

**SHIPPING  
W. Doc. 2008/07**

**WORKING DOCUMENT**

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**Subject :** LRIT: Setting-up of a European Long Range Identification and Tracking of Ships  
Data Centre  
- Implementation plan

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In view of the Shipping Working Party on 4 February 2008, delegations will find attached :

- a Non-paper from the European Commission on EU LRIT Data Centre: implementation plan (Annex I);
- the EU - LRIT Implementation plan as prepared by EMSA (Annex II).

**Non-paper from the European Commission**

**EU LRIT Data Centre: Implementation Plan**

Following the Council Resolution of 2 October 2007, Member States have decided to establish an EU LRIT Data Centre (DC). According to paragraph 1 of the Council Resolution, the Commission is in charge of managing the EU LRIT DC, in cooperation with Member States, through the European Maritime Safety Agency (EMSA). The Agency is more particularly in charge of the technical development, operation and maintenance of the DC.

One of the priority tasks identified during the Shipping Working Party of 7 December 2007 (see non-paper of the Commission, W. Doc. 2007/162) has been the establishment by EMSA of an Implementation Plan for the development of the EU LRIT Data Centre.

Member States are invited to comment and indicate whether they can support the proposed course of action as described in the Project Implementation Plan prepared by EMSA in Annex.

The Commission will regularly inform the Shipping Working Party of the progress made in the implementation plan.

## **EU LRIT Data Centre: Implementation Plan**

Version 1.0

Date: 23/01/2008

EMSA LRIT Task Force

**DOCUMENT HISTORY**

Version	Date	Comments

**INTERNAL APPROVAL**

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## LIST OF ACRONYMS AND ABBREVIATIONS

AIS	Automatic Identification System
ADM	Administrator
AMN	Administrator Manual
ASP	Application Service Provider
BPEL	Business Process Execution Language
COSS	Committee on Safe Seas and the Prevention of Pollution from Ships
COTS	Commercial off-the-shelf
CG	Contracting Governments
CSP	Communication Service Provider
DBA	Database Administrator
DC	LRIT Data Centre
DDP	LRIT Data Distribution Plan
EIS	European Index Server
EMSA	European Maritime Safety Agency
EU	European Union
ETL	Extract-Transform-Load process
GUI	Graphical User Interface
IDC	International LRIT Data Centre
IDE	International LRIT Data Exchange
IMO	International Maritime Organisation
IMSO	International Mobile Satellite Organisation
LES	Land Earth Station
MSC	Maritime Safety Committee (IMO)
MMSI	Maritime Mobile Service Identity
NCA	National Contact Authority
NPOC	National Point Of Contact
OASIS	Organization for the Advancement of Structured Information Standards
PKI	Public Key Infrastructure
PQP	Project Quality Plan
PSC	Port State Control
QoS	Quality of Service
QoD	Quality of Data
RFP	Request for Proposal
SAR	Search and Rescue
SAR SURPIC	Search and Rescue Surface Picture
SOAP	Simple Object Access Protocol

SOLAS International Convention for the "Safety of Life at Sea"

SSL Secure Sockets Layer  
SWP Shipping Working Party  
TLS Transport Layer Security  
VPN Virtual Private Network  
WBS Work Breakdown Structure  
WS Web Service

## EXECUTIVE SUMMARY

### Objective

The overall objective of this document is to explain how EMSA plans to develop an EU LRIT Data Centre (including the Communication and Application Service Provider services) in accordance with the mandate received from the European Transport Council of 1-2 October 2007.

The purpose of the document is to present an implementation plan for conducting the tasks for the establishment of the EU LRIT system, complying with the SOLAS Amendments.

The proposed solution is based on a centralised architecture, which is the most cost-effective way of developing and operating an EU LRIT DC. The main advantage of this arrangement is that all Member States can share a LRIT information repository, a common interface to the International Data Exchange (IDE) for requesting LRIT information on ships flying non-EU flags, and a common interface to LRIT information eventually via the SafeSeaNet system.

The idea behind the integrated solution is to establish one Regional Data Centre for the European Union. The Administrations of the participant Member States (which will be referred to as the LRIT users for the purposes of this plan) in their capacity as Flag States will register the ships that are entitled to fly their flag with the EU LRIT Data Centre. The list of Contracting Governments and Search and Rescue services registered with the EU LRIT Data Centre will be defined in the Data Distribution Plan (DDP).

### Two step approach

Taking into account the continued uncertainty about staff and budget at EMSA, the duration of European public procurement processes, and the fact that the integration of the STIRES module into SafeSeaNet (SSN) at an EU level is still under development, the EU LRIT Data Centre will be developed in two steps and development time will take at least  $T + 18$  months ( $T =$  approval of this Implementation Plan).

Step 1 will ensure the set-up of the EU Data Centre. Using two main tenders the CSP/ASP function should be contracted and the EU LRIT Data Centre and monitoring functions will have to be established. The technical functions of the CSP/ASP and the EU Data Centre will be developed using existing, proven, commercial systems adapted to comply with the specific system requirements of an EU LRIT system. These assumptions presuppose the availability of budget in 2008 to award contracts for the CSP/ASP function and the data and monitoring centres based on public tenders to be launched in 2008. This should result in a fully operational EU LRIT DC complying with the IMO SOLAS Amendment. This will include the use of SafeSeaNet's web interface and also ensure compatibility with SSN to ensure the feasibility of full integration during Step 2.

However, the full integration with SafeSeaNet, which will offer Member States the additional benefit of being able to combine LRIT with AIS information using a single interface will only follow after the completion of the SSN STIRES module, the interface between the LRIT DC and STIRES and after the important issue of access rights to LRIT data within SSN has been clarified.

### Timing

The plan is broken down into 8 work packages covering all aspects of the EU LRIT system. Each of the components will either be implemented by the Agency's staff or contracted externally. It is envisaged that the EU LRIT DC will be the earliest fully operational by T + 18 months.

The following main deadlines/milestones are to be achieved in step 1:

- T: approval of this Implementation Plan
- T + 4 months: functional and technical specifications ready and the draft contracts for the two main tenders (CSP/ASP and DC/MC) and launch of tenders
- T + 8-10 months: evaluation of tenders, finalisation of contracts
- T + 10 months: signature of contracts
- T + 15 months: finalisation of the development of the system by industry and start of testing phase and commissioning
- T + 18 months: EU LRIT DC operational

It is important to reach T urgently to start the execution of the Implementation Plan.

If this Implementation Plan would be approved for example by 1 February 2008 the completion should be achieved by 1 August 2009.

Should every step in the project be made subject to formal consultation/approval and requires confirmation by the LRIT expert group and the Council Shipping Working Party, this will delay the implementation by approximately 5 to 8 weeks per step.

This Implementation Plan covers the work plan and actions necessary to complete step 1 as explained earlier, (but takes into account the implementation of step 2 in terms of interfaces, compatibility and standards).

## SECTION 1: BACKGROUND AND LRIT SYSTEM COMPONENTS

### 1.1. Background

#### *1.1.1 The IMO requirements*

On 19 May 2006, the International Maritime Organization (IMO) adopted Resolutions of the Marine Safety Committee MSC 202 (81) and MSC 211 (81) which states amendments to the International Convention of Safety of Life At Sea, 1974 (SOLAS) and introduces the timely establishment of the Long-Range Identification and Tracking system (LRIT). Contracting governments agreed that the system would enter into force on 1 January 2008 and the transmission of LRIT data by ships should become effective from 31 December 2008.

The objective of the LRIT system is the global identification and tracking of ships. The requirements concerning LRIT have been introduced into the International Convention for the Safety of Life at Sea (SOLAS), 1974, Chapter V ("Safety of Navigation"), Regulation 19-1. In accordance with Paragraph 8.1 of Regulation 19-1, "Contracting Governments shall be able to receive long-range identification and tracking information about ships for security and other purposes as agreed by the Organization". Such "other purposes" would for instance include Search and Rescue (SAR), as explicitly mentioned in the new SOLAS provisions, as well as maritime safety in general and marine environment protection purposes as agreed by Resolution MSC.242(83) adopted on 12 October 2007.

Furthermore, IMO also adopted on 19 May 2006, Resolution MSC 210 (81) which establishes performance standards and functional requirements for the LRIT of ships. This states that the all LRIT Data Centres and the International LRIT Data Exchange should conform to functional requirements not inferior to those specified in the Annex to the Resolution. In addition, it states that Contracting Governments to the SOLAS Convention should ensure that shipborne systems and equipment used meet the requirements of this regulation V/19-1 of the Convention. Based on the recent IMO 83<sup>rd</sup> Meeting of the Maritime Safety Committee (MSC 83) meeting on 3 to 11 October 2007 a few changes were made to the performance standards and functional requirements. Changes are still possible, standards are not based on proven technology.

At MSC (82) in December 2006, it was decided that the LRIT data centre (national or regional) should be ready for integrating ships' data as from the 1<sup>st</sup> of July 2008 and not later than 1<sup>st</sup> of October 2008.

At IMO MSC (83) in October 2007, Member States declared their firm intention for the establishment of their Data Centre (National, Regional or International by IMO) to ensure that 4 position messages per day are stored and available for those actors entitled to access the LRIT information. The final working international LRIT system should receive, store and disseminate LRIT information on behalf of all Contracting SOLAS Governments.

### 1.1.2 EU Requirements

Following the Council Resolution of 2 October 2007, EU Member States decided to establish an EU LRIT Data Centre (EU LRIT DC).

According to paragraph 1 of the Council Resolution, the Commission is in charge of managing the EU LRIT DC, in cooperation with Member States, through the European Maritime Safety Agency (EMSA). The Agency is more particularly in charge of the technical development, operation and maintenance of the EU LRIT DC. It also "stresses that the objective of the EU LRIT DC should include maritime security, Search and Rescue (SAR), maritime safety and protection of the marine environment, taking into consideration respective developments within the IMO context."

The objective of the EU LRIT DC is the identification and tracking of EU Flagged ships which will be integrated in the wider LRIT system on an international level. Furthermore, via the EU LRIT DC, the European coastal states can obtain LRIT information for all ships coming to their ports within a range of 1000 nautical miles. The LRIT system will also contribute to the simplification of the mandatory reporting requested by Directive 2002/59 (Port Notification, Ship Notification MRS) and Regulation 725/2004 on enhancing ship and port facility security. The possibility of collecting the EU ship data in a unique data-base will contribute to the quality of service for other applications like Port State Control (PSC), CleanSeaNet, SafeSeaNet AIS, that need to have access to accurate ship data and will facilitate the provision of statistics for the benefit of the entire Community.

The EU LRIT DC should make use of the existing SafeSeaNet system communication platform in order to facilitate the sharing of LRIT information between Member States. This will ensure the appropriate level of security of LRIT data transmission and management to fulfil the IMO requirements. Furthermore, the Council Resolution indicates that it encourages the integration of AIS (Automatic Identification System) reports into the data managed by the EU LRIT DC in order to enable cost savings and avoid unnecessary fitting of equipment on board ships sailing in maritime areas within the coverage of AIS monitoring stations.

In view of developing the detailed technical specifications of the EU LRIT DC, in accordance with paragraph 13 of the Council Resolution of 2 October, EMSA is assisted by an EU LRIT expert group. The group will be composed of Member State experts in the field and will assist EMSA in the development and execution of this implementation plan, focussing on the priority actions to be engaged and achieved in 2008 and 2009.

The Council Resolution of 2 October 2007 also indicates that provision should be made for the participation of the overseas countries and territories including considering further discussion on the financial consequences. Furthermore, Norway and Iceland, as members of the EEA, should also participate.

The LRIT system and EU Data Centre should be ready as soon as possible for supporting the obligations of the EU Member States for their participation in the international LRIT system as explained in section 1.1.1. The target date is according to the IMO requirements end of December 2008. Nevertheless it was obvious and understood by the Administrative Board of EMSA that within the given timeframe a robust implementation is not possible. The Board stressed the need of establishing a quality system.

Table 1 summarises the various reference documents from the IMO and the EU which describe the relevant requirements and will be referred to throughout this Implementation Plan.

**TABLE 1: REFERENCE DOCUMENTS**

<b>Id</b>	<b>Reference</b>	<b>Title</b>
<b>EU Requirements / Documents</b>		
1	2821st Council meeting	Council Resolution dated 2 October 2007
<b>IMO Requirements / Documents</b>		
3	MSC 202	Amendment of SOLAS
4	MSC 210	Performance Standards and Functional Requirements for the Establishment of LRIT
5	MSC 211	Timely establishment of the LRIT
6	MSC 83/6/1	Draft Technical specifications
7	MSC83/WP6 rev.1	IMO LRIT report of the Working group
8	MSC.1/Circ.1236	LRIT Technical specification
9	MSC 242(83)	Use of LRIT for Maritime Safety and Environment protection purposes
10	MSC 243(83)	Establishment of the IDE on an interim basis
11	MSC 82 Report	MSC 82 Report, December 2006
<b>EMSA Reports / Documents</b>		
12	Phase 1 of LRIT Project (referred to in Section 2 of this Implementation Plan)	EMSA Study titled "EU LRIT Data Centre Preliminary Study Final Report", 3 August 2007

## **1.2. Overall International LRIT Framework and System Components**

### *1.2.1 General provisions*

The LRIT system and architecture is based on the performance standards stated in IMO Resolution MSC.210(81). The LRIT system receives stores and disseminates LRIT information on behalf of all Contracting SOLAS Governments.

It consists of the following components:

- the shipborne LRIT information transmitting equipment,
- the Communication Service Provider(s) (CSP),
- the Application Service Provider(s) (ASP),
- the LRIT Data Centre(s), including any related Vessel Monitoring System(s),
- the LRIT Data Distribution Plan (LRIT DDP) and the International LRIT Data Exchange (IDE).

These components are shown in Figure 1 and how they link to each other and to the National and Regional Data Centres. The shipborne equipment first transmits the relevant LRIT data which includes the shipborne equipment identifier, positional data and the Time Stamp. The data flows from the vessels to the CSP's which provide services and link to the various parts of the LRIT system using communications protocols in order to ensure the end-to-end secure transfer of the LRIT information. The ASP then provides the communication protocol interface between the CSP and the LRIT Data Centre to enable the following minimum functionalities:

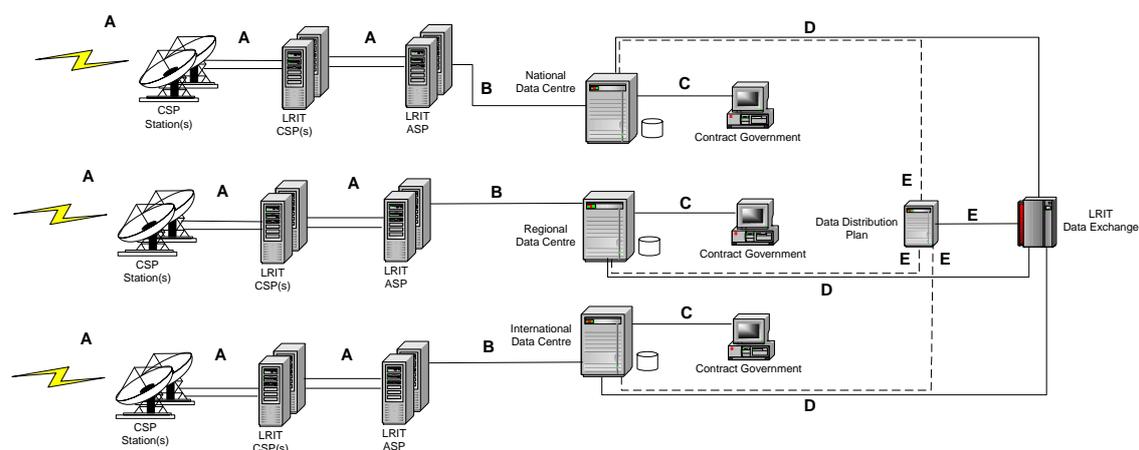
1. remote integration of the shipborne equipment into an LRIT Data Centre;
2. automatic configuration of transmission of LRIT information;
3. automatic modification of the interval transmission of LRIT information;
4. automatic suspension of transmission of LRIT information;
5. on demand transmission of LRIT information; and
6. automatic recovery and management of transmission of LRIT information.

The ASP also ensures that the LRIT information is collected and routed in a reliable and secure manner. Furthermore, and most importantly, the ASP and DC should add the following data to each transmission of LRIT information:

- ship identity (IMO ship identification number and the MMSI for the ship)
- the date and time the position report is received by the ASP (Time Stamp 2)
- the date and time the position report is forwarded from the ASP to the appropriate LRIT Data Centre (Time Stamp 3)
- the LRIT Data Centre identifier
- the date and time the position report is received by the LRIT Data Centre (Time Stamp 4)
- the date and time the position report is forwarded from the LRIT Data Centre to an LRIT Data User (Time Stamp 5)

In some cases, the CSP may also provide the services as an ASP.

Figure 1 below shows an overview of the LRIT components and the network connections between them.



**FIGURE 1 – INTERNATIONAL LRIT COMPONENTS**

The national or regional data centres then have a number of roles and functions which will be described in greater detail in Sections 2 and 3. Certain aspects of the performance of the LRIT system are reviewed or audited by an LRIT Co-ordinator acting on behalf of all Contracting Governments. The IMO MSC has designated IMSO (International Mobile Satellite Organization) to be the LRIT Co-ordinator. The LRIT Data Centres should co-operate and make available the required information to the LRIT Co-ordinator such that an audit can be made of their performance.

Figure 2 provides an illustration of the International LRIT system architecture including the various LRIT components. The LRIT information will be provided to Contracting Governments and Search and Rescue services entitled to receive the data, upon request, through a system of national, regional, and co-operative LRIT data centres, using the LRIT International Data Exchange (IDE). At present the temporary LRIT International Data Exchange will be established and operated by the United States on a contingency basis. The IDE will route LRIT information between LRIT Data Centres.

The IMO will establish and maintain the LRIT Data Distribution Plan which will include a list of Contracting Governments and Search and Rescue services entitled to receive LRIT information and their contact details. Furthermore, they will also have information on the boundaries of geographic areas within each Contracting Government entitled to receive LRIT information, information on standing orders given by a Contracting Government and other information supplied by Administrations, etc. These are detailed further in the IMO Resolution MSC.210 (81).

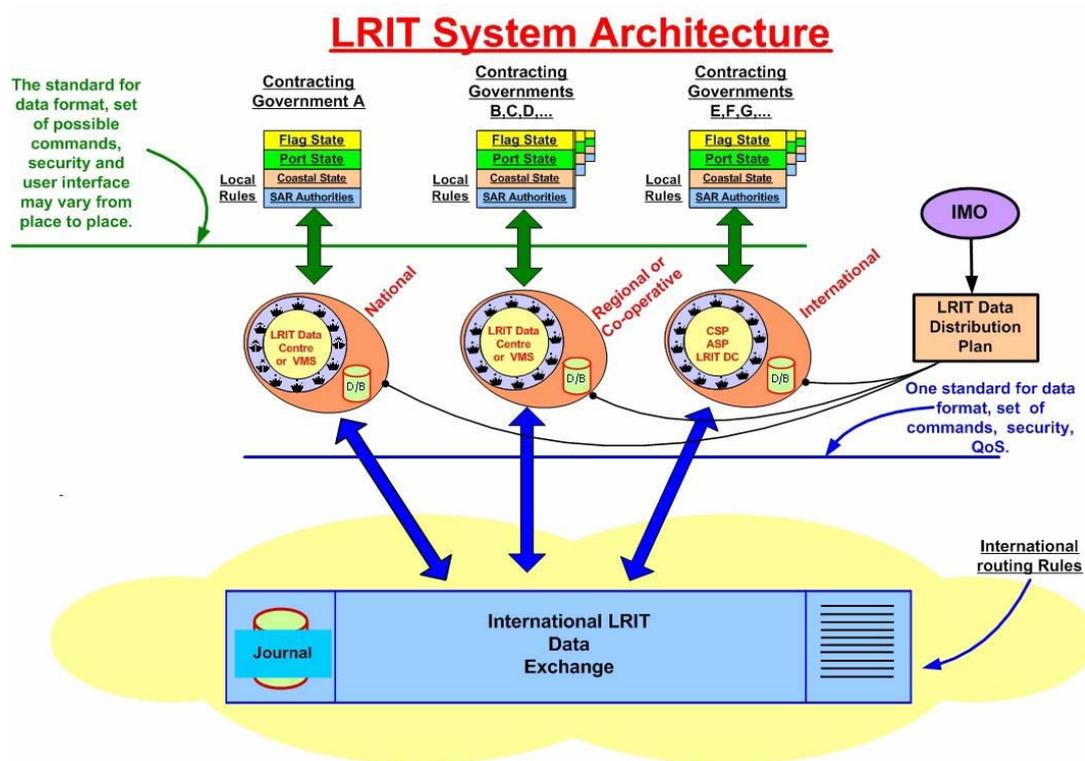


FIGURE 2 – LRIT SYSTEM ARCHITECTURE

It is clear from the IMO Resolution that LRIT communications using land-line links should comply with a variety of requirements such as authorization and authentication for data security purposes. Lastly, the system performance should include LRIT information being available to an LRIT Data User within 15 minutes from the time it is transmitted by the ship and that on-demand LRIT information reports should be provided to an LRIT Data User within 30 minutes from the time the LRIT Data User requested the information.

### 1.2.2 LRIT Co-ordination

The LRIT system performance should be reviewed and audited by the LRIT Co-ordinator, appointed by the Committee to act on behalf of all SOLAS Contracting Governments. Specifically, the performance standards adopted by resolution MSC.210(81) states that:

*"14.4 The LRIT Co-ordinator should undertake a review of the performance of the LRIT system taking into account the provisions of regulation V/19-1, the present Performance standard and any related decisions of the Committee and should report its findings to the Committee at least annually".*

MSC 82 appointed IMSO (International Mobile Satellite Organization) to be the LRIT Co-ordinator. The role of the LRIT Co-ordinator is to:

- assist in the establishment of the International LRIT Data Centre and International LRIT Data Exchange
- perform administrative functions (i.e. internal investigation, participation in commissioning of new DCs, etc...)
- review of the performance of the LRIT system taking into account the provisions of regulation V/19-1 through audits and report its findings to the Committee at least annually

In addition to reporting to the Committee on the performance of the LRIT system including any identified non-conformities, the LRIT Co-ordinator may make recommendations to the Committee, based on an analysis of its findings, with a view to improving the efficiency, effectiveness and security of the LRIT system.

All Regional or Co-operative LRIT Data centres should automatically maintain journal(s) for all of the internally routed LRIT information and transmit these journals to the IDE at regular intervals. The performance of all LRIT Data Centres should be audited by the LRIT co-ordinator.

### 1.2.3 Obligations of the parties

According to MSC.210(81), each Administration should decide to which LRIT Data Centre ships entitled to fly its flag are required to transmit LRIT information. Each Administration should provide to the selected LRIT Data Centre the name of the ship, IMO number, call sign and Maritime Mobile Service Identity (MMSI) for each of the ships entitled to fly its flag which is required to transmit information.

Upon the transfer of the flag of a ship which is required to transmit LRIT information to another State, the Administration whose flag the ship is now entitled to fly should provide without undue delay to the selected LRIT Data Centre in addition to the information mentioned: the effective date and time (UTC) of transfer; and the State whose flag the ship was formally entitled to fly, if known.

The Contracting Governments will also update the LRIT Data Centre when there are any changes to the above mentioned information.

Each Contracting Government should obtain the LRIT information to which it is entitled to under the provisions of SOLAS regulation V/19-1, and has requested, from the designated LRIT Data Centre. Each Contracting Government should indicate to the LRIT Data Centre the criteria for receiving such LRIT information, according to the Data Distribution Plan (DDP) managed by the IMO.

#### 1.2.4 LRIT Data Distribution Plan

The International Maritime Organization (IMO) establishes and maintains the LRIT Data Distribution Plan (DDP). According to Resolution MSC.210(81) the LRIT Data Distribution Plan includes:

1. a list of Contracting Governments and Search and Rescue services entitled to receive LRIT information, and their points of contact;
2. information on the boundaries of geographic areas within which each Contracting Government is entitled to receive LRIT information about ships in the area;
3. information on any standing orders given by a Contracting Government;
4. information supplied by Administrations on the boundaries of geographic territorial sea;
5. information supplied by Administrations pursuant to the list of Contracting Governments to which the LRIT information should not be provided;
6. a list of ports and port facilities together with the associated geographic co-ordinates (based on WGS 84 datum) located within the territory of each Contracting Government;
7. a list of the National, Regional, Co-operative and International LRIT Data Centre(s) and their points of contact; and
8. a record indicating which LRIT Data Centre is collecting and archiving LRIT information for each of the Contracting Governments.

The DDP will therefore be populated by the Contracting Governments with the IMO managing it. The DDP will be made available by IMO to the EU LRIT Data Centre. All LRIT communications using land-line links should comply for data security purposes with requirements such as authorization, authentication, confidentiality and integrity.

At this moment there is very little information available regarding the DDP and when it will be operational.

## **SECTION 2: EU LRIT DATA CENTRE FRAMEWORK**

### **2.1 Resource Constraints**

Following the Council Resolution of 2 October 2007, EU Member States decided to establish an EU LRIT Data Centre to be managed by the Commission, in cooperation with Member States and through EMSA. It is however evident that such a task requires a significant amount of staff resources and budget.

In the Work Programme 2008 adopted by the Administrative Board it has been stated: "This new activity was however not taken into account in the budgetary procedure 2008. Additional budget and staff is therefore not available at the beginning of 2008 and a rectification of the budget and establishment plan is needed during 2008 to provide the required financial and human resources for the establishment of the EU LRIT Data Centre. The Agency is awaiting the Commission's proposal and the Budgetary Authority's approval for adding the required resources... For the establishment and running of the EU LRIT Data Centre 28 statutory posts are required and Contract Agents; 16 posts should be added to the establishment plan for 2008 and 12 for 2009."

The Agency appreciates the efforts of DG TREN to provide to EMSA in 2008 the missing budget and staff.

Since 1 December 2007, an EMSA LRIT Task Force has been established within the Agency mainly based on existing staff, having also other functions to perform, to start preparing the work that needs to be undertaken in order to establish such a centre. It is evident that the prevailing uncertainty about the provision of staff and budget for LRIT is and will delay the setting-up of an EU LRIT Data Centre. The risks for further delays on the timeline envisaged at international level are explained at the end of this document.

### **2.2 Working Methodology**

The Agency, through the EMSA LRIT Task Force, will be conducting and working on the EU LRIT DC project and will regularly report to the Agency Executive Director and the Commission. At the request of the Commission, EMSA will also assist in reporting to the Shipping Working Party (SWP) on an occasional basis.

Furthermore, throughout the life of the project, the Agency will regularly be advised by and consult the Member State LRIT expert group which will be set-up at the initial stages of the project. Meetings will take place to consult the group on the main phases of the project and ensure that Member States suggestions for technical improvements are taken into account in the LRIT project.

### **2.3 Proposed architecture for the EU LRIT Data Centre**

The proposed system architecture and general links between the EU LRIT Data Centre and other components of the system such as the links with the IDE, DDP, and EU LRIT Ship database are shown in Figure 3.

The shipborne equipment, CSP and ASP

An LRIT message is transmitted from the ship via its shipborne equipment which includes the shipborne equipment identifier, positional data and the time stamp. This is transmitted via a satellite through the Communication Service Provider (CSP) to the Application Service Provider (ASP).

The ASP then provides the EU LRIT Data Centre with the complete LRIT information by adding the MMSI and IMO number to the datagram. This is then passed to the EU LRIT Data Centre that completes the ship identification with the shipname. All of these links are made using communication protocols in order to ensure the end-to-end secure transfer of the LRIT information.

The Agency plans to outsource the ASP function. Existing commercial Application Service Providers are in the most suitable position to relay with different Communication Service Providers to receive the ship positioning information communicated by satellite to the EU LRIT Data Centre. Although it is predictable most ships will use their INMARSAT C or D+ existing standard, the overall system must also be able to receive and process information using other communication systems compliant with the LRIT standards (e.g. Iridium, Globalstar, etc...)

These functionalities will be outsourced based on a public procurement procedure. For drafting the tender specifications information on how many ships will have to report to the EU LRIT DC as well as how many messages are required will be needed (is there a need to receive more than 4 messages per day per vessel?). Without this information the value of the contracts cannot be calculated. This is a compulsory element for tendering.

EU LRIT Ship Database Register

An EU Ship Database Register has to be compiled, based upon the information and subsequent updates provided directly by EU Member States as Flag States, in accordance with IMO Resolution A 887 (21) concerning the registration databases for the GMDSS. The structure for this EU Ship Database Register will be developed in-house by EMSA and MS will have direct access to populate the database via the SSN interface. Only Member States/Flag States can define which ships are obliged to report to the EU LRIT Data Centre. This register will have to be regularly (daily) updated by the competent Flag State administrations and will enable the ASP to transmit only the ship information relevant to the EU LRIT DC.

EU LRIT Data Centre and EMSA Monitoring Centre

With a second tender the Agency will contract the service providing the EU LRIT Data Centre functionalities and the monitoring capabilities (EMSA monitoring Center). The Agency will have a monitoring centre to supervise the quality of the service and data within the EU LRIT Data Centre. Besides transmitting and archiving LRIT reports, other functionalities and interfaces will have to be developed (interfaces with the ASP, IDE and DDP) under the scope of the EU LRIT Data Centre. In addition, the LRIT Coordinator will have to be able to audit the system on a regular basis.

At system level, the main functions of the EU LRIT DC are to:

- Collect, store and archive the LRIT reports provided by the ships instructed to report to the EU DC
- Provide on request an LRIT report through the IDE
- Request and process LRIT reports received from the IDE
- Provide on request the LRIT report to the EU end users
- Process the request received from the EU end users
- Comply with the basic communication protocol
- Comply with the system security performance requirements
- Support the external interface to the Data Distribution Plan through IMO
- Support the auditing and maintain journals

The EU LRIT DC in effect receives, stores, and disseminates LRIT information on behalf of all Member States as Flag States.

The ASP and DC should add the following data to each transmission of LRIT information:

- ship identity (IMO ship identification number and the MMSI for the ship)
- the date and time the position report is received by the ASP (Time Stamp 2)
- the date and time the position report is forwarded from the ASP to the EU LRIT Data Centre (Time Stamp 3)
- the LRIT Data Centre identifier
- the date and time the position report is received by the EU LRIT Data Centre (Time Stamp 4)
- the date and time the position report is forwarded from the EU LRIT Data Centre to an LRIT Data User (Time Stamp 5)

The EU LRIT DC will be accessible by the EU Member States using a web based application, which will be accessible via SafeSeaNet. The list of Contracting Governments and Search and Rescue services registered with the EU LRIT Data Centre will be defined in the DDP (managed by IMO) and will contribute to determine the eligibility criteria for which governments and Search and Rescue centres are able to receive the LRIT messages.

The EU LRIT Data Centre will have access to the DDP through the IMO. On the basis of the DDP information will be distributed to Member States.

#### Invoicing and Billing System

In addition, the Agency will develop an invoicing and billing system. In the EU Council Resolution of 2 October 2007, it was decided that overseas territories and third states will be allowed to make use of the EU LRIT DC and receive LRIT messages. Costs will have to be covered by them or the requesting Flag States.

Cost modalities have still to be defined and will depend on prices and price structures offered as part of the tender procedure. At least in the following cases the EU LRIT DC has to invoice:

- Member States requesting more than 4 messages per vessel per day for EU flagged vessels;
- Overseas territories for using the services of the EU LRIT DC;
- Third countries for using the services of the EU LRIT DC.

Depending on the final international regime:

- Member States will have to pay for LRIT messages received via the IDE from other LRIT Data Centres (non EU flagged vessels);
- The EU LRIT DC will receive income for messages of EU flagged vessels requested by other LRIT Data Centres via de IDE.

### Hosting

Decision on hosting should be taken on the basis of technical considerations and the envisaged timetable. Choice of location will also depend on the outcome of the tender processes. In any case, the monitoring centre will be established at EMSA.

### LRIT - SafeSeaNet

During the first step, covered by this Implementation Plan, a minimum integration with SafeSeaNet will be established due to the time constraint and to the complexity of the integration and the required improvements of SSN which will take additional time. There will however be compatibility with SafeSeaNet to ensure that this can be integrated in Step 2.

The objective of Step 2 is the integration of the EU Data Centre functions in a central application located at EMSA and monitored by EMSA. The EU LRIT DC will be linked to the STIRES module of SSN for complementing the AIS data. This will mean a fully integrated system, however the timing for this is expected to be by the end of 2010, because:

- firstly, the STIRES module needs to be developed, tendered, installed and tested. This process should be completed by mid 2009;
- secondly, based on the final specifications of STIRES and the EU LRIT DC an interface between the two systems will have to be put in place; and
- thirdly, access rights and distribution of information for LRIT is based on the DDP. If LRIT information will be integrated into SafeSeaNet the issue of access rights should be analyzed and a solution should be found to safeguard the integrity of LRIT information within the SSN system.

The final aim is that SafeSeaNet will be the primary interface between the Contracting Governments and the EU LRIT Data Centre for transmitting requests and receiving LRIT information reports.

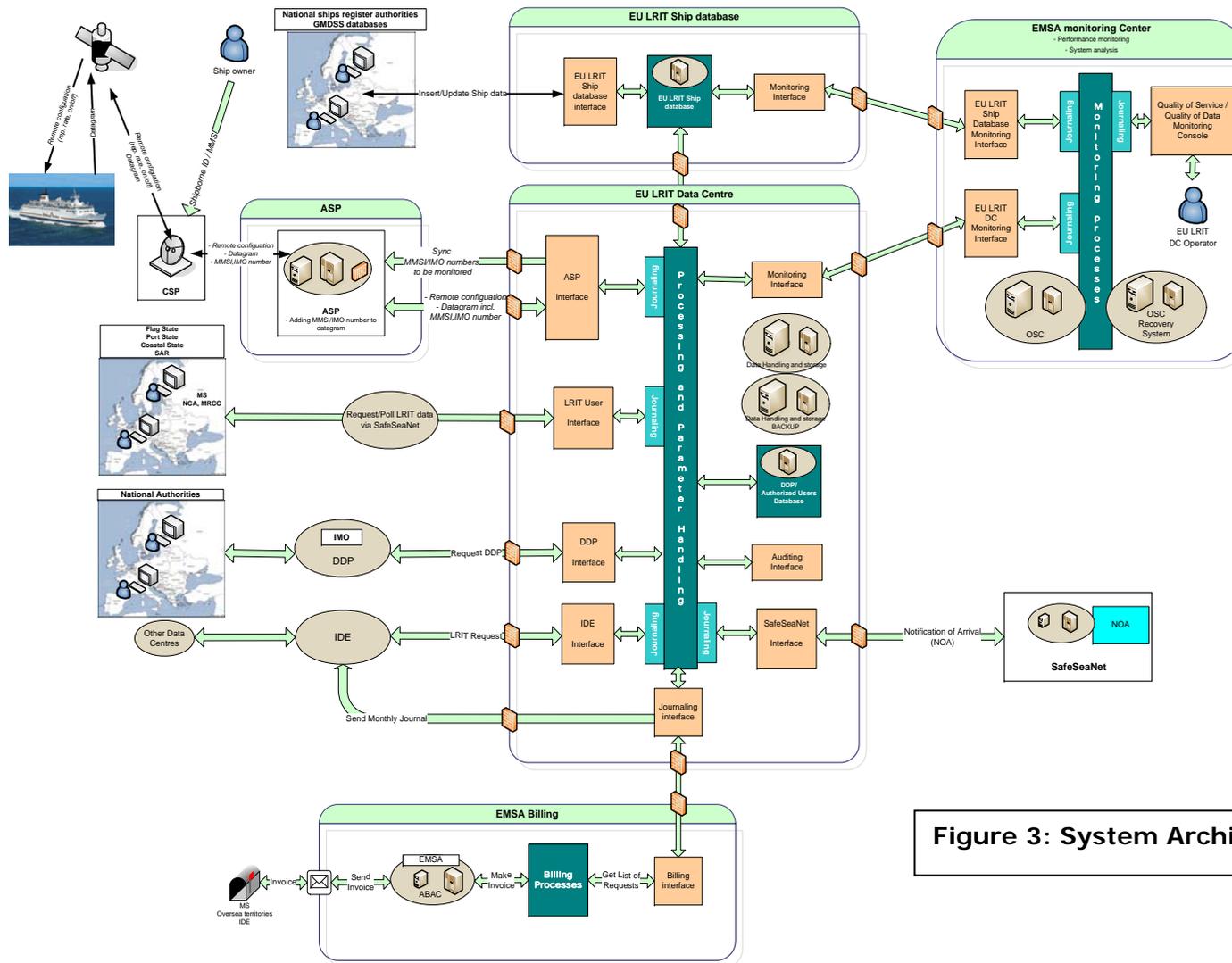


Figure 3: System Architecture

## **SECTION 3: ACTIONS REQUIRED AND PROJECT PLAN/WORK PACKAGES**

### **3.0 Introduction**

The ability to establish an European LRIT Data Centre serving the Flag States of the European Union depends on many actors and developments. The Agency has an important role to play, but is at the same time very much dependent on others for making progress.

Main actors which are critical to the project are:

- International Maritime Organisation and IMSO;
- EU Member States;
- European Commission;
- EMSA.

### **3.1 Actions required with Timeline/Target Dates**

The following table indicates the various parties who are part of the establishment of the LRIT system as well as their responsibilities..

#### **Different Parties involved in the LRIT System and their Responsibilities**

<b>IMO</b>	<b>Due date</b>
DDP development testing begins	1 January 2008 (delayed)
Any changes to the technical specifications for International LRIT system / shipborne equipment	MSC 84 (May 2008)
Defining the role of IMSO as LRIT coordinator / auditor	MSC 84 (May 2008)
The IDE has completed the development cycle and begins testing	1 July 2008
IDE, DDP, and at least 2 other DCs have been tested and start operating	8 September 2008

<b>Contracting Governments (Member States)</b>	<b>Due date</b>
MS to indicate to IMO that they will be participating in the EU LRIT DC	MSC 83 (Oct. 2007-completed)
To commence populating/providing data to IMO for the Data Distribution Plan (DDP)	1 January 2008 (delayed)
To provide the Commission/EMSA with the overseas territories to be included in EU LRIT DC (number of ships, messages, etc.)	March 2008
Provide EU LRIT Data Centre with ship information: - required by the IMO LRIT performance standards i.e. list of flag vessels (name, IMO, Call sign, MMSI) according to SOLAS Chapter V 19-1/ 2.1; - populate the EU Ship Database Register matching ship information with shipborne equipment on board for their fleet	From 1 July 2008 to 1 October 2008
To conclude agreement with EMSA on mutual rights and obligations regarding the EU LRIT DC and ship information	December 2008

<b>European Commission</b>	<b>Due date</b>
To submit to the Council (Shipping Working Party) for approval the project Implementation Plan prepared by EMSA.	18 February 2008
- Commission Proposal for rectifying the budget for the EU LRIT system - Approval of budget/staff by Budgetary Authorities	January 2008 (delayed) April 2008
Coordinate position of Member States at IMO and, as appropriate, at IMSO.	for IMO ad hoc LRIT meetings
To submit to the Council (Shipping Working Party) for approval the list of Overseas Territories which could be included in the EU LRIT DC in terms of the billing system and to notify EMSA with the final list of EU flags which are part of EU DC.	April 2008
Additional billing for extra messages beyond the 4 per day and also possible integration of Third countries to consider for billing purposes. The Commission to confirm this with MS and to inform EMSA on the final decision.	April 2008
Liaise and report to Council SWP on EU LRIT DC project with assistance from EMSA.	Ongoing

<b>IMSO</b>	<b>Due Date</b>
Develop and distribute the commissioning procedure	1 July 2008 (expected date for commissioning of IDE)
To provide the Commission / EMSA with the PSA format.	IMSO 21 AC Meeting (February 2008)

Due to the above responsibilities of the various parties, it is clear that EMSA is dependent on the timely completion of these actions in order for its project schedule not to be delayed (i.e. the DDP completion by IMO).

Here below are therefore the foreseen phases of the project for EMSA and their associated deadlines in terms of setting up the EU LRIT DC.

<b>EMSA</b>	<b>Due Date</b>
EMSA to establish LRIT MS Expert Group	As soon as possible
Technical and functional specifications are complete, including draft contracts and tenders are published in Official Bulletin (EU LRIT DC, ASP, LRIT Monitoring Centre).	T <sup>1</sup> + 4 months
Reception of ship data from MS and development of ship database.	T + 6 months
Develop and implement the EU DC LRIT information distribution rules based on the IMO DDP.	T + 6 months
Signing of contracts for various tenders (EU LRIT DC, ASP, LRIT Monitoring Centre).	T + 11 months
Develop and implement the EU LRIT billing system	T + 11 months
Development and implement EU DC interface for auditing purpose.	T + 15 months
Development and testing of EU DC interface with IDE	T + 15 months
EU LRIT DC established, tested and operational	T + 18 months

### 3.2 EMSA EU LRIT Work Breakdown Structure

This section will break down the actions to be carried out mainly by EMSA for Step 1 of the establishment of the EU LRIT Data Centre taking into account the various milestones and deadlines of the International LRIT Data system described in Section 1.2.

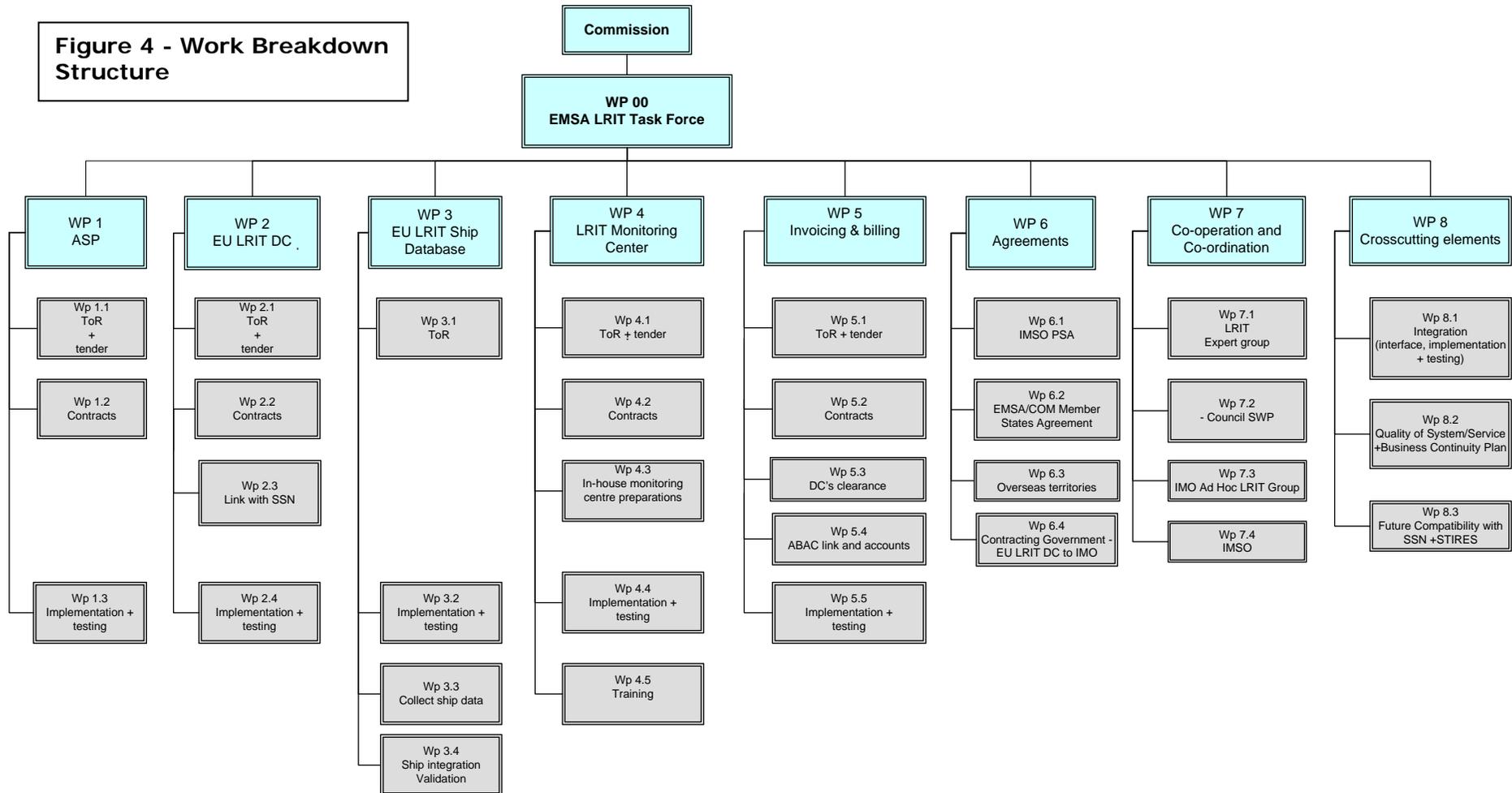
The EMSA Work Breakdown Structure (WBS) is organised into 8 Work Packages namely the following:

- WP 1 Application Service Provider (ASP) which includes CSP functionality
- WP 2 EU LRIT Data Centre
- WP 3 EU LRIT Ship Database
- WP 4 LRIT Monitoring Centre
- WP 5 Invoicing and Billing
- WP 6 Agreements
- WP 7 Co-operation and Co-ordination
- WP 8 Crosscutting Elements

<sup>1</sup> T = date of approval of this Implementation Plan

The overall project management and co-ordination for the set-up of the EU LRIT Data Centre and its components, including relations and work with the LRIT expert group and the Commission, is Work Package 00. All of these work packages are indicated in the EU LRIT DC Work Breakdown Structure (WBS) in Figure 4.

**Figure 4 - Work Breakdown Structure**



Each of these work packages is divided into sub-work packages according to the content of the study and to each action related to the work package. The work methodology of the Agency will therefore include determining for each work package:

- the main objective;
- the tasks and sub-tasks;
- deliverables;
- the task leader responsible and team doing the work;
- any external resources needed;
- deadlines/target dates.

### **3.4 Risk Assessment**

Several severe risks or potential problems can already be identified which may have an impact on the timing of the project:

- Time to approve the Implementation Plan may delay the start of the EU LRIT DC Project and therefore delaying the envisaged timeline.
- Any delay in the fulfilment of their responsibilities, of any party mentioned in Section 3.1 above, may delay the envisaged timeline.
- The absence of budget for this project (non-availability of commitment appropriations in the Budget 2008) may impede the publication of any tender at the envisaged time.
- Shortage of specialised staff may delay the draft of technical tender specifications and draft contracts within the foreseen period of 4 months.
- The LRIT message structure has never been validated to be "fit for function". Modifications are already foreseen.
- The DDP format and specifications at an IMO level is still undefined and might lead to unpredictable adjustments to the system.
- The ability of contractors to adapt existing systems in time for the purpose of this project is not known.
- When new steps in the project have to be approved by the LRIT expert group and the Shipping Working Party this will take additional time which will have to be added to the implementation period.
- Putting forward political criteria for the location of hosting components of the EU LRIT system may frustrate the procurement process.
- Excessive demands for security and an excessive access policy may overcomplicate the system.