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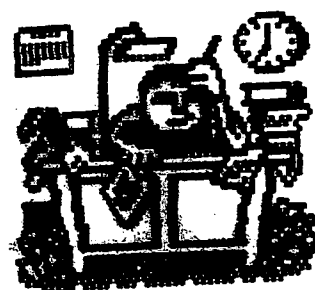
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**AN APPROACH TO
THE DESIGN OF
AN ECONOMIC
MANAGEMENT
INFORMATION
SYSTEM FOR THE
SPANISH SHIPPING
ADMINISTRATION**



WORLD MARITIME UNIVERSITY Malmö (Sweden)

AN APPROACH TO THE DESIGN OF AN ECONOMIC MANAGEMENT
INFORMATION SYSTEM FOR THE SPANISH SYSTEM ADMINISTRATION

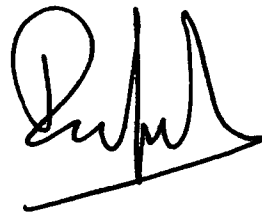
By
Rafael Pastor Bedoya
(Spain)

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A paper submitted to the faculty of the World Maritime University in partial satisfaction of the requirements for the award of Master in Science in General Maritime Administration.

The contents of this paper reflect my personal views and are not necessarily endorsed by the university.

Signature:



Date : Nov. 1988

Supervised by : Dr. Hercules Haralambides.

Co-assessed by : Professor P. Bauchet

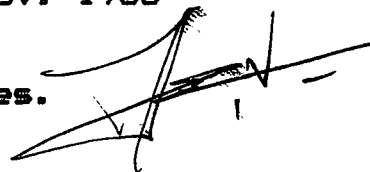


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It has been a great honor for me to attend during two years a course in General Maritime Administration at the World Maritime University, meeting all sort of people coming from different countries all over the world pursuing the same objectives of the International Maritime Organization of safer shipping and cleaner oceans. Therefore I would like to express my gratitude to the following:

The Rector, Professors, Lecturers and staff of the university for their assistance dedication and kindness.

Visiting Professors an Lecturers for the effort the make coming to this university and sharing their knowledge and experience with the students.

The personnel working in the Administration of my country who made possible my presence here, not only for the knowledge I might gather, but also as a mean of collaborating with the United Nations System and in particular with the International Maritime Organization.

Last but not least to my fellow students who have contributed to make life more comfortable and amusing not only in Malmo but also in our trips to different places and countries.

INTRODUCTION

One of the main task of the manager in any organization is decision making. Decisions taken today may result in serious implications and commitments for the future.

How decisions are taken by managers is the concern of the different schools of management, but most of them agree that there are two approaches to decision making. The first one is called the intuitive approach, based on the experience, skills, flair, creativity, etc., of the manager. The second one is called the quantitative approach and is based on scientific techniques. The right combination of both will probably lead to better results in the long term.

In all public administrations, whichever the country, decisions are taken every day at different levels of management. Many of these decisions will be of vital importance for the country, marking the pace of its progress. For this sole reason it is important to have good managers and good decision making support systems.

In my short working experience at the General Directorate of the Merchant Marine, I have noticed the lack of a good management information system able to gather economic data, process it, and to produce reliable information for helping in the decision making process.

It is also very common to find out in different studies or reports, complaints about the lack of reliable data. For instance in a study, finished in June 1987, about south

European cabotage conducted on behalf of the Commission of the European Economic Community by the Maritime Economic Research Center (Rotterdam), the following comment is included :

" The statistical documentation and registration of national maritime activities is very poor and demands an improvement. The E.E.C. should provide the member countries with standard list and layout of statistical reporting requirements."

This shows that most of the policies adopted are based on decisions being taken on a intuitive rather than quantitative basis.

It is not the aim of this paper to discover anything new, but to stress the importance of setting up a system for the collection and process of economic parameters, giving some ideas and guidelines, which can be developed further on by an ad hoc team of experts and implemented in a near future at the Spanish Shipping Administration.

Some attempts in this field have been done at the Spanish administration during the last few years, but in my opinion not enough has been done, bearing in mind the complexity of the shipping industry nowadays.

Although this paper will mostly deal with economic parameters, it is important to highlight that similar systems can and should be set up for other purposes as safety, pollution control and prevention, search and rescue, etc.

The following pages will deal with :

- * An overview to the present system.
- * Identification of necessities and global infrastructure of a new system.
- * Data requirements and process.

Most of the information requirements for running a system like the one suggested originate in shipping companies. In general terms it can be said that most shipowners are reluctant to supply economic data of any kind.

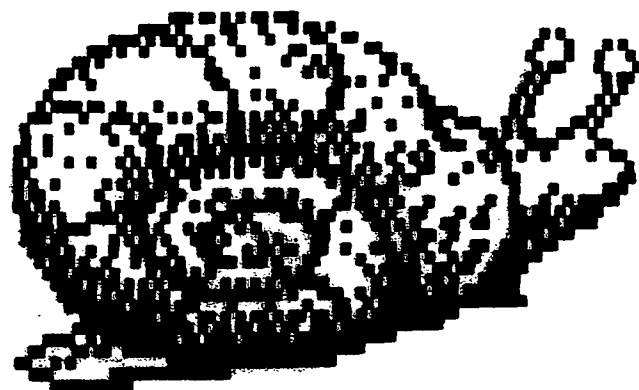
The objective will not be to analyse the position of the companies one by one, nor to interfere in their business practices or activities of the shipping community. But to obtain some macroeconomic parameters and operational data allowing the development of a set of performance indicators for monitoring shipping activity.

I would make clear that in spite of information and data are two different words, and many authors make a clear distinction of the meaning of each one. They will be used indistinctly in this paper, in order to avoid redundancies in short paragraphs.

To finalize, I would also like to warn the reader than most of the conclusions and opinions put forward in following chapters are exclusively mine, at least as far as I know. They are based in my readings, training, and personal working experience acquired throughout the part of my life devoted to shipping-related activities, both at sea and on shore.

CHAPTER I

AN OVERVIEW OF THE PRESENT SYSTEM AND THE NECESSITY FOR IMPROVEMENT



I-I BRIEF DESCRIPTION OF THE GENERAL DIRECTORATE OF THE MERCHANT MARINE

The following pages will briefly explain how economic data is being collected nowadays by the Spanish Shipping Administration, and for that reason it is necessary to have an overview of the main departments of the General Directorate of the Merchant Marine.

It may be useful at this moment to say that during the last few years different proposals have been made to the Ministry of Transport, in order to change the organic structure of the general directorate; however no major changes have been carried out. Thus it consists of the following six main departments :

- * Subdireccion General de Planificacion del Transporte Maritimo.
- * Subdireccion General de Trafico Maritimo.
- * Subdireccion General de Seguridad Maritima y Contaminacion.
- * Inspeccion General de Enseñanzas Superiores Nauticas.
- * Inspeccion General de Buques.
- * Secretaria General.

The "Subdireccion General de Planificacion del transporte Maritimo", from now on : General Sub-Directorate for Maritime Transport Planning, deals with the study of flows of goods and markets connected in any way with maritime transport. It is in charge, after analysing the results of such studies, of the issuance of the maritime transport policy for the whole country. It is also the body which

acts on behalf of the Spanish Administration when meetings of international organizations are convened (IMO, UNCTAD, EEC, Etc.), providing they discuss policy matters. Due to the big scope of its competencies, it is always present when discussing the project of any legal instrument affecting the merchant marine.

The "Subdireccion General de Trafico Maritimo", from now on General Sub-Directorate for Maritime Traffic, is in charge of the effective implementation of the economic shipping policy at national level, once it has been issued by the aforementioned department and approved by the the competent body. To achieve its objectives this department maintains contacts and is open to suggestion from shipping companies, shippers associations, brokers, etc. Monitoring the performance and trends of the Spanish fleet and providing feedback information of the economic consequences of the policies adopted.

As can be seen both departments are heavily involved in economic planning, taking decisions with national and international implications. For this reason their information sources for economic data will be analysed in following paragraphs.

The other departments are also important for the merchant fleet, but due to the fact that their activities are out of the scope of the present paper, they will not be discussed.

Before going any further it may be useful to clarify some concepts, that will be frequently used later on, about communications channels and the data or information derived from them.

Information can be distinguished, in accordance with the way it is received, in two main groups : Formal and Informal.

Formal information maybe defined as such being received through communications channels which follow the basic patterns of command and control inside or among organizations with established procedures beforehand. On the contrary the informal one is that being received through channels which have not been established formally.

Both formal and informal are very important in any organization and should not be discarded, being interesting to highlight that the quality must not be regarded as being better or worse depending upon the channel used. In some cases one may be better than the other and vice-versa. However it is often true that the informal one does not have means to prove its accuracy, because it may come through gossiping or similar ways. In such a case the formal one would be regarded as better only because is written somewhere and can be waived as a proof. For the same reason decision makers using data received through informal channels maybe biassed or cheated more easily by the source or the transmitters, who will not be liable of the consequences.

I-II ECONOMIC DATA SOURCES FOR THE GENERAL SUB-DIRECTORATE FOR MARITIME TRANSPORT PLANNING

When dealing with data sources it is very difficult to mention all of them because in many occasions, what is known is the incoming channel, being for the receiver very

difficult or even impossible to ascertain which was the primary source of such information. Nonetheless they have been grouped as follows :

- A) Newspapers and magazines.
- B) Market participants.
- C) Information agencies and consultants.
- D) Other administrative bodies.

All of them both national and international.

I-II-A) Newspapers and magazines

This sub-directorate, in January 1988, was subscribed to the following newspapers and magazines.

- Bimco bulletin.
- C.M.I. newsletter.
- Gaceta Juridica E.E.C.
- E.E.C. Diary.
- Documents, Div. 07, transport, (E.E.C.).
- P & I international.
- Law of the sea international.

(Source: General Directorate library)

Besides, this department receives all the information issued by international bodies in the form of journals, magazines, etc.

As can be seen most of the publications are dedicated to legal and policy matters rather than economical, except in the case when some is received from UNCTAD, OECD, or similar organizations.

I-II-B) Market participants

In this paragraph are included all private companies or independent non profit organizations which at any time maybe involved in shipping activities. As for instance : shipping companies, ships agents, shippers, insurance companies or underwriters, classification societies, shipbuilders, banks, arbitrators, suppliers, etc.

Shipping companies are supposed, for statistical reasons, to send information about the movements of their ships and the cargo they carry on board. However most of them do not comply with, and enforcement has been difficult during the last few years, mainly due to the changing scenario of the shipping industry as a consequence of the crisis.

Other information could be collected when any market participant asks or requires something from this department or the opposite. But due to the lack of continuity the establishment of a data bank is impossible.

In the same way, when carrying out some administrative procedures, as for instance when operative subsidies were granted to liner shipping (not any longer in this department), some interesting data could be gathered. But manpower has usually to be employed in solving administrative procedures and cannot devote time in sorting out the parameters that will be specified in following chapters.

In general terms it can be said that economic data collected through formal channels from market participants

is irregular and poor. Informal communication in basic parameters is also poor, probably because personnel working in this department is heavily involved in international relations, travelling frequently abroad and engaged in policy issues rather than in systematic data gathering.

I-II-C) Information agencies and consultants

As it has been stated before, most of the consultants and independent bodies complain about the lack of reliable data in shipping all over the world. And it is usually the administration which has to supply them the figures for further processing. Some studies have been carried out by different firms, but here it is not the objective to criticize their job.

As far as on line information agencies are concerned, for instance Reuter or others alike, this department is not connected to any network.

I-II-D) Other administrative bodies

Here are included all those that for any means produce or may produce or distribute economic parameters, such as : international organizations, other departments of the General Directorate, other ministries, autonomous governmental bodies, etc.

Quite a lot of economic information is elaborated by the E.E.C. Commission, UNCTAD and OECD secretaries and other international bodies which send it to this department, In general terms it can be said that for global policy issues

the information may not be very bad, but it has to be born in mind that most of it has been collected from each's country administration, and all of them probably have similar or even more acute problems than in the Spanish one.

Other administrative bodies in other ministries or inside the ministry of transport might supply reliable information, but most of it can be classified as secondary because it was not collected for shipping purposes, but for other reasons as for instance : trade statistics, taxation, etc. Besides the scarcity of trained manpower existing nowadays in this department makes it impossible to send people to wander around and see what information could be useful for shipping purposes.

There is no need to mention the importance of ports as gathering data centers. The General Directorate is located at Madrid, far away of the coast line, Therefore it has to rely heavily on the information supplied by harbour masters. Unfortunately, these persons are still militar, exercising (among other functions) as peripheral representatives of the General Directorate. For this reasons ports nowadays are not really connected with the central shipping administration as they should be. In spite of all, some data gathering is being done at ports and sent to Madrid (See figures I-II-D1 and I-II-D2) plus some standardized telegrams about ships' arrival and departures.

The bulk of economic information received in this department comes from other sub-directorates, as for instance the sub-directorate for maritime transport traffic, either by formal and informal channels.



MINISTERIO DE TRANSPORTES, TURISMO Y COMUNICACIONES
DIRECCION GENERAL DE LA MARINA MERCANTE

Forme I-II-d-1

ENTRADA DE BUQUES MERCANTES EN PUERTOS ESPAÑOLES

MERCHANT SHIPS CALLING AT SPANISH PORTS

1) PUERTO / Port (a)

2) FECHA / Date (AÑO / Year (MES / Month (DIA / Day

3) NOMBRE DEL BUQUE / Ship's Name _____

4) BANDERA / Flag (a) (DISTINTIVO / Call Signal

5) T. R. B. / S. T. (T. P. M. / D. W. (Nº TRIPULANTES / Crew Number _____

6) CLASE DE BUQUE / Ship's Type ((Nº CORRESPONDIENTE DE ACUERDO CON LA LISTA) / (State number according to the list below)

1.- TANQUE DE CRUDO / Crude Oil Tanker	2.- TANQUE DE PRODUCTOS / Product Tanker	3.- TANQUE QUIMICO / Chemical Ship	4.- ASFALTERO / Bitumen Oil Carrier	5.- GASERO / LPG/LNG
6.- OTROS TANQUES / Other Tanker	7.- GRANELERO / Bulk Carrier	8.- O B O	9.- CEMENTERO / Cement Carrier	10.- FRIGORIFICO / Reefer
11.- PORTACONTENEDOR / Container Ship	12.- RO / RO	13.- CONVENCIONAL / Conventional	14.- PASAJE / Passenger	15.- REMOLCADOR / Tug

7) NAVIERO OPERADOR / Owner / Charterer _____

8) LINEA REGULAR / Liner _____

9) ASOCIACION O CONFERENCIA MARITIMA / Pool / Conference (State in case) _____

10) RAZON DE ESCALA / Reason for calling ((Nº CORRESPONDIENTES DE ACUERDO CON LA LISTA) / (State number/s according to the list below)

1.- CARGA / Loading	2.- DESCARGA / Unloading	3.- SUMINISTROS / Bunkering	4.- OTRAS / Others
---------------------	--------------------------	-----------------------------	--------------------

11) PROCEDENCIA : PAIS / PUERTO / Coming from : Country / Port (a)

OBSERVACIONES:

A) SE ACOMPAÑARA MANIFIESTO DE DESCARGAS, INDICANDO: CONTENEDORES (EN SU CASO), CLASE DE MERCANCIAS, TMS. Y PAIS/ DE ORIGEN DE LAS DESCARGAS.
EN LOS TRANSPORTES REALIZADOS POR BUQUES DE LINEA REGULAR, DEBERA ACOMPAÑARSE VALOR DEL FLETE.

B) LOS RECUADROS SEÑALADOS CON (a) SE DEJARAN EN BLANCO.

C) SI EL BUQUE ES DE BANDERA ESPAÑOLA, EN LOS Nº 3), 4), 5) y 6) SOLO SE CUMPLIMENTARAN LOS CAMPOS: NOMBRE DEL BUQUE Y DISTINTIVO

REMARKS:

A) A COPY OF THE CARGO MANIFEST SHALL BE HANDED OUT, STATING: Nº OF TONS (IF APPLICABLE), KIND OF GOODS, N. TONS AND COUNTRY/PORT OF ORIGIN OF GOODS.
LINERS SHALL STATE THE FREIGHT

B) SQUARES MARKED WITH (a) SHALL NOT BE FILLED ON.

C) IN CASE OF SPANISH VESSELS, ONLY THE SHIP'S NAME AND CALL SIGNAL SHALL BE STATED.



SALIDA DE BUQUES MERCANTES EN PUERTOS ESPAÑOLES

MERCHANT SHIPS LEAVING SPANISH PORTS

1) **PUERTO**
Port _____ (a)

2) **FECHA**
Date (AÑO Year (MES Month (DIA Day

3) **NOMBRE DEL BUQUE**
Ship's Name _____

4) **BANDERA**
Flag _____ (a) **DISTINTIVO**
Call Signal

5) **T. R. B.** _____ **T. P. M.** _____ **Nº TRIPULANTES** _____
G. T. _____ **D. W.** _____ **Crew Number** _____

6) **CLASE DE BUQUE**
Ship's Type ((Nº CORRESPONDIENTE DE ACUERDO CON LA LISTA)
(State number according to the list below)

1.- TANQUE DE CRUDO Crude Oil Tanker.	2.- TANQUE DE PRODUCTOS Product Tanker	3.- TANQUE QUIMICO Chemical Ship	4.- ASFALTERO Bitumen Oil Carrier	5.- GASERO LPG/LNG
6.- OTROS TANQUES Other Tanker	7.- GRANELERO Bulk Carrier	8.- O B O	9.- CEMENTERO Cement Carrier	10.- FRIGORIFICO Reefer
12.- RO / RO	13.- CONVENCIONAL Conventional	14.- PASAJE Passenger	15.- REMOLCADOR Tug	11.- PORTACONTENEDOR Container Ship

7) **NAVIERO OPERADOR**
Owner/Charterer _____

8) **LINEA REGULAR**
Liner _____

9) **ASOCIACION O CONFERENCIA MARITIMA**
Pool / Conference (State in case) _____

10) **RAZON DE ESCALA**
Reason for calling ((Nº CORRESPONDIENTES DE ACUERDO CON LA LISTA)
(State number/s according to the list below)

1.- CARGA Loading	2.- DESCARGA Unloading	3.- SUMINISTROS Bunkering	4.- OTRAS Others
----------------------	---------------------------	------------------------------	---------------------

11) **DESTINO PAIS / PUERTO**
Bound For Country/Port _____ (a)

OBSERVACIONES:

- A) SE ACOMPAÑARA MANIFIESTO DE CARGAS, INDICANDO: CONTENEDORES (EN SU CASO), CLASE DE MERCANCIAS, TMS. Y PAIS/PUERTO DE DESTINO DE LAS CARGAS.
EN LOS TRANSPORTES REALIZADOS POR BUQUES DE LINEA REGULAR, DEBERA ACOMPAÑARSE VALOR DEL FLETE.
- B) LOS RECUADROS SEÑALADOS CON (a) SE DEJARAN EN BLANCO.
- C) SI EL BUQUE ES DE BANDERA ESPAÑOLA, EN LOS Nº 3), 4), 5) y 6) SOLO SE CUMPLIMENTARAN LOS CAMPOS: NOMBRE DEL BUQUE Y DISTINTIVO.

REMARKS:

- A) A COPY OF THE CARGO MANIFEST SHALL BE HANDED OUT, STATING: Nº OF TONS (IF APPLICABLE), KIND OF GOODS, M. TONS AND COUNTRY/PORT OF DESTINATION OF GOODS.
LIVERS SHALL STATE THE FREIGHT.
- B) SQUARES MARKED WITH (a) SHALL NOT BE FILLED ON.
- C) IN CASE OF SPANISH VESSELS, ONLY THE SHIP'S NAME AND CALL SIGNAL SHALL BE STATED.

I-III ECONOMIC DATA SOURCES FOR THE GENERAL SUB-DIRECTORATE FOR MARITIME TRAFFIC

They can be grouped in the same way it was done for the sub-directorate above.

I-III-A) Newspapers and magazines

In January 1988 this sub-directorate was subscribed to the following issues :

- Shipping economics and statistics (Drewry).
- Worldscale yearly books.
- Seaborne trade and transport.
- Daily freight register.
- The petroleum economist.
- Petroleo.

(Source: General Directorate Library)

Some other national publications are received, mostly from different associations.

I-III-B) Market participants

Regulations are changing drastically during these years due to the entrance at the E.E.C., But because of some restrictive measures still in force for liner and tramp shipping, shipping companies are obliged to submit certain trade information or to request authorization in certain cases.

In the case where authorizations are required the information flows into this department smoothly and with

no major problems, therefore good and accurate statistics and studies can be carried out, as for instance in the cases of crude oil imports and in some dry bulk trades despite the scarcity of personnel.

But about some other information a continuous struggle exist between the administration and market participants, being the personnel engaged most of their working hours trying to obtain data instead of processing it. Such a struggle is a consequence of several factors, inter alia, the low ranking of the regulations which makes difficult their enforcement, the lengthy legal procedures required for taking action against infractors as compared with the ridiculous penalties imposed and the scarcity of personnel to devote their time to this arduous task.

During the last few years operative subsidies have been granted to vessels engaged in certain tramp trades, and even to liner services. Some information could be obtained from the requisition forms designed specially for this purpose (See figures I-III-B-1 and I-III-B-2). However this was only for certain trades and in spite of the reliability of the data, discontinuity made impossible the establishment of a good data bank. Although it can be said that thanks to those bits of information some interesting studies and evaluations have been possible.

Because this department is in charge of the contacts with market participants, frequent visits, telephone calls, telexes, etc., are received. Therefore information coming from informal channels constitutes a big share of the total available.



Figura I-III-b-1

TRAFICOS TRAMP

EXPEDIENTE Nº

(A rellenar por la Administración)

A.- SOLICITANTE:

Orden Ministerial aplicables:	
Empresa Navieras:	Domicilio social:

B.- INFORMACION DE REFERENCIA:

Buques:	Numerales:	TPM:		
Mercancía transportada:		Cantidad en TM:		
Tráficos:	Importación <input type="checkbox"/>	Exportación <input type="checkbox"/>	Extranacional <input type="checkbox"/>	Fecha del C. de Embarque:

C.- LIQUIDACION PROVISIONAL:

Coef. A	x	Coef. B	x	Toneladas	x	Distancia	
_____	x	_____	x	_____	x	_____	
						% (Art. 88)	pts.
						AYUDA SOLICITADA	pts.

D. _____, en representación de la Empresa Naviera, solicita acogerse a lo dispuesto en la Orden arriba señalada, a fin de que le sea concedida la Ayuda que se indica. Para ello, se acompaña la documentación exigida en las disposiciones legales aplicables.

_____ de _____ de _____

(firma)

D.- LIQUIDACION DEFINITIVA: (A rellenar por la Administración).

Coef. A	x	Coef. B	x	Toneladas	x	Distancia	
_____	x	_____	x	_____	x	_____	pts.
						% (Art. 88)	pts.
						AYUDA QUE SE CONCEDE	pts.

A la vista de la solicitud presentada por la Empresa, así como de la documentación técnica-marítima aportada, y teniendo en cuenta las disposiciones legales aplicables, procede reconocer el derecho a la percepción de la Ayuda por el importe que se indica en la liquidación definitiva.

CONFORME,
EL SUBDIRECTOR GENERAL DE
TRAFICO MARITIMO,

_____ de _____ de _____

EL JEFE DEL SERVICIO DE CONTROL DE EXPLUACION,

Figura I-III - b - B

TRAFICO TRANSP

EXPEDIENTE Nº

(A rellenar por la Administración)

BUQUE:	AYUDA SOLICITADA:	PTS.
--------	-------------------	------

E.- DATOS DEL TRANSPORTE REALIZADO:

Puerto de carga:		Distancia navegada: millas.		Velocidad: nudos.					
Comienzo	Fecha	Hora		TIEMPO EMPLEADO EN NAVEGACION: (2)					
	Terminación días horas.					
Tiempo transcurrido	días	hrs.	DURACION TOTAL DEL VIAJE: (1) + (2)						
Puerto de descargas:	 días horas.							
Comienzo	Fecha	Hora		Flote por T.M. £.					
	Terminación			FLETE TOTAL (3) £.					
Tiempo transcurrido	días	hrs.	<table border="1"> <tr> <td>£ =</td> <td>Ptas.</td> </tr> <tr> <td></td> <td></td> </tr> </table>			£ =	Ptas.		
£ =	Ptas.								
TIEMPO TOTAL EN CARGA Y DESCARGA (1)	días	hrs.	* Al cambio en la fecha del C. de Embarque.						
CONSUMOS POR VIAJE			RESULTADO DEL VIAJE						
Mar:	Puertos:	 días x (*) =		Miles pts.				
IFO () Tns.	Tns.		Tns.(IFO) x pts/TM =						
DO/GO Tns.	Tns.		Tns(DO/GO) x pts/TM =						
GASTOS DE ESCALA			Gastos escala -						
Puertos (s) carga:	Puerto (s) descargas:		Comisiones -						
Pts.	Pts.		TOTAL COSTES VIAJE -						
			(*) Coste diario del buque.						

F.- DOCUMENTACION JUSTIFICATIVA DEL TRANSPORTE REALIZADO.- (La Empresa deberá marcar con una X los documentos que se presentan):

<input type="checkbox"/>	Copia original (o fotocopia compulsada) de la Póliza de Fletamento.
<input type="checkbox"/>	Copia no negociable original del o de los Conocimientos de Embarque.
<input type="checkbox"/>	Copia original de la Hoja de Tiempos u otro documento que acredite la cantidad, en toneladas métricas, de las mercancías descargadas.
<input type="checkbox"/>	Documentación original que acredite el ingreso del importe del flete estipulado en la Póliza de Fletamento, expedida por la entidad bancaria española donde se realice el ingreso, cuando se perciba el flete en moneda extranjera.
<input type="checkbox"/>	Certificación de estar al corriente en el pago a la Seguridad Social.

I-III-C) Information agencies and consultants

That explained for the other sub-directorate in paragraph I-II-C can be applied to this one, with the sole exception that this department is connected on line with an information agency (Knight Rider Financial news), hence some first hand information of the shipping market is available round the clock.

The possibility to store the important information received by this method, into the computer of the General Directorate was studied by the experts in charge of the data process center and found out feasible. But for whatever the reason it is still being printed in paper, therefore personnel has to devote much of its time in sorting out and selecting the interesting bits of data through long rolls of paper every day.

I-III-D) Other administrative bodies

What has been explained for the other sub-directorate under the same paragraph can also be applied for this one, so no further comments will clarify anything else.

I-IV CONCLUSION ABOUT THE CURRENT ECONOMIC INFORMATION SYSTEM

After this brief overview at the two departments of the General Directorate most involved in economic issues, it would not be true to say that all the data sources have been enumerated, but at least the main points can be

highlighted :

* The lack of continuous standardized procedures and infrastructure for the collection of meaningful economic parameters which can make possible the establishment of a adequate data bank.

* The lack of enough trained personnel continuously devoted to this task in the central administration, plus the disruption originated by militars in charge of civil jobs at the ports.

* The inexistence, in some cases, of an explicit and adequate legal framework able to make possible the data gathering process from different sources.

These three reasons force the scarce trained personnel working nowadays at the shipping administration to adopt intuitive decisions, very often based upon information received through informal channels usually supported by loose figures and estimations, and also, probably biased by interested parties.

I-V THE NECESSITY FOR IMPROVAL

As commented at the introduction, the objective of this paper is to give an approach to the design of an economic management information system to be used by the administration. After the overview to the present one, it is understood that it is not very useful. So the necessity of a new one seems to be evident.

But before proceeding any further, it would be wise to

analyse whether such a necessity is justified or not. It might very well be that the inexistence of a good system is because there is no need of it.

If a new system is implemented it will be for the facilitation of the decision making process in economic issues, therefore its necessity will be a function of the importance of the decisions being taken against the setting up and running costs.

The best way to justify it may be through some examples :

* Since long time ago a lot of money have been granted to shipping companies as operative or shipbuilding subsidies, plus many other advantages (or disadvantages) in other fields. Only during the years 1984 and 1985 the bulk carrier fleet received more then two thousand million pesetas in operative subsidies.

In spite of all the calculations that were done to distribute the money in the right way, nobody is able to quantify what has been the impact in the fleet. Was it well done?. Are the shipping companies more competitive than before?, if they are, how much?. Have they penetrated in new markets or increased the share of the market they had?. Should the money have been used for other purposes?.

* Ships engaged 50% or more of the year in international trade are exempted from the payment of value added tax. How can the administration check it?.

* How will the administration monitor participation in trade and other obligations specified in the Unctad code of conduct for liner conferences?.

* How can the government know whether it is worthwhile (in pure economic terms only) to have a merchant fleet flying the Spanish flag?

* How can governments to grant millions to shipbuilding and other subsidies, as they have already done, without even knowing what will be the impact of these new units when entering into the market?.

* How can the government estimate the total transport capability of the different segments of the fleet in a given period of time?.

* Why is Spain paying the Ice Patrol as a function of the number of ships going to USA and Canada, when the administration does not have the means to know the exact calls of Spanish ships over there?.

Thousands of questions on this line may be raised with no answer, although the market will answer them for itself later on. As for instance in the case of the last crisis everybody has suffered thanks mainly to governments, banks, shipyards and shipowners, when promoting shipping activities without looking ahead.

Should governments, not only in Spain, are able to set up systems able to monitor developments and interactions about national/international interests in shipping, it may well be than in a future booms and slumps can be forecasted in some advance and, if not avoided at least their consequences might be better understood.

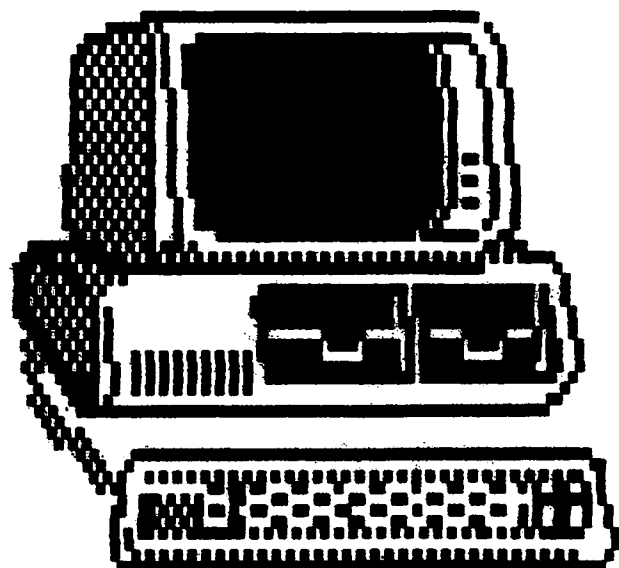
The remaining outstanding question is about the cost of

setting up such a system. As necessities have not yet been specified it is difficult to ascertain how much would the cost be. However the idea is to collect some key variables from different data sources and process them in a central computer located at the General Directorate of the Merchant Marine.

The computer was already bought about three or four years ago (Data General 32 bit - Eclipse MV 8000) and it is almost idle nowadays. Hence the big investment has already been done. The data collection and process will not be very expensive providing it is rationally designed. Money spent in communications at present (telex, telephone, etc.) can be compared with that which will be spent in electronic data interchange. Personnel requirements will not be numerous. And to finalize, whatever the costs might be, they will probably be cheaper than the consequences of the last crisis.

CHAPTER II

IDENTIFICATION OF NECESSITIES AND PROPOSED INFRASTRUCTURE



II-I GENERAL OBJECTIVES

In the preceding chapter, the present economic information system of the General Directorate has been briefly analysed, being the conclusion that an improvement is required.

The main objective of the improved system is to supply reliable economic information to policy makers to facilitate and support their decision making process, allowing them, inter alia to :

- * Forecast to a certain extent the demand for shipping services as far as the Spanish seaborne import/export trade is concerned.
- * Evaluate the transport capacity, productivity, and general performance of the Spanish fleet and its contribution to the Global Economy of the country.
- * Monitor the environment in which the fleet is operating in order to define shipping policies which take into account the interaction and influence of such an environment (world's fleet and seaborne trade).

To attain the aforementioned results, data must be collected and processed about the following topics :

- * Import/export seaborne trade.
- * Cost, revenue, and operating trade data of the existing national fleet.
- * World's fleet and seaborne trade data.

Next chapters will deal with the collection of such data and the information that can be obtained after processing. But in order to understand the procedures, first of all it

is necessary to outline the global infrastructure and requirements of the whole system proposed.

II-II GLOBAL INFRASTRUCTURE AND IDEA OF THE SYSTEM

The basis of the system can be summarized as the systematic gathering of predetermined key variables, their input and storage in a macro-computer, and the processing of such variables in different ways in order to obtain meaningful statistics and quantitative figures able to indicate the different trends and variations in : seaborne trade, sizes, types, ages and characteristics of the ship involved, plus some economic yardsticks for comparison.

Figure II-II-1 intends to illustrate the communication flows in the system, though it is impossible due to the multiple different channels that may exist. However it gives an approximate idea.

The "Research Department" would be in charge of the gathering, evaluation and analysis of the incoming data from various sources, either via computer or by other means and the distribution of results among interested parties. The data process center will assist, give technical support, elaborate programs and maintain the data bases.

Some of the information produced maybe considered as sensitive or confidential and will only be available to policy makers. But most of it could be published for the benefit and use of everybody, in particular data suppliers, keeping them, in this way, motivated to supply more and at the same time providing an important

feedback. It has to be borne in mind that the system has to be designed for the benefit of all those involved in the shipping business.

The system has to be designed bearing in mind the importance of a comprehensive use of electronic data interchange. Many data suppliers, in particular harbour masters, should have the facility to send the information by electronic means. In the same way many market participants maybe ready to do so.

For the retrieval of information, access to public data banks should be granted for everybody from their own computers, simplifying bureaucratic procedures and saving money in paper and time. Of course, there is no need to explain that sensitive information is excluded of this kind of retrieval.

As far as the General Directorate is concern, necessities for developing a system of this magnitude are :

- * The computer.
- * Manpower.
- * Legal provisions for data gathering.

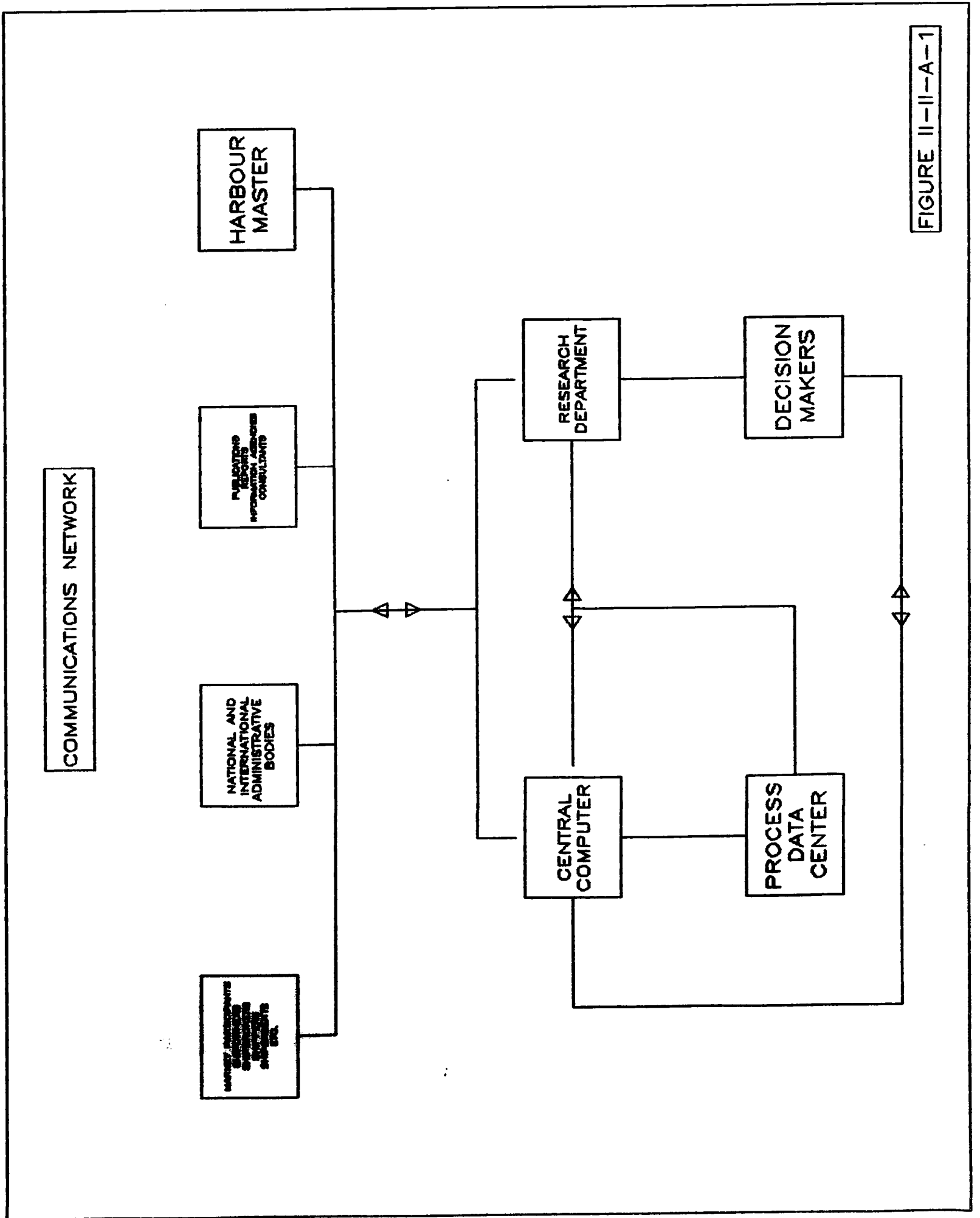


FIGURE II-II-A-1

II-III COMPUTER REQUIREMENTS

The basis of the economic management information system suggested rely upon the comprehensive use of a central computer being able to receive and store all the data collected in different points for further processing, analysis and output of meaningful information.

As it was mentioned before The General Directorate has already a macro-computer "Data General 32 bit Eclipse MV 8000. The question is whether it will be able to handle all the information required for this task.

When the computer was acquired the aim was to use it for several purposes, inter alia : keeping data about the ships' register, tracking of the movements of all the Spanish merchant ships all over the world, storage of all the information related to surveys and certificates in accordance with the local legislation and the memorandum of understanding on port state control, the collection of some data for statistical purposes in each arrival and departure of merchant ships at Spanish ports, plus some other computer usages as word processing, utility programs for each department, etc.

The storage capacity is 8 megabytes in main memory, plus 354 megabytes in disc. It has great expansion possibilities and works under the virtual memory principle. The transaction processing management information system can handle up to 128 on line terminals, and for each port it was though (Data General system specifications) the use of micro computers with storage capacity of 20 mb. in hard discs, and access to the main

computer in real time. Though ports have not yet being provided with these computers.

In spite of other uses, the computer itself is designed and prepared to handle information systems as the one proposed. Storage capacity is of great versatility and the Data General management information system DG/DBMS is able to sort, compute and access records by complex selection criteria.

Some further investments have still to be done as for instance in peripherals for harbour masters, but the whole infrastructure might be ready soon, providing decision makers agree.

Software has also to be programmed but as it will be seen in following chapters, the problems that might arise will not be precisely because of programming difficulties, since the processes described can be solved nowadays by most of the computers available at the market.

II-IV PERSONNEL REQUIREMENTS

Apart from magazines, reports, books or any other document from which information can be obtained, the main sources of data for the system will be : private companies and other administrative bodies either inside or outside of the shipping administration.

All these sources already have their own personnel which can devote some time (not much) every year for preparing the information to be submitted.

This means that the only manpower required in a permanent

basis would be those persons employed in the Research department.

This department does not yet exist at the General Directorate, though there is one which could be considered as very similar (Statistics department), and which could be probably in charge of this function. Providing that adequate personnel in knowledge and quantity is employed.

The statistic department existing today is attached to the Sub-Directorate for Maritime Transport Planning. It was ignored before when describing the present information system because in the last few years has not produced any relevant statistics, for whatever the reason. During 1987 some changes took place, and maybe today is ready to produce something useful.

What can be done is a real transformation of this department from what it is today to a shipping economics, statistics and research center.

This change would not be very difficult. Just the appointment of a few persons with enough knowledge of shipping business, economics and statistics. And of course with the support and cooperation of the computer center personnel.

The General Directorate is at present engaged in contracting new professionals with shipping background. This trend will probably continue until the necessities derived from the transformation of the structure from militar to civil are finished. Therefore it is the right moment to look for a number enough of professionals being able to run the aforementioned shipping economics and

statistics research center.

Not many experts would be required, apart from some other clerical staff. This people should have a sound knowledge in economics, mathematics, computer applications and shipping business. But as it is impossible to find out a single person having all that knowledge himself, the aim must be to form a team of experts probably with different backgrounds able to suit the necessities of such a department.

A lot of information will have to be collected at ports. It is no sense to appoint an expert in each port only for gathering data and evaluation of inputs. But a lot of other tasks have to be performed by the shipping administration in ports and the appointment of the adequate personnel is necessary.

It is about time to substitute military for professional harbour masters with shipping background and knowledge. The General Directorate can not carry out its functions, far away from the shoreline, without having the right personnel.

This necessity was recognized by the government back in 1981, and legal provisions for the take over were issued (R.D. 3320/81). Later on the conclusions of the "Cominmar" (Inter-ministerial commission for the study of the different competencies in maritime matters) also supported this idea. However for whatever the reason nothing has been done yet.

However meanwhile the government decides what to do, the

issuance of standard questionnaires can be designed and the provision of computers granted to current harbour masters. Otherwise the system will not be operative in long time.

II-V LEGAL PROVISIONS FOR DATA GATHERING

The data to be collected has not yet been mentioned, therefore it is not the aim to enumerate the legal instruments required for this task. They will have to be prepared by legal experts once the information system structure has been designed.

However, it should be stressed that without the adequate legal framework able to ensure the smooth and continuous flow of information, the usefulness of the system will be nil.

In order to illustrate what is meant in this paragraph a good example can be given :

In a regulation from 1985 (O.M. de 18.01.85), it is clearly established in its fifth article, that Spanish ships being chartered to foreign persons or entities, irrespective of the modality of chartering agreement, must have the authorization of the General Directorate beforehand. It also states that the chartering of foreign ships by Spanish interests do not require authorization but must be reported.

However, in spite that hundreds of fixtures of all kinds (T/C, Spot, etc.) have been done since 1985, only a few of them have been authorized by the administration. As can be

easily deducted from the records existing at the General Directorate.

It does not matter which was the objective behind such a legal instrument, the point is that it could have been a good source of data for knowing forms of exploitation of the Spanish fleet, it might have also given a rough idea of the influence of shipping upon the balance of payments plus some other related information. Instead it has shown the scorn of many shipowners and charterers for the law.

It might well be that the legal basis of this regulation was not solid, or the penalties were ridiculous compared with the legal steps required to enforce it. But whatever the reason might be, the fact is that no one has been punished and enforcement has not been possible.

Therefore, the conclusion is that, if any information system is going to be set up, procedures for data gathering with sound legal support must be established. Otherwise the personnel in charge of the system will lose credibility becoming frustrated and making the whole system useless.

CHAPTER III

SEABORNE TRADE DATA REQUIREMENTS ITS PROCESS AND OUTPUT



III-I DEMAND FOR SHIPPING SERVICES.

Demand can be defined as the desire to purchase a commodity or a service at a certain price. This demand in the theory of general equilibrium is a function of the buyers' tastes, their incomes and the prices of all other commodities. In the partial equilibrium theory, where analysis apply to one commodity or industry, the demand for a commodity is a function of the buyers' tastes and incomes, the possible price of the commodity itself and the price of the commodity's substitutes and complements.

The demand for shipping services has focused throughout the years the attention of researchers and people involved in shipping economics, specially during slump periods, and it can be said that good studies and evaluations have been carried out.

Excluding passenger services, it is widely recognized that the demand for transport is a derived demand from the demand for goods. Many attempts have been carried out for researchers trying to find out a relationship between production/consumption and demand for shipping, and some interesting relationships have been proved. For instance it has been found out that there exist a great correlation between gross national product and demand for shipping in many countries. But in spite of such a strong correlation nobody has been able to forecast accurately the requirements for tonnage in the world's fleet.

Unfortunately the demand for shipping services is much more complex than just to say that it is a derived demand. A lot of variable factors have to be taken into account,

and most of these factors can not be controlled neither by shipping companies nor governments.

The most important variables have already been analysed by many authors and they are called the determinants of the demand for shipping services and can be summarized as follows:

- * International seaborne trade (Relative elasticity of goods for sellers and buyers).
- * Competition among different modes of transport.
- * Freight rates:
 - Able to change patterns of trade for certain commodities under certain circumstances.
 - Relationship between the freight rate and the price of the commodity.
- * Other political, tactical or stock reasons.

Also some other supply factors can greatly affect demand in the short run, as for instance: change of the speed of the fleet, efficiency in loading and unloading operations, cargo differences, geographical divisions, package of goods, preferred size of shipments, etc.

After this few introductory remarks about the theory of demand and its implications in shipping, it is easy to realize that the concept of demand is very volatile and in the particular case of shipping as a whole it is very difficult or even impossible to calculate it out from consumption and production figures.

Some publications, as for instance the Lloyd's Shipping Economist, approach the problem from a different point of view, probably more practical. They establish that the

demand for shipping is the difference between the supply minus the laid up and idle tonnages, therefore the remainder has to be the demand. Of course that this figure does not truly represent demand, because in spite that laid up and idle tonnage have been discounted, it does not take into consideration that they compete just because they are there (stock), nor changes in distance and trade routes. However it gives an indication of how the market is changing.

What is suggested in this paper is to work out less volatile concepts which can also give a fair indication of how is the demand, and for that purpose the concept of supply will be used, bearing always in mind that supply is different than demand and it has different determinants.

Should the demand for a product or service have been perfectly met, both demand and supply will be equal, and following the same logic: supply can be considered acceptable provided it does not differ too much from the demand.

This means that monitoring supply and at the same time analysing other market indicators it may be known whether the supply is enough for the existing demand or not. For instance, if there are idle and laid up tonnage it is probably because there is excess of supply at the prevailing freight rates. But if shippers are unhappy with the services being given and there is not laid up and idle tonnages it may happen because demand is greater than supply.

It can be argued that this method is not accurate, and it is not. But at least it can provide a fair indication of

the trends in demand, enabling shipowners to adapt faster to the needs of the market.

The demand can change as fast as a desire, today someone may require something that may not require tomorrow. In one day or even in one second the demand for any commodity can change drastically. The supply is also volatile because of its dependence on freight rates which are heavily influenced by the level of demand. However it is not so volatile, once the units of production (Ships) are in the market they can not just disappear just as a desire.

Summing up, in order to assess the demand for shipping services what has to be done is to calculate the real supply and once this has been achieved to evaluate whether it is enough or not, not only in quantity but also in types of ships depending upon the trades they are or might be involved. Afterwards policy makers will have to promote or regulate the necessary changes to equalize these two economic forces.

III-II SUPPLY OF SHIPPING SERVICES. THE COMPLEXITY OF ITS CALCULATION.

The supply of any good or service is what producers are ready to put into the market at a given price and at a specific point on time.

The objective is to calculate the supply of shipping services calling at Spanish ports. It was stated in the paragraph above that supply in shipping is slower to reactions than the demand, nonetheless its calculation is

not an easy task and only certain approximations can be done.

The shipping market is not a single one, there are markets for different types of ships, different commodities and trades, different modes of operations, management, services offered, etc. This leads to the existence of many sub-markets which interact in many occasions with each other and change continuously.

In principle it can be maintained that the supply of shipping services can be measured in number of deadweight tons of the fleet. But deadweight indicate the capacity of transport rather than the actual supply. So it may be better to choose tons actually transported depending upon the objective of the study being carried out. However it is soon recognized that this magnitude is not enough because in the case of transport there are distances involved, hence tons x mile is a more significant figure. But it is not enough either because volume is also involved being very often a constraint, Therefore it would be better to use cubic tons x mile. However it is not yet enough because the different types of ship, the time spent in cargo operations and some other factors have to be taken into account.

So the first point to be highlighted is that the calculation of supply must link certain commodities with special types of ships. Let's suppose a bulkcarrier with the following characteristics:

Dwt= 67000 Tons.

Grain capacity (Gc)= 77000 cm.

The cargo capability in tons (Cc) in a voyage will be always a little bit less than the deadweight, and in this

paper and for the sake of simplification it will be 97% of the Dwt. therefore in this case $C_c=65000$.

But this cargo capability also depends on the stowage factor of the commodity to be transported. Should the stowage factor (sf) of the cargo to be transported is greater than the ratio G_c/C_c , then the maximum cargo to be transported will be G_c/sf , and if the stowage factor is less than G_c/C_c then the maximum amount to be transported will be equal to C_c . Whichever the case, the cargo to be transported will always be called C_t .

This explanation can be better understood looking at the following diagram:

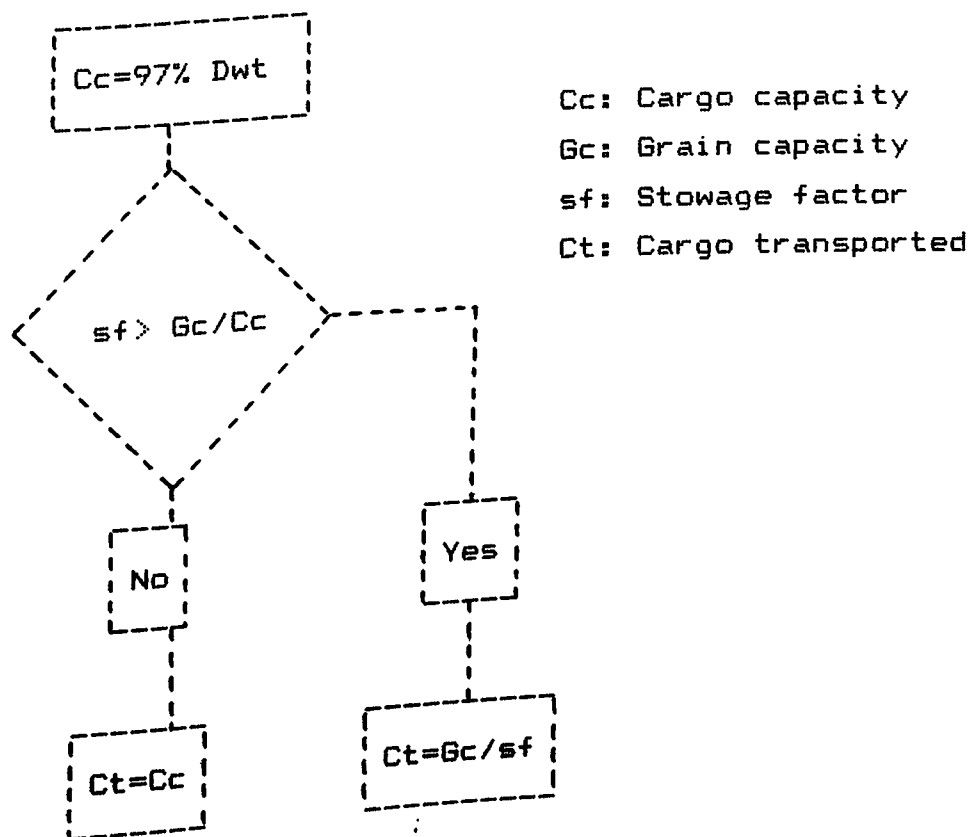


FIGURE III-II-1

This can also be illustrated with an example. let's suppose the same ship carrying two different commodities, with the following stowage factors:

sf1= 1.185 and sf2=2 tons per cubic meter.
 Dwt= 67000 Tons , Cc(97% Dwt)= 65000 Tons.
 Gc= 77000 cm
 Gc/Cc=1.185

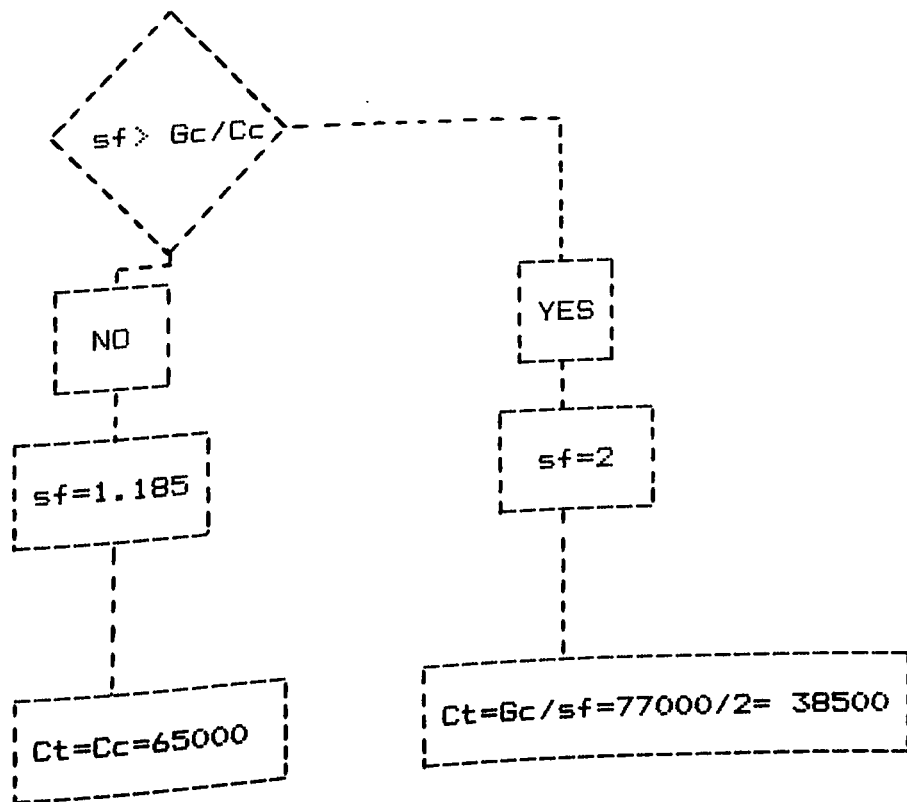


FIGURE III-II-2

If this bulkcarrier is travelling during a year between two specific ports and the time required for loading and unloading operations is known, during a whole year period the supply will be as follows :

$$As = \frac{365 \text{ Ct}}{\frac{2 D}{24 S} + \frac{Ct}{L1} + \frac{Ct}{Ld}}$$

Where: D: Distance.
 S: Speed.
 L1: Laytime for loading.
 Ld: Laytime for unloading.
 As: Annual supply.

And in the aforementioned example if : D=2000 miles, S=13 Knots, L1=5000 tons/day, Ld=5000 tons/day. The annual supply of tons for both commodities will be :

$$As (sf=2) = \frac{365 \times 38500}{\frac{2 \times 2000}{24 \times 13} + \frac{2 \times 65000}{5000}} = 497953 \text{ tons a year}$$

$$\text{As (sf=1.185)} = \frac{365 \times 65000}{2 \times 2000 + \frac{2 \times 65000}{24 \times 13 + 5000}} = 611146 \text{ tons a year}$$

Of course this is not so simple because a ship does not operate 365 a year and some time intervals have also to be considered on top of the laydays, but as this factors can be changed at pleasure they are not considered here.

The above examples have been mentioned and simplified just to show that many similar calculations can be worked out providing there is data enough able to yield, after processing, results with a certain degree of accuracy and confidence.

III-III - DATA REQUIREMENTS. ITS PROCESS AND OUTPUT.

What was defined above as the cargo capability of a ship in a period of time can also be called the potential supply that particular ship can achieve when engaged in that particular trade. Hence, if it is possible to collect the main variables for each trade and type of ship calling at Spanish ports, then the actual figures of supply can be arranged in the right way for further processing and other conclusions can be obtained, as for instance whether the Spanish fleet (Tankers, bulkcarriers, etc.) is enough for the Spanish needs, or if they are forced to participate as

cross traders or whether it would be tactical to promote new shipbuildings.

At this point it is important to mention that for bulk cargoes and industrial shipping any calculation and conclusion will be easier to obtain than for liner shipping, due to the fact that for liners the size of the ship, cargo transported and ports of call are not representative of the amount loaded and unloaded at each port. However it is for sure that if relevant data is collected, some sort of conclusions and relationships can be obtained facilitating a better understanding of this segment of the fleet.

Therefore the most important parameters in order to evaluate the supply of shipping services are:

- Type of ship.
- Time as a function of distance, speed, and loading and unloading operations, canal transit, etc.
- Stowage factor of the goods.

Thus the idea is that every time a ship is calling at any Spanish port some data is collected and sent to the General Directorate's computer, where it will be sorted out and processed in order to obtain the information that will be described further ahead.

The data to be collected should at least be :

- * Lloyd's shipping or Imo number.
- * Name of the ship.
- * Flag.
- * Type of the ship.

- * Year of built.
- * Deadweight.
- * Gross tonnage.
- * Number of crew member.
- * Speed of the voyage.
- * Tons of cargo loaded, stowage factor, class of goods, destination and laytime.
- * Tons of cargo unloaded, stowage factor, class of goods, origin and laytime.
- * Number of passengers embarked and destination.
- * Number of passengers disembarked and origin.
- * Unitized cargo.
- * Special transit cumulative code.

As can be seen there are more parameters than those necessary for the calculations mentioned in former paragraphs. The aim is to use them for other interesting studies and reports, as for instance: sizes of the crew in accordance with the flag of the ship, etc.

Distance can be calculated knowing ports of origin and destination, and in the near future most of the distances between different ports of the world will be available in computer programs. (British Petroleum Distance Tables are being computerized).

The Lloyd's shipping number, name of the ship, year of built, deadweight, gross tonnage and number of crew members are straightforward and deserve no further explanation.

For the rest of parameters it would be wise to use standardized codes being in use at international level, in order to facilitate the electronic information exchange

among different countries and the storage of such information in computer memory banks.

The flag of the ship, origin and destination of cargoes and passengers can be codified in accordance with any of the codes available today for different countries worldwide. It may be interesting to mention at this point that in the memory of the General Directorate's computer there already exists a data bank contained more than 6000 ports in codified form.

The class of cargo can also be codified and the best probable procedure is to use any of the codes being used by the custom authorities, that is , the armonized commodity code and description system presently in use by all European Economic Community countries. In the United States the customs have recently implemented a system called "Edifat" (Electronic data interchange for administrations, commerce and transport). In spite that these codes are too comprehensive some advantages can be obtained, as for instance the facility of exchanging information with the custom authorities.

For seaborne trade statistics and in order to simplify, different groupings can be done automatically by the computer in order to obtain a more clear picture. That is, instead of listing all the different varieties of coal, for instance, all of them can be grouped under a single class.

There is not standardized classification of ship's types due to the fact that most ships are built tailor made. This is a fact that can be observed in all the publications. But for the sake of simplicity they must be

grouped in some standard way. In figure III-III-1 one classification is suggested, though any other can be valid as well.

It may also be interesting to adopt the classification used by the Lloyd's Register of Shipping when the information is being fed into the computer, later on the computer can group them in different classes in accordance with the objectives of the study being carried out. This will also facilitate data interchange in a future for whatever the reason.

TYPE OF SHIP	SPECIFICATIONS
Bulkcarrier	All designed for bulk cargoes
Combination	Ore/Oil, Ore/Bulk, Probo, Etc.
Celular container	Fully cellular barge & containers..
Crude oil carrier	Only crude oil carriers.
Product carrier	Oil products, chemicals, wine, etc.
Gas carrier	Lpg, Lng, etc.
Cargo ship	Conventional, multipurpose, h. lifts..
Passenger ship	Cruise, ferries, hydro., hovercrafts..
Reefer ship	Refrigerated, reefer, etc.
Car carrier	Vehicle carriers, Ferries excluded.
Ro/Ro	Ro/Ro cargo, ferries excluded
Supply	Supply, tugs, tender...
Fish factory	Mother ship..
Fishing ship	Only its own captures..
Others	Dredges, research, etc..

FIGURE III-III-1

The unitized cargo code can be used for containerships and unitized cargo instead (or besides) of a total specification of goods in the cases of general cargo trades, car carriers or any unitized mean of transport.

The special transit cumulative code is any kind of switch or counter that may allow the identification of a ship which has accomplished loading and/or unloading operations in different calls for the same trip. Allowing thus, the distinction between how many ships have called in Spanish ports and how many times the same ship has called for the same cargo.

Thanks to the data fed into the computer, and after processing, information can be issued in the way considered as most appropriate, but in general it can be divided in two main groups:

- * Standard forms of reports.
- * Special questions and ad hoc reports.

There is information which is required every certain period of time, inter alia: fleet statistics, assessment of trade and flag participation, distinction between importing and exporting areas, etc. This kind of information is usually arranged and presented in the same day year after year and use to be required every certain periods of time. For this kind of information the computer can from time to time print out standard reports showing in matrix form, graphics, charts, tables, etc. the processed results automatically. All these procedures will be programmed beforehand specifying when and how those reports should be printed.

Some examples are given in following pages (See figures: III-III-2, III-III-3, III-III-4). These drawings only illustrate what can be done, but much more reports similar to those but containing other information can be issued. For particular studies in any field, special questions can be asked in order to obtain the required output. An example of what might be an special question screen is given in figure III-III-5. This picture also show a couple of examples of the questions that can be made. It is easy to realize that the combinations are enormous without using additional computer memory.

EXAMPLE OF STANDARD REPORT

YEAR 19XX
SHIP'S CALLS BY TYPE AND TONNAGE

STANDARD TYPES	DEADWEIGHT GROUPS												TOTAL			
	< 1499	1500 4999	5000 9999	10000 14999	15000 19999	20000 29999	30000 39999	40000 49999	50000 99999	70000 99999	100000 149999	150000 199999		200000 249999	250000 299999	> 300000
BULKCARRIER																
COMBINATION																
CELLULAR CONTAINERSHIP																
CRUDE OIL CARRIER																
PRODUCTS CARRIER																
GAS CARRIER																
CARGO SHIP																
PASSENGER SHIP																
REEFER SHIP																
CAR CARRIER																
RO/RO SHIP																
SUPPLY SHIP																
OTHER																
FISH FACTORY																
FISHING SHIP																
TOTAL																

EXAMPLE OF STANDARD REPORT

IMPORT COMMODITY : OIL
YEAR : 19XX (INVENTED)

DEADWEIGHT GROUPS

COUNTRY	< 1500		1500 5000		10000 15000		20000 30000		40000 50000		70000 100000		100000 150000		200000 300000		> 300000		TOTAL		
	MILL. TONS N	N	MILL. TONS N	N	MILL. TONS N	N	MILL. TONS N	N	MILL. TONS N	N	MILL. TONS N	N	MILL. TONS N	N	MILL. TONS N	N	MILL. TONS N	N			
SARABIA									0.32	5	0.76	8	0.375	3	0.186	1	0.23	1		1.87	18
IRAN									0.065	1	0.073	2								0.138	3
SIRIA									0.063	1										0.063	1
MEXICO												0.093	5	0.405	3					0.498	8
VENEZUELA												0.744	8	0.87	6					1.614	14
NORWAY									0.65	10	1.26	14	1.04	6						2.96	32
TOTAL									1.088	17	2.93	37	2.89	20	0.186	1	0.23	1		7.133	76

NOTE: N means number of ships

% BY TYPE OF SHIP

BULLCARRIER
COMBINATION
CELLULAR CONTAINERSHIP
CRUDE OIL CARRIER
PRODUCTS CARRIER
GAS CARRIER
CARGO SHIP
PASSENGER SHIP
REFUELER SHIP
CAR CARRIER
RO/RO
SUPPLY
FISH FACTORY
FRESHWATER SHIP
OTHER

0 3 0
0 3 0
0 7 0
0 0 0
0 0 0
0 0 0
0 0 0
0 0 0
0 0 0
0 0 0

FLAG PARTICIPATION

Home flag ... 37 %
Foreign flag ... 63 %

REMARKS

AT A GLANCE AND WITHOUT FURTHER PROCESS
IT IS POSSIBLE TO SEE :
Main Importing areas.
Number of Importing ships.
Flag participation.
Group of tonnage used and average sizes.
Participation of each group in total imports.
Types of ships used for this trade.

% AND AVERAGE SIZE OF IMPORTING SHIPS

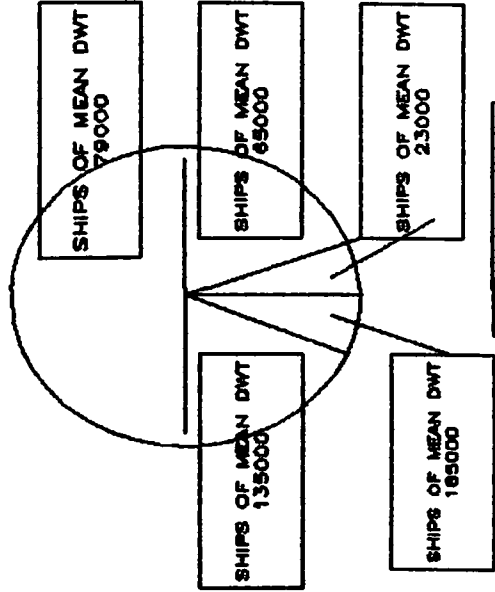
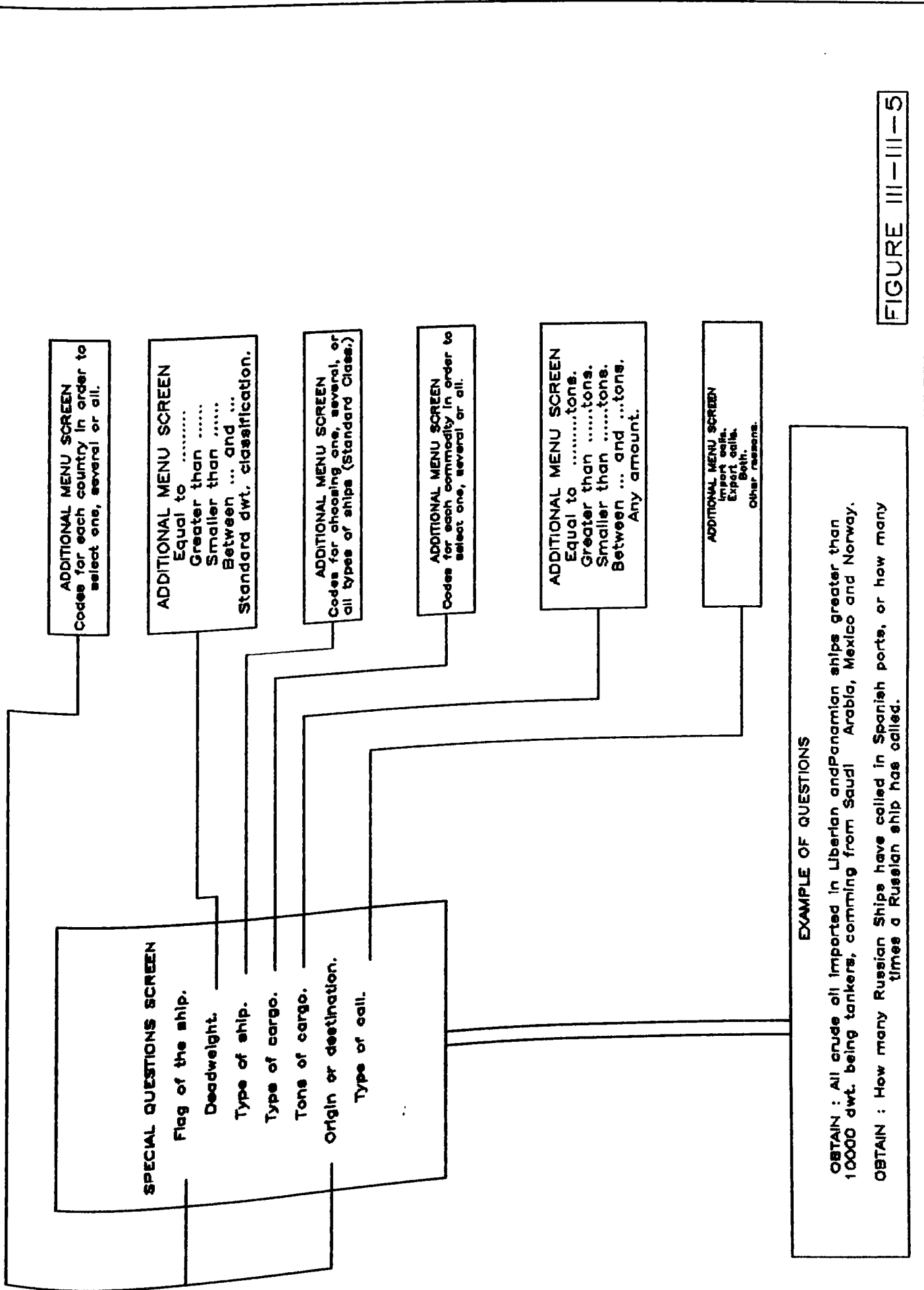


FIGURE III-III-4



EXAMPLE OF QUESTIONS

OBTAIN : All crude oil imported in Liberian and Panamanian ships greater than 10000 dwt. being tankers, coming from Saudi Arabia, Mexico and Norway.

OBTAIN : How many Russian Ships have called in Spanish ports, or how many times a Russian ship has called.

FIGURE III-III-5

Just in the few examples given the following information can be obtained for each commodity:

- * Average distance of imports and exports.
- * Total tons imported or exported.
- * Total tons x mile or cubic tons x mile.
- * Type of ships carrying such commodity (Tendencies in shipbuilding)
- * Most common size of ships carrying such commodity.
- * Preferred size of shipments and their evolution.
- * Laytime in different ports, for different quantities of cargo and different types and sizes of ships.
- * Flag's participation.
- * Main importing and exporting areas.
- * Etc.

Plus a lot of random questions that can be answered within seconds by the computer.

All this information will allow the construction of models that can be used for in depth analysis of certain trades and types of operation, the elaborations of forecasts and evaluations, the monitoring of tendencies; Not only in trade but also in shipbuilding and shipping operations and management, etc., And in general a better understanding of the behavior of the market and a more scientific way of decision making.

In order to illustrate a little bit more the possibilities of having such information stored in computer data bases, let's see the following example:

During 1986 all the Spanish crude oil imports amounted up

to 27287615 Tons. They were transported both in Spanish and foreign vessels. The mean distance of import was 3745 miles. The laytime for each port (Worldscale) was 36 hours.

In 1986 the Spanish crude oil fleet consisted of 21 vessels with a mean deadweight of 152678 tons., and the average speed can be considered as 12 knots.

Using these averages it is possible to calculate the potential capacity of the whole fleet during the year (355 operative days).

Ct= 95% of mean Dwt.= 145044 tons. There are no problems of stowage factors because all of them are crude oil carriers and it is supposed that they are able to carry at least 95% of their respective deadweights.

$$\text{Annual capability} = \left(\frac{355 \times 145044}{2 \times 3745} \right) \times 21 = 37277384$$

$$\frac{\quad}{24 \times 12} + 3$$

Hence the annual capability at that time was about 36% more than required just for the Spanish needs.

It is also possible to say that 3 days in port are not enough and some waiting time has to be considered. Then instead of 3 days it is possible to use 4 days and the

results will be:

Annual capability= 36035092

In this case the excess of the fleet would be 32%.

Many speculations can be made. For instance let's suppose than the Spanish government decides (or is forced) to cancel all the imports from the Persian Gulf and Red Sea areas, and for the sake of simplicity let's also suppose that this means an increase in imports from closer areas and the mean distance become 1000 miles instead of 2000. In such a case :

Annual capability= 49010902

Which means that about 80% excess in the tanker fleet.

Or maybe the fleet is able to increase its speed in one knot, then:

Annual capability= 40038754

Which means an excess of about 47%.

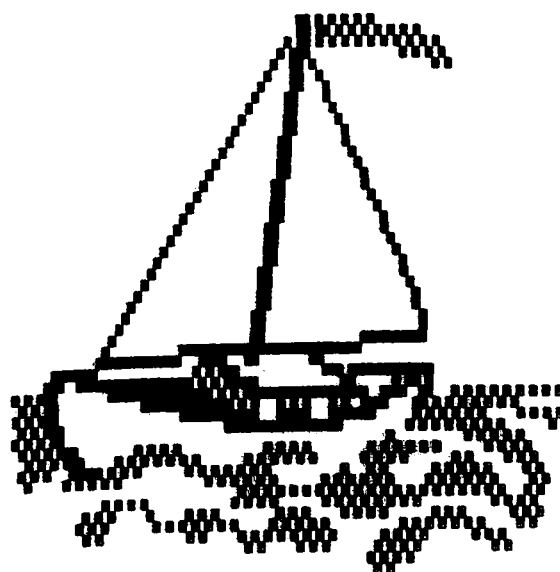
Of course that all these figures are not accurate, but they somehow quantify the potential performance of the fleet, and even if the results are not very trustable, they at least show that there was a considerable excess in fleet requirements by that time which is considered to be true by the General Directorate's experts.

But the real reason of why these figures give only an indication instead of an accurate figure is that results have been obtained from averages for the whole fleet. Should the data mentioned before were stored in a computer (Otherwise impossible), more complex models could be

worked out for each market and sub market and much more accuracy could be obtained. Just to mention a couple of examples : The impact of the closure of the Suez or Panama Canals, the impact of the increase in bunker prices (slow steaming), studies about the feasibility to promote other importing areas for some commodities, etc.

CHAPTER IV

DATA REQUIREMENTS ABOUT THE EXISTING FLEET



IV-I A CHANGING SCENARIO

All human beings wish to have some degree of comfort in their lives, this might be one of the reasons why since early ages humans have grouped together in tribes, cities, states, etc., as a mean of ensuring those minimum standards of comfort. Some of these groups managed to be self sufficient and wealthy, meanwhile other were poorer. This imbalance, besides other factors, have led to many wars and tensions since the beginning of the history up to present times.

In this context, shipping has been an activity in which traditional maritime countries' governments have been interested in one way or another, and the main reasons for such an interest may be summarized as follows:

- * Defense purposes (material and human resources).
- * To ensure the country's essential trade when wars or tensions in other countries or in cases of political pressure .
- * To ensure internal trade (cabotage).
- * To foster trade and communications between the country and other countries.
- * To satisfy national prestige and tradition.
- * Contribution of shipping to the balance of payments.
- * To preserve the know-how in shipping, shipbuilding, shiprepair, brokerage, etc. (social and technological added value).
- * To maintain shipyards.
- * To provide or maintain employment for national seafarers.
- * To counter actual or suspected discrimination exerted by

shipping conferences or national or international trade groups.

- * Training for future surveyors, administrators, pilots, etc.
- * To facilitate the diversification of industries.
- * Etc.

As can be seen all these reasons are a mixture of commercial and strategical, and for one of them or another it is a fact that traditional maritime countries have been and still are trying to preserve their fleets, meanwhile developing countries are making efforts to acquire a merchant fleet as well.

These interests have led to the adoption of different protective measures, inter alia: subsidies for shipping and shipbuilding, flag discrimination and allocation of cargoes practices, variations in terms of trade, financial advantages, special tax arrangements or exemptions, etc., and it can be said that strategical reasons have been, during the past, more important than to operate in a pure commercial basis.

But a new phenomena called "Globalization" is happening nowadays, the world economy is changing from a lot of national protected markets to a single unprotected international one, every country becoming more dependant on the others. Changes are not very fast but the tendency is clear and it is believed that this way may be the best for learning how to live in peace all together.

Globalization, liberalization, specialization, comparative advantage, free market economy, etc., mean that only those being more productive in a specific activity will survive,

and those being less productive will find out other ways of being productive in different fields. International trade will make possible the smooth exchange of goods and services and the hope is that equilibrium can be achieved, and the different communities of the world can live in peace. Governments will assume more consultative, promotional and regulatory roles rather than protectionist.

Shipping has been and still is one of the most international business of the world, and probably because of this reason the phenomena of globalization may be acting faster than in other business. An indicator of this trend might be the incredible growing of tonnage in flags of convenience experienced since the second world war and in particular during last few years.

Therefore, for the future it is expected that the parameters being used to evaluate the interest of having a merchant fleet will progressively change from strategical to commercial.

However and in spite that the future may be as described above, nowadays the world's population is not yet mature enough, countries do not trust on each other and governments like to exercise some degree of intervention upon certain areas called of strategic importance.

In an international context it can be said that shipping (and other activities) is on the brink. If the world becomes a peace heaven, then the reasons for its existence will be commercial, but if not, governments will have to use the former tactical and strategic parameters to evaluate the necessity of having a merchant fleet.

But in the particular case of Spain and because of its adhesion to the European Economic Community, this phenomena of globalization is already happening at regional level. Reasons to maintain shipping at the E.E.C. as a whole may yet be considered strategical, but for each single country inside the community the reasons will be purely commercial in accordance with the principle of freedom to provide services.

It can also be highlighted that there was a time when shipping was one of the most important uses of the oceans. But nowadays other sea activities, as for instance: minerals, oil and gas, industrial fishing, energy production, recreation, environmental issues, etc., are becoming more and more important and very often in some countries, far more productive and strategical than shipping. That is why governments all over the world are developing their own global maritime policies, considering all the sea uses and issuing integrated plans in which shipping may or may not be considered, depending upon the relative economic importance of this activity against other conflicting or more important uses of the sea.

Therefore, bearing in mind the future trends, there is no doubt that policy makers will need to know, more seriously and accurately, the impact of shipping upon the global economy of the country. Besides if only the more productive will survive, and if Spanish shipowners wish to be among their files, they must have a better understanding and knowledge of the business.

Shipping companies maintain records of all their transactions and operations, some are recorded in standardized forms because of legal requirements as in the

case of financial accounts, but other information is neither standardized nor published, making very difficult to compare the performance of different shipping companies and to find out what could be the best operational procedures.

For all these reasons what it is suggested in this paper is to collect some parameters about economical aspects of shipping companies, with the hope that this information, after being processed, can provide powerful decision making support to policy makers in the public sector and at the same time useful feedback information to shipowners allowing them a better utilization of resources, not only for their benefit, but for the whole economy of the country.

E.E.C. countries are concerned about the rapid decline of tonnage in their merchant fleets. In order to reverse this trend and with the aim of promoting competitiveness, the Commission is presently working in what is called "Positive measures to assist the community fleet". But the main problem faced is the lack of reliable information and economic yardsticks for comparison among the different member countries. Should what is proposed here in, were already in operation, the Commission would probably have enough information to issue a sound set of positive measures, but with the lack of information existing today it will be interesting to see how they manage to achieve that goal in an equal basis for all the member countries.

Summing up, shipping companies should pass to the Administration at regular intervals data about the following topics:

- * Ships operational data.
- * Cost and revenue data.
- * Accounting information.

This data will be analysed in general terms, that is, the Shipping Administration will not intervene in the practices followed by any shipping company. It will only be a gathering and processing center, disclosing only the general results that can be useful for shipping companies in order to enhance their performance. And this information together with that mentioned in other chapters, will facilitate policy makers the adoption of promotional, regulative or protective measures depending upon the world's situation and development tendencies.

IV-II OPERATIONAL DATA REQUIREMENTS. ITS PROCESS AND OUTPUT

The overall idea is to set up a computerized data bank containing the movements of each one of the Spanish ships over certain tonnage. This information should allow, inter alia, to obtain the following parameters:

- * Total time at sea loaded.
- * Total time at sea in ballast.
- * Total time under repairs.
- * Total time laid up or idle.
- * Total cargo moved and time spent in loading and unloading operations.
- * Ports of call.
- * Total distance covered loaded and in ballast.

The above parameters can be calculated for each ship of

the fleet at regular intervals of time, for instance every year, and this will allow the issuance of standardized reports in which different types and sizes of ships can be grouped in different ways, in order to show meaningful averages able to be used as yardsticks for comparison among different shipowners engaged in similar kind of operations. An example of what is meant in this paragraph is shown in figure IV-II-1, but there are many more possibilities providing the information is collected in the right manner.

At the same time some other performance indicators can be easily obtained for each segment of the fleet or even for the whole fleet, as for instance :

- * Utilization factor of the fleet .
- * Total tons x mile.
- * Main forms of employment for Spanish ships.
- * Main trade areas.
- * Number of port of call.
- * Laytime for different cargoes and ships in different ports.

It may not be easy to obtain straightforward conclusions for all types of ships which operate under different circumstances, there are always deviations from the mean and in some cases will be impossible to generalize. However, it is for sure that in most of the cases the results obtained will facilitate greatly the understanding of the performance of different kinds of ships and operations, and in particular in the cases where, for whatever the reason special attention should be paid to any specific sector or segment of the fleet at any given point in time.

One of the most important points is how to collect such a information, and what it is suggested here in, is that shipowners submit to the administration, at regular intervals, the data arranged as it is shown in figure IV-II-2 or something alike. An example of the same form have been filled up for a fictitious bulkcarrier's round trip in figure IV-II-3.

The questionnaire suggested can be used for all kinds of ships' operations, though for general cargo ships or break bulk loads it may be a little bit complex because the description of the goods may require hundreds of pages. For these cases, special groupings of goods may be designed when setting up the system for the sake of simplicity. But what it is really important, is that the system should allow the reception of questionnaires via computer. In this way most of the general cargo trades will not be a problem because the cargo manifests are already computerized.

Because the information contained in the questionnaire is a summary of the history of the ship and its performance, a lot of other interesting information can be obtained for different purposes, either strategical, or just to mention an extreme case, to avoid fraud in some cases. For instance no fraud will be possible when crews of these ships submit the certificates of time spent at sea to the Administration, because within a few seconds it will be possible to check such certificates consulting the data bank.

IV-III COST AND REVENUE DATA REQUIREMENTS. ITS PROCESS AND OUTPUT

It is well known that West European merchant fleets have declined, specially during the last few years. In spite of the substantial increase of the developing countries' share of the world fleet, which already amounts up to 23%, the main reason for such a decline it is the transfer from traditional to cheaper flags of convenience.

This move may bring serious consequences to the interests of West European countries, mainly due to the hypothetical lack of control and know-how during periods of crisis or international tension, in spite of the fact that most of the true owners and managers still remain in Europe and North America.

The core of the problem is competitiveness. Open registries are far more competitive because they are cheaper. It may be cheaper to charter a foreign vessel than to build and manage own tonnage in the short run. But in the long run nobody knows.

A good simile is the taxi argument : It may be cheaper in the short run to take taxis than to buy and maintain a car. But in the long run it may be more expensive, because it may happen that when a taxi is needed urgently no one is available, they are on strike or they do not want to pick you up, being also difficult to rent or borrow a car without driver because going by taxi makes easy to forget how to drive. And in such a necessity a ride (if available) may cost more than the value of a brand new one.

In a country as Spain in the middle of important ocean

routes, it may be cheaper for certain trades to charter foreign tonnage passing by in their ballast legs. The only problem is that if for any reason they do not pass anymore, the cost of chartering (bearing in mind the dependence of Spain on seaborne trade) may represent more than the money saved before.

In order to keep tonnage and being competitive at the same time, some countries have already set up a second register and others are studying the possibility. The Nato alliance is also concern, and has asked to the Institute of Shipping Economics and Logistics of Bremen, some studies about this issue. The E.E.C. as it was mentioned before is also considering the adoption of positive measures to assist the community fleet.

A lot of studies have been carried out to calculate the difference in costs among different flags, not only related to flags of convenience, but among different non convenience flags, and a common conclusion can be obtained: researchers do not posses data enough to compare among different regimes.

Administrations have similar problems, shipowners complain about the fierce and unloyal competition from open registry fleets, asking for protective and compensative measures either in taxation, depreciation, subsidization, etc., But the real problem Administrator face is the quantification of the gap in costs between different flags, and whether it is worthwhile or justifiable to maintain a national fleet and at what cost.

Shipowners are usually reluctant to supply information about their costs (at least in Spain) for whatever the

reason. But they must realize that in order to choose the best possible alternative, policy makers need relevant figures and facts instead of loose figures, cries and complaints.

For these reasons another data bank, containing cost and revenue information, could be set up for each one of the ships of the fleet. This will allow administrators the arrangement and evaluation of such a data for the different segments of the fleet, depending upon their operations, forms of employment, age, technical characteristics and in whatever the way it might be convenient in the future.

Taking into account the unwillingness of shipowners in supplying this kind of data, what will be asked should be neither comprehensive nor compromising, bearing also in mind that the role of the Shipping Administration it is to promote and facilitate shipping activities as a part of the global policy of the country, not to interfere in the company accounts.

When analysing cost structures a common problem is the different accounting practices, though there are some statutory provisions about how to keep financial accounts there are no regulations forcing companies the arrangement of costs information in a standardized way. Each shipowner depending upon his preferences allocate different costs under different headings, paying attention to the way he operates and in the form he consider the best.

For the Administration, standardization is required. So the first thing to be done is the issuance of the appropriate form. But whatever it might be, the following

information has to be included specifying which costs have to be included in different headings:

- * Capital (Capital and interest).
- * Bareboat or hire payments (If applicable).

- * Administrative (Overheads, marketing, canvassing, etc.).
- * Maintenance & repairs (Including stores and lubes).
- * Insurance.
- * Crew cost.

- * Agency fees and brokerage commissions.
- * Port Charges (Pilot, tugs, mooring, watchman, etc.).
- * Canal dues.
- * Loading and unloading operations.
- * Bunkers.
- * Taxes.

This information can be submitted once a year and in a way that distinction can be made about what has been paid in local or foreign currency. (See figure IV-III-1).

This data together with the other described all across this paper plus that existing at the central registry, can yield a lot of representative figures of great value, not only for the Administrators but also for the shipping community.

In a straightforward form the following can be deducted:

- * Contribution to taxes from shipping companies.
- * Approximate incidence of the fleet upon the balance of payments.
- * Average costs suffered by the fleet.

- * Cost of transporting one ton of cargo.
- * Cost of one ton ship's deadweight.
- * Cost of one day ship's operation.
- * Cost of one ton x mile.
- * Total cost of the fleet.

Grouped in many different ways either by trades, ages of ships, types, sizes, etc.

COST INFORMATION SHEET

CONCEPT	PAYMENTS IN FOREIGN CURRENCY	PAYMENTS IN PESETAS AND FOREIGN CONVERTED
CAPITAL		
HIRE		
ADMINISTRATIVE		
MAINTENANCE & REPAIRS		
INSURANCE		
CREW COSTS		
AGENCY FEES AND BROKERAGE		
PORT CHARGES		
CANAL DUES		
BUNKERS		
TAXES		
TOTAL		

FIGURE IV-III-1

Besides some interesting studies can be carried out and important conclusions can be deducted, as for instance:

The ideal size of a shipping company related to cost.

The best or more competitive shipping company.

Cost of automation versus manning costs.

Etc.

It is believed that the benefits derived from the conclusions obtained justify enough the inconveniences that may be produced to shipping companies.

Just to put an end to this chapter and knowing the interest that governments have about the contribution of the merchant fleet to the balance of payments, some clarifications should be made:

It was mentioned before that thanks to the cost and revenue information it would be possible to approximately evaluate the impact of the fleet upon the balance of payments. The reasons why the word "approximately" was included is as follows:

When analysing the effects of a national merchant fleet upon the balance of payments of a country it is not difficult to forget a few factors which can lead to a misinterpretation of the real picture.

It is very common to analyse the trading life of a ship forgetting that many of the materials and equipment used in its construction were imported from foreign countries and paid in foreign currencies. In the case of Spain, in spite that the shipyard may buy the steel for the hull

from a local steel mill, it can not be forgotten that the iron ore was probably imported.

Disbursements abroad of shipping companies may be measured in several ways by the ministry of finance, but for instance the money that the crew spend in foreign ports it is difficult to measure. Sometimes this money may be included in the ship's agent bill, but in most of the times crew members get a better exchange rate by themselves going to the bank, hotels, restaurants, cabarets, etc., or in the black market. And in none of such cases the government is able to measure the impact of these expenditures.

It is also possible to forget that the substitution of national ships for foreign ones in the import export/trade brings along an important effect in the balance of payments. It is common to measure the money that has been saved in freights paid to foreign carriers, but it is forgotten that those carriers were also spending in our ports, not only the crew members but in bunkering, port tariffs, embarkation and repatriation trips, food, agency etc.

This last point is important when measuring the net impact, but cannot be used against the convenience of having a national merchant marine, is like port delays to obtain more hard currency, due to the fact that in the long run, all those expenditures, are included in the freight rate paid to foreign carriers.

Summing up, it is not easy to measure the actual net impact of shipping upon the balance of payments, and it is very common to forget some inputs/outputs. But at least

knowing the disbursements of Spanish shipowners and the freight revenues in foreign currency an approximate figure can be obtained.

IV-IV ACCOUNTING INFORMATION

This paragraph merely relates to the balance sheet of the shipping companies at 31st. of December.

Should all the shipping companies submit their balance sheet each year, comparison among them can be achieved, different financial ratios can be published (without quoting the source), and this will be a good yardstick for comparison for different shipowners enabling them to compare its own financial position as regards to the others.

This information could be obtained through the Ministry of Finance or the Bank of Spain, but it would be much better if shipowners are ready to collaborate with the General Directorate for the benefit of themselves.

CHAPTER V

WORLD'S FLEET AND INTERNATIONAL SEABORNE TRADE DATA REQUIREMENTS



V-I NATIONAL VERSUS INTERNATIONAL SHIPPING

By the end of the Spanish civil war in 1939, the government at that time was very concern about the economic and strategic importance of a modern merchant fleet. That is why between 1939 and 1948 a chain of legal dispositions entered into force aimed to develop shipping and shipbuilding. Those legal instruments may be considered promotional rather than protective, being the main objectives to boost shipbuilding, seaborne trade in national ships and the creation of new shipping links.

But for several reasons, mainly the second world war, development could not be achieved as intended. Hence by 1956 a new law entered into force (Ley de proteccion y renovacion de la marina mercante 12.05.56), and this one can be considered as purely protective.

Since those days, shipping in Spain has been ruled by a considerable amount of protective regulations, which nowadays have turned out to be restrictive rather than promotional.

At that time (1956) the main arguments which were put forward in order to justify such a protective legislation were: assurance of supplies, international prestige, national defense and economic benefits.

It is not the intention to judge nowadays whether this policy was right or wrong, because it has to be borne in mind that just after the wars, and remembering the decisive role of the Allies' merchant fleet, these parameters were of utmost importance, and they might be

the same in a future if the globalization phenomena described above does not succeed.

The main aim at the beginning of that period was to achieve self sufficiency as far as shipping and shipbuilding was concern, though later on the objective was gradually changing to a policy of maintenance of the employment at shipyards.

Protective measures in order to promote an infant industry may be, in some occasions, the only way to facilitate market penetration in a competitive environment. But real life has showed that the maintenance of such measures for long leads to inefficiency, ineffectiveness and uncompetitiveness.

On top of that another important factor was forgotten or underestimated: The environment.

Since early ages shipping has been an international business, for shipping it is the world economy which establishes the policy guidelines rather than the domestic one, the same happens in many other businesses nowadays. As the world stands today, domestic economic policies will only succeed if they strengthen the country's international competitive position, therefore future policies must reflect international commercial concerns.

In the last few chapters some guidelines have been given about the collection of data related to Spanish seaborne trade and fleet, but nothing has been said about the monitoring of the international environment. Therefore it is the objective of this chapter to identify what sort of information can be collected about such an environment and

particularly:

- * World's economy and seaborne trade.
- * World's merchant fleet performance, accounting, cost indicators and freight markets evolution.
- * World's merchant fleet evolution and developments.

Most of this information which relates directly to shipping can be collected from different magazines and reports. Though there are other factors which influence the shipping business, as for instance: political decisions, national or international conflicts, natural disasters, etc. Therefore the personnel in charge of gathering technical straightforward data should also be kept up to date in all the general information that can affect shipping in one way or another. This will enable them to aggregate those external factors when making estimations and forecasts.

This information should be arranged in such a way as to allow a quantitative and qualitative comparison of the Spanish fleet with its international environment, being able to provide users of the system grounds for comparison and the assessment of the differences which may require the adoption of corrective measures before problems become bigger.

V-II WORLD'S ECONOMY AND SEABORNE TRADE DATA

The main data to be collected should at least be about:

- * World's economy growth.
- * World's industrial production.

- * World's consumption of main raw materials.
- * Global seaborne trade in tons and tons x mile.
- * Seaborne trade in tons and tons x mile for main products.
- * Flag participation in seaborne trade.
- * Tons and tons x mile transported by competing systems.
- * New developments in forms of transport.

All this will give an idea of the demand side at international level.

V-III WORLD'S SHIPPING PERFORMANCE, ACCOUNTS, COST INDICATORS AND FREIGHT MARKETS EVOLUTION

Under this paragraph the following data can be collected:

- * Shipbuilding prices for different types, sizes and country of built.
- * Second hand prices for different types, sizes and country of built.
- * Demolition prices for different types, sizes and countries.
- * Finance conditions in different countries.
- * Registry conditions in different countries.
- * Baltic freight index.
- * General Council of British Shipping tramp trip charter index.
- * German liner index.
- * Worldscale rates.
- * Other representative indices.
- * Chartering activity.
- * Sailings per month.

- * Accounting information of foreign companies (balance sheets).
- * Costs information for different flags.
- * Currency exchange rates.
- * Bunker prices and indices.
- * Port charges and canal dues.

All this will contribute to a better knowledge of the supply side.

V-IV WORLD'S MERCHANT FLEET EVOLUTION AND DEVELOPMENTS

The more representative figures that can be obtained to assess the evolution and developments of the world's fleet are:

- * World's fleet tonnage in its different types.
- * World's fleet by flag and ownership.
- * World's fleet age in its different types.
- * Newbuilding deliveries in total and by types.
- * World's orderbook in total and by types.
- * Vessels broken up.
- * Casualty returns.
- * World fleet capacity for each different types.
- * laid up tonnage.
- * Personnel employed in merchant ships.

As in the paragraph above, all this will serve to a better knowledge of the supply side.

V-V SOURCES OF DATA

As it was mentioned above most of this data is already available in different publications which can be easily acquired. The most well known all over the world will be listed below.

Those marked with two asterisks are already received at the General Directorate, though as can be seen some were not listed in chapter one. The reason is that they are received in different departments.

There is no point in wasting money buying those magazines twice, unless necessary. But provisions should be made to rationalize their use, in order that everybody can have access to them and also that they can be stored for future use if required.

- * Containerization international.
- * Cargo systems international.
- ** Fairplay international shipping weekly.
- * Fearnley's review.
- * Galbraith's tanker market report.
- * International financial statistics (FMI).
- ** Lloyd's list.
- ** Lloyd's register of shipping statistical tables.
- * Lloyd's shipping economics.
- * Maritime policy and management.
- ** OECD economic outlook.
- ** OECD maritime transport.
- ** Review of maritime transport (Unctad).
- ** Seaborne trade and transport.
- ** Seatrade.
- ** Shipping statistics and economics (Drewry).

- * Shipping statistics, Institute of Shipping Economics and Logistics, Bremen.
- * UN monthly bulletin of statistics.
- * World bulk trades and world bulk fleet (Fearnley's).
- * World shipping statistics (fairplay).
- * World tanker fleet review.
- * World trade review and outlook.

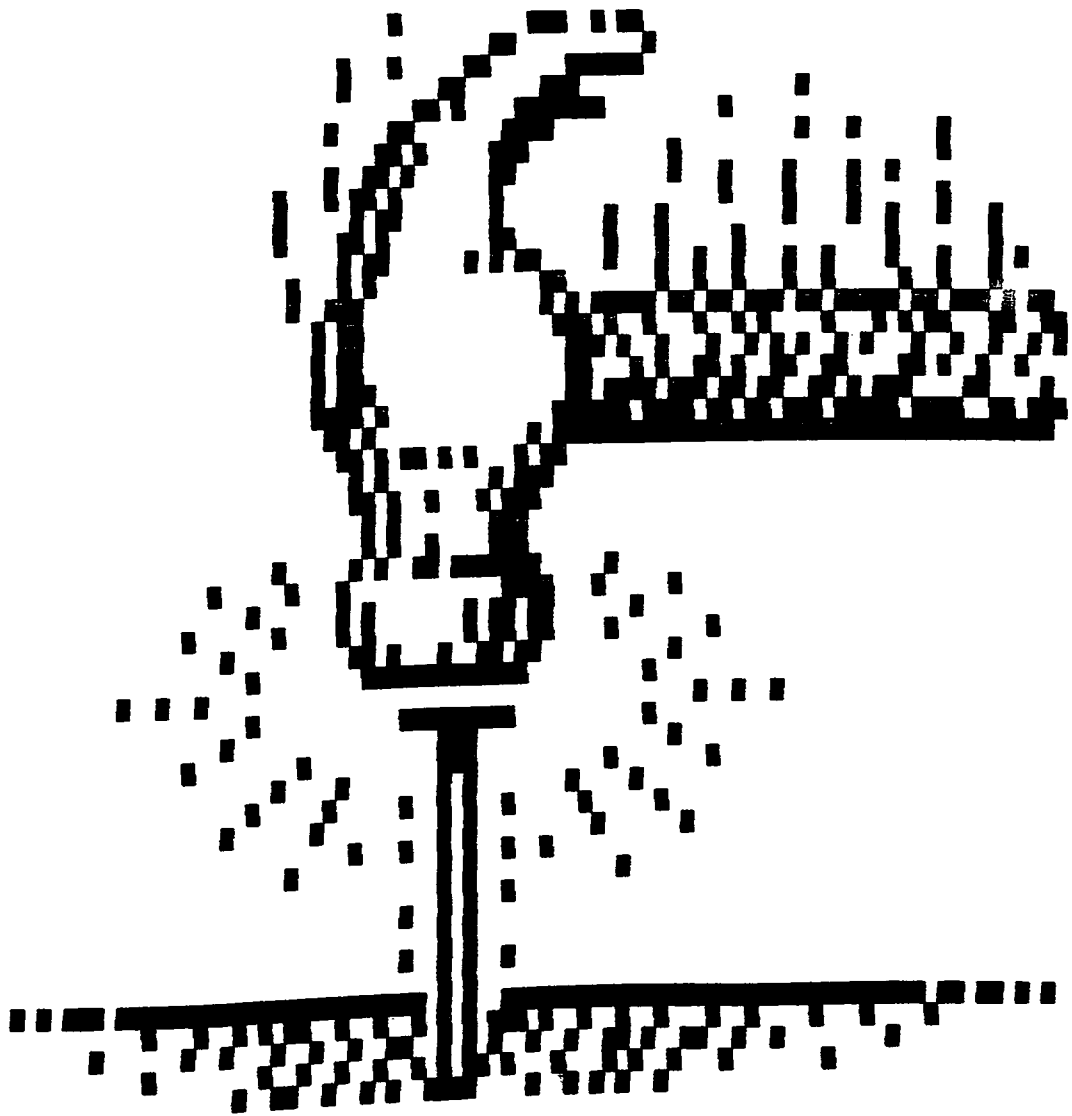
When setting up the system it has to be clearly specified what is going to be obtained from each publication and in which way is going to be stored, arranged and compared. Then magazines containing repetitive information can be discarded or any other not included in the list above can be added.

There are some other publications that can be also interesting for different purposes, as for instance the Yearly guide for selection of tankers (Tanker Advisory Center, N.York). In this publication it is possible to compare and rank charterers' preferences upon different shipowners, being possible to monitor how the Spanish tanker fleet is being considered abroad.

National publications can not be forgotten, they may also give some interesting information, including already-made comparisons between the national and international fleets. The most relevant magazines existing nowadays in Spain related with the maritime sector are:

- * Anave (Shipowners association magazine & special reports)
- * Boletin Informativo de la Marina Civil (D.G.M.M.).
- * Ingenieria Naval.
- * Mar (I.S.M.)

CONCLUSION



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Shipping is an activity in which most of the countries of the world are interested and involved to a greater or lesser extend.

Freedom to provide services in maritime transport may become a reality in a future, but there will also be more control and stringent rules in all sea related activities. The days of "Hugo Grotius" and his "Mare Liberum" have passed long ago. Whether good or bad what is clear is that governments will have more involvement in shipping matters, rather than merely protecting and discriminating to ensure that the rules (loyal competition or whatsoever) are complied with for all the parties. In this context decisions being taken at national or international levels will be very important for the development of this industry.

Governments are committing themselves internationally signing agreements and conventions, but most of them do not have the required infrastructure to check that such commitments are complied with by their own nationals (Example: Unctad code of conduct).

Governments, finance institutions, shipowners, shipyards, and other entities are taking decisions in a unilateral basis without knowing anything about the possible impact of such decisions, and the likely wastage of resources that they may bring along.

Therefore, should the idea presented in this paper been further developed and good systems implemented all over

the world (not only in Spain), a better understanding of this misty business can be obtained, and consequently having the possibility of taking more scientific and sound decisions which may eventually lead to a more efficient use of the resources for the benefit of all, and in particular for seafarers, which during the last years of crisis and bankruptcies have seen the most unsafe shipping and dirty oceans that can be imagined.

**DECISION MAKING
HAVING
INFORMATION IS A
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DANGEROUS TASK
BUT WITHOUT IT
IS TO BET FOR A
DISASTER**



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