**

banks role is to form a link between in the transport documents chain when the payment for goods is being made by means of a later of credit, for notes on the documentary credit system, for notes on the bill of lading in the documentary credit system.

2.2. Maritime transportation Documents

Documentation process of international shipping is important in order to assure a smooth and safe international shipment, and if not properly done it can lead to a delay or for the goods to be held by costumes.

maritime transportation documents needed are[36]:

2.2.1. Bill of lading (B/L)

It is an official contract of carriage between the shipping line and the cargo owner, it is issued by the carrier and used to confirm receipt of goods for shipment, once the cargo arrives at destination the B/L should be presented for the carrier to release the cargo.

It includes a detailed information about shipping destination, the goods included and how they should be handled, the importer and exporter information need to be listed as well. the B/L acts as a proof of ownership of the goods being shipped on the vessel, the information should reflect the conditions of the incoterm under which the transaction is signed.

There are two types of bill of lading:

a) Straight B/L: it is a non-negotiable bill of lading specified to a particular party that cannot re-assign it to anyone else.

b) Order B/L: it is a negotiable bill of lading issued to the order of a shipper or a consignee for delivery of the goods and that can be transferred by endorsement to a third party

2.2.2. Packing List

It is a mandatory document for shipping goods via ocean, it contains an itemized detailed information of the cargo, it lists seller, buyer, shipper, invoice number, date of shipment, mode

[36] https://www.shipafreight.com/learn-more/documents-list/

of transport, carrier, itemizes quantity, description, type and quantity of package, total net and gross weight, but it does not include the pricing information.

The information on packing list and bill of lading must matches for they are both needed for costume clearance, in case customs decide to inspect the shipment the packing list serves to facilitate the process by helping to identify the box that raised the alarm, this saves time and reduce risk of damage to cargo by avoiding the need to open every single box in the shipment.

2.2.3. Commercial Invoice

It is an official proof of sale, a bill that includes the complete details of the sales transactions between a seller and a buyer, the commercial invoice details are often required for customs clearance in freight shipping.

Commercial invoice is very similar to a packing list however, a packing lists describes the physical products whereas the invoice describes the financial transaction behind the sale of this goods.

2.2.4. Proforma Invoice 00

It is an invoice prepared by the exporter before shipment it informs the buyer about the goods to be sent, their value, ad other specifications.

2.2.5. Generic Certificate of Origin (CO)

It is an international trade document that declares the county of origin where the goods are obtained, produced, manufactured or processed. It contains typical information such as exporter, consignee, importer and goods description. this document is prepared by the exporter and must be certified by the consulate or chamber of commerce to assure that the goods are eligible for export.

The certificate of origin is needed for clear costume, it determines the amount of duties and taxes and to be paid.

2.2.6. Export Licence

It is a legal document issued by the government it authorizes the export of specific goods in specific quantities to a particular destination.

2.2.7. Import Licence

Import licenses are the responsibility of the importer and vary depending upon destination and product. However, including a copy of an import license with the rest of documentation may in some cases help avoid problems with customs in the destination country.

2.2.8. Shippers Letter of Instruction

It is issued by the exporter to the forwarding agent and includes shipping instructions.

2.2.9. Materiel Safety Date Sheet (MSDS)

It is a document that contains information on the potential hazards (health, fire, reactivity and environmental) and how to work safely with the chemical product. It also contains information on the use, storage, handling and emergency procedures all related to the hazards of the material.

As an important factor of globalization, maritime transportation of goods facilitated the rise of the world exchange, and for the smooth running of import/export operations, different actors are included to observe these operations such as customs authorities with the help of obligatory documents such as the bill of lading.

Section 3: Shipping Agent for Liner Shipping Companies

Liner shipping is the most efficient mode of transport for goods, it connects countries, markets, businesses and people and today it represents one third of the global value of the world trade.

In this section we will talk about liner shipping, why containerization is implied and the role of a shipping agent.

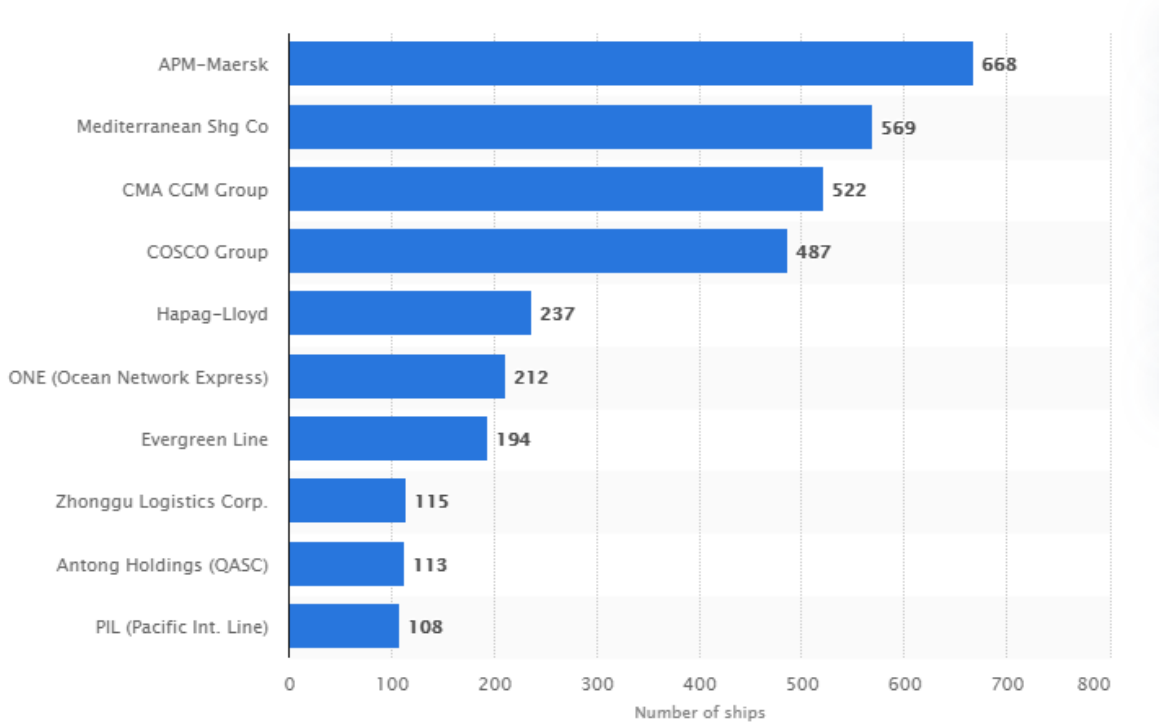
3.1. Liner Shipping Companies

Liner shipping is a market where mainly semi and fully manufactured goods are transported in a containerized way and on a fixed schedule and a fixed route which is one of the key characterizing aspects of Container shipping. other characteristics is that liner shipping is designed to have a low operating cost, high frequency, fast transit times and tight and reliable voyage schedule[37].

In liner shipping the shipper has few options to transport the cargo[38], he can contact directly the shipping company, use a freight forwarder, a NVOCC, or through an intermediary who is the shipping company agent in a certain port.

[37] Faculty of Economics and Business Urban, Port and Transport Economics, «Is the reliability of liner services improved due to slow steaming», P27
[38] Idem, P15

Figure I-2: Leading container shipping companies worldwide based on number of ships august,2020



Source:https://www.statista.com/statistics/263291/container-shipping-companies-worldwide-number-of-ships/ (23/08/2020,16H)

3.1.1. Structure and Design of Liner Shipping

Liner shipping which transport mainly containers have a network which consists mainly of nodes and links. nodes are locations where container movement is interrupted or handled and links are between the nodes, hinterland transportation whether through road, rail or inland water way.[39]

The design can be divided into three main itineraries of operations[40]:

[39] Faculty of Economics and Business Urban, Port and Transport Economics, «Is the reliability of liner services improved due to slow steaming», P16

[40] Faculty of Economics and Business Urban, Port and Transport Economics, «Is the reliability of liner services improved due to slow steaming», P17

- **End to End**

  it's a schedule where vessels are going back and forth between two continents**.**

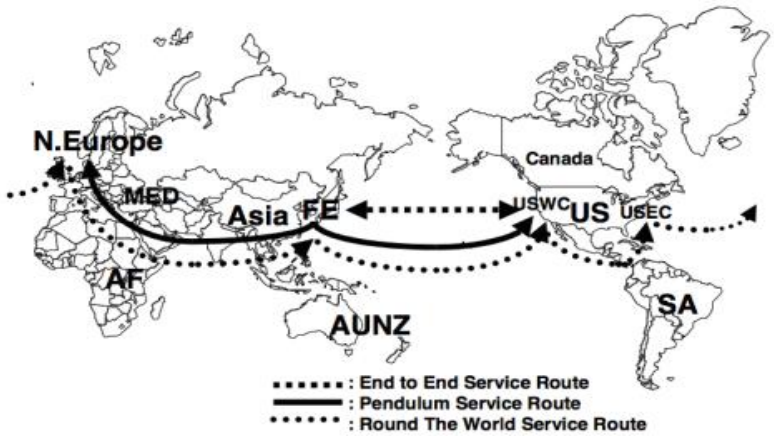
- **Pendulum**

  It involves a schedule between three continents in which loops are used.

- **Round the World Service**

  It involves a service route which sails around the world in a particular direction.

Figure I-3: three types of liner service routes



Source: Faculty of Economics and Business Urban, Port and Transport Economics, «Is the reliability of liner services improved due to slow steaming», P17

3.2. Containerization

Containerization seems to have become a "must" for ports, as the provision of container facilities is considered to be one of the prerequisites for success in the new shipping business environment.

3.2.1. Definition

Containerization is a system of intermodal freight transport for distributing merchandises using standardised dimension containers[41], those containers are numbered and tracked using computerized systems.

The containers can be loaded and unloaded, stacked, transported efficiently over long distances, and transferred from one mode of transport to another and the equipment used for handling containers has also been standardised, so instead of the large variety needed to carry cargos from different sizes, shapes and weight, now very few are needed to handle containers[42].

Table I-2: Leading 20 global container ports, 2018

(20-foot equivalent units, annual percentage change)

	Throughput 2018	Annual percentage change 2017–2018
Shanghai	42 010 000	4.4
Singapore	36 600 000	8.7
Ningbo-Zhoushan	26 350 000	6.9
Shenzhen	25 740 000	2.1
Guangzhou	21 920 000	7.6
Busan	21 660 000	5.5
Hong Kong, China	19 600 000	-5.6
Qingdao	19 320 000	5.5
Tianjin	16 000 000	6.2
Dubai	14 950 000	-2.9
Rotterdam	14 510 000	5.7
Klang	12 030 000	0.4
Antwerp	11 100 000	6.2
Xiamen	10 700 000	3.1
Kaohsiung	10 450 000	1.8
Dalian	9 770 000	0.6
Los Angeles	9 460 000	1.3
Tanjung Pelepas	8 790 000	6.4
Hamburg	8 780 000	-0.2
Long Beach	8 070 000	3.7

Source: UNCTAD, review of maritime transport, 2019

[41] A.Branch, «Branch's Elements of Shipping», 9th edition,P342
[42] UNCTAD, «Handbook on the management and operations of dry ports», P11

3.2.2. Containers Sizes

The International Standards Organisation (ISO) issued the official standard dimensions of containers[43]:

- Most common standard is the TEU (Twenty feet equivalent unit):
    - L= 20ft (6.10m)
    - B= 8ft (2.44m)
    - H= 8ft 6inches (2.60m)
    - Weight=24KN
    - Internal volume= 32m3
    - Payload= 220KN
- The forty feet container (2 TEU or 1 FEU) measures twice as long and has the same width and height as the 20 ft container:
    - Weight= 45 KN
    - internal volume= 65 m3
    - payload= 270 KN[44]

Besides the ISO containers there are several other types in use, including:

- Oversize containers (longer than 40 ft).
- High-Cube containers (higher than 8 ft 6 inches).
- Over-width containers (wider than 8 ft).

3.2.3. Containers Types

The range of container types kept on expanding in order to meet the increasing market demand, the majority of containers used are built to ISO (International Standards Organization) specification which permits ease of use internationally, the most used are [45]:

[43] H. Ligteringen, «Ports and terminals», P141
[44] 1KN=102 KG
[45] A.Branch, « Branch's Elements of Shipping», 9th edition, P356

3.2.3.1. Dry Freight Container

It is designed for all types of general merchandise and with suitable modification for the carriage of bulk cargoes both solid and liquid. It is available in 20 ft, 40 ft and 40 ft hi-cube sizes. It is the world's most widely used container for the movement of general cargo and its most cost-effective means of transporting non-perishable cargoes.

3.2.3.2. Insulated Containers

These protect against heat loss or gain and are used in conjunction with a blown-air refrigeration system to convey perishable or other cargo requiring to be carried under temperature control. It is important that when cargo requiring temperature control is loaded in this type of container, an air space of approximately 7.5 mm is left over the top of the cargo to allow free air circulation.

3.2.3.3. Refrigerated Containers

available in 20 ft, 40 ft and 40 ft hi-cube sizes, for shipment of perishable and frozen cargoes. The reefer containers are designed to operate independently of a blown-air refrigerated system, and are filled with their own refrigeration units which require an electrical power supply for operation. It is ideal for meat, dairy products and fruit.

3.2.3.4. Bulk Containers

These are designed for the carriage of dry powders and granular substances in bulk. To facilitate top loading three circular hatches (500 mm diameter) are fitted in some containers in the roof structure.

3.2.3.5. Ventilated Containers

This type of container is broadly similar to the dry freight container specification, except for the inclusion of full-length ventilation galleries sited along the top and bottom side rails, allowing the passive ventilation of the cargo. It is ideal for products such as coffee.

3.2.3.6. Flat Rack Containers and Platform Flats

Both these types of containers are primarily designed to facilitate the carriage of cargo of awkward, oversize and project cargoes. These units are also used as temporary ‘’tween decks’ for the carriage of large, indivisible loads.

3.2.3.7. Open Top Containers

This type of container is suitable for the carriage of awkwardly shaped indivisible or oversize cargoes which cannot be stowed in the dry freight container. It is available in 20 ft and 40 ft sizes. The units offer increased versatility over standard boxes and are designed for loading through both the top of the container and the doors. It may also be described as an open sided/open top container. This container is ideal for sheet glass, timber and machinery

3.2.3.8. Tank Containers

Tank containers are ideal for the transport and storage of all types of bulk liquid and can be shipped by rail, road and sea. A range of specialist’s tanks is available for particular applications, such as units for the transport of food-grade cargo intended for human consumption and for the safe carriage and storage of toxic and hazardous products.

3.2.3.9. Sea Cell Containers

A sea cell container provides an increased volume of 3.5% and heavier payload of 34 tons compared to 30 tons in a traditional 40 ft container. This container type is popular with logistic operators globally. The 6.10 m (20 ft) Sea Cell has 1.5 m and the 12.20 (40 ft) box 3 m extra capacity and both carry 27% more pallets than a standard box container. It is an intermodal extra-width container within a standard ISO frame.

3.3. Sipping Agent

A ship agent or a shipping agency is a person or a company representing the ship’s owner (Principal) in port, to act on their behalf in performing the duties towards the port,

governmental bodies, business sectors and any other bodies or authorities related to the activity[46].

3.3.1. The Principal-Agent Relationship

For an agency relationship to be formed there must be a trust among ship owner and ship agency, a legal relationship is formed through agency agreement, procuration agreements and authorizations, the agency must be reputable, able to carry out agency duties, recognized by local authorities and finally there should be a conflict of interest between parties[47].

3.3.2. Responsibilities and Reliabilities of the Ship Agent

The Shipping agent carries out responsibilities and liabilities related to commercial activities, informative system, documentation, operation service, and other general roles[48]:

3.3.2.1. Commercial and Marketing Sales Responsibilities

These include:

- Pricing and promotion
- Booking
- Market and competition analysis
- Customer relationship management
- Billing and customer complaint handling
- Nurture long-term relationships with customer
- Handling commercial interest of the liner carrier

3.3.2.2. Information System and Documentation Responsibilities

These include:

[46]Mawani, «Agents Shipping of Regulation», P4
[47]D. Dergisi, «an exploration of service problems encountered in ship agency industries», P86
[48] Idem, P86

- Providing information on ship's physical condition, port of origin, cargo and delivery port to the required government bodies before ship arrives
- Carrying out health, safety, and customs controls
- applying to ports for loading and unloading activities
- handling port and conservancy dues
- requesting tonnage and pilotage services during ship arrival's
- tracking the ship's operations
- coordinating between parties
- keeping SOF (statement of facts) and getting it signed
- Technical support
- Medical support
- Effectively managing activities of terminal operators

3.3.2.3. Operational Responsibilities

The operational responsibilities include:

- Ship and crew assistance
- Communication with third parties
- Governmental operations
- Inland transport agreements

3.3.2.4. Financial Responsibilities

The financial responsibilities include:

- Freight collection
- Port expenses and expenditure calculation and payment
- Giving advances to crew
- paying the crew
- Currency exchange

3.3.2.5. Legal Responsibilities

The legal responsibilities include:

- Handling the legal aspect of B/L and cargo claims
- Noting protest
- General average practices
- Taking precautions
- Managing security operations
- Overall acting on behalf of the ship owner

Further responsibilities are:

- Booking the vessel in and out of the port
- Arranging the pilot and tug boat services
- Proving information on the crew and passengers to local immigration authorities
- Organizing crew changes
- Ensuring the ship documentations complies with international regulations
- Preparing quarantine pre-arrival reports
- advising customs of the ship's arrival and cargo
- logistics involved with provisions and bunker
- providing the stevedores and terminal operators with the manifest and liaising with these parties
- regarding safe handling of containers, break- bulk and bulk liquids
- ensuring the ship's master is aware of shore requirements
- handling ship services such as repairs and maintenance

3.3.3. Responsibilities of the Principal

Same as the shipping agent has responsibilities and liabilities, the principal is responsible of the following[49]:

- providing documents and stationery he specifically requires for use by the agent.
- Give adequate information on scheduling, ports of call, tariffs and policy decisions that may affect the port and sales activities.

[49]P. Mbindyo, «Liner agency agreements», P14

- Provide funds to cover disbursements, unless the agent has sufficient money from freight collection.
- Indemnify the agent against all claims, charges, damages and expenses that he may incur in connection with fulfilment of his duties under the agreement, during its duration as long as acts leading to such damages are not by reason of his misconduct or negligence.
- Indemnify the reimburse the agents for bonds, guarantees or securities to customs or other statutory authorities in connection with cargo movements.

3.3.4. Remuneration

The agent is entitled to remuneration for the performance of his contractual duties, which is payable in form of commission, agency fees or other payments, as outlined in the fees and commissions schedule covering various services. These are normally broken down to cover[50]:

- Commission for export and import cargoes.
- Booking and container handling fees.
- Ancillary charges collected by agent on behalf of the principal, such as demurrage.
- Fees for claims processing and settlement of other duties that the agent may be called upon to perform.

The globalization of liner shipping introduced the notion of containerization which is the use of standard dimension containers, this development facilitates the transport operations and minimized the equipment used. The role of shipping agent comes in order to represent and lower the weight of responsibility on liner shipping companies around the world.

[50] Idem, P15

Conclusion

As we noticed, maritime transportation is a wide and complex type of transport

Therefore, in this chapter we have dealt with the basics of Maritime transportation going from its history of being just a way to communicate and move people between close countries to being a huge industry with a developed infrastructure, equipment and technologies, where it is predominant with 80 to 90 percent of the world trade.

Since the shipping industry is an important factor of globalization, shipping companies need a representor in every port where its import and export operations are functioned, and this where his role of a shipping agent comes in order to lower its responsibilities.

CHAPTER II:

Delivering

Service Quality

in Maritime Transportation

Introduction:

Service and Quality as two separated concepts provide comprehensive background to answer the question “what is service quality?”. quality in the service context is explicated in terms of parameters that largely come under the domain of ‘experience’ and ‘credibility’ properties and are as such difficult to measure and evaluate.

In this chapter, we will discuss clearly the true meaning behind each concept, quality, service and service quality and their interaction with the maritime transportation sector, also their impact on customer satisfaction and how to measure each one of them with various models provided in different literatures.

Section 1: Generalities About Quality and Service

Quality and Services are two ambiguous complicated concept that has been with us for millennia. everyone thinks they know what quality is but formulating a comprehensive and uniform definition is a big if not insurmountable problem[51] and service is one of the two fundamental economic components which has no generally accepted and complete definition and it could be referred to as dynamic activities and processes, Moreover, the increasing interest in the service sector specially with the appearance of pure service sectors in the market has been accompanied by considerable debate as to what originates a service and whether services marketing is distinctive subject area

In this section, we will try to define quality and services and also summaries all the important elements that are include in them such as customer satisfaction and behaviour.

1.1. Quality

There are several different ways to approach the definition of quality: the philosophical approach, the technical approach, and the user-based approach[52].

- **Philosophical Approach**

This approach defines quality as innate excellence (e.g., attainment of superiority, achieving desirability or becoming useful)[53] and it cannot be defined or analysed further than that, under this approach people can know quality when they see it but they cannot define it, this approach is useless from either a research or practice perspective to consider quality as unknowable and unmeasurable.

- **Technical Approach**

(Objective Quality or Conformance Quality) It considers quality from an objective and absolute perspective, this approach to quality is considered with the extent to which a product

[51] Kasper (H) et al, service marketing and management: an international perspective, first edition, first edition, wiley,p.184, July 1999.
[52] Schneider (B) et al, service quality: research perspectives, sage publications, p.9,2004.
[53] Oliver (R), satisfaction: a behavioural perspective on customer, second edition, routledge,P.9, January 2004, .

conforms to technical standards[54], this approach is so focused on the objective and readily measurable, it is very well suited to measuring the quality of standardized products that are mass-produced "zero-defect policy"[55].

- **User-Based Approach**

This approach of quality takes the view that quality is subjective and hinges on the individual perception of customers which means that the quality is determined by its user not the technical characteristic, this user-based view toward quality has been particularly appealing in trying to define quality in the service realm.

1.1.1 Dimensions of Quality

Quality can be used in a strategic way to compete effectively and an appropriate quality strategy would take into consideration various important dimensions of quality[56].

David Garvin in 1988 suggested that there are eight dimensions or categories of quality can be identified as follows[57]:

- **Performance**

It involves the various operating characteristics of the product; a quality product will perform as expected by the user and specified by the manufacturer.

- **Features**

What additional benefits will be added to the product? features are characteristics that are supplemental to the basic operating characteristics.

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[54] Schneider (b) et al, service quality: research perspectives, sage publications, p.10,2004.
[55] Zero Defects is a management tool aimed at the reduction of defects through prevention. It is directed at motivating people to prevent mistakes by developing a constant, conscious desire to do their job right the first time
[56] https://hbr.org/1987/11/competing-on-the-eight-dimensions-of-quality checked on 5 may 2020 at 13:00
[57] Garvin (d), managing quality, the strategic, simon and schuster, new york, p 49-61, 1988

- **Reliability**

Reliability of a product is the degree of dependability and trustworthiness of the benefit over its expected lifetime and perform consistently.

- **Conformance to standards**

The product should respect the agreed national and international specifications. All quality products are expected to precisely meet the set standards.

- **Durability**

It measures the length of time that a product performs before a replacement becomes necessary.

- **Serviceability**

Serviceability refers to the promptness, courtesy, proficiency and ease in repair when the product breaks down and is sent for repairs, in the service.

- **Aesthetics**

Aesthetic aspect of a product is comparatively subjective in nature and refers to its impact on the human senses such as how it looks, feels, sounds, tastes and so on, depending upon the type of product.

- **Perceived quality**

An equally important dimension of quality is the perception of the quality of the product in the mind of the consumer.

1.1.2. International Organization of Standardisation

Before dealing with ISO, let us first define standards: standard is a document that provides requirements, specifications, guidelines or characteristics that can be used consistently to ensure that materials, products, processes and services are fit for their purpose[58].

1.1.2.1. Emergence of ISO

In London, in 1946, 65 delegates from 25 countries meet to create the new International Standardization, the object of which would be to facilitate the international coordination and unification of industrial standards. In 1947, ISO officially comes into existence with 67 technical committees (groups of experts focusing on a specific subject). In 1949, ISO moves into offices in a small, private house in Geneva. In the early 1950's the Central Secretariat has five members of staff[59].

In order to control the quality easier and more efficient in global scale, in 1951 the International Organization for Standardization (ISO) created the first standard ISO/R 1:1951 (called Recommendations at that time) Standard reference temperature for industrial length measurements, is published. Since its creation ISO has published monthly information about its technical committees, the standards published and administrative changes to the organization and its members. This is the cover of the ISO Journal from May 1952. In 1955, ISO members gather in Stockholm for the 3rd General Assembly. At the beginning of 1955, ISO has 35 members and 68 standards (called recommendations). Henry St Leger is the Secretary General. During the 1960s ISO works to include more developing countries in its International Standardization work. In 1961 it establishes DEVCO, a committee for developing country matters, and in 1968 introduces Correspondent membership. This allows developing countries to be informed of International Standardization work without the full costs of ISO membership. Correspondent membership continues to be a popular option for many countries today. At the start of 2012, ISO had 49 correspondent members. In 1968, ISO publishes its first standard on freight containers. Freight and packaging are one of the areas where ISO has been particularly active, changing the way goods travel across the world. In 1969 Olle Sturen becomes Secretary General of ISO. In one of his first speeches he says International Standardization is the end of technical nationalism. In 1971, ISO creates its first two technical committees in the

[58] https://www.iest.org/Standards-RPs/ISO-Standards checked on 13 may 2020 at 10:15 am
[59] Idem

environmental field: Air quality and quality. Today, these committees have been joined by other groups of environmental experts focusing on many subjects including soil quality, environmental management and renewable energy. During the 1970s, ISO's Secretary General Olle Sturen focuses on turning ISO into a truly international organization.

While ISO's members come from all over the world, in the early 1970s relatively few are fully active in the development of International Standards. Sturen's visits to members result in active participation from countries such as Australia, Japan and China. The Central Secretariat also reflects this international feel, with an average of 25 nationalities represented. In 1986, Lawrence D. Eicher takes over as Secretary General. After that in 1987, ISO 9000 was published, representing the first official Quality management system. Until now, ISO has issued over 21912 International Standard which is applicable in almost all business and technology aspects, including designing, productions and service delivery also in other aspect as environmental, social responsibility and Occupational health and safety standards.

1.1.2.2. Quality Management System "ISO 9001"

ISO 9001 sets out the criteria for a quality management system and is the only standard in the family that can be certified to (although this is not a requirement). It can be used by any organization, large or small, regardless of its field of activity. In fact, there are over one million companies and organizations in over 170 countries certified to ISO 9001[60].

This standard is based on a number of quality management principles including a strong customer focus, the motivation and implication of top management, the process approach and continual improvement. These principles are explained in more detail in ISO's quality management principles. Using ISO 9001 helps ensure that customers get consistent, good-quality products and services, which in turn brings many business benefits[61] and that by having "quality control plan"[62].

[60] Idem

[61] https://www.iso.org/iso-9001-quality-management.html checked on 16 may 2020 at 11:15 am

[62] A quality control plan is the document that lists all the quality-related checkpoints to be passed during/after a production run. Depending on the situation, it can include process, product, or legal checkpoints.

1.1.2.3. ISO Standard for Maritime transportation

ISO standards are instrumental in helping to connect ports with rail hubs, air freights and land-based distribution, offering greater efficiency in how goods are moved.

- **ISO/TC 104 technical committee, Freight containers**

It provides specifications for almost every aspect relating to containers, from dimensions to handling and terminology, this committee published 39 ISO standards under 3 sub-committees[63]:

  - **Standards by ISO/TC 104/SC 1:** General purpose containers
  - **Standards by ISO/TC 104/SC 2:** Specific purpose containers
  - **Standards by ISO/TC 104/SC 4:** Identification and communication

- **ISO/TC 8 committee, Ships and marine technology**

Standardization of design, construction, training, structural elements, outfitting parts, equipment, methods and technology, and marine environmental matters, used in shipbuilding, comprising sea-going ships, vessels for inland navigation, offshore structures, ship-to-shore interface, the operation of ships, marine structures subject to IMO requirements, and the observation and exploration of the sea[64].

This committee published 339 ISO standards under 10 sub-committees:

  - **ISO/TC 8/SC 1:** Maritime safety
  - **ISO/TC 8/SC 2 :** Marine environnement protection
  - **ISO/TC 8/SC 3:** Piping and machinery
  - **ISO/TC 8/SC 4:** Outfitting and deck machinery
  - **ISO/TC 8/SC 6:** Navigation and ship operations
  - **ISO/TC 8/SC 7:** In land navigation vessels
  - **ISO/TC 8/SC 8:** Ship design
  - **ISO/TC 8/SC 11:** Intermodal and Short Sea Shipping
  - **ISO/TC 8/SC 12:** Ships and marine technology - Large yachts

[63] https://www.iso.org/committee/51156.html checked on 20 may 2020 at 10:15 am
[64] https://www.iso.org/committee/45776.html checked on 20 may 2020 at 11:35 am

- **ISO/TC 8/SC 13:** Marine technology

1.2. Service

Service is defined as "Any act of performance that one party can offer to another that is essentially intangible and does not result in the ownership of anything, its production may or may not be tied to a physical product "[65].

Similarly, Information Infrastructure Library gives definition for service as "A means of delivering value to customers by facilitating outcomes want to achieve without the ownership of specific costs and risks"[66].

Service is also defined as "A service is an activity which has some element of intangibility associated with it which involves some interaction with customers or with property in them possession, and does not result in a transfer of ownership. A change in condition may occur and production of the service may or may not be closely associated with a physical product[67]." In simple terms : Services are deeds, processes, and performances.

Furthermore, in a broader definition: "services include all economic activities whose output is not a physical product or construction, and is generally consumed at the time of production, and provides added value in forms such as convenience, amusement, timeliness, comfort, or health which are essentially intangible in nature"[68].

1.2.1 Characteristics of Service

There are four distinctive characteristics of services that greatly that affect and characterize the essence of pure service sectors such as maritime transportation, those characteristics of services are discussed as follows[69].

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[65] Kotler (p) And Scheff (j), standing room only: strategies for marketing the performing arts, first edition, Harvard business review press, p.193, January 1997.

[66] https://www.axelos.com/corporate/media/files/glossaries/itil_2011_glossary_gb-v1-0.pdf in 4 June 2020 at 12:06 pm

[67] Payne (A), The Essence of Services Marketing, Prentice Hall International, First edition, 1993

[68] James (b) et al, technology in services: creating organizational revolutions, Sloan management review, vol 31 (02), p.50, January 1990

[69] Zeleke (T), impact of service quality on customer satisfaction at the public owned national alcohol and liquor factory,P32,33, Ethiopia, January 2012

- **Intangibility**

Services have no physical existences because are performances or actions that cannot be seen, touched, smelled, heard, or tasted prior to purchase. Services are transient performances that can be experienced only as they are delivered, customers could not check and consume a service until they proceed with the purchase, which in turn creates difficulties and hesitance for consumers when making their buying decision and therefore fluctuations in demand are often difficult to manage.

- **Perishability**

Perishability of a service refers to the fact that It is impossible to store, preserve or return services for future usage or sale. They are produced and consumed completely at the time being provided to the customers.

- **Inseparability**

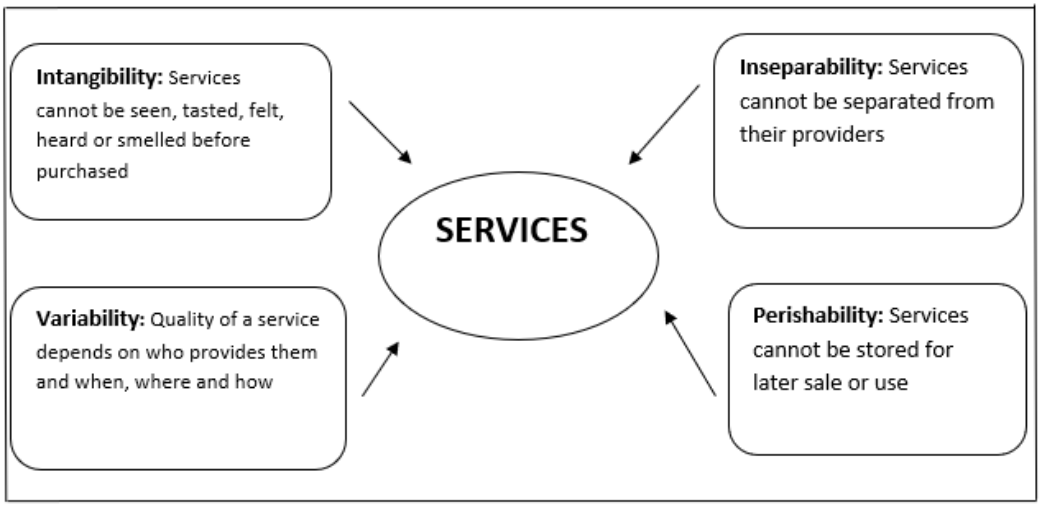
Services cannot be produced and then sold at a later time Because the service must be performed and consumed at the same time so it is impossible to separate from its providers, Customers are usually present while the service is being produced and therefore views and, in many cases, is involved in the production process.

- **Variability (Or inconsistency)**

Refers to the uniqueness of each service. Because services are produced and consumed simultaneously, they cannot be identical so services are always unique the quality of services varies significantly depending on provider, time, location and circumstances even though name and description of services can be identical, in other words, a service only exists once and never exactly repeated.

Above are four main characteristics of services approved by many researchers. Some other studies also showed different angles of services such as heterogeneity, variable pricing rules or fluctuating demands. However, they all have correlation or just are further explanation of those four discussed characteristics.

FigureII.1: Characteristics of Service



Source: P. Kotler and Armstrong, «Principles of Marketing», 2006, p258

1.2.2. Service Marketing Mix in Maritime Transportation

As any service sector, maritime transportation service marketing mix is composed by three elements: People, process and physical evidence[70].

- **People**

"All human actors who play a part in service delivery and thus influence the buyer's perceptions: namely, the firm's personnel, the customer, and other customers in the service environment", the humans' actors in maritime transportation are the people who has a direct interference with clients and also the clients themselves.

- **Process**

"The actual procedures, mechanisms, and flow of activities by which the service is delivered the service delivery and operating systems", this process in maritime transportation summaries in various stuff like the application of electronic data exchange in customer operation and control different aspects such as time and regularity of different services offered by the company.

[70] Zeithaml (V). and M.Bitner, Services marketing: integrating customer focus across the firm, 2rd Edition, P.19-20,2000.

- **Physical Evidence**

"The environment in which the service is delivered and where the firm and customer interact, and any tangible components that facilitate performance or communication of the service "tangibility in maritime transportation included all the company equipment's like vessels, containers and the company headquarters.

1.2.3. Service Excellence

Johnston proposes four major issues that determine service excellence in pure services sectors[71]:

- **Delivering the Promise**

"Walking The talk" Which means doing what to say to the customer Under-delivery on promises amounts to letting down the customer and will cause them to be dissatisfied and be disloyal to the organization. Marketers should thus desist from this tendency of "over promising" to their customers.

- **Personal Touch**

Giving the customer a lot of attention when dealing with him. This may involve giving the customer more time, developing an understanding in order to know him/her well and their business and building a long term or permanent relationship that goes beyond the usual business transaction.

- **Going the Extra Mile**

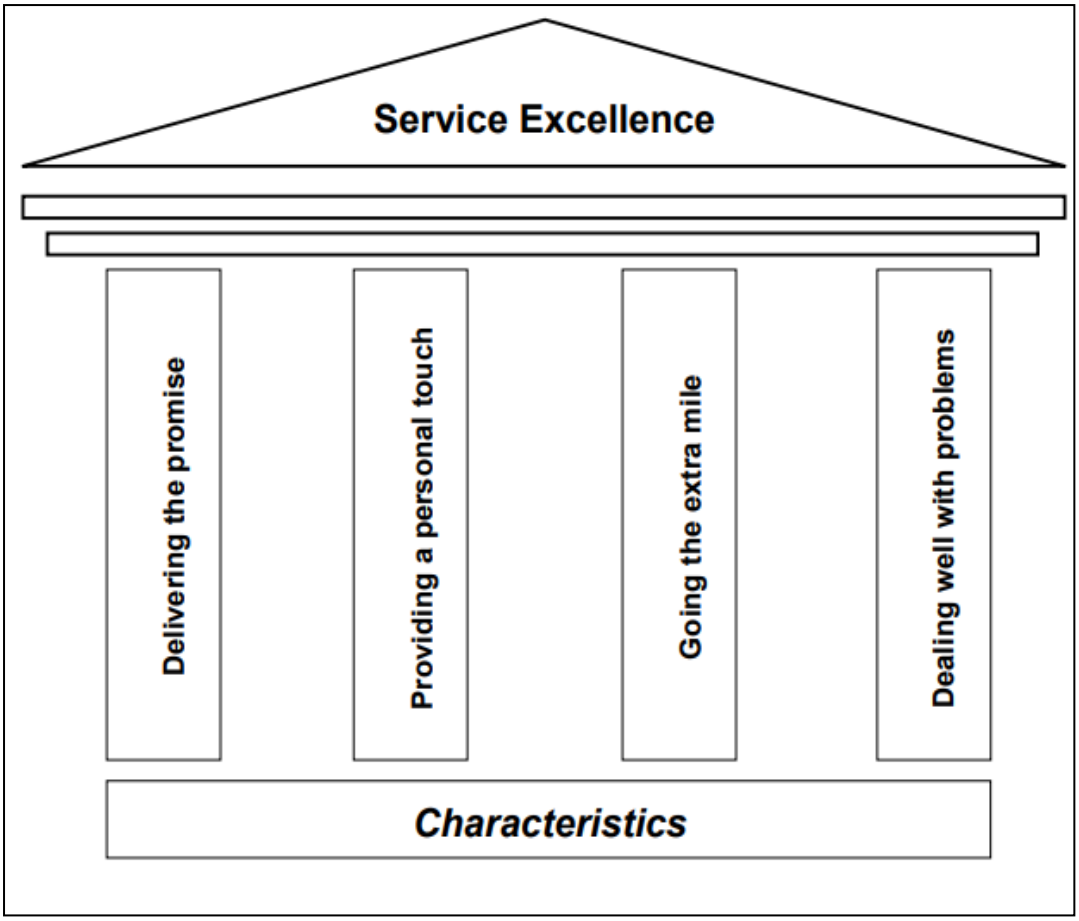
By taking the initiative and explaining the product in details and taking the initiative to contact clients and not wait for the customer to follow up.

[71] Johnston (R), towards a better understanding of service excellence, journal of service theory and practice, vol 14 (02), P.129-133, April 2004

- **Solving Problems and Queries**

Which means being open to the issues that the customer encounter, being open, honest and show integrity.

FigureII.2: Characteristics of Service Excellence



Source: Johnston (R) «towards a better understanding of service excellence » P.123

1.3. Customer Satisfaction

One of the most important approaches to identify quality of a service in general and in maritime transportation in particular is to know how much the customers are satisfied and for it, customer satisfactions has been one of the greatest tools for a successful business.

Customer satisfaction is defined as an overall evaluation based on the total purchase and consumption experience with the good or service over time[72]

Customer satisfaction also comes along with it which means it ascertains the expectation of the customer on how the goods and services are being facilitated by the companies. Actionable information on how to make customers further satisfied is therefore, a crucial outcome[73]

Customer satisfaction is the obvious need for satisfying the firm's customer is to expand the business, to gain a higher market share, and to acquire repeat and referral business, all of which lead to improved profitability[74].

1.3.1. Requirements of Customer Satisfaction

The model proposes three different categories of customer requirements, which are basic factors (Normal Requirements), excitement factors (Excitement Requirements) and performance requirements (Expected Requirements).

- **Basic Factors:**

(Normal Requirements are like dissatisfies, which must have) These are the minimum requirements, which will cause dissatisfaction if they are not fulfilled, but do not cause customer satisfaction if they are fulfilled (or are exceeded).

- **Excitement Factors**

(Exciting Requirements) (Satisfiers Attractive.) Such factor increases customer satisfaction if delivered but do not cause dissatisfaction if they are not delivered. These factors surprise the customer and generate 'delight'. Using these factors, a company can really distinguish itself from its competitors in a positive way. But if these additional schemes are not available then it won't increase the customer dissatisfaction level.

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[72] Fornell (C), et al the American customer satisfaction index: nature, purpose, and findings, journal of marketing vol 60 (04), October 1996

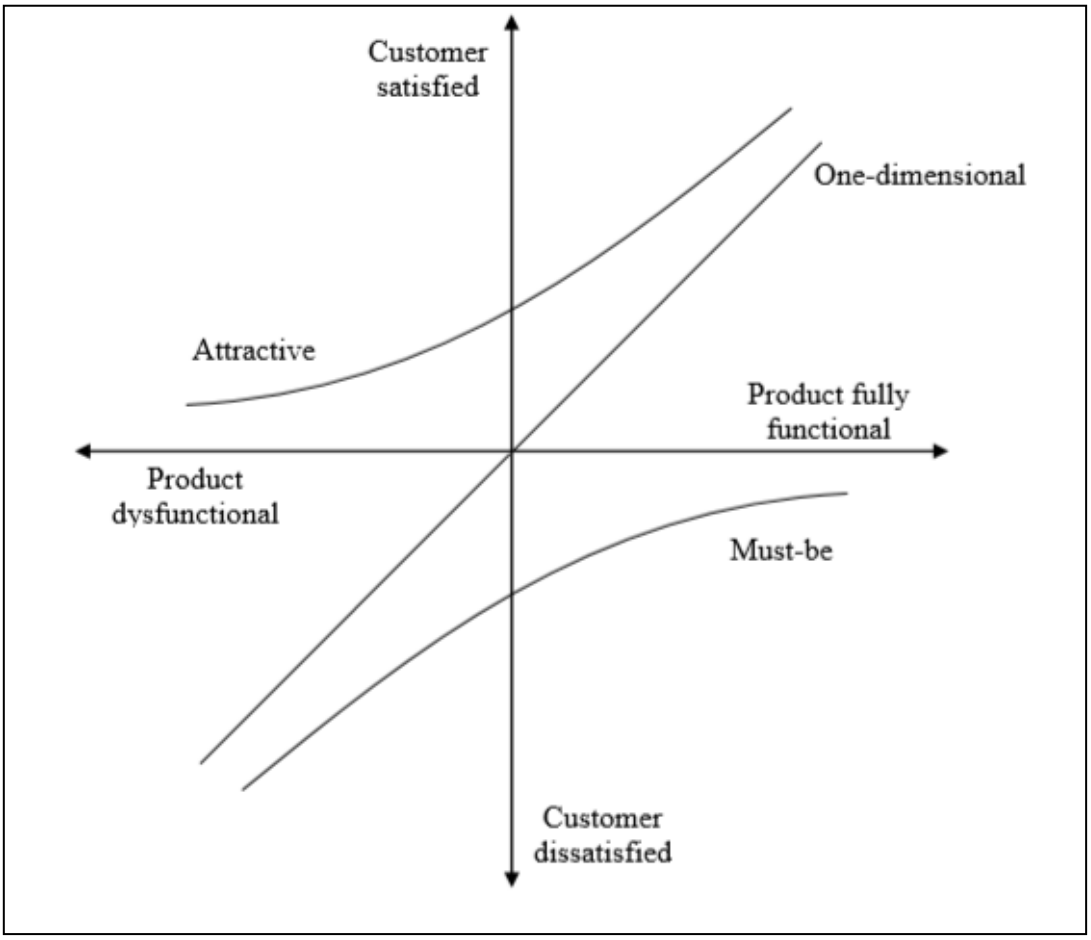
[73] Oliver (J), whence consumer loyalty. Journal of marketing, volume 63 (04), p 33-44, October 1999

[74] Barsky (J), customer satisfaction in the hotel industry, measurement and meaning, hospitality research journal, vol 16 (01),p20-41,1992

- **Performance Factors:**

(Expected Requirement) These are the expected factors, which cause satisfaction if the performance of such factors is high, and they cause dissatisfaction if the performance is low. Such attributes are like customer care, handling bills or information from service providers. If the customers get the updated information from time to time then it increases the performance & so is the satisfaction level.

Figure II.3: Kano Diagram



Source: Berger, C. et al: Kano's «methods for understanding customer-defined quality, Centre for Quality Management Journal»,1993, Vol. 2, P 3-35

1.3.2. Influence of Customer Satisfaction

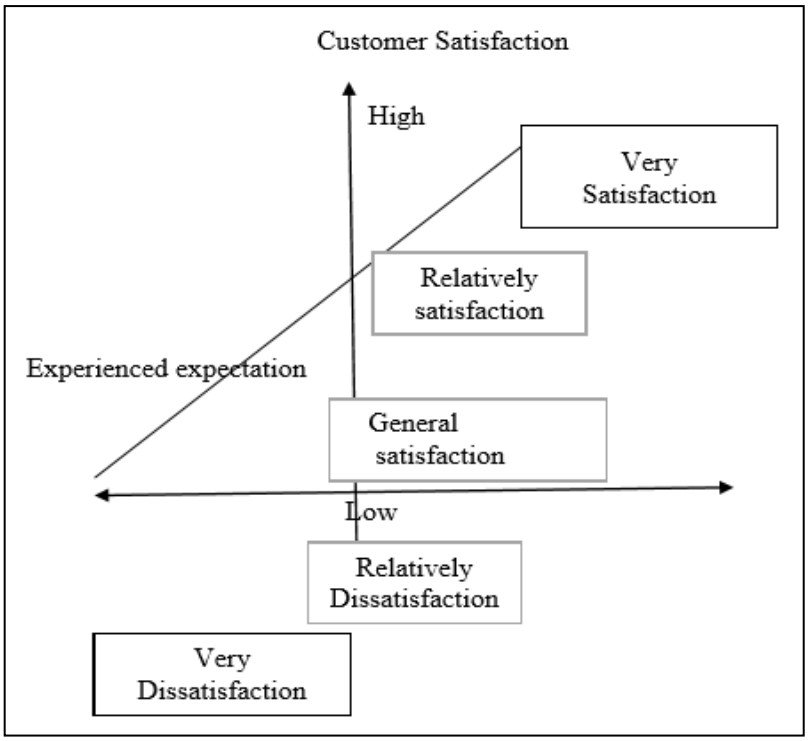
Customer satisfaction is influenced by many Elements such as the maritime services features and quality, it can also be in influenced by customer's emotional responses and their attributions nether perception of equity, achieving it can lead to many benefits like customer

loyalty, extending the life cycle of a customer expanding the life of merchandise the customer purchase and increases customers positive word of mouth communication.

If the customers are satisfied with the service of the maritime company that will make him loyal to it and also recommend the services to potential customers.

Ignoring or disregarding the customers' needs specially in maritime transportation services "pure services sector" prevents the maritime company from growing up.

Figure II-5: Tao Measurement of Customer Satisfaction



Source: Tao, F. «Customer Relationship management based on Increasing Customer Satisfaction. International Journal of Business and Social Science», p.257, April 2014

Section 2: Measuring Service Quality

Service quality is one of the most substantial issues of global economy nowadays, especially in a sector like maritime transportation.

In this section, we will talk briefly about the concept of service quality and also the interaction of quality with the maritime transportation services and in the end, we will talk about models that can measure service quality in pure service sectors.

2.1. Service Quality

"Service quality, as perceived by customers, can be defined as the extent of discrepancy between customers' expectation or desires and their perceptions. […] Service-quality perceptions stem from how well a provider performs vis-à-vis customers' expectations about how the provider should perform[75]".

Lewis & Booms said: Service quality is a measure of how well the service delivered matches customer expectations. Delivering quality service means conforming to expectations on consistent basis[76].

Bitner et.al (1994): "Service quality as the consumer's overall impression of the relative inferiority/ superiority of the organization and its services"[77].

2.2. Characteristics of Service Quality

To understand what service quality is, Zeithaml, Parasuraman & Berry describe the characteristics of service leaders in term of quality[78].

- **Service Vision**

This refers to the service as an integral part of the firm itself. Service leaders see the quality of service as the foundation for competing. Service leaders also understand that service quality is never ending, requires continued improvement and regular adaption.

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75 V.Zeithaml (V) et al ,Delivering quality service : balancing customer perceptions and expectations »,p.16-19, first edition, Simon and Schuster,1990.
76 W.Barton (W) and Wensley (R), Handbook of Marketing » second edition, sage, p 340, 2000.
77 Bitner (M) & Hubbert (A) Encounter satisfaction versus overall satisfaction versus quality: the customer's voice. Service quality» Sage publications, P77, London,1994,
78 Parasuraman (A) et al, A conceptual model of service quality and its implications for future research, Journal of Marketing, Vol 49 (4),p 5-7, September 1985.

- **High Standards**

Service leaders aim to offer legendary service as goods themselves are not sufficient to differentiate from competitor firms. Attention to detail is paramount and attention to small actions that competitors may see as trivial sets the tone for handling the bigger issues. Service leaders are enthusiastic about the service being right the first time with zero defects and improving the reliability of the service.

- **Leadership Style**

Service leaders lead in the field and not from their desks. Not only are they then visible to the customer, but also to the customer contact personnel. As a result, service leaders are able to see the customer interaction and guide their staff accordingly. In the field approach can also stimulate teamwork in the firm.

- **Integrity**

Service leaders show the essential characteristic of integrity. Integrity is achieved by doing the right thing even if the circumstances don't call for it. A premium is placed on being fair, consistent and truthful. The reward for this integrity is the trust of those associated, and without trust there won't be any followers. Service leaders recognize the interconnection between service excellence and employee pride, and appreciate that it is formed by their management.

2.3. Quality in Maritime Transportation Services

The quality of maritime transportation services can be defined as : "the totality of features and characteristics of the transportation infrastructure ,traffic superstructure and conditions of carriage of goods (cargo, material goods), people and energy on which depends their ability to satisfy express or expected (assumed) requirements and customer needs"[79] From the aspect of maritime transportation , transportation infrastructure and traffic superstructure relate to the ships and the port infrastructure as the place of acceptance of these vessels in

[79] Poletan-Jugović , A contribution to the definition of transportation -logistics services offered on a transportation route (in Croatian), Pomorstvo. 2007 Dec 21, P.97

terms[80] of performance of commercial operations, i.e. loading / unloading of goods, people and energy. Furthermore, the quality of maritime transportation services can be analysed from two basic standpoints:

- Quality of processes that take place within a navigation system in maritime transportation.
- Quality of maritime transportation services from the perspective of users.

2.3.1. Aspect of Quality in Maritime Transportation Services

The notion of quality of maritime transportation services can be observed from several aspects like[81]:

- Research, analysis and identification of the requirements of potential users of maritime transportation services.
- Ensuring all necessary prerequisites for the effectuation of the services taking place in accordance with the designed service characteristics and the application of information technology.
- Provision of services in accordance with the defined characteristics of maritime transportation: the achieved level of quality in the complete transportation.
- Chain from the sender to the recipient and taking preventive measures, adequate measures and procedures in order to meet users' requirements.

2.3.2. Principles of Maritime Transportation Services

Maritime transportation services have 7 principles that define it which are[82]:

- **Principle of Complexity**

It is based on the interaction, interconnectedness and conditionality to study all the causes and consequences of all the factors that define a maritime transportation service.

[80] Samija (S) et al, systematic approach to determining the factors of quality of maritime transport service, UDC / UDK: 656.61:658.56, p123,November 2015
[81] Samija (S) et al, systematic approach to determining the factors of quality of maritime transport service, UDC / UDK: 656.61:658.56, p125-126,November 2015
[82] Idem

- **Principle of Unity**

It contains all the subsystems and all the elements that define the system of maritime transportation as an integrated, dynamic system, in other words all factors and changes that effect the final state of the sector should be.

- **Principle of Dynamism**

Because the system of maritime transportation is a complex, flexible and dynamic, that make it dependent on a large number of elements and make those elements able to affect its proper functioning, change in one element or factor affects the functioning of other elements, factors and the system as a whole.

- **Principle of Interdisciplinarity**

Maritime transportation is an interdisciplinary branch whose implementation is made possible through the interaction of a large number of aspects such as: the national economy, the international market, social and political aspect, international environment…etc

- **Principle of Orientation Towards Decision-Making**

Because of the technological development and constant changes in global economic trends, modern international maritime transportation has to continually improve and develop the quality and efficiency of its services to the satisfaction of numerous users in the transport chain.

- **Principle of Self-Organization**

The maritime transportation company system should be organized in a way that bit is adaptable to the changed conditions on the market and that by being able to self-organize and adapt to the changes in the environment and the changes in user requirements of maritime transportation services.

- **Principle of Openness**:

Assumes connecting the maritime transportation system with other systems, for example with the system of rail or road transport, i.e. the possibility of unifying transport services in a multimodal[83] or intermodal[84] concept.

2.4. Service Quality Models

There are many models to measure and identify service quality specially in pure service sectors such as maritime transportation, the next section will focus on variety of the models that can measure service quality.

2.4.1. Grönroos Model

Grönroos model was the first model that tried to measure quality of service by comparing perceived performance and expected service (the quality of service as perceived by customers) and it did not offer any technique on measuring technical and functional quality[85].

According to Grönroos the quality of service as perceived by customers has two dimensions;

- Technical or outcome dimension (What the customer receives)
- Functional or process-related dimension (How the customer receives it)

Grönroos found that service quality is most important determinant of image. Thus, a customer's experience with the products and services is considered to be the most important factor that influences his mind in regard to image. Furthermore Grönroos also emphasized the importance of corporate image (marketing communication, word of mouth, tradition, ideology, customer needs and pricing, marketing communication includes advertising, direct mail, sales promotion, websites, internet communication and sales campaigns) in the experience of service

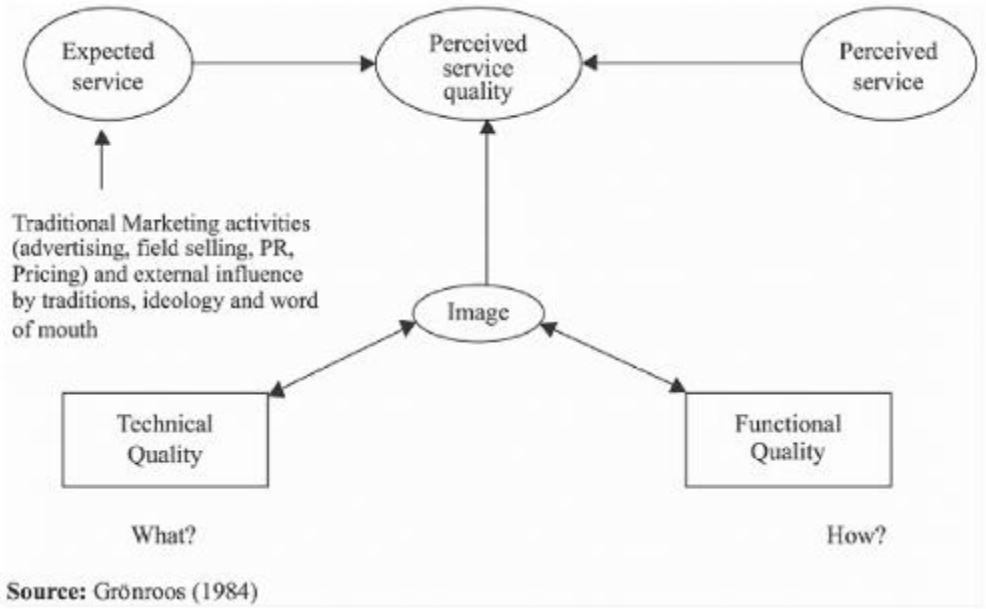
[83] Multimodal transport (or combined transport) is per definition a combination of at least two or more different modes to move your cargo from a place in one country to another country

[84] Intermodal is the use of two modes of freight, such as truck and rail, to transport goods from shipper to consignee. The intermodal process usually begins with a container being moved by a truck to a rail, then back to a truck to complete the process.

[85] Grönroos (c), a service quality model and its marketing implications, European journal of marketing, vol 18 (04),p36-44, April 1984

quality, Customers bring their earlier experiences and overall perceptions of a service firm to each encounter because customers often have continuous contacts with the same service firm. Therefore, image is another important component in the perceived service quality model. If a service provider has a positive image in the minds of customers, minor mistakes will be forgiven. If mistakes often occur, however, the image will be damaged. If a provider's image is negative, the impact of any mistake will often be magnified in the consumer's mind.

FigureII.09: Grönroos Model



Source: A. Grönroos, «A service Quality model and its marketing implications. European Journal of marketing», 1984

2.4.2. Gaps Model

The Gaps Model was developed by Parasuraman et al, based on results from empirical research. The in-depth study of service businesses consisted of personal interviews with executives from various areas of the firms, to understand their perception of service quality expectations versus focus customer groups[86].

[86] Parasuraman et al : A Conceptual Model of Service Quality and Its Implications for Future Research. Journal of Marketing, 1985

The Gaps Model identifies five organizational gaps within the process of service design and delivery that causes deficits in quality, leading to unsatisfied customers, a six gap was proposed by C. Lovelock and J. Wirtz, all the gaps are mentioned below:

- **First Gap-The Knowledge Gap**

It is the difference between what senior management believes customers expect and customers' actual needs and expectations. The reasons for this gap are lack of adequate market research and lack of upward communication. This gap can be narrowed by adopting adequate research programs to know customer needs and to improve the communication system.

- **Second Gap-The Policy Gap**

it is the difference between management's understanding of customers' expectations and the quality standards established for service delivery. We call it the policy gap because the management made a policy decision not to deliver what they think customers expect. Reasons for setting standards below customer expectations typically include cost and feasibility considerations, this gap exists in service firms because of the lack of whole hearted commitment of management to service quality, inadequate service leadership etc. It can be closed by standardizing service delivery process and setting proper organizational goals.

- **Third Gap- The Delivery Gap**

it is the difference between specified service delivery standards and the delivery teams and service operations actual performance on these standards. The third gap originates from the discrepancies in the actual service delivery, that is, the service providers or employees do not perform at the level expected by the management. It is because of the ineffective recruitment, lack of proper incentives and motivations etc. This gap can be eliminated by providing the employees with adequate support system, better human resource management system etc.

- **Forth Gap-The Communications Gap**

it is the difference between what the company communicates and what it actually delivers to its customers. This gap is caused by two sub-gaps.8 First, the internal communications gap is the difference between what the company's advertising and sales personnel think are the product's features, performance, and service quality level and what the

company actually is able to deliver. Second, the overpromise gap that can be caused by advertising and sales personnel assessed by the sales they generate can lead them to overpromise.

- **Fifth Gap- The Perceptions Gap**

It is the difference between the quality delivered to the customer and the quality perceived by the customer. This gap exists because of the inequality in the service expectation of customer and his service perception. This can be overcome by identifying, quantifying and monitoring customer expectations and perceptions through the effective use of marketing and marketing research tools.

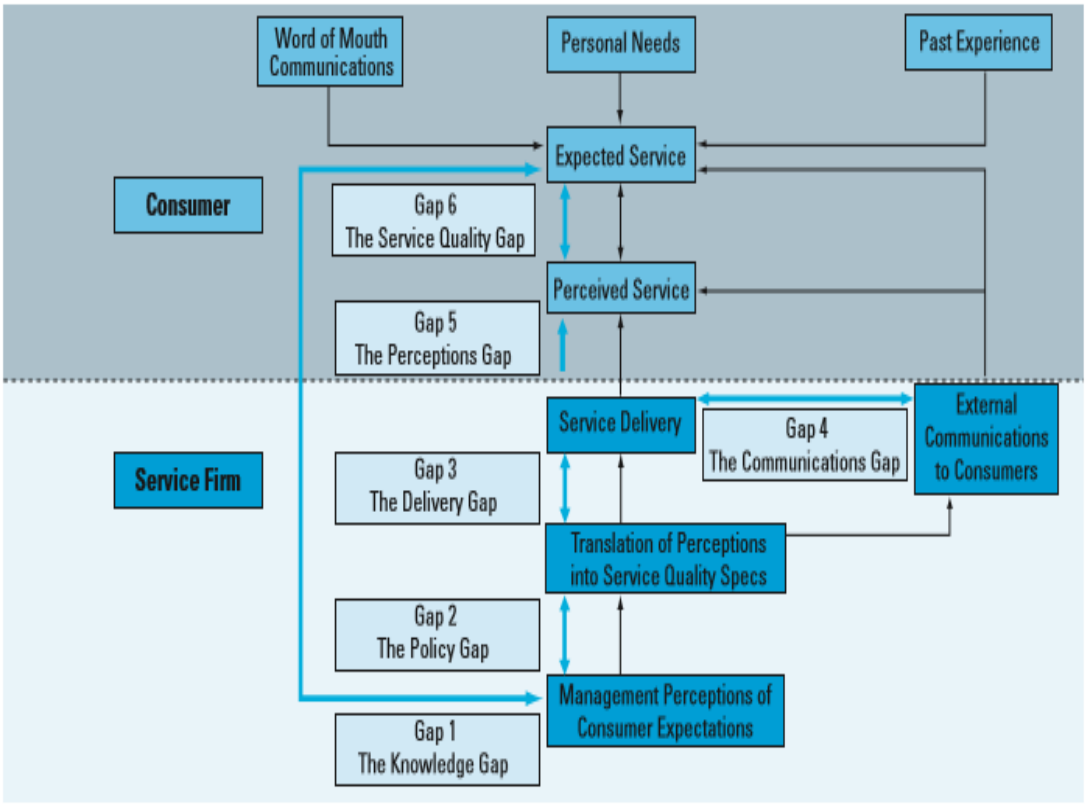
- **Sixth Gap- The Service Quality Gap**[87]

It is the difference between what customers expect to receive and their perceptions of the service that actually is delivered

In this model, gaps 1, 5, and 6 represent external gaps between the customer and the organization. Gaps 2, 3, and 4 are internal gaps occurring between various functions and departments within the organization.

[87] Lovelock (c) and Wirtz (j), service marketing: people, technology, strategy, seventh edition, world scientific (us), p 385,January 2011

FigureII-10: The Gap Model



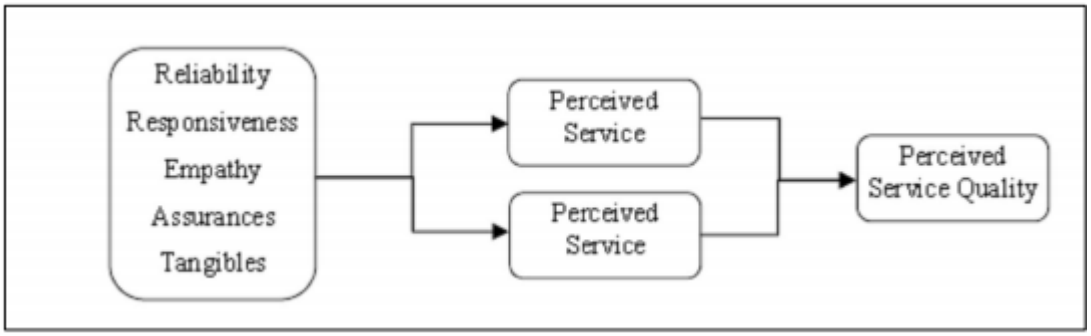
Source: C. Lovelock and J. Wirtz: «Service Marketing: People, Technology, Strategy», , P 386

2.4.2.1. SERVQUAL Model

SERVQUAL model Based on gaps model, Parasuraman, Zeithaml, & Berry made the new model of service quality measurement. They try to cover the weakness of Grönroos model by offering a new way for measuring service quality. In SERVQUAL model, they suggest to use the gap or difference between expected level of service and delivered level of service for measuring service quality perception with five dimensions: Reliability, Responsiveness, Assurances, Empathy, and Tangibility, SERVQUAL is an analytical tool, which can help managers to identifying the gaps between variables affecting the quality of the offering services, This model is the most used by marketing researchers and scientists, although it is an exploratory study and does not offer a clear measurement method for measuring gaps at different levels. This model has been refined during the years and some believe that only performance needed to be measured as SERVPERF model in order to find perception of service

quality. Finding in years of using this model shows SERVQUAL factors are inconsistent and it is not comprehensive for different applications[88].

FigureII.11: SERVQUAL Model



Source: A. Parasuraman, «SERVQUAM: A Multiple-Item Scale for Measuring Consumer Perceptions of service quality Journal of Retailing»,1988

Table II.2: SERVQUAL DIMENSIONS

Dimension	Definition
Tangibles	Appearance of physical facilities, equipment, personnel, and communication materials
Reliability	Ability of perform the promised service dependably and accurately
Responsiveness	Willingness to help customers and provide prompt service
Assurance	Knowledge and courtesy of employees and their ability to convey trust and confidence
Empathy	Caring, individualized attention the firm provides its customers

Source: A.Parasuraman : Servqual: A Multiple-Item Scale for Measuring Consumer Perceptions of service quality Journal of Retailing,P.5-7,1988

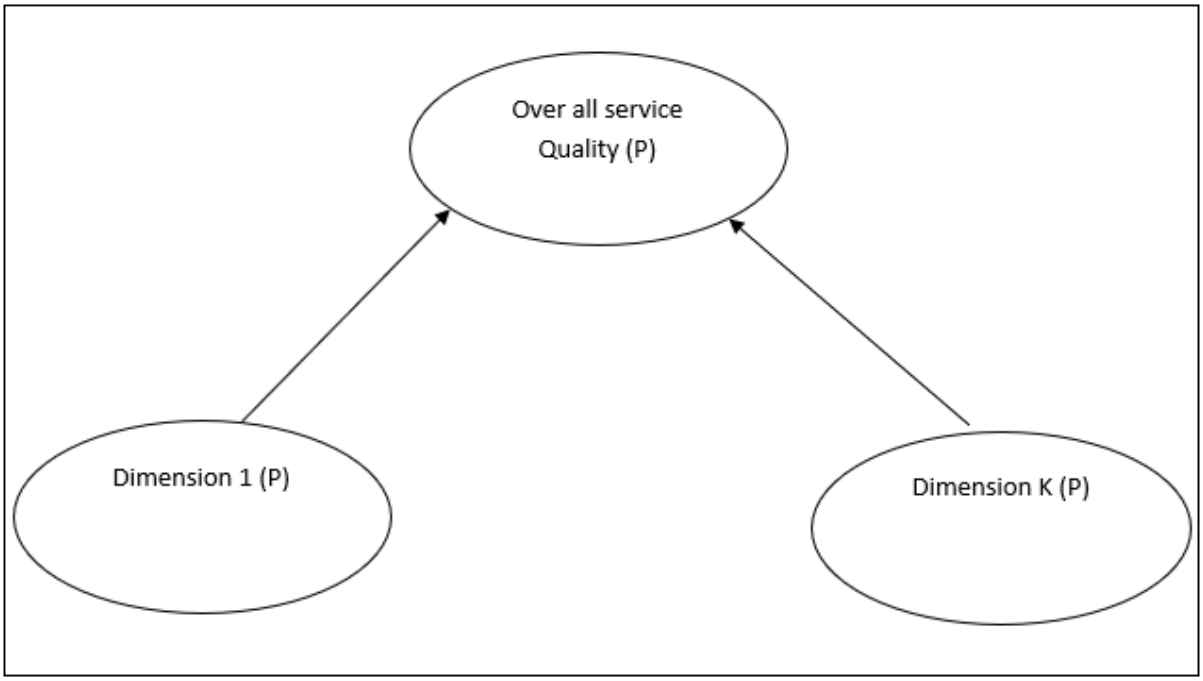
[88] A.Parasuraman : Servqual: A Multiple-Item Scale for Measuring Consumer Perceptions of service quality Journal of Retailing,P.5-7,1988

2.4.2.2. SERVPERF Model[89]

Cronin and Taylor in their empirical work created the SERVPERF model, it is an alternative model to SERVQUAL that measures experiences without caring about the expectations, which means that SERVPERF uses only the perception part of the previous model.

As the SERVPERF model assume, service quality is predicted by perceptions of actual service received only and not as the difference between perceptions and expectations as suggested by SERVQUAL model.

FigureII.11: SERVPERF Model



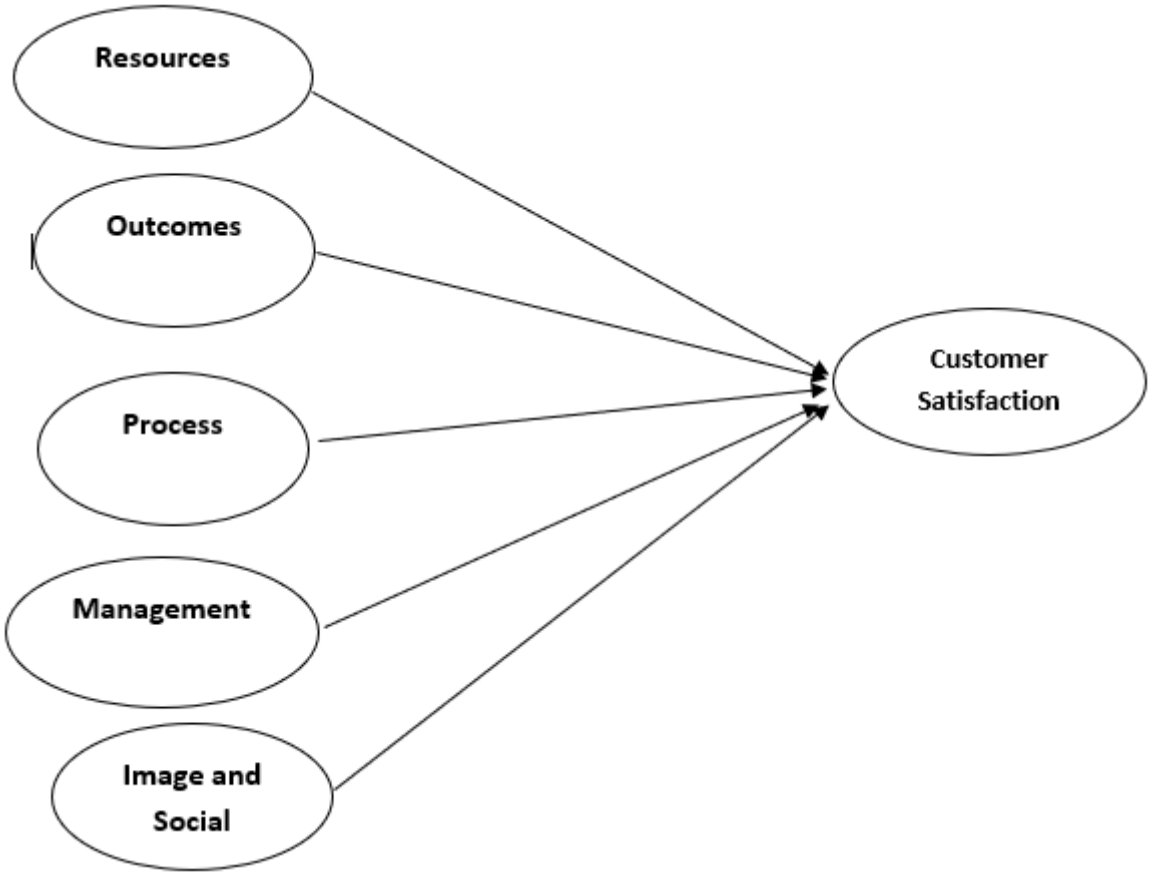
Source: Cronin, J. Joseph and Taylor, Steven A, «Measuring service quality: A re-examination and extension», 1992

[89] Cronin, J. Joseph and Taylor, Steven A. (1992), "Measuring service quality: A re-examination and extension", Journal of Marketing, Vol. 56, No.3, pp. 55-68

2.4.3 ROMPIS Model

Vin V Thai in 2015 developed a measurement model (ROPMIS) to explore the concept of service quality in maritime industry. This model consists of the following five dimensions: resources, outcomes, process, management, and image and social responsibility. This model incorporated newly developed elements, such as management, image and social responsibility, on the basis of a comprehensive review of various service quality dimensions and factors in previous studies.

FigureII.12: ROMPIS Model



Source: G.T.Yeo and S.Y. ROH, « An Analysis of Port Service Quality and Customer Satisfaction: The Case of Korean Container Ports», The Asian Journal of Shipping and Logistics, P.437-447, November 2015,

Conclusion

In this chapter we understood the meaning of service, quality and customer satisfaction, also their interfering with maritime transportation

In the case of pure services business-like maritime transportation, service quality implies the design and implementation of all necessary activities based on the analysed needs of service users, whose main goal is to achieve profitability, competitiveness and the corresponding position in the maritime transportation market and that will be very critical in determining customer satisfaction.

We also conclude that there are many models of service quality that we have to know in order to measure and evaluate service quality in maritime transportation.

CHAPTER III: Evaluating the Importance of SQ Dimensions and Factors in Liner Shipping

CHAPTER III: Evaluating the Importance of SQ Dimensions and Factors in Liner Shipping 60

Introduction:

In the previous chapters we dealt with the related elements to the researched topic which is, “Service Quality in International Maritime Transportation and each relation with customer satisfaction”. We also illustrated the impact of service quality on customer satisfaction.

The practical chapter contains two sections. First section is a presentation of the internship company MARFRET ALGIERS while the second one explains the adopted method in our research. It is followed by a practical illustration of SERVUQAL Model which we will use for the analysis of our data and other information related to sampling, survey design and data collection sampling method. Finally. We completed with the results of research and the answers to the problematic.

CHAPTER III: Evaluating the Importance of SQ Dimensions and Factors in Liner Shipping

Section 1: Presentation of the Internship Company

This section is a presentation of our internship company, "MARFRET ALGIERS", which is shipping agent for the French liner shipping company MARFRET in the Algerian market. We will present about its history, services, objectives and other related information concerning its activity.

1.1. History of MARFRET

MARFRET ALGIERS is a shipping agent for the French liner shipping company MARFRET on the Algerian market. It was established under the contract signed on January 1st, 2008; it is entitled by the contract to accomplish:

- Tax and custom formalities that follows the agency ship's operations.
- disbursement account of the expenses and payments, along with the necessary documents.
- Collection of due funds from the agent to the company and vis-versa.

MARFRET ALGIERS subcontracts the administrative and exploitation work to the port agent MONDIAL SHIPPING, while keeping the responsibilities mentioned above. It is managed by RABIA Lamine. Its situated at, 24 Boulevard Zirout Youcef, Alger-ALGERIE.

1.2. Objective of MARFRET Algiers

MARFRET Algiers works with B to B. its objective is to assure the continuity of the weekly line between Marseille and Algiers by handling shipments and cargo, and the general interests of its customers on behalf of the ship owners.

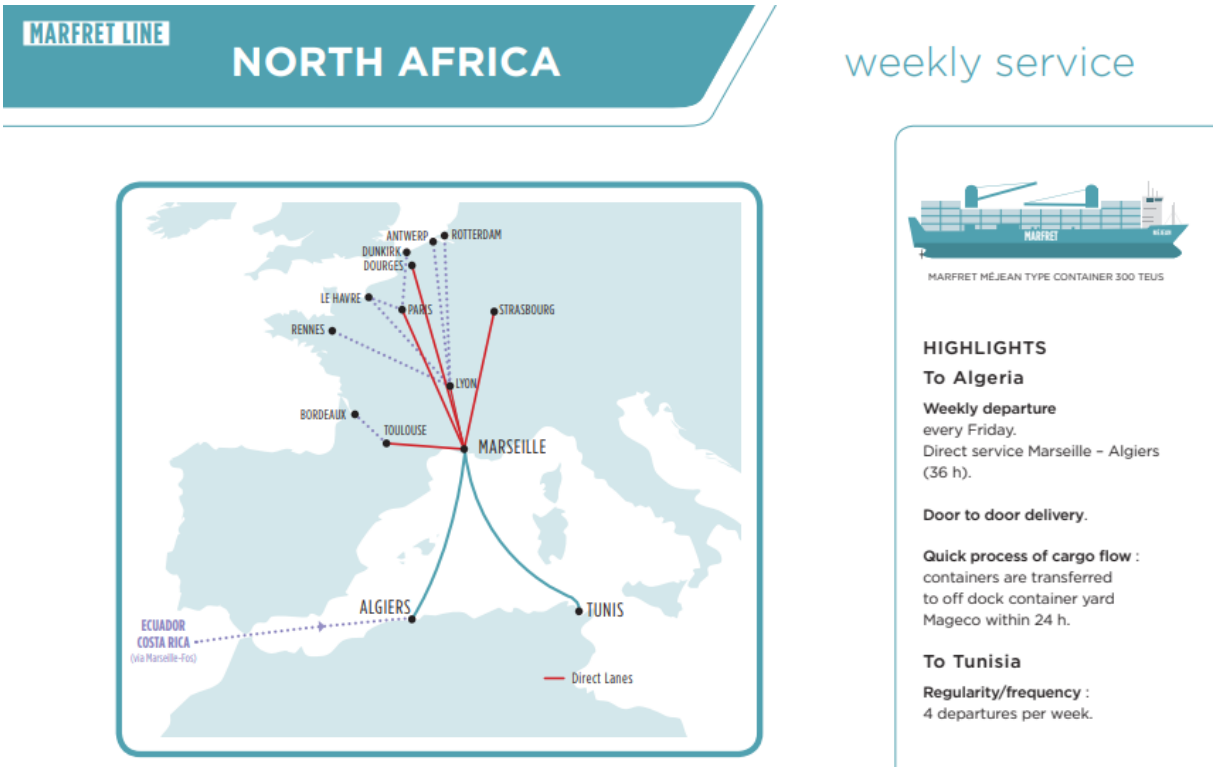
1.3. The Service Offered by MARFRET Algiers

MARFRET ALGIERS ensures a regular line with a weekly departure with a transit time of 36 hours.

The Import is conducted every Friday from the port of Marseille while the Export: is conducted every Monday from the port of Algiers.

This rotation is carried out by the chartered vessel which is a containership "Saumaty", with a capacity of 350 TEU and a 99m length. The containers are quickly evacuated, are cleared at the dry port which offers all customs services and also ensures unbundling.

Figure III-1: MARFRET's WEEKLY LINE (NORTH AFRICA)



Source: company document.

1.4. Missions of MARFRET Algiers

The missions of MARFRET Algiers are:

- It provides the shipping company with updates and reports on activities at the destination port so that shipping companies have real-time information available to them while goods are in transit Doing clients prospection and follow-up.
- It monitors the vessels from their arrival until their departure.
- It ensures that essential supplies, crew transfers, customs documentation, and waste declarations are all arranged with the port authorities without delay.
- It does client's prospection.

- It does client follow-up and debts collection.
- It Negotiates and concludes of contracts.
- It does freights research.
- It Declares the “cargo manifest” to the customs services.

1.5. The Containers Used by MARFRET

The containers used by MARFRET have been built in accordance with technical requirements of the following standards and regulations:

ISO: About containers specification and testing.

TIR: TIR customs standards using the type approval system.

CSC: Requirements and terms of International Convention for safe containers.

UIC: Requirements and terms of international Union of Railway for rail transport.

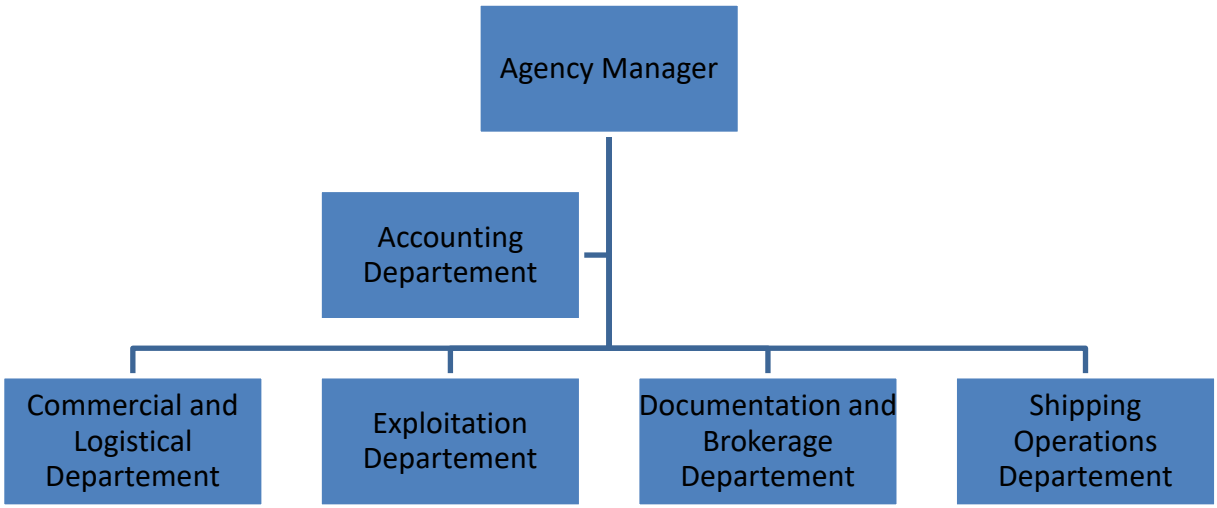
TCT: All wood components to Australian Quarantine Requirements.

Table III-1: Types of Containers Used

Container Type	Merchandise Type
20’ et 40’ DRY	Cargo That doesn’t require a particular condition or manutention.
40’ HIGH CUBE	Higher type of cargo.
20’ et 40’ REEFER	Cargo that requires a temperature control (-25°C to +25°C).
20’ et 40’ FLAT	Large and heavy cargoes which cannot be loaded into containers with fixed sides or walls.
20’ et 40’ OPEN TOP	Over height or over lengthy cargo or both.
40’ PLATFORM	Oversized, heavy load and awkward project cargoes which cannot be transported in other types of container.

Source: company document

1.6. Organisational Structure of MARFRET ALGIERS



Source: company document

MARFRET ALGEIRS is managed by a manager who supervises the exploitation and operational activities as well sending reports to the shipowners

1.7. The Departments of MAFRET ALGEIRS.

MARFRET is divided into various department, each department has a set of responsibilities and missions to accomplish which are as follows:

1.7.1. Account Department

The accounting department or financial department is responsible for maintaining the books of accounts (all incomes and costs) and draws up the balance sheet and the profit/gain and loss account. It also is responsible for banking transactions, cash management, portfolio management, company tax liability and payment, etc.

1.7.2. Commercial and Logistics Department

The tasks accomplished in the Commercial and Logistical Department are:

- Commercial prospecting.
- Updating tables of contracted and non-contracted customers.
- Organising meetings.
- establishing tables for organized visits, statistics, meeting and report.
- Making Follow-up of deductibles and fees granted to customers.
- Follow-up of damaged Tcs and receipt of reserve letters.

1.7.3. Exploitation Department

The tasks accomplished in the Exploitation Department are:

- Editing bills of lading at destination for customers.
- Delivering bills of lading to customers.
- Sending notices of arrival to contracted customers.
- Making Quotation update on G4 (quotation software).

Other administrative tasks are:

- Telephone and physical reception.
- Welcome and inform customers about berthing, notices, folds, container tracking.
- Customer follow-up and payment of supplier invoices.
- The reception and drafting of mails.
- Classification and archiving of administrative files and commercial documents.
- Preparation purchase orders.
- Making Follow up on invoicing.

1.7.4. Documentation and Brokerages Department

The tasks accomplished in the Documentation and Brokerages Department are:

- Creation of the ship’s call.
- Entry of manifest D1.

- Introduction of the vessel to customs.
- Preparation of the commercial file.
- Processing of export freight booking requests in coordination with the sales department.
- Confirmation of export bookings in coordination with the shipping department.
- Receipt of docking slips prepared by shippers and checking of information concerning the ship's call.
- Visa from the shipping department for validation of the booking of the goods for export on the requested vessel.
- Visa from the sales department to check the conditions of transport, freight rates and Payment terms granted to shippers.
- Transfer of the export manifesto to EPAL handling services.
- Transmission of the agreement to the shipper for transfer of the goods to the dock and instructions to the shipping department for boarding.
- Preparation of the cargo and accounting manifest.
- Preparation of the boarding notice.
- Delivery of cargo manifest, B/L and documents to the shipping department.
- Transmission of export documentation.
- Recovery of boarding states.

1.7.5. Shipping Operations Department

The tasks accomplished by the shipping operations department are:

- Finding a dock for the ship.
- Making the port conference.
- Ensuring the boarding of the vessel.
- Making daily reports.
- Taking the ship out.
- Following handling operations closely in order to set a good exit time.

Section 2: Methodology and Results of Research

In this work, we used both primary and secondary data "triangulation" to analyse the research topic.

Secondary data was collected from reliable printed information as well as electronic sources like E-books, journals, articles and other relevant sources which was collected from the cornerstones and implication related to the case.

Primary data was obtained from questionnaire and observation we made during our internship period.

2.1. Research Methodology

In order to answer our problematic: « **How can MARFRET ALGIERS offer and evaluate the service quality that its clients expect? »**, we put the following hypotheses:

H1: Quality of maritime transportation services is a construct of 30 factors associated with SERVQUAL five dimensions.

H2: The most important factors are transit time and frequency of transit, and the most important dimension is process.

H3: Customers are satisfied by the services they are getting from MARFRET ALGIES.

we will use both quantitative and qualitative Paradigm "mixed model research"[90] to meet our objectives because the approach of this case study involves various data sources like questionnaire, archives and observations[91].

First, we used the existing literature to develop SQ dimensions for maritime transportation. Secondly, a questionnaire was administered to the users of container (liner) shipping services. Finally, the collected data was analysed using "the internal consistency

[90] Mixed model research is research in which the researcher mixes both qualitative and quantitative research approaches within a stage of the study or across two of the stages of the research process

91 Eisenhardt (K), Building Theories from Case Study Research'. Academy of Management, vol 14 (04),October 1989, P 532-550

reliability and Z test[92]" to estimate the importance of the dimensions and factors on customer satisfaction

Although, there were numerous Models to measure service quality in maritime transportation, our model was mostly inspired by SERVQUAL model, which is a prominent model consisting of five SQ dimensions. The model can be used across all contexts. However, there have been growing contentions that the interpretation of SQ cannot be determent exactly because of the following reasons.

Firstly, indicators of SERVQUAL are generic and may not account for the uniqueness of the shipping industry[93].

Secondly, the SERVQUAL instrument was developed from the perspective of end-consumers. This is to be contrasted with shipping, which is a predominantly business-to-business industry[94].

Thirdly, SERVQUAL was argued to be an instrument that chiefly focuses on service-delivery processes[95].

The above reasons suggest the weaknesses of the implementation of SERVQUAL model in the liner shipping, which required us to eliminate the assurance dimension and to use two other dimensions taken from the ROMPIS model in order to measure SQ in the shipping industry, the dimensions and factors used in questionnaire are demonstrated in the following Table III-2.

92 Zikmund (W) : Business Research Methods, Thomson Learning/South-Western Publishers, Cincinatti,7TH Edition 2003

93 P.Ramseook et al : « A proposed model for measuring service quality in secondary education », International Journal of Quality and Service Sciences, 2010, P 335-351.

94 S.Gounaris. « Measuring service quality in b2b services: an evaluation of the SERVQUAL scale », Journal of Services Marketing, 2005, P 421-435

95 R.Ladhari : « A review of twenty years of SERVQUAL research", International Journal of Quality and Service Sciences » ,2009 .P 172-198

Table III-2: Dimensions and Factors of Service quality

ID	Dimensions	Definitions	Factors
1	Tangibility	Appearance of physical facilities, equipment, personnel, and communication materials	1. Company updated website, with a web booking service 2. Company's Financial stability 3. Shipment tracing capability 4. Availability of equipment and facilities 5. Quality of equipment and facilities 6. Physical infrastructure
2	Reliability	Ability of perform the promised service dependably and accurately	7. Error-free documentation 8. Reliability of service performance 9. Speed of service performance 10. Shipment safety and security (loss and damage) 11. Price stability during the period of contract 12. Clarity of prices and surcharges
3	Responsiveness	Willingness to help customers and provide prompt service	13. Quick response to customer needs. 14. Always notify in advance about shipment progress (Arrival notice…) 15. Competitive price of service 16. Speed and willingness to resolve problems and complains
4	Empathy	Caring, individualized attention the firm provides its customers	17. knowledge of each customer needs and requirements 18. Providing customized services 19. Staff's attitude and behaviour in meeting customers' needs 20. Costumer feedbacks 21. Flexibility when providing on-demand, additional services
5	Process	It includes all process aspect of the maritime transportation	22. Application of IT and EDI in operations and customer service 23. Transit-time 24. Frequency of transit 25. Efficiency in operations and management 26. Good clauses of contract 27. Variety of service offering
7	Image and Social responsibility	Company image and environmental behaviours	28. Company's reputation for reliability in the market 29. Socially responsible behaviour and concerns for human safety 30. Environmentally safe operations

Source: Own illustration using questionnaire data

2.2. Questionnaire Design

Our questionnaire consists of 11 questions, developed in 3 sections.

The first section collects information about the respondents' company field of activity, type of products exported or imported, the average of annual shipments and other questions concerning their satisfaction about liner shipping services.

The second section consists of the 30 factors. In order to assess the importance of each factor in the evaluation of SQ in liner shipping, a categorical scale ranging from 1 (not important) to 5 (very important) was used.

The third section of the questionnaire captures information on the respondents', job title, department and years of working experience in the company as well as a question about recommendations to develop the liner shipping services.

2.3. Data Collection and Sample

The targeted sample groups for the questionnaire are the users of container shipping services, as they are the most suitable candidates to assess SQ as compared to their service providers.

To collect the data the questionnaire was mailed to over 200 companies from different industries that we got their addresses from the internship company.

Data collection was performed during the period from 15 August 2020 to 30 August 2020.

2.4. Analysis of Questionnaire

In this part, we will analyse all the questions we put in our questionnaire and try come up with an answer for our problematic

2.4.1 Demographic Profile of Respondents

Out of 200 surveys that were sent to the targeted sample groups, 30 completed questionnaires were received.

Table III-3 provides a snapshot of the demographic characteristics of the respondents who are grouped into the following profiles: job title, department, years of tenure in the company and types of firm.

As shown in III-3, majority of the despondence's hold managerial titles (33.33 %), possess 6 to 10 years of working experience in their respective company (36.33 %) and are involved in the marketing and sales of their respective companies (36.33 %).

These statistics indicate that the respondents are qualified and possess sufficient experience to answer the survey questions on behalf of their company.

Table III-3: Demographic characteristics of respondents

Demographic information		No. of respondents	(%)
Job title	Director and assistant director Manager and assistant manager Non-management staff Others	7 10 9 4	23.33 33.33 30 13.33
Department	Management logistics Marketing and Sales Others	6 8 11 5	20 26.66 36.66 16.66
Years of experience	<5 6-10 years 11-15 years 15 and above	8 11 4 7	26.66 36.66 13.33 23.33
Company's field of activity	Artisanal Commercial Industrial Agricultural Service Others	0 15 12 0 2 1	0 50 40 0 6.66 3.33

Source: data collected from survey

2.4.2. Respondent's Company activity and General Satisfaction

Table III-4 provides information about to the respondent's company activity, and they are related to the type of products imported/ exported, average of annual shipment, liner shipping companies they operate with, factors appreciated about the company and general degree of satisfaction.

As shown in Table III-4, majority of the respondent's companies export/import mainly pharmaceutical products (20 %), ship less than 100 time per year (53.33 %), with CMA CGM and MSC as other shipping companies besides Marfret (58.6 %). and answered as satisfied of the global services (37.9 %).

These statistics shows that respondents are satisfied with the service quality they are getting from the liner shipping companies they operates with.

Table III-4: Information related to the respondent's company activity and general satisfaction

information		No. of respondents	(%)
Type of products exported/imported	pharmaceutical products food products electronic products plastic paper equipment others	6 4 5 2 3 5 5	20 13.33 16.66 6.66 10 16.66 16.66
Average of annual shipments	<100 100-500 shipment 501-1000 shipment 1000 and above	16 9 3 2	53.33 30 10 6.66
Liner shipping company they operate with	CMA CGM MAERSK ARKAS MSC MARFRET OTHER	17 8 7 17 30 4	
General degree of satisfaction	Very satisfied Satisfied Neutral Dissatisfied Very dissatisfied	1 11 2 10 5	3.4 37.9 6.9 34.5 17.2
NB: Some companies deal more than one liner shipping company			

Source: data collected from survey

2.5. The Analysis of Results.

In this part we will use the statistical norm "the internal consistency reliability" which is adopted above ± 2.0 and the accepted level of reliability (Cronbach's alpha value) is above 0.60 for the scale.

Table III.5 shows some general information's about our case study like the number of answers and the answers accepted by SPSS V22.00 program

Table III-5: Case Processing Summary

Cases	Number of answers	%
Valid	30	100,0
Excluded	0	,0
Total	30	100,0

a. Listwise deletion based on all variables in the procedure.

Source: Student illustration using the questionnaire data

2.5.1. Result Analyses for Factors

In this part we will focus on induvial factors to evaluate service quality in liner shipping

2.5.1.1. Measurement Scale Reliability Analysis for Factors

The overall "Alpha value" for the questionnaire we made is 0.962, which indicates that the questionnaire instrument is strongly reliable, all the factors were measured from not important at all (score 01) to very important (score 05)

Table III-6: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,969	,971	30

Source: Student illustration using the questionnaire data

2.5.1.2. Perceptions of The Proposed Service Quality Factors

The table III.7 shows the item-total correlation analysis and Chronbach's alpha value of the scale measuring perceptions of 30 service quality factors.

SQ1 and SQ2 have a low correlation with the sum of all other variables (0.359 for SQ1 and 0.452 for SQ2). Correspondingly, the alpha value would increase from (0.969) to (0.972) if we delete SQ1 and to (0.97) if we delete SQ2, the low value of the correlation indicates that for maritime companies' clients, SQ1 and SQ2 are not really important when choosing a maritime company to have business with. furthermore, as we notice in the table, SQ25 has the highest effect on the reliability. This will be further explained in the later section accordingly.

We also have the scale of the mean and variance if the item (factors) is deleted, the mean and variance scale will decrease to its lowest if we delete an important factor like SQ25 and stay high if we delete factors like SQ1.

Table III-7: Item total statistics

ID	SQ attribute	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
1	Updated Website/ Online Booking	115,3000	458,148	,359	,972
2	Financial Stability	114,9667	459,413	,452	,970
3	Shipment Tracing Capability	114,3000	449,114	,699	,969
4	Equipment and Facilities Availability	114,4333	454,875	,658	,969
5	Infrastructure Availability	114,6667	451,264	,658	,969
6	Equipment and facilities Quality	114,7000	453,114	,657	,969
7	Error-Free Documentation	114,1333	449,085	,800	,968
8	Service Performance Reliability	114,1333	449,913	,778	,968
9	Service Performance Rapidity	113,8000	450,993	,839	,968
10	Shipment Safety and Security	113,9667	450,792	,842	,968
11	Quick Response to Customer Needs	113,9333	444,133	,867	,968
12	Advanced Notifications on shipment progress	114,1000	446,162	,835	,968
13	Competitive service price	114,3667	444,585	,674	,969
14	Clear prices and surcharge	114,2333	443,220	,848	,968
15	Price stability during the contract period	114,2000	445,476	,813	,968
16	Speed and willingness to resolve issues and complaints	114,1667	441,523	,817	,968
17	Knowledge of customer needs and requirements	114,3667	449,413	,742	,968
18	Collect Feedback from customers	114,6333	451,964	,700	,969
19	Variety of service offered	114,8333	448,557	,729	,968
20	Provide personalized services	114,9000	446,231	,784	,968
21	Flexibility of additional and on demand services	114,9000	447,266	,667	,969
22	Staff's attitude and behaviour towards customers' needs	114,4667	449,844	,718	,968
23	Application of IT and EDI in operations and customer service	114,4667	449,706	,672	,969
24	Good contract clauses	114,3333	454,644	,624	,969
25	Transit time	114,0333	452,516	,691	,969
26	Transit frequency	114,4333	442,185	,861	,967
27	Efficiency in operations and management	114,4667	451,016	,717	,968
28	Company reputation for reliability in the market	114,6667	452,920	,668	,969
29	Socially responsible behaviour	114,7667	453,495	,666	,969
30	Practice of green shipping	114,9333	447,168	,670	,969

Source: Student illustration using the questionnaire data

2.5.1.3. Determining the Most Superlative Factors

TABLE III-8 shows the descriptive statistics data regarding perceptions of respondents in the questionnaire of 30 factors of service quality in maritime transport.

To know what are the important factors, A test of significance using Z test with a degree of confidence equal 95 % was also conducted to test the hypothesis

$$\begin{cases} H0 : SQa > 3{,}9467 \\ H0 : SQa < 3{,}9467 \end{cases} \qquad \begin{matrix} \mathbf{N = 30} \\ \mathbf{a\ \{1,30\}} \end{matrix}$$

We notice that some Z scores are negative which means that those factors individual mean is lesser than the mean of all variables (3.9467), for the clients of maritime transportation companies, those factors are less important than the other factors we used in our study

Each factor has his own mean score and Z score with is Service Performance Rapidity have the highest values (mean of 4.6 and Z score of 1.822) which means that it's the most important factor in our study, followed by quick response to customer demand and safety and security of shipments.

Table III-8: Item Statistics

SQ	Factors	Mean	Std. Deviation	Z scores
9	Service Performance Rapidity	4,6	0,81368	1,82272
11	Quick Response to Customer Needs	4,4667	0,9732	1,45083
10	Shipment Safety and Security	4,4333	0,8172	1,35765
25	Transit time	4,3667	0,92786	1,17184
12	Advanced Notifications on shipment progress	4,3	0,95231	0,98576
7	Error-Free Documentation	4,2667	0,90719	0,89285
8	Service Performance Reliability	4,2667	0,90719	0,89285
16	Speed and willingness to resolve issues and complaints	4,2333	1,10433	0,79967
15	Price stability during the contract period	4,2	0,99655	0,70677
14	Clear prices and surcharge	4,1667	1,01992	0,61387
3	Shipment Tracing Capability	4,1	1,02889	0,42778
24	Good contract clauses	4,0667	0,94443	0,33488
13	Competitive service price	4,0333	1,21721	0,2417
17	Knowledge of customer needs and requirements	4,0333	0,96431	0,2417
4	Equipment and Facilities Availability	3,9667	0,88992	0,05589
26	Transit Frequency	3,9667	1,03335	0,05589
22	Staff's attitude and behaviour towards customers' needs	3,9333	0,98027	**-0,03729**
23	Application of IT and EDI in operations and customer service	3,9333	1,04826	**-0,03729**
27	Efficiency of operations and management	3,9333	0,94443	**-0,03729**
18	Collect Feedback from customers	3,7667	0,93526	**-0,50209**
5	infrastructure availability	3,7333	1,01483	**-0,59527**
28	Company reputation for reliability in the market	3,7333	0,94443	**-0,59527**
6	Equipment and facilities Quality	3,7	0,95231	**-0,68817**
29	Socially responsible behaviour	3,6333	0,92786	**-0,87426**
19	Variety of service offered	3,5667	1,0063	**-1,06006**
20	Provide personalized services	3,5	1,00858	**-1,24615**
21	Flexibility of additional and on demand services	3,5	1,13715	**-1,24615**
30	Practice of green shipping	3,4667	1,13664	**-1,33905**
2	Financial stability	3,4333	1,04	**-1,43223**
1	Updated Website/ Online Booking	3,1	1,34805	**-2,3621**

Source: Student illustration using questionnaire data

2.5.2. Result Analysis for Dimensions

In this part we will focus on the importance of “Dimensions” of service quality in liner shipping

2.5.2.1 Evaluation of Each Dimension by Clients

In this part, we will analyse the result of our questionnaire based on the dimensions to do that, we calculated the mean of every person for each dimension, results are illustrated bellow.

Table III-9: Score of every dimension for each person

Answers	Tangibility	Reliability	Responsiveness	Empathy	Process	Image And social responsibility
A1	4	3,83	4,5	2,6	3,67	3
A2	3,33	4,33	4	3,4	4	3,67
A3	3,17	4	4,5	3	4,17	4,33
A4	2,67	4,67	3,75	2,6	3,5	3,33
A5	4	4,5	5	4	4,17	4
A6	2,83	2,5	2	2,6	2,17	2,67
A7	4,17	4,83	4,25	4,2	4	3,67
A8	3,67	4	4	3,8	3,5	4
A9	3,5	5	5	3,8	4,33	3
A10	4,83	5	5	4,8	4,17	4,67
A11	4	3,83	3,75	4	4	4
A12	3	2,83	2,5	2	2,33	2,33
A13	4,33	5	5	4,2	4,5	5
A14	4,5	4,33	4,5	4,6	4,33	4,33
A15	4	5	4,75	3,2	2,67	3,67
A16	2,67	2,5	2	2,8	3	2,33
A17	4,83	5	5	4,4	4,83	4,33
A18	5	5	5	4,6	5	5
A19	4,83	4,33	5	3,2	4	3
A20	4,67	4,83	5	4,2	4,5	4
A21	2,83	4,33	5	3,4	4	3
A22	3,33	4,83	5	5	5	4,67
A23	4,33	4,83	4,75	4,4	4,5	4
A24	3,17	5	5	5	4,83	4,33
A25	4,17	4,83	4,5	4,6	4,67	5
A26	3,17	4,83	4,25	3,8	4,33	3
A27	4,33	4,5	4,25	4,2	4,5	2
A28	2,17	4,17	4,25	4,2	4,5	2,67
A29	2	2	2	2	2	2
A30	2,5	5	4,25	3,8	4	3,33

Source: Student illustration using questionnaire data

2.5.2.2. Measurement Scale Reliability Analysis for Dimensions

The overall “Alpha value” for the questionnaire we made is 0.924, which indicates that the questionnaire instrument is strongly reliable,

Table III-10: Reliability Statistics

Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
,924	,925	6

Source: Student illustration using questionnaire data

2.5.2.3. Perceptions of The Proposed Service Quality Dimensions

the table III.11 shows the item-total correlation analysis and Chronbach's alpha value of the scale measuring perceptions of 6 maritime transportation dimensions.

Table III-11: Item-Total Statistics

	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Squared Multiple Correlation	Cronbach's Alpha if Item Deleted
Tangibility	19,9106	14,798	,614	,444	,932
Reliability	19,2550	13,595	,849	,838	,902
Responsiveness	19,3189	12,842	,860	,865	,900
Empathy	19,8306	13,674	,823	,797	,905
Process	19,6050	13,836	,840	,827	,904
Image and Social responsibility	19,9661	13,935	,722	,555	,919

Source: Student illustration using questionnaire data

Tangibility has a lowest correlation with the sum of all other variables (0.444). Correspondingly, the alpha value would increase from (0.924) to (0.932) if we delete Tangibility,

We also have the scale of the mean and variance if the dimension is deleted, the mean and variance scale will decrease to its lowest if we delete an important dimension like Responsiveness and stay high if we delete factors like reliability

Table III-12: Inter-Item Correlation Matrix

	Tangib-ility	Reliabilit-y	Responsivene-ss	Empathy	Process	Image and Social Responsibilit-y
Tangibility	1,000					
Reliability	,530	1,000				
Responsiveness	,601	,901	1,000			
Empathy	,527	,742	,702	1,000		
Process	,489	,790	,811	,856	1,000	
Image and Social responsibility	,569	,629	,632	,692	,620	1,000

Source: Student illustration using questionnaire data

As we see, most of dimensions has strong correlation with each other and we can notice that the weakest values of correlation are with Tangibility.

2.5.2.4. Determining the Most Superlative Dimensions

TABLE III-13 shows the descriptive statistics data regarding perceptions of respondents in the survey of the six dimensions of service quality in maritime transportation .

To know what are the important Dimension, A test of significance using Z test with a degree of confidence equal 95% was also conducted to test the hypothesis,

$$\begin{cases} \text{H0: DIMENSION a} > 3.9295 \\ \text{H1: DIMENSION a} < 3.9295 \end{cases} \quad \begin{matrix} \mathbf{N = 30} \\ \mathbf{a\ \{1,6\}} \end{matrix}$$

We notice that some Z scores are negative which means that those Dimension individual mean is lesser than the mean of all variables (3.9467), for the clients of maritime transportation companies, those Dimensions are less important.

Each dimension has his own mean score and Z score, “Reliability” has the highest values (mean of 4.32 and Z score of 1.283) which means that it’s the most important dimension in our study, followed directly by “Responsiveness”.

Table III-13: Perception of the Proposed 6 Dimensions

Ranking	Dimensions	Mean	Z scores	Std. Deviation
1	**Reliability**	4,3222	1,28347	,83841
2	**Responsiveness**	4,2583	1,07460	,94341
3	**Process**	3,9722	,13946	,80953
4	**Empathy**	3,7467	-,59761	,84679
5	**Tangibility**	3,6667	-,85909	,85209
6	**Image and Social Responsibility**	3,6111	-1,04083	,89307

Source: Student illustration using questionnaire data

2.6. Overall Service Quality

The table III-14 show us that if the company gives the same kind of importance the clients give to the factors mentioned in the study, their overall customer satisfaction would increase by (0.58) which means an increase in the number of satisfied clients.

Table III-14: Overall Service Quality

	Number of answers	YES	NO	Rated by the study case	The Service quality provided by the company
Satisfaction of clients by the service provided	30	74.1%	25.9%	XX	XX
Overall Mean of service quality	30	XX	XX	3.94	3.36

Source: Student illustration using questionnaire data

Conclusion

In this chapter, we discussed about the liner shipping company “MARFRET ALGIERS” services, after that the dimensions and factors of SQ in maritime transportation “liner shipping” were identified (tangibility, responsiveness, empathy, image and social responsibility, process and reliability), those six dimensions contained 30 factor that cover almost every aspect of service quality in maritime transportation.

According to the 30 respondents, the most important factors are rapidity of “Service Performance”, “Quick Response to Customer Needs” and “Shipment Safety and Security” with scores above 4.4 and the most important dimensions are reliability and responsiveness with scores above 4.2. the result indicate that the liner shipping client prioritise time related and reliable service over the image and social responsibility and also tangibility in general.

From all those results we conclude, that MARFRET meets the satisfaction expected from its client and reaches a high-level form of service quality

Hence. the liner shipping companies must focus on those factors and dimensions that proved their superiority comparing to other factors and dimensions.

General Conclusion

This research aimed to provide a better understanding of service quality and its importance in satisfying customers of liner shipping companies, the study aimed to answer the following question: How can liner shipping companies offer the service quality that the clients expects?

To handle this research in depth, this paper aims to explore the basics of international maritime transportation and the service offered by the liner companies and how clients perceive it.

In this work, due to the lake of studies conducted to investigate what constitute service quality in shipping business, we have relied on literature review concerning service quality measuring models in order to adapt and apply them to our particular subject and study context. The model proposed allow us to measure the important factors taking into consideration by customers before choosing a liner shipping company.

That being said, the results of our research are as follow:

Firstly. The maritime industry in general and the maritime transportation specifically is an integrated, complex and dynamic system that interact with a large number of aspects so any change in those aspect will affect its functioning; this make it a very competitive business which cause a continuous improvement in the maritime industry.

Secondly, Clients of the liner shipping gives a lot of importance to Service Quality factors.

Furthermore. Certification in maritime transportation is a (like ISO 9001, ISO 6346 for freight containers) can help the maritime company to keep track on many quality aspects because of the large number of factors in this sector.

Finally. Service quality may look like a simple concept but measuring it is so difficult specially in the case of business to business pure services sectors. In order to measure SQ you have to adapt to characteristics of those sectors (in our case, maritime transportation). To measure SQ we came out with 6 dimensions based on SERVQUAL and ROMPIS models

which are : Reliability, Tangibility, Empathy, Process, Responsiveness Image and social responsibility. Those dimensions contain 30 factors (Mentioned in Table III-2)

Our questionnaire for MARFRET ALGIERS clients was made in a meticulous way to let them rate the level of importance of every factor which led us to reach the following answers.

The most important factors are:

- Service Performance Rapidity
- Quick Response to Customer Needs
- Shipment Safety and Security
- Transit time

The most important dimensions are :

- Reliability
- Responsiveness

Clients of marfret are generally satisfied by the service they are getting in “MARFRET ALGIERS” but we also notice that they use other liner companies such as MSC and CMA CGM so they are not exclusive clients.

Based on the results of our study, as well as our findings in the field, we understood the reality of maritime transportation in Algeria, we also noticed that there are a lot of elements that can be improved. There we compiled a list of recommendations for “MARFRET ALGIERS” on various points, including:

Improving the core factors relating to the performance of transportation services because clients care about the performance of the company more than the cost of the service itself.

Care about the client’s experience before and after the performance of the transportation services.

Take a closer look to their competitors, as we notice that many clients use other liner companies, that is because MARFRET ALGEIRS deals with one port which is Marseille Port, adding other ports would greatly increase MARFRET ALGEIRS market share.

Based on the results of our study, as well as our findings in the field, we have compiled a list of future research topic:

1. Port logistics service quality and customer satisfaction.
2. Ship Operation and Fleet Planning.
3. reducing the cost of maritime logistics.

Lastly, the above results are not completely accurate due that there was not a widely approved model that studies all the aspects of service quality with all dimensions, factors and also the characteristic of each country that are involved in the maritime transportation. We tried our best to make the relation between the reality of the "Algerian Maritime Industry" and aspect of SQ in it with the literature background we had in our research.

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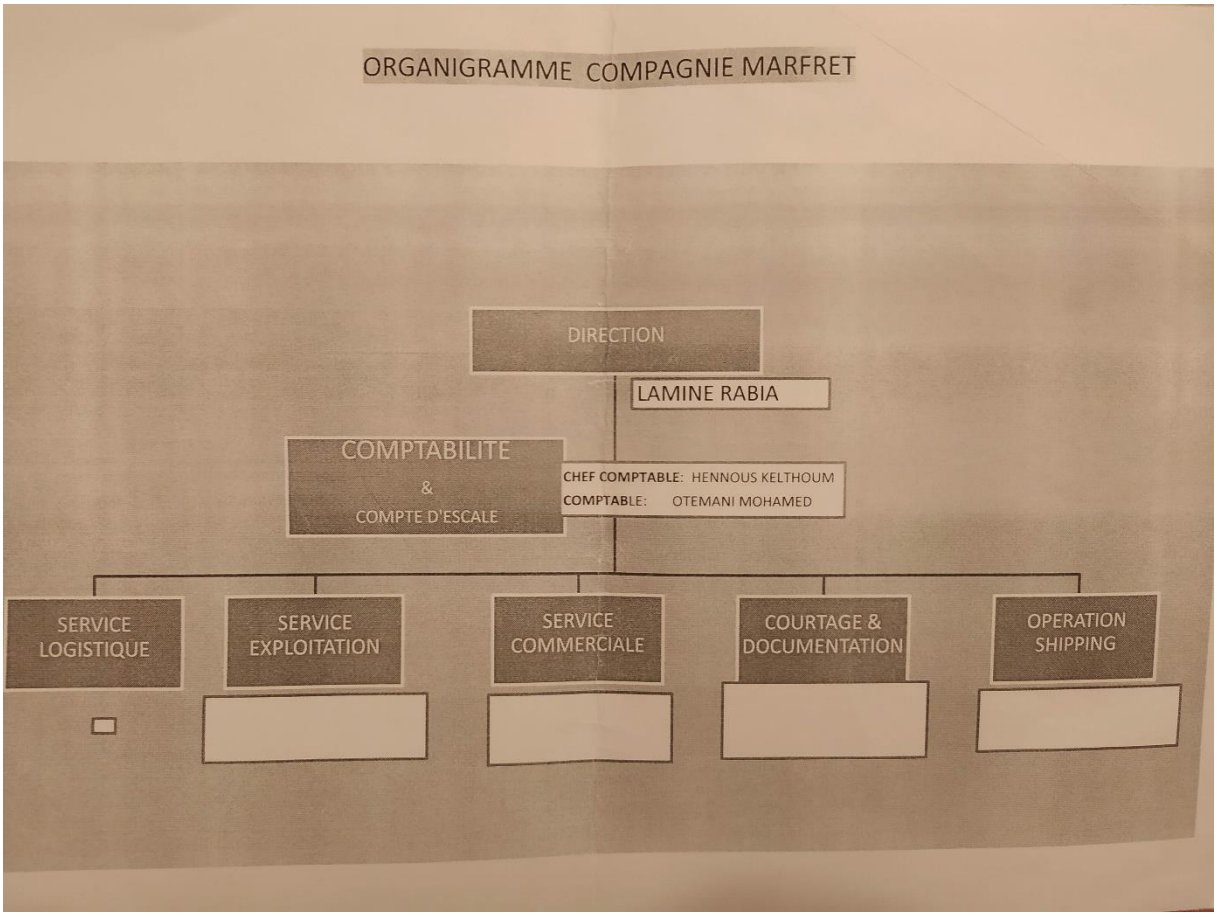
Appendixes

Annex n°1 : Organisational Structure



Annex n°2 : Full-service presentation

Sara Sahnoun

De: Houda ZERROUT <hzerrout@marfret.fr>
Envoyé: lundi 19 août 2019 16:33
À: office@promasidor-dz.com; info@promasidor-dz.com; dz.info@promasidor.com
Cc: 'Lamine Rabia'; 'Sara Sahnoun'
Objet: PRESENTATION SERVICE/ COMPAGNIE MARITIME MARFRET / SARL PROMASIDOR DJAZAIR
Pièces jointes: Marfret Maghreb.pdf

Bonjour,

Tout d'abord, permettez-moi de me présenter, c'est Mlle ZERROUT, assistante commerciale de la compagnie Maritime MARFRET ALGERIE.

Je me permets de vous écrire afin de vous présenter le service proposé par notre compagnie MARFRET , et essayer d'analyser vos besoins en transport afin de vous transmettre nos meilleures offres.

En effet, nous travaillons actuellement dans le cadre d'une ligne régulière, avec un départ hebdomadaire à jour fixe chaque vendredi soir depuis le port de Marseille à destination le port d'Alger avec un transit time maximum de 36 heures (accostage immédiat dimanche matin) , une flotte assurée par le M/V Saumaty porte-conteneurs.

De plus, notre service au-delà de toute l'organisation logistique amont permettant la mise à disposition des conteneurs vides au plus près des lieux de chargement mais aussi la partie transport (routier et ferroviaire) que nous sommes en mesure d'assurer, reste un des plus performants avec le choix de travailler avec des navires plus petits permettant d'escaler au port d'Alger sans aucune attente en Rade, des navires équipés de grue de bord permettant un débarquement autonome.
Vous trouverez plus de détails dans la présentation ci-jointe.

Pour la partie export, nous vous proposons aussi un service régulier avec un départ tous les lundis, depuis le port d'Alger vers le port de Marseille.

En espérant avoir prochainement l'occasion de vous rencontrer, pour mieux vous connaitre et trouver la formule qui permettra de répondre au mieux à vos attentes.
Nous restons à votre entière disposition pour vous apporter tout éclaircissement complémentaire,

Dans l'attente de vous lire.

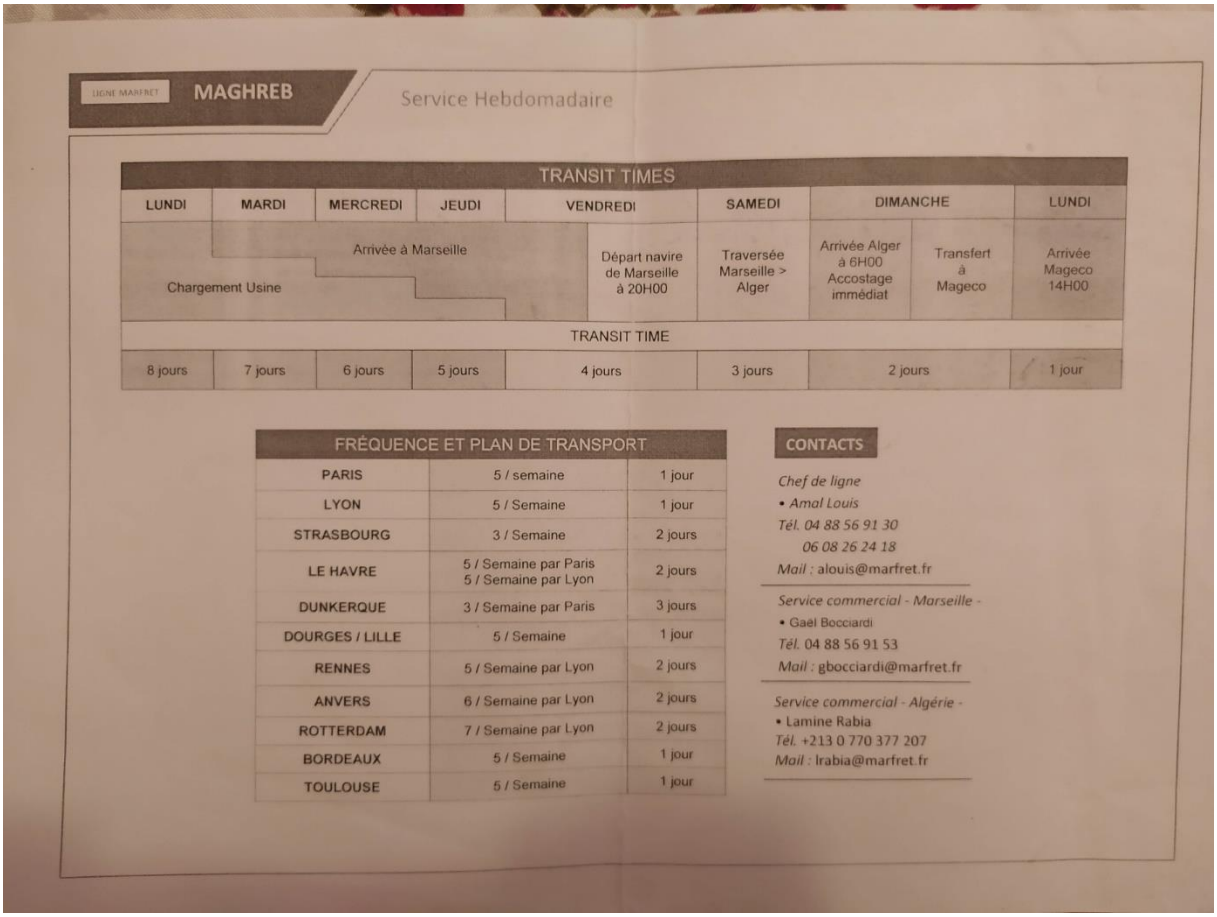
Meilleures salutations.

MARFRET
COMPAGNIE MARITIME

Houda ZERROUT
Service commercial
Direct : +213 021 73 45 59
Fax : +213 021 73 86 62

Inscrivez-vous à notre newsletter

Annex n°3 : Weekly Service Planning for frequency and transit



LIGNE MARFRET **MAGHREB** Service Hebdomadaire

TRANSIT TIMES							
LUNDI	MARDI	MERCREDI	JEUDI	VENDREDI	SAMEDI	DIMANCHE	LUNDI
Chargement Usine	Arrivée à Marseille			Départ navire de Marseille à 20H00	Traversée Marseille > Alger	Arrivée Alger à 6H00 Accostage immédiat / Transfert à Mageco	Arrivée Mageco 14H00
TRANSIT TIME							
8 jours	7 jours	6 jours	5 jours	4 jours	3 jours	2 jours	1 jour

FRÉQUENCE ET PLAN DE TRANSPORT		
PARIS	5 / semaine	1 jour
LYON	5 / Semaine	1 jour
STRASBOURG	3 / Semaine	2 jours
LE HAVRE	5 / Semaine par Paris 5 / Semaine par Lyon	2 jours
DUNKERQUE	3 / Semaine par Paris	3 jours
DOURGES / LILLE	5 / Semaine	1 jour
RENNES	5 / Semaine par Lyon	2 jours
ANVERS	6 / Semaine par Lyon	2 jours
ROTTERDAM	7 / Semaine par Lyon	2 jours
BORDEAUX	5 / Semaine	1 jour
TOULOUSE	5 / Semaine	1 jour

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Annex n°4 : Questionnaire "English"

1. 1- what is your company field of activity ? *

   Une seule réponse possible.

   - ◯ Artisanal
   - ◯ Commercial
   - ◯ Industriel
   - ◯ Agricultural
   - ◯ Services
   - ◯ Autre : _____

2. 2- what type of products your company export/import ? *

   Une seule réponse possible.

   - ◯ pharmaceutical products
   - ◯ food products
   - ◯ electronic products
   - ◯ plastic
   - ◯ paper
   - ◯ equipement
   - ◯ Autre : _____

3. 3-How many shipments you do with Marfret per year? *

   _____

4. 4- other than MARFRET, what are the shipping companies you operate with ? *

   Une seule réponse possible.

   - ◯ CMA CGM
   - ◯ MSC
   - ◯ ARKAZ
   - ◯ MAERSK
   - ◯ Autre : _____

5. 5- are you satisfied with the overall service quality of this companies ? *

   Une seule réponse possible.

	1	2	3	4	5	
very unsatisfied	◯	◯	◯	◯	◯	very satisfied

6. 6- would you recommend MARFRET for other companies? if yes why ? *

   _____

Factors evaluation

7. According to your company, on a scale of 1-5 rate the following factors according to the importance given while choosing a maritime transport agency *

Une seule réponse possible par ligne.

	not at all important	somewhat important	important	very important	extremly important
Updated Website/ Online Booking	◯	◯	◯	◯	◯
Financial Stability	◯	◯	◯	◯	◯
Shipment Tracking Capability	◯	◯	◯	◯	◯
Equipment and Facilities Availability	◯	◯	◯	◯	◯
Infrastructure Availability	◯	◯	◯	◯	◯
Equipment and facilities Quality	◯	◯	◯	◯	◯
Error-Free Documentation	◯	◯	◯	◯	◯
Service Performance Reliability	◯	◯	◯	◯	◯
Service Performance Rapidity	◯	◯	◯	◯	◯
Shipment Safety and Security	◯	◯	◯	◯	◯
Quick Response to Customer Needs	◯	◯	◯	◯	◯
Advanced Notifications on shipment progress	◯	◯	◯	◯	◯
Competitive service price	◯	◯	◯	◯	◯
Clear prices and surcharge	◯	◯	◯	◯	◯
Price stability during the contract period	◯	◯	◯	◯	◯
Speed and willingness to resolve issues and complaints	◯	◯	◯	◯	◯
Knowledge of customer needs and requirements	◯	◯	◯	◯	◯
Collect Feedback from customers	◯	◯	◯	◯	◯
Variety of service offered	◯	◯	◯	◯	◯
Provide personalized services	◯	◯	◯	◯	◯
Flexibility of additional and on demand services	◯	◯	◯	◯	◯
Staff's attitude and behaviour towards customers' needs	◯	◯	◯	◯	◯
Application of IT and EDI in operations and customer service	◯	◯	◯	◯	◯
Good contract clauses	◯	◯	◯	◯	◯
Transit time	◯	◯	◯	◯	◯
Transit frequency	◯	◯	◯	◯	◯
Efficiency in operations and management 114,4667 451,016 ,717 ,968	◯	◯	◯	◯	◯
Company reputation for reliability in the market	◯	◯	◯	◯	◯
Socially responsible behaviour	◯	◯	◯	◯	◯
Practice of green shipping	◯	◯	◯	◯	◯

Suggestions

8. 1- what department you work at? *

9. 2- what job title you occupy ? *

10. 3- how many years you've been working for this company ? *

Une seule réponse possible.

- <5
- 6-10 year
- 11-15 year
- 15 and above

11. 4- do you have any suggestions to improve Marfret services? *

Annex n°5 : Questionnaire “French”

1. 1-Dans quel domaine d'activité exerce-t-elle votre entreprise ? *

   Une seule réponse possible.

   - ◯ artisanale
   - ◯ industriel
   - ◯ commericale
   - ◯ agricole
   - ◯ Autre : _____

2. 2- Quel type de produit vous importez/exportez essentiellement ? *

   Plusieurs réponses possibles.

   - ☐ Produits pharmaceutiques
   - ☐ Produits agroalimentaire
   - ☐ Produits electroniques
   - ☐ Papier
   - ☐ Plastiques
   - ☐ équipement

   Autre : ☐ _____

3. 3-Quelle est la moyenne des vos expéditions annuelle avec MARFRET? *

   _____

4. 4-Quelles sont les compagnies maritime dont vous bénéficiez de leurs prestations autre que MARFRET? *

   Plusieurs réponses possibles.

   - ☐ CMA CGM
   - ☐ MSC
   - ☐ ARKAZ
   - ☐ MAERSK

   Autre : ☐ _____

5. 5- etes-vous satisfait de la qualité globale de ces services *

   Une seule réponse possible.

	1	2	3	4	5	
très insatisfait	◯	◯	◯	◯	◯	très satisfait

6. 6-Recommanderiez-vous à d'autres entreprises de s'engager avec MARFRET? Si oui, pourquoi ? *

   _____

Attribuez une note à chacun des facteurs suivant en fonction de leur importance lors du choix d'une compagnie maritime. *

Une seule réponse possible par ligne.

	Pas du tout important	Peu important	Relativement important	Très important	Extrêmement important
un site web à jour/ booking en ligne	◯	◯	◯	◯	◯
Stabilité financiere	◯	◯	◯	◯	◯
capacité de suivi des expéditions	◯	◯	◯	◯	◯
Disponibilité des équipements (contenairs vide,...)	◯	◯	◯	◯	◯
disponibilité d'infrastructure	◯	◯	◯	◯	◯
Qualité des équipements	◯	◯	◯	◯	◯
Documentation sans erreur	◯	◯	◯	◯	◯
Fiabilité de service	◯	◯	◯	◯	◯
Rapidite de service	◯	◯	◯	◯	◯
Sûreté et sécurité des expéditions	◯	◯	◯	◯	◯
Réponse rapide aux besoins des clients.	◯	◯	◯	◯	◯
Notifications avancées sur l'avancement des expéditions (avis d'arrivée...).	◯	◯	◯	◯	◯
Prix de service compétitif	◯	◯	◯	◯	◯
Des prix et surcharge clairs	◯	◯	◯	◯	◯
Stabilité des prix pendant la durée du contrat.	◯	◯	◯	◯	◯
Rapidité et volonté de résoudre les problèmes et les plaintes.	◯	◯	◯	◯	◯
Connaissance des besoins et exigences des clients.	◯	◯	◯	◯	◯
collect des Feedback auprès des clients	◯	◯	◯	◯	◯
variété de service proposé	◯	◯	◯	◯	◯
Fournir des services personnalisés.	◯	◯	◯	◯	◯
Flexibilité des services supplémentaires et à la demande	◯	◯	◯	◯	◯
Attitude et comportement du personnel face aux besoins des clients.	◯	◯	◯	◯	◯
Application de l'informatique et de l'EDI aux opérations et au service client.	◯	◯	◯	◯	◯
Bonnes clauses de contrat	◯	◯	◯	◯	◯
Temps de transit.	◯	◯	◯	◯	◯
Fréquence de transit.	◯	◯	◯	◯	◯
Efficacité des opérations et de la gestion.	◯	◯	◯	◯	◯
Réputation de fiabilité de l'entreprise sur le marché.	◯	◯	◯	◯	◯
Comportement socialement responsable.	◯	◯	◯	◯	◯
Pratique de green shipping.	◯	◯	◯	◯	◯

Fiche signalétique

8. 1-De quel département/service faites-vous partie ? *

_____

9. 2-Quel poste occupez-vous ? Et quelles sont les activités dont vous êtes en charge ? *

_____

10. 3- Vous avez combien d'expérience dans la société pour laquelle vous répondez ? *

Plusieurs réponses possibles.

- [ ] <5 ans
- [ ] 6 à 10 ans
- [ ] 11 à 15 ans
- [ ] plus de 15 ans

11. 4-Que suggérez-vous pour améliorer les services de MARFRET ? *

_____

Contents