

Safety Management Documentation Models for the Maritime Labour Convention, 2006

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Abstract

The Maritime Labour Convention, 2006 (MLC, 2006), which will enter into force in 2012 or 2013, focuses on seafarers' rights, safety and health in order to promote a better shipping environment. A Declaration of Maritime Labour Compliance Part II (DMLC II) is required to state the measures taken to ensure the quality of seafarers' living and working conditions on-board a ship. It is a challenge for ship owners to establish such a document and fit it into the existing safety management systems, International Safety Management Code (ISM). This paper proposes four possible documentation models of the ship owners' management system to cover the DMLC II with pros and cons. An appropriate documentation model not only benefits owners with regard to enforcement of the MLC, 2006, but also helps the flag and port state administrations to perform effective and efficient inspections.

Key words : Maritime Labour Convention, 2006 (MLC, 2006), management system documentation, International Safety Management Code (ISM), Declaration of Maritime Labour Compliance (DMLC).

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I. Introduction

The Maritime Labour Convention, 2006 (MLC, 2006) will be the first mandatory international maritime technical convention developed by the International Labour Organization (ILO). Instead of the governmental body, the International Maritime Organization (IMO), the ILO was formed by transnational and global political actors representing both labour and employer (particularly labour), under the principle of global tripartitism in order to reintroduce effective state enforcement of labour standards.¹⁾ MLC, 2006 focuses on seafarers' rights, safety, and health to promote a better shipping environment. It was adopted on the 23rd of February, 2006, and it is expected entering into force in 2013 when 30 member states with 33% of the world fleet tonnage have ratified it. By 29 February 2012, 24 member states had ratified the Convention, representing over 56% of total global tonnage. The five main objectives of the MLC, 2006 are as follows:²⁾

- Updating and consolidating existing ILO conventions
- Recruiting, developing, motivating and retaining qualified staff
- Preventing poor working and living conditions being used to create a competitive advantage
- Creating a level playing field
- Establishing the MLC, 2006 as the 4th pillar in international maritime regulations

This convention sets out seafarers' rights to decent working conditions and is seen as one of the "four pillars" of shipping safety and environmental protection at sea.³⁾ The other three are SOLAS,⁴⁾ MARPOL,⁵⁾ and STCW,⁶⁾ which contribute to the international regulatory regime for quality shipping and complement the key Conventions of the International Maritime Organization.⁷⁾

According to the MLC, 2006 certification requirements, the Maritime Labour Certificate (MLC) is mandatory for all merchant ships of 500 gross tonnes or over that are engaged in international voyages or are flying the flag of a member state and operating from a port or between ports outside such a country. Ships not covered by the certification should also be inspected

1) Lillie (2006).

2) Smeffjell (2010).

3) Smeffjell (2010).

4) IMO (1978a).

5) IMO (1973).

6) IMO (1978b).

7) ILO (2006a).

under the regulation of the convention. A Declaration of Maritime Labour Compliance Part I (DMLC I) is to be issued by the Flag State Administration addressing the national regulations on the fourteen areas required by the MLC, 2006. Thereafter, a Declaration of Maritime Labour Compliance Part II (DMLC II) of individual ship is to be prepared and signed by the ship owners to describe the measures taken to satisfy the requirements specified in the DMLC I for approval. The DMLC II is an attachment to the MLC, and it is similar to an ‘approved plan’. Upon completion of a successful documentation review and shipboard inspection, the competent authority or its delegated body duly authorized for this purpose endorses the DMLC II before granting the MLC.

The literature on the MLC, 2006 is limited, with previous studies⁸⁾ only focusing on the introduction of this new regime and no works examining its implementation or its integration with the current system. In practice, the DMLC I and DMLC II share the same areas with the newly developed MLC, 2006, which means that it is a challenge for ship owners to design an appropriate document for the current management system.

In this paper, we propose practical documentation models under various conditions to form a solid base for ship owners to better comply with the MLC, 2006. Such models should make it easy for ship owners and their crews to systematically trace the planned measures taken and to derive plans that have the least impact on existing operations. These models are not only benefiting owners with regard to the enforcement of MLC, 2006, but can also help the flag state and port state administrations to perform the required verification effectively and efficiently.

II. Literature Review

The enforcement of the MLC, 2006 signals an important change in the way that global labour rights are governed in the maritime industry and codifies maritime shipping’s fundamentally new way of implementing labour standards. Moreover, the MLC, 2006 sets a precedent for labour rights and global governance generally.⁹⁾

8) Lillie (2006) ; Bauer (2008).

9) Lillie (2006).

1. Contexts of MLC, 2006

ILO adopted an International Convention No. 147¹⁰⁾ concerning shipboard conditions of employment and shipboard living arrangements in 1976 while the ratification is limited. Knapp & Frances¹¹⁾ concludes that the lack of enforcement of ILO 147 constitutes to serious and less serious casualties. Beyond the seafarer safety onboard, the shipboard hazardous nature bears on port workers as well.¹²⁾ The quality of shipboard employment and living conditions are concerned for marine safety.

Article X of the MLC, 2006¹³⁾ revised thirty seven ILO Conventions from the No. 7 Minimum Age (Sea) Convention, 1920, to the No. 180 Seafarers' Hours of Work and the Manning of Ships Convention, 1996. At the 94th (maritime) session of the International Labour Conference, shipping was highlighted as an engine of the globalized economy, essential for the smooth transportation of goods as well as one that requires the availability of a sufficient number of suitably qualified seafarers. Trained seafarers play a crucial role in achieving safe, secure, and efficient shipping on clean oceans, and it is fundamental to the sustainable operations of this strategic sector that it is able to continue to attract an adequate number and quality of new entrants.¹⁴⁾ To this end, it is believed that decent working and living conditions are keys to hiring and retaining quality seafarers.

The class society of Lloyd's Register (LR) states that the MLC, 2006 is extensive both in its application and scope in addressing maritime labour-related issues with the objective of improving the standard, safety and status of shipping. LR states that the MLC, 2006 will have a direct and positive impact on both crew recruitment and retention, and most importantly, on maritime safety.¹⁵⁾ In Taiwan and many other countries, seafarers are either contracted by shipping companies individually as hourly workers, or, in major seafarer supplying countries like China and India, they are employed by crewing agents and dispatched to shipping companies. The operation of multi-national seafarers comes under a mandatory statutory inspection scheme, involving worldwide port state control administration and following

10) ILO (1976).

11) Knapp & Frances (2010).

12) Martin, Bang & Martin (2011).

13) ILO (2006b).

14) ILO (2006c).

15) TANKER Operator (2010).

the conventional requirement of “no more favourable treatment” – by which, regardless of whether the ship is registered under a ratifying state or not, the ship has to comply with the MLC, 2006, and this provides a new challenge to ship owners.

The contents of the Maritime Labour Convention¹⁶⁾ are as follows:

- Preamble, explaining the background of adopting this convention, and the general legal framework within the United Nations Convention on the Law of the Sea, 1982, the IMO Conventions SOLAS, COLREG (IMO, 1972), STCW, and the Constitution of the ILO, which considers that, given the global nature of the shipping industry, seafarers need special protection
- Sixteen articles (Article I to XVI) that declare the MLC, 2006.
- Explanatory note to the regulations and codes of the convention. This is intended as a general guide and does not form part of the convention.
- Regulations and the codes, which are organized into general areas, as follows :

Title 1 : Minimum requirements for seafarers to work on a ship

Title 2 : Conditions of employment

Title 3 : Accommodation, recreational facilities, food and catering

Title 4 : Health protection, medical care, welfare and social security protection

Title 5 : Compliance and enforcement

The code contains two requirements : Part A - The mandatory standard and Part B - The non-mandatory guidelines on the implementation of Part A. The regulations, standards, and guidelines specify groups of provisions with related numbers.

- Appendices A5-I, A5-II, A5-III, and B5-I contain details of examples of certificates, DMLCI, DMLCII, and areas of flag state certification and port state inspection.

There are fourteen areas specified in the DMLC I, and they are the same as the DMLC II among a total of 22 MLC, 2006 regulations, and these are mainly in Titles 1 to 4, with one in Title 5. Some issues, such as recruitment and placement, conditions of employment, social security, and on-board complaint procedures, have never been examined by any IMO statutory survey. However, many other requirements overlap with the Standards of Training, Certification and the Watchkeeping for Seafarers Convention (STCW)¹⁷⁾ and impact the existing maritime safety management system (SMS) as required by the International Safety Management Code (ISM).¹⁸⁾

Therefore, it is a new task for ship owners to establish these measures in their

16) ILO (2006b).

17) IMO (1978b).

18) IMO (1996).

official daily routines, to apply the measures to their existing management systems ashore and on-board and to implement them so that they are always ready for inspection.

The MLC, 2006¹⁹⁾ specifies that each member state shall require ships that fly its flag to carry and maintain a Maritime Labour Certificate certifying that the working and living conditions of seafarers on the ship, including measures for ongoing compliance in the DMLC, have been inspected and meet the requirements of national laws or regulations or other measures implementing this convention. The DMLC has two parts: The DMLC I is drawn up by a competent authority that (i) identifies the list of matters to be inspected; (ii) clarifies the national requirements embodying the relevant provisions of this convention by providing a reference to the relevant national legal provisions, (iii) refers to ship-type specific requirements under national legislation, (iv) records any substantially equivalent provisions adopted, and (v) clearly indicates any exemption granted by the competent authority. The DMLC II is drawn up by the shipowner and identifies the measures adopted to ensure ongoing compliance with the national requirements between inspections and the measures proposed to ensure that there is continuous improvement.

2. Enforcement of Member States and Ship Owners

Guidelines for flag state inspections under the MLC, 2006 were adopted by the ILO in September 2008. These guidelines are designed to be of practical assistance to governments in drafting their own national guidelines for effective flag state inspections and, where appropriate, certification of ships for compliance with the requirements of the MLC, 2006, as implemented nationally.²⁰⁾ Such guidelines specify a flag state inspection system; each standard, i.e. Part A of the code, is to be inspected, certified, or both, and they also indicate how to perform the inspection, with examples of deficiencies.

Guidelines for port state control officers carrying out inspections under the MLC, 2006 were also adopted in September 2008. These were designed for governments to draft their own national guidelines and to ensure compliance with the requirements of the MLC, 2006.²¹⁾ These guidelines specify the port state control inspection procedures and the sources of information needed in

19) ILO (2006b).

20) ILO (2009a).

21) ILO (2009b).

an inspection, with examples of deficiencies when found.

The Republic of The Marshall Islands was the second member state that ratified the MLC, 2006, and it was the first flag state to issue a marine notice in 2009²²⁾ to announce its MLC, 2006 inspection and certification program integrated with the DMLC I. This marine notice was further amended in 2011.²³⁾ Liberia was the first state to ratify the MLC, 2006, and it is a well-known flag of convenience in Taiwan and worldwide. The Bureau of Maritime Affairs of the Republic of Liberia issued a marine notice²⁴⁾ to provide guidance on implementing the requirements of the MLC, 2006, including the inspection and the certification of ships. The Liberian DMLC I is attached as Annex I of the Marine Notice, and a checklist²⁵⁾ is provided for the ship owners to prepare for their DMLC II. In this checklist, the owners are required to include some procedures to ensure on-going compliance.

The American Bureau of Shipping provides a DMLC II sample and titles of twelve samples of the MLC, 2006 dedicated procedures.²⁶⁾ Det Norske Veritas (DNV) was the first classification society to certify a merchant ship on a voluntary basis by inspection and verification based on a DMLC II prepared by the owner²⁷⁾ and suggesting that the ship owner could track the DMLC II measures either with the use of a full MLC, 2006 manual(s) or by referring to the manual or procedures of the ISM safety managements system.²⁸⁾ In addition, the China Classification Society lists 50 documents and records to be retained on-board for compliance,²⁹⁾ further supplemented by Wu and Ho suggested seven more.³⁰⁾

3. Documents and the Related International Standards

ISO 9001³¹⁾ is a widely-used set of voluntary management system specifications to establish a fundamental working platform of a quality-oriented organization, including documentation. ISO 9000 (ISO, 2005) is a normative reference of ISO 9001, and it defines “document” as “information

22) IRI (2009).

23) IRI (2011).

24) LISCR (2011b).

25) LISCR (2011a).

26) ABS (2009).

27) DNV (2009).

28) Wu & Ho (2010).

29) CCS (2009).

30) Wu & Ho (2010).

31) ISO (2008).

and its supporting medium,” with examples being records, specifications, procedure documents, drawings, reports, and standards. “Documentation” is defined by ISO 9000 as “a set of documents”, a “procedure’ and a “specified way to carry out an activity or a process”, while a “quality plan” is a “document specifying which procedures and associated resources shall be applied by whom and when to a specific project, product, process or contract”.

ISO/TR10013³²⁾ is a guideline for quality management system documentation. It recommends establishing documents by identifying the necessary management system processes, understanding the interactions between those processes, then documenting the processes to ensure effective operation and control. ISO/TR10013 also specifies nine typical types of documents and their contents, including quality manuals, documented procedures, work instructions, forms, records, quality plans, and specifications. The first five types can form a pyramid documentation model in hierarchy and are popularly adopted in an ISO 9001 certified organization today.

When more than one management system standard is applied in an organization, Chen and Kuan³³⁾ visualized three typical multiple management system documentation models :

- Independent model: each system has its own level one (manual), level two (operating procedures), level three (work instructions), and level four (forms and records) documents as an individual pyramid;
- Partially integrated model: level one documents for each system are independent and shared at the other levels of common elements as several small pyramids sitting on a big trapezoidal base;
- Effective Integrated model: All levels of documents are fully integrated in one diamond as a whole.

In the shipping industry, the documentation requirements of the mandatory ISM Code relate to the documents used to describe and implement the safety management system (SMS), and these may be referred to as the “Safety Management Manual”. Such documentation should be kept in a form that each company considers most effective, and each ship should carry on-board all documentation relevant to that ship.³⁴⁾

32) ISO (2001).

33) Chen & Kuan (2010).

34) IMO (1996).

III. Analysis of Documents

1. Qualitative Approach

Up to the middle of 2010, only one member state³⁵⁾ issued its DMLC I while others are still struggling to form their MLC documentation systems. With the fact of lacking reference, an exploratory qualitative study makes the best methodological framework of this work. The qualitative study approach results in a rich and holistic account of a phenomenon anchored in truly practical situations. By using multiple sources for data collection, the researchers were able to use different data sources to validate and cross-check findings.

The first phase of data collection process is to identify the concerned interacting factors between MLC, 2006 and the existed ISM documentation systems. In order to balance the view point of four sources: (a) MLC, 2006 regulation interpretation, (b) the existed safety management system practice, (c) DMLC II approval and shipboard inspection, and (d) cross departments operation; the selection criteria of interviewees were set as follows:

- Professionals who knowledgeable in MLC, 2006 background and interpretation
- Senior port captains in charge of ISM whom familiar with MLC, 2006 requirements
- ISM auditors with experiences of shipboard working and living conditions inspection
- Designated persons (DP) of ISM system and heading marine and technical departments

Based on the above criteria, five selected experts (qualifications see appendix) were interviewed individually in the second half of 2010 by asking an open question: “What are the key factors of an ideal MLC, 2006 documentation system ashore and onboard?” The collected data were numbered and compiled into the documentation models based on the International Standard of quality management system documentation. The documentation model proposing process is detailed in section 3.2, and the four proposed documentation models are discussed in section IV.

In the second phase of survey, 24 experts (qualifications see appendix) were invited to validate the proposed documentation models and provide

³⁵⁾ IRI (2009).

opinions on each of the model. All experts have completed the MLC, 2006 required courses provided by various classification societies. The proposed MLC, 2006 documentation models were presented to the experts and no further adjustment were recommended by these interviewees, which shows a saturation of our proposed models. These experts were asked to evaluate the pros and cons of each model. The collected data were analyzed and grouped in 22 aspects and summarized in Table 3.

2. Requirements and Documentation

As recommended by ISO/TR10013,³⁶⁾ this study takes a three-step approach to form the documentation system :

- Identify the processes necessary for the effective implementation of the management system;
- Understand the interactions between these processes; and
- Document the processes to the extent necessary to ensure their effective operation and control.

Since the DMLC II is the initial legal document to be prepared by ship owners for MLC, 2006 for shipboard inspection and certification, the 14 areas of the DMLC II are identified as the processes necessary for effective implementation of the MLC, 2006 requirements, and these areas of the DMLC II are identical to the ISM code and other related IMO/ILO conventions. Those areas which are not covered or only partially covered by the existed Safety Management System (SMS) are noted, and an analysis is shown in Table 1.

According to the Guidelines for flag State Inspections under the MLC, 2006,³⁷⁾ some areas not required for “certified” still need to be inspected onboard. Therefore, in addition to the areas listed in Table 1, those requirements not within the 14 areas of the DMLC II should be taken into account by the ship owners in daily operations to comply with the MLC, 2006 as a whole. For instance, compliance with paid annual leave, as required by Regulation 2.4 Entitlement to Leave, is based on the consistent content of the seafarers’ employment agreements, applicable collective bargain agreements, wage records, and interviews with representative numbers of seafarers.

³⁶⁾ ISO (2001).

³⁷⁾ ILO (2009a).

<Table 1> The 14 areas of the DMLC II and the related requirements

#	Areas of MLC,2006 (regulation No.)	IMO/ILO(3) conventions	ISM Code Part A	Covered by the existing SMS(5)
1	Minimum age (1.1)	STCW(2); ILO 7, 58, (147)	6.2	Partially
2	Medical certification (1.2)	STCW(2); ILO16, 73, (147)	6.2	Yes
3	Qualifications of seafarers (1.3)	STCW(2), ILO 53, 74, 147	6.2, 6.3, 6.5	Yes
4	Seafarer's employment agreements (2.1)	ILO 9, 22, 23, 54, 55, 56, 70, 72, 76, 91, 93, 109, 145, 146, 147, 163, 164, 165, 166	(1.2.3)(1)	No (partially ashore)
5	Use of any licensed or certified or regulated private recruitment and placement service (1.4)	ILO179	(1.2.3)(1)	No
6	Hours of work or rest (2.3)	STCW(2); ILO 93, 109, 147, 180	6.2	Partially
7	Manning levels for the ship (2.7)	STCW(2); ILO 93, 109, 147, 180	6.2	Yes
8	Accommodation (3.1)	ILO 75, 92/133, 147 (4)	1.2.2,1, 1.2.2.2, 10	Partially
9	On-board recreational facilities (3.1)	ILO 133	(1.2.3)(1)	No
10	Food and catering (3.2)	ILO 68, 69, (147)	(1.2.3)(1)	Partially
11	Health and safety and accident prevention (4.3)	ILO 134, 147, 164	1.2.2.2, 1.4.4, 9	Partially
12	On-board medicalcare (4.1)	STCW(2) ILO 56, 130, (147)	6.2, 8.3,	Yes
13	On-board complaint procedures (5.1.5)	ILO 147, 178	(1.2.3)(1)	No
14	Payment of wages (2.2)	ILO 93, 109	(1.2.3)(1)	No

- Notes : (1) It is a general requirement to ensure "compliance with mandatory rules and regulations". The current SMS does not cover such areas unless required by flag states, crew states, or requested by other interested parties accepted by the ship's owners.
- (2) Compliance with STCW³⁸⁾ requirements are covered by ships' crew certificates and the ISM Code³⁹⁾ shipboard audit.
- (3) The ILO conventions are only valid for ships registered at those flag states ratifying them, and are not general requirements for world fleets.
- (4) Only valid for existing vessels before the MLC, 2006 came into force.
- (5) SMS here refers only to the international requirements without comprehensive national regulations.

38) IMO (1978b).

39) IMO (1996).

<Table 2> MLC, 2006 requirements other than the 14 areas of the DMLC II

#	Areas MLC,2006 (regulation No.)	IMO/ILO(2) conventions	ISM Code Part A	Covered by the existing SMS(4)
1	Entitlement to leave (2.4) (3)	ILO 54, 72, 91, 146; MLC, 2006 2.1, 2.3;	(1.2.3) (1)	Partially
2	Repatriation (2.5) (3)	ILO 23, (147), 166; MLC, 2006 2.1;	(1.2.3) (1)	No
3	Seafarer compensation for the ship's loss or foundering (2.6) (3)	ILO 8, 72, 146; MLC, 2006 2.1; FSIG(3)	(1.2.3) (1)	No
4	Career and skill development and opportunities for seafarers (2.8)	ILO 145	Not applicable	Not applicable
5	Ship owner's liability (4.2) (3)	ILO 55, 56, (147), 163; MLC, 2006 2.1;	(1.2.3) (1)	No
6	Access to shore-based welfare facilities (4.4)	ILO 163	Not applicable	Not applicable
7	Social security (4.5) (3)	ILO 70, 165; MLC, 2006 2.1;	(1.2.3) (1)	No
8	Flag state responsibilities (5.1 except 5.1.5) (3)	ILO 178;	(1.2.3) (1)	No
9	Port state responsibilities (5.2)	IMO Resolution A.787(19), A882(21)(5)	(1.2.3) (1)	No
10	Labour-supplying responsibilities (5.3)	ILO 179	Not applicable	Not applicable
11	Appendix: Working and living conditions to be inspected and approved (A5-I)	ILO 75, 92/133	(1.2.3) (1)	Partially
12	Appendix: sample format and examples of MLC, DMLC/II; inspection areas (A5-II, A5-III, B5-I)	-	(1.2.3) (1)	No
13	Appendix: general area that are subject port State inspection			

Notes : (1) It is a general requirement to ensure "compliance with mandatory rules and regulations", so the current SMS does not cover such areas unless required by flag states, crew states, or requested by other interested parties accepted by the ship's owners.

(2) The ILO conventions are only valid for the ships registered at those flag states ratifying them and are not general requirements for world fleets.

(3) ILO Guidelines for flag State inspections under the MLC, 2006, required for 'inspected' status.

(4) SMS here only refers to the international requirements without comprehensive national regulations.

(5) Procedure for Port State Control⁴⁰⁾ as amended,⁴¹⁾ but only covering IMO instruments, i.e. conventions.

Based on the above analysis, the existing documented operations and control processes can be categorized into six categories of a four level documentation system, as below:

- i. General ISM shipboard and ashore documentation – the safety management system manual (level one), documented procedures (level two), work instructions (level three), and forms and records (level four). These documents form the fundamental parts of a documented management system.

40) IMO (1995).

41) IMO (1999).

- ii. Required shipboard statutory documents subject to approval –These are mandatory “procedure documents” or “work instructions” as defined in ISO/TR 10013 (ISO, 2001), such as the Shipboard Oil Pollution Emergency Plan (SOPEP),⁴²⁾ the Process and Arrangement (P&A) Manual,⁴³⁾ and so on. In lieu of these manuals or plans that only cover part of a convention, the DMLC II is an approved document specifying which procedures and associated resources shall be applied by whom and when to specific processes to satisfy the Convention MLC, 2006, and thus it can be categorized as a “quality plan” as defined in ISO/TR 10013⁴⁴⁾ and is one of the major tasks to be dealt with by ship owners when complying with the MLC, 2006.
- iii. Required shipboard statutory plans subjected to approval once upon being required by flag or port states – the Garbage Management Plan,⁴⁵⁾ the Fire Safety and Life Saving Appliance Training Manual,⁴⁶⁾ and so on. These are “procedural documents” and “work instructions”. Some DMLC II supporting documents can be created and categorized in this section (i.e. shipboard working safety instructions).
- iv. Certificates – Safety Management Certificate,⁴⁷⁾ Document of Compliance (DOC),⁴⁸⁾ International Ship Security Certificate,⁴⁹⁾ Seafarers’ Certificate of Competency, and Certificate of Proficiency,⁵⁰⁾ and so on. Both the MLC and DMLC I can be categorized as certificates, and the DMLC II has similar validity when endorsed.
- v. Required publications – medical guides, IMO conventions, flag state’s maritime regulations and circulars, and so on. They are “work instructions” and data.
- vi. Records – medical certificates, records of seafarers’ daily hours of work or rest, risk evaluations (or risk assessments) results, medical reports, operational checklists, inspection reports, and so on. These are outputs from processes.

IV. Proposed Documentation Models

Based on the document analysis, the authors propose four documentation models for enforcement of the MLC, 2006, as follows:

1. Independent systems model (I-model)

The ship owners can establish an independent three-level MLC, 2006 documentation system which is totally separated from the existed ISM system,

42) IMO (1973).

43) IMO (1973).

44) ISO (2001).

45) IMO (1973).

46) IMO (1978a).

47) IMO (1996).

48) IMO (1996).

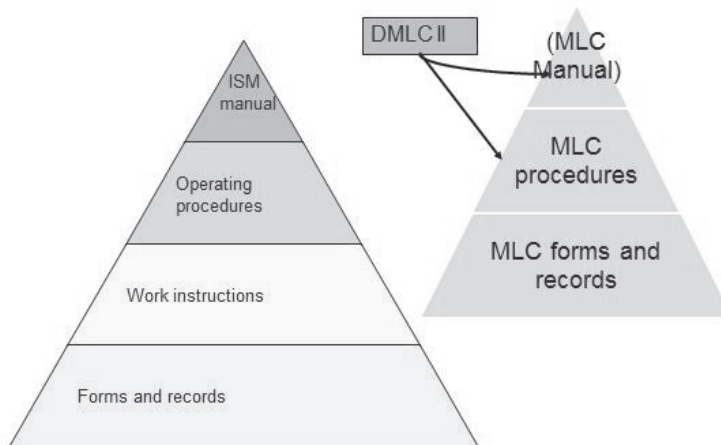
49) IMO (2002).

50) IMO (1978b).

see Figure 1. The MLC manual is formed by dotted lines because it can be replaced by the DMLC II unless a ship owner operates a complex combination of fleets and deals with various different MLC, 2006 requirements based on ship type, flag state, crew state, or organizational needs.

Seafarer administrative affairs play an important role in the MLC, 2006. Under this model, the ship owners may nominate the seafarer affairs department, or other non-ISM personnel, to handle and coordinate MLC, 2006 issues ashore. The DMLC II states the basic policies of each of the fourteen areas in it, and the detailed measures are described in the MLC manual or procedures attached to the DMLC II for continuous improvement and compliance. When revising documents is required either for approval or not, there is no immediate need to amend the ISM system. This model shows the least impact while amending the DMLC II. With this model, ship owners have flexibility in running two systems in parallel.

<Figure 1> I-model, an independent MLC, 2006 documentation system



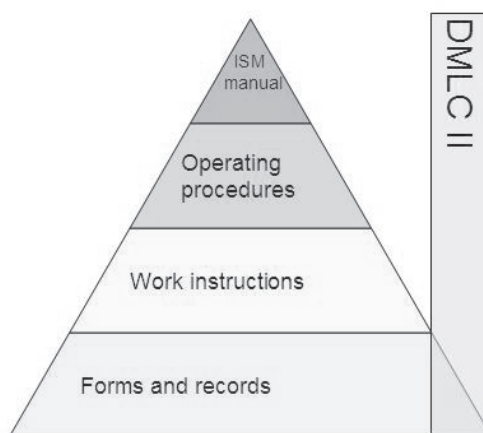
2. All-in-one system model (A-model)

The ship owners can specify all related measures, whether they are policies, procedures, or forms, in the DMLC II as a whole, and some measures may be the same as defined in the owner's ISM, so the forms and records are shared by each system. A typical similar case is the ship security plan (SSP), as required by the International Ship and Port Security Convention (ISPS).⁵¹⁾ Under this, a company security officer is responsible for the ship's security

51) IMO (2002).

operations ashore and prepares a ship security assessment (SSA) attached to a SSP for the relevant authority's approval and then places it on-board each ship. The ship security officer follows the SSP in cooperation with the Master on-board for implementation. Some maintenance practices, such as those required for radio communication equipment, are the same as defined in the ISM, so these records can be shared by both the ISM and MLC, 2006 systems.

<Figure 2> A-model, DMLC II covers everything, but forms and records can be shared with the ISM



Therefore, the ship owners can design a unique DMLC II for each individual ship in a fleet, suitable for the ship type, trading area based on port or coastal state requirements, and flag state requirements, to fit the individual dominant DMLC I. When the contents of the DMLC II are changed, the equivalent measures defined in the ISM SMS should also be revised in a timely manner, and vice versa, as otherwise gaps or conflicts in operating measures could occur. For those ships running simple operations not covered by the ISM Code, i.e. coastal ferries, or vessels for which the MLC, 2006 is applicable to the ship on a project base, i.e. a tug boat operating in a foreign port, this model could be a convenient option.

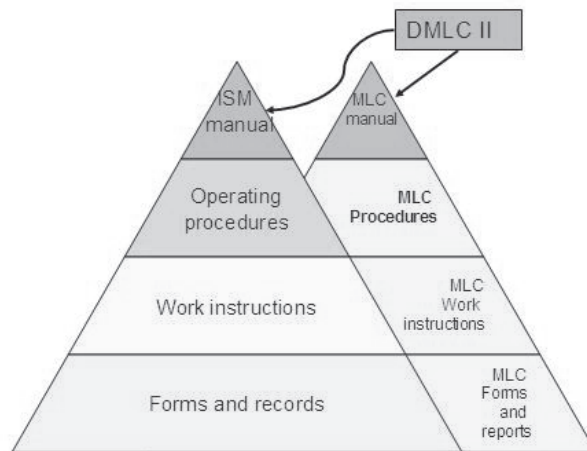
3. Partially integrated system model (P-model)

Based on the partially integrated quality management system,⁵²⁾ as shown in Figure 3. In this approach, only those documents not required by the ISM are

52) Chen & Kuan (2010).

created in an MLC, 2006 four level documentation system in parallel to the ISM SMS, and nothing is duplicated. The DMLC II contains the basic policies of the fourteen areas for MLC certification, and each area can be referred to the appropriate sections of either the ISM or MLC manuals for details. This is a common multiple-management systems documentation model, and is widely-used with regard to extending other management systems, like the ISO 9001. However, as the MLC, 2006 will become a mandatory international convention concerning not only seafarer rights but also safety issues, and the overlapping documents of the ISM are there under the P-model, the ISM audit scope with regard to dealing with the MLC, 2006 processes not covered in the current ISM manual (e.g. payment of wages, use of any licensed or certified or regulated private recruitment and placement service, etc) should be clarified with the flag state administration or its Recognized Organization (RO) performing the ISM certification to ensure effective implementation of the MLC, 2006 both ashore and on-board.

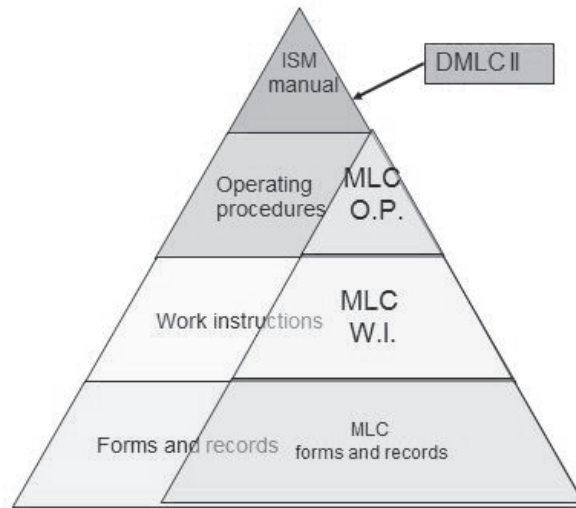
<Figure 3> I-model, an independent MLC, 2006 documentation system



4. Fully integrated system model (F-model)

When ship owners recognize that the MLC, 2006 is an important part of their safety and pollution prevention operations, they can create or modify all DMLC II-related documents under the ISM manual as a whole. There should be neither gaps nor duplication between the ISM and MLC, 2006 systems.

<Figure 4> F-model, a fully integrated system



V. Discussion

The pros and cons of each proposed documentation model are based on two-staged surveys conducted with 29 industrial experts who hold management positions or are in charge of SMS, seafarer administration, and technical departments. A brief background of the experts is listed in the Appendix. The experts' opinions about what could be the best model are varied, which may be caused by their professional experiences and organization manner. However, two ideas are commonly applicable for every documentation model. Specifically, one idea states that if any document of the company is referred in DMLC II and its title is changed, then the DMLC II may need to be amended or re-issued. Similarly, the other states that when any national laws or regulations are amended, the competent authority should avoid shifting or deleting the original article / regulation identification number and their titles referred in the DMLC I, otherwise the DMLC I may need to be amended, and thus the DMLC II may be affected. For example, when some new words are to be inserted between the 2nd and 3rd regulations, the numbering of the new regulation can be '2-1'.

The experts' opinions are numbers and categorized as pros and cons of each documentation model as summarized in Table 3.

<Table 3> Pros and cons of each documentation model with opinion number

Independent systems (I-model)
<i>Pros</i>
(1-3) When the MLC is not handled by the ISM department ashore, this could be easy to follow. There is no direct impact on ISM SMS due to MLC inspection, and vice versa.
(3) Measures taken for the MLC, 2006 are categorized into a structured documentation system that can be referred to the DMLC II in a systematic approach.
(7) The DMLC II and its attachments form integrated documents and can be tailor-made to fit different ship types, trading areas, flag/ coastal/ port/ crews states or RO requirements upon approval and enforcement.
(9) Non-MLC related documents in the ISM SMS can be skipped when submitting the DMLC II for approval to prevent irrelevant comments from the reviewer.
(10) Minor changes or amending ISM-only parts. The DMLC II does not need to be submitted for approval.
(12) / (13) The measures taken to satisfy various crew /flag states regulations can be separately specified in MLC procedures and only distributed to related individuals. This may reduce arguments about different welfare packages among seafarers.
(14) The owner can use both English and the working language to write the important documents about seafarer rights, as this helps seafarers to understand and respond to the inspectors' questions in interviews. The DMLC II can be in both the official language and in English.
(15) This is a simple documentation model with easy tracking which can shorten flag and port state inspection time.
(17) The scope of either ISM audit or MLC inspection is clearly defined in the documentation.
(20) The Master takes full responsibility in operations and inspections. The more specific the document, the easier it is to follow.
<i>Cons</i>
(1-1)(2)(18)(19) ISM and MLC, 2006 documents are duplicated. This brings extra work for operations and combined audits/ inspections.
(3)(18)(19) Not cross-referenced to the similar operations in the ISM SMS, which raises barriers to efficient operation and combined audits / inspections.
(16) When the DMLC I and fleet operations are unified, the I-model could be unnecessarily complicated for approval and operation compared to the A-model.
(11) It would not be efficient for a small company or a simple fleet to submit separate documents for both MLC approval and ISM review.
All-in-one system (A-model)
<i>Pros</i>
(1-3)(7)(9)(15)(17)(20) The same as the I-model
(16) When the DMLC I and fleet operations are simple and similar, a unified the DMLC II to cover all the MLC measures and procedures in fleet is possible, and this makes documentation preparation easier.
<i>Cons</i>
(1-1) (2)(11)(18)(19) The same as I-model
(3) The same as the I-model. The description of measures in the DMLC II is listed by MLC regulations instead of being systematic and process-oriented.
(12) (13) The measures taken to satisfy various flag/ crew states regulations are all addressed on the DMLC II and open to crews on-board. This may result in arguments among seafarers about their different welfare packages.
(14) When the working languages are not in either English or another official language, the translations of seafarer rights will be separate from the DMLC II. This may confuse the inspectors during interviews.
Partially integrated system (P-model)

<i>Pros</i>
(1-1) A lean ISM system with no duplication. This is good for consistency, prevents operation gaps, and minimizes repeated inspections.
(2)(6)(8) Unique MLC documents are identified and distinguished from those used for the ISM. One set of unified ISM and MLC documentation can be applied for fleets, and seafarer transition familiarization training could thus be simpler among different ships. Unique documents can still be flexibly added when required.
(3) All MLC related documents are clearly referred to the DMLC II and under a continuously improving SMS.
(9)(10)(12)(13)(14)(15) The same as the I-model.
(11) For a new or small company, or a simple fleet, it is more efficient to submit the documents with the least overlap for both MLC approval and ISM review.
(16) The same as the A-model.
(18)(19) It is natural to combine the ISM audit and MLC inspection due to the same verification intervals and overlapping contents. Clear boundaries and the least overlapping documents are keys to ensure inspectors' complete review and verification.
<i>Cons</i>
(1-3) There may be a direct impact to the ISM SMS due to MLC inspection, and vice versa.
(2)(7) When there are significantly different requirements among various flag/ coastal/ crew/ port states, this may cause some unnecessary extra work to maintain a unified operation in fleet.
(16) The same as the I-model.
(17) The scope of the ISM audit and MLC inspection may be overlapped or in conflict, i.e. wages and insurance processes ashore.
Fully integrated system (F-model)
<i>Pros</i>
(1-1)(2)(3)(6)(8)(18)(19) The same as the P-model.
(1-2) All integrated into one ISM system, with the least paper work and gaps.
(11) For a new or small company, or a simple fleet, it is more efficient to submit one integrated document for both MLC approval and ISM review.
(14) The same as the I-model
<i>Cons</i>
(1-3)(2)(7)(17) The same as the P-model.
(1-2) The boundary between the ISM audit and MLC inspection scope may overlap.
(9) If non-MLC related documents in ISM SMS cannot be skipped when submitting DMLC II for approval, then it is likely there will be some irrelevant comments on ISM from the reviewer.
(10) Since everything is integrated into ISM SMS, any change will be reviewed by the ISM auditor, even it is not related.
(12)(13) The same as the A-model, but mainly addressed in the ISM SMS and not in the DMLC II.
(15) This fully integrated documentation model could lead to extended questioning in flag and port state inspection for the non-MLC parts.
(16) Over integrated document may confuse the seafarers and lead to an unnecessary increase in workload.
Any models
(4) Owners do not change the titles or numbers used in documents to prevent unnecessary revision of the DMLC II.
(5) The relevant authorities do not change the regulations in a way that makes it necessary to re-issue the DMLC I, and consequently to change the DMLC II.

VI. Conclusions

Defining an appropriate documentation model for operations on-board and ashore operation is a solid base for enforcement of the MLC, 2006. Four models are proposed and discussed in this paper, and the Document of Maritime Labour Compliance Part II can be defined as a quality plan.

The I-model (an independent MLC, 2006 documentation system) and the A-model (an all-in-one DMLC II) could be a convenient solution for ship owners if a ship is not regulated by the ISM Code but the MLC is required, or a ship is operating on a voluntary scheme or a project base under the MLC, 2006. When fleet operations are simple, or the requirements of the related authorities are relatively unified, then the A-model could be prioritized. There is very little impact on ISM resulting from an MLC inspection, but ensuring consistency of overlapping ISM and MLC documents remains a challenge for both ship owners and authorities under these two models.

The P-model (the partially integrated documentation model) is widely used in multiple management systems, and the unique MLC documents can be traced from the DMLC II and distinguished from ISM documents, thus having the least impact on ISM audits. This model is recommended for most ship owners because it is a lean management system without duplicated documents, and seafarers can use it to learn their duties easily by a systematic approach. Meanwhile, it is also argued in this work that the documents specifying different welfare packages for various seafarers or flag states can be separated so that potential disagreements about unequal conditions can be minimized under this model. However, since there are no certification requirements for the ship owners' ashore operations in the MLC, 2006, whether the full extent of the convention as it applies ashore will be covered by an ISM audit or not could be the subject of future research to ensure member states' complete and effective enforcement of the MLC, 2006. The P-model is ideal for a combined shipboard ISM audit and MLC inspection, as it can be used to identify the differences between the two approaches, and the conflicts between the two documentation systems are minimal.

The F-model (the fully integrated model) is recommended for those ship owners who aim to cover all administrative, safety, and environmental

pollution prevention measures under one ISM system. It is also easy for seafarers and shore staff to facilitate and demonstrate compliance with all MLC, 2006 requirements by a routine ISM system, without duplication of actions or documents. This model can help seafarers learn their duties more efficiently although non-MLC related procedures could be exposed and examined by inspectors. When performing an ISM audit, an auditor may consider some MLC issues because the boundaries between the systems are not so clear.

The results of the expert survey presented in this work highlight the fact that developing both a stable DMLC Part I and Part II remains important. It should also be remembered by both the related authorities and ship owners that it is necessary to keep the titles and sequential identification numbers of the documents in both the DMLC Parts I and II unchanged, otherwise amendment or re-issuance of the DMLC will cause additional administrative work.*

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Appendix

Brief Information on the Experts (from 10 companies)

Id. No	Marine background/ Position	Organization	Years of service in shipping	Nationality
001	Port Captain / MLC in-charge; ex-ISM in-charge in U.K. ex-ISPS in-charge in Taiwan	Container ship company	>25	Taiwan
002	ISM/ISPS manager, port captain	Bulk carrier company	>25	Taiwan
003	Vice president heading marine and engineering departments / ISM designated person (DP)	Bulk carrier company	>25	Taiwan
004	Surveyor, MLC inspector, ISM/ISPS/ ISO lead auditor, STCW assessor tutor	Classification Society	>15	Taiwan
005	Head of section in maritime management system; ex-member-state ILO/IMO representative in seafarer affairs, governmental member and spoke person of MLC, 2006 drafting committee;	Classification Society	>10	Norway
101	Marine manager, port captain	General cargo ship company	>20	Taiwan
102	Marine consultant	Engineer	-	Taiwan
103	ISM/ISPS manager	Bulk carrier	>10	Taiwan
104	Section head, port chief engineer	Container ships company	>25	Taiwan
105	Port captain	Container ships company	>15	Taiwan
106	ISM in-charge	Bulk carrier company	>5	Taiwan
107	MLC project coordinator	Bulk carrier company	>5	Taiwan
108	Vice president, head of engineering dept., port chief engineer	Bulk carrier company	>25	Taiwan
109	Engineer, engineer & supply department	Bulk carrier company	>15	Taiwan
110	Head of engineering dept.	Bulk carrier, oil tanker, car carrier company	>15	Taiwan
111	ISM/ISPS in-charge	Container ship company	>15	Taiwan
112	Port engineer, engineering dept.	Bulk carrier company	>15	Taiwan
113	Marine in-charge	Bulk carrier, oil & chemical tanker company	>15	Taiwan
114	Occupational Safety and Health engineer	Bulk carrier, oil & chemical tankers company	>5	Taiwan
115 (002)	ISM/ISPS manager	Bulk carrier company	>20	Taiwan
116	Port engineer	Bulk carrier company	>20	Taiwan
117	Sbafarer in-charge	Container ship company	>5	Taiwan
118	Head of engineering department, port chief engineer	Oil tanker, chemical tanker company	>25	Taiwan
119	Deputy head of engineering department	Bulk carrier company	>25	Taiwan
120	Port engineer	Bulk carrier company	>15	Taiwan
121	ISM/ ISPS in-charge	Bulk carrier company	>5	Taiwan
122	Head of marine department, port captain	Oil tanker, chemical tanker company	>20	Taiwan
123	Engineer, marintech section	Oil tanker company	>5	Taiwan
124	Head of engineering section	Oil tanker company	>20	Taiwan

Remark : Experts 001~005: surveyed in June~December, 2010; Experts 101~124: surveyed in May 2011.
Both surveys were conducted in Taipei, Taiwan.

