

# Recognizing the Challenges of the Maritime Labor Convention 2006 (MLC 2006) in Iran

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The fundamental objective of the Maritime Labour Convention 2006, which is called the MLC 2006 Convention, is to ensure comprehensive worldwide protection of seafarers' rights worldwide. The aim of this study was to identify and rank the challenges in the implementation of the MLC 2006 Convention 2006 in Iran using DEMATEL (Decision-making trial and evaluation laboratory) and hierarchy technique. The present study is a descriptive survey and practical in terms of objectives. In relation to the implementation of the provisions of the MLC 2006, only two articles, namely minimum age and medical care, are properly implemented in the country's ports. 14 challenges were identified, divided between the two groups of owners and seafarers (6 challenges) and the group of port and shipping organization and ship control and inspection officers (8 challenges). The result of the ranking of the group of ship owners and crew group shows that the low income level of ship owners and crew (0.170) is the most important challenge of this group. The least important factor in this group was the lack of safety culture with a score of 0.161. The ranking of the group of port and maritime organization and ship inspection and verification officers shows that the inspection and verification system for seafarers' certificates of competency (0.133) is the most important challenge of this group. The least important factor in this group was pressure on the organization from high-ranking officials of other organizations in the province, with a score of 0.067. The variable of increased costs due to the implementation of the Convention has the most interactions and the variable of low income level has the least interactions with other variables in this group. The variable of communication between the owners and the high level officials of the provincial port administration, the most effective factor and the most influential factor was low income level. The variable of control and inspection system for certificates of competency of seafarers has the strongest interaction and the variable of lack of financial support of the organization by the ship owners has the least interaction with other variables of this group. According to the research results, the lack of support of the organization by the control and inspection officers is the most effective variable to improve the performance of control and inspection officers in the area of implementation of the Convention. In addition, some factors were suggested to improve the quality of effective implementation of the MLC 2006 Convention in Iranian ports.

## KEYWORDS

~ MLC 2006  
~ Inspection officers  
~ Challenges  
~ Seafarers  
~ Iran

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doi: 10.7225/toms.v14.n01.013

Received: 10 Sep 2023 / Revised: 2 Feb 2025 / Accepted: 15 Feb 2025 / Published: 20 Apr 2025

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## 1. INTRODUCTION

The MLC 2006 is a significant achievement in the realm of international maritime law as it assigns specific duties to the three primary parties in the global maritime industry - flag states, port states and seafarer-supplying states. According to the International Transport Workers' Federation (ITWF), "The MLC 2006 provides for minimum standards for working and living conditions, as well as health and safety protection for seafarers, and is applicable to almost all sea-going ships and the seafarers on board" (Khan et al. 2024).

This convention covers almost all aspects of work and life on board, including minimum age, employment contracts, hours of work and rest, payment of wages, annual leave, repatriation, medical care, recruitment and employment services, amenities, food, health and safety regulations, and covers the handling of seafarers' complaints (International Shipping Union, 2011).

The MLC 2006 is a landmark convention that went into effect on August 20, 2013. It incorporates all previous ILO instruments and is regarded as the "fourth pillar" of the international maritime law system, alongside SOLAS, MARPOL, STCW and the "Seafarers' Bill of Rights" (Chiang Chang et al. 2023).

MLC 2006 was designated to achieve a much higher level of ratification than its predecessors, as it includes all previously required conventions under one umbrella and also applies indirectly to shipowners and seafarers working on board ships registered and operating under the flag of non-signatory states (Mantoju, 2021).

The shipping industry is the center of the global economy. About one and a half million seafarers of different nationalities work on the ships of the world merchant fleet, which are registered in more than 150 countries. According to statistics from international organizations, more than 90% of world trade is carried by sea; therefore, seafarers play an undeniable role in keeping the wheels of the world economy turning (ILO, 2009).

The MLC 2006 covers aspects of work and life on board ships. The implementation of this convention has led to an improvement in the safety and rights of seafarers. Prior to the amendment of the ship registration law, shipping companies were only allowed to register the ship in the country of the owner's nationality, so that the labor laws of that country also governed the relationship between the seafarer and the shipowner as employee and employer. In addition, local and national seafarers' unions also defended seafarers' rights (Saadatmand, 2015).

Seafarers are a unique community of people who work and live mainly at sea. They are citizens of virtually every country in the world, but the nature of their work not only isolates them into a distinct group on the margins of society, but also subjects them to a plethora of foreign laws and jurisdictions that can lead to the violation of their rights (Chiang Chang et al. 2023).

With the amendment of the international ship registration law and the introduction of free registration, it was possible for the ship owner to register his ship in other countries with free registration or secondary registration and take advantage of the law loophole to protect seafarers in such registration. For example, a ship owner with German citizenship is exempted from the strict laws of the German government and the European Union by registering his ship in Panama, and since the labor laws of the country of Panama are not applied to the free registration of this country, it can be said that no protective law protects the seafarers (Tazuzanizadeh, 2012).

With the drafting of the MLC 2006, this legal loophole has been closed and all seafarers enjoy its benefits. By acceding to this convention, Iran has created the necessary platform to improve the working and living conditions of seafarers in the merchant fleet. Considering the shortage of qualified seafarers in the country, the adoption of the maritime labor law can have a positive impact on maritime jobs as it creates incentives to attract labor. Considering that the same shortage exists in the world, this law can support Iranian seafarers working on foreign merchant fleets. The current issue is the implementation of MLC 2006 in Iranian ports by the Ports and Maritime Organization. This is because many factors affect its implementation, including the Ministry of Welfare, Labor and Social Security, ship owners and seafarers, and the representatives and executive forces of the ports and Maritime Organization.

## 2. PROVISIONS OF THE MARITIME LABOR CONVENTION

This section provides a detailed analysis of the ILO and its role in protecting seafarers' rights and welfare of seafarers. It traces the establishment of the ILO and highlights its challenges and unwavering commitment to advocating for seafarers (Chiang Chang et al. 2023).

The Convention has three basic objectives: (a) to establish a set of rights and principles in its articles and implementing provisions; (b) to allow, through the Code, a considerable degree of flexibility in the implementation of these rights and principles by members; and (c) to ensure, through Title 5, that the rights and principles are properly observed and enforced (Adăscăliței, 2014).

As a result of its work in 2001, the ILO developed a new document known as the MLC 2006. This document aimed to consolidate and modernize all existing maritime regulations to bring them in line with the current state of the shipping industry (Chiang Chang et al. 2023).

This Convention establishes in a single instrument the right of the world's 1.5 million seafarers to decent working conditions in almost all aspects of their working and living conditions, including minimum age, employment contracts, hours of work and rest, payment of wages, paid annual leave, repatriation, medical care on board, use of recruitment and placement services, accommodation, food and subsistence, health and safety protection and accident prevention, and seafarers' grievance procedures (ILO). The Convention consists of sixteen articles containing general provisions and the Code. The Code consists of five regulations in which specific provisions are grouped according to standards as follows:

**The first regulation: the minimum requirements for seafarers to work on a ship, which include the following:**

Minimum age: 16 years, but 18 years for night work or working conditions in hazardous environments.

Medical certificate: Individuals must be medically qualified and able to perform their duties on the ship. Governments should issue a medical certificate that meets the provisions of the International Convention on Maritime Training, Certification and Watch-keeping Standards, or base their work on a similar standard.

Training: Seafarers must complete the required training and undergo safety training for the duties they undertake.

**The second regulation: the conditions of employment of persons on the ship responsible for recruitment and employment services: In each country that has formally acceded to the Convention, the modalities of employment, the registration of service records, the handling of complaints, the granting of compensation, etc. in the event of termination of employment must be clearly defined.**

Conditions of employment (employment of persons on the ship): This title sets out the terms and conditions of the contract as well as the method of payment of wages and the working conditions on the ship. The contract must be clear, legally valid, enforceable and comprehensive. Remuneration, including the minimum monthly wage, must be paid and may be transferred to the seafarer's family upon request.

Rest period: In accordance with the provisions of this Convention, the maximum daily working time is 10 hours in one day and 72 hours in seven days.

Leave: The seafarer has the right to take annual leave and short leave ashore.

Return to shore: The seafarer has the right to return to his home country at the employer's expense.

Loss: If the ship is completely lost as a result of an accident, the seaman is entitled to wages during the period in which he is not employed.

Minimum number of crew: Each ship must have a minimum crew.

**The third regulation: the living and accommodation facilities for the crew on the ship: The MLC 2006 contains a significant level of technical detail and guidance in relation to the standards for accommodation and recreational facilities on board. These provisions, which are directed to flag states, apply with some exceptions to all ships covered by the Convention. The MLC 2006 requires the adoption of laws and regulations as the legal form for implementing the requirement that ships meet minimum standards to ensure that any accommodation for seafarers working or living on board, or both, is safe and decent and complies with the provisions of Standard A3.1.**

The MLC, 2006 recognizes the importance of ensuring that sufficient food and drinking water of adequate quality is available on board and that food is prepared by trained catering personnel.

**The fourth regulation: health support and medical care, welfare support and social security. The requirements of the MLC 2006 under Regulation 4.1 are primarily directed to flag states and address access to medical care for seafarers working on board ships. It also contains provisions directed to port and coastal states concerning access to medical care for seafarers on foreign ships in their ports or territories.**

**The shipowner's liability for sickness, injury or death in connection with their employment.**

**Regulation 4.3 deals with the health, safety and accident prevention of seafarers.**

**The MLC, 2006 emphasizes the importance of access to shore facilities for seafarers welfare of seafarers. The provisions of Regulation 4.4 and the Code do not require the port state take responsibility for the operation of such services.**

**Most of the obligations under the MLC, 2006, Regulation 4.5 and the Code dealing with social security are directed to the country of habitual residence of the seafarer.**

**The fifth regulation: conditions for compliance with and application of the Convention for each title. Each flag state that has ratified the Convention is responsible for ensuring that the requirements are implemented on board ships flying its flag. Whenever the Convention refers to the responsibility of a Member, that state has to make sure that it has national laws, regulations or other measures in place to meet the requirements.**

**Regulation 5.2 deals with the responsibilities of port states. Each member state should discharge its responsibilities under this Convention with regard to international cooperation in the implementation and enforcement of the standards of the Convention on foreign ships. Each member state shall ensure that each member discharges its responsibilities under this Convention in relation to the recruitment and placement of seafarers and the social protection of its seafarers.**

**It is the author's understanding that the Convention should apply to all seafarers, although many seafarers work on offshore oil rigs, in the exploration and production of natural gas, etc. and in other similar industries where most seafarers do not use all types of vessels and instead use small boats and tugs.**

### **3. GLOBAL CHALLENGES FACING THE MLC 2006**

The MLC 2006 revises and consolidates 37 existing conventions and their associated recommendations. The MLC 2006 uses a new format with some updates where necessary to reflect modern conditions and language.

The MLC 2006 has become binding on all EU Member States. However, it has not yet been ratified and is also subject to certain community port state and flag state control mechanisms that enhance the optional nature provided for in international regulations (Ruano Albertos et al., 2013).

The MLC 2006 has the status of an internationally recognised legal instrument. Therefore, it is not directly applicable to shipowners, vessels or seafarers of vessels in ratified states. Alternatively, like all international laws, it must be enforced by national laws and/or other measures of ratified countries. These laws would then apply to shipowners, vessels or seafarers of vessels in ratified states. The MLC 2006, in its regulations, has set out in its provisions the minimum standards that are mandatory for all states that have ratified it.

The MLC 2006 adopted by the International Labor Organization, is the fourth pillar of the international regulatory framework for maritime transport. It fills a gap in the 1982 United Nations Convention on the Law of the Sea and supplements the core conventions of the International Maritime Organization (McConnell et al. 2011).

The EU's contribution has not been limited to legislative issues: it has supported the ILO financially in co-financing the ILC ; it has harmonized the positions of EU members during the adoption and amendment process, thus enabling the adoption of the European position; it has shown the political will to support the Convention by the Commission promoting the ratification process among its members (Tortell et al. 2009).

This article deals with living and working conditions on board ships. It shows that despite the existence of the Maritime Labor Convention, which aims to improve these conditions, seafarers continue to suffer from behaviors that violate their rights. In view of this continuity, a forward-looking approach proposes to elevate well-being to the rank of a fundamental right (François Mandin, 2023).

According to Regulation 1 of the MLC 2006, crews and seafarers must have certificates of fitness and health. In addition, seafarers must complete the training courses required by the STCW Convention. In order to verify the authenticity or inaccuracy of the documents, the control and inspection officers must perform accurately, and through the provision of facilities such as the Internet, they can be informed of the authenticity of the documents by referring to the institution that issued them (Hong Sun, 2014). Essentially, this is the inspection (often referred to as "port state control") of the ship and the conditions on board the ship. It can be seen as a form of international cooperation under Article I(2) of the MLC) 2006, where the port State supports the efforts of flag States by inspecting ships to ensure that they are in compliance between flag State inspections (MLC 2006, revised online edition, 2012 [www.ilo.org/mlc](http://www.ilo.org/mlc)).

According to Regulation 2 of the Convention, it refers to seafarers conditions of employment on a ship. It should be noted that Regulation 2.2 deals with the seafarers' right to be paid and the shipowner's obligation to pay wages, and Regulation 2.5 deals in part with the circumstances that may lead to the return of seafarers to their country of origin.

According to Regulation 3 of the Convention, it is related to the living and accommodation facilities of the crew on the ship. Each member shall ensure that ships flying its flag provide and maintain adequate accommodation and recreational facilities for seafarers working or living on board, or both, consistent with the promotion of the health and well-being of seafarers. Nutritional services such as water and food for seafarers must be of adequate quality. To this end, member countries should establish a database defining standard food establishments or ship logistics companies will be established

in port under the license of each country's port organization to be responsible for the provision of food and beverages (Jimenez, 2014).

According to Regulation 4 of the Convention, health and medical care, welfare support and social security for seafarers must be provided by ship owners. Shipowners are obliged to bear the costs of seafarers working on their ships if they fall ill or are injured between the time they start their voyage on a ship and the time they are deemed to be duly repatriated.

In accordance with Regulation 5 of the Convention, each member shall require that ships flying its flag have onboard procedures for the fair, effective and expeditious handling of complaints by seafarers alleging breaches of the provisions of this Convention. On-board complaint procedures shall include the right of seafarers to be accompanied or represented during the complaint process and safeguards against the possibility of victimization of seafarers by filing complaints. The term "victimization" covers any adverse action taken by a person against a seafarer for making a complaint that is not manifestly vexatious or malicious (Isle of Man Ship Registry). The challenge will be to enforce them within the existing inspection frameworks of flag state enforcement and "port state control" (Piniella et al., 2013).

To ensure implementation of the provisions of the Convention, owners of ships of 500 gross tonnage or more will need to develop a written plan of how they intend to ensure implementation of and compliance with the provisions of the Convention through legislation, regulations or other applicable national rules.

The MLC 2006 combines most of the previous legal instruments into one Convention. The aim of introducing the MLC was to create a "level playing – field" for qualified shipowners while ensuring the protection of seafarers (Mantoju, 2021).

#### **4. MARITIME LABOR CONVENTION IN IRAN**

Considering the fact that the Islamic Republic of Iran shipping plays the largest role in Iran's maritime transportation and employs foreign and domestic seafarers for international sea voyages, the way this Convention is implemented in the country is very important for the Islamic Republic of Iran shipping Company. In the publication report of the strategic planning and international affairs office of this company, which was published in 2012, some points were mentioned regarding the existing conditions of MLC 2006 in Iran, which are as follows:

Implementing the requirements of the MLC 2006 from the point of view of ship management companies will improve relations and communication between stakeholders and create better conditions for maritime workers. On the other hand, ship owners want to reassure the ship's crew that their ship is kept in good condition. In addition, ship management companies need to be sure that ship owners will provide them with sufficient support in implementing the parameters of the ship management contract and that they will not miss out on employees' salaries and travel expenses. The costs are covered by the rules of the MLC 2006. At the same time, they want to be sure that the power companies are working within the standards set by the MLC 2006 and the government. Power companies must also ensure that owners or managers provide working and living conditions on board that comply with national laws and the standards of the MLC 2006 and that seafarers' wages are paid on time.

According to the latest statistics, there are around ten thousand seafarers working in the maritime sector in Iran. In the Islamic Republic of Iran, offshore jobs are considered hard labor, and this has been achieved in the Parliament of the Islamic Republic of Iran for the marine sector. When discussing the MLC 2006, the main problem is the complexity of the Convention, which is multidimensional. This means that the implementation of the MLC requires various economic, legal and labor disputes (Zarie et al.2020).

The government is responsible for ensuring the health of passengers and the rights of seafarers on ships, the safety of shipping and merchant shipping, and the protection of the marine environment (Hosseini Zavareh, 2013). The MLC 2006 has adopted with the aim of creating decent working and living conditions for seafarers on a ship. According to this convention, one of the tools to ensure that ships meet the requirements of the convention is to conduct regular and effective inspections.

In Iran, the provisions of this Convention are implemented by two major port and shipping organizations and the Ministry of Labor. Parts of the implementation instructions of the Convention related to the issuance of certificates and approval of regulations are implemented by the Ports and Shipping Organization, while the parts related to the health and safety of a ship's seafarers, age, retirement, their insurance and security are followed and implemented by the Ministry of Labor (Hasanpour, 2014). The IMMS is a non-governmental organization that has signed collective agreements with shipping

companies and crewing agencies and seeks to defend seafarers' right to decent working conditions and fair wages. (Zarie et al.2020).

## 5. RESEARCH METHODOLOGY AND STATISTICAL POPULATION AND SAMPLING METHOD

The current research method is applied in terms of purpose and descriptive-survey in terms of nature. The statistical population of this research is experts of ports and maritime organization experts, ship control and inspection officers, ship owners, shipping companies and seafarers in Imam Khomeini port. The Cochran formula was used to determine the sample size. With a margin of error of 5%, the sample size is estimated to be 132 respondents. About 132 questionnaires were distributed to the sample and 100 of the questionnaires were fully answered and returned to the researcher. In this research, two techniques, hierarchy and DEMATEL, were used to analyze the data. The ranking of the indicators of each group has discussed using the hierarchical research tree. It should be noted that Table 1 shows the result of T-test for analyzing the research questionnaires.

Variable	T-test	Hypothesis
Minimum age	371.4	H <sub>1</sub>
Employment contracts	485.-4	H <sub>0</sub>
Working hour	349.2	H <sub>0</sub>
Break time	595.-4	H <sub>0</sub>
Payment of wages	040.-3	H <sub>0</sub>
Annual leave	000.-3	H <sub>0</sub>
Return to home	877.-5	H <sub>0</sub>
Health Care	684.3	H <sub>1</sub>
Recruitment and employment services	774.-2	H <sub>0</sub>
Convenience and food	710.1	H <sub>0</sub>
Health and safety regulations	045.1	H <sub>0</sub>
Handling seafarers' complaints	943.-3	H <sub>0</sub>

Table 1. The results of the T-test of the research (Source: Researcher's findings.)

Table 1 shows the following results: Only two provisions on minimum age and medical care are properly implemented in the country's ports.

The provisions of employment contracts, working and resting hours, payment of wages, annual leave, repatriation, medical care, recruitment and placement, comfort and food, health and safety regulations and handling of seafarers' complaints are not properly implemented in our country's ports.

After an inferential analysis, the author used a hierarchical technique to rank the challenges in the implementation of this convention. The fourteen identified challenges were defined into the following two groups, such as: Group 1: Owners and seafarers group and Group 2: Ports and maritime organization and ship control and inspection officers. It should be noted that DEMATEL technology is used by shipowners and seafarers as well as by organizations and maritime organizations and ship control and inspection officers as follows:

- First step. Formation of the direct correlation matrix
- Second step. Normalize the direct correlation matrix

The author defines the following factors of the owners and the group of seafarers with the following symbols:

- A1: Increase in costs due to the implementation of the agreement.
- A2: Lack of trust in social security issues.
- A3: Lack of safety culture.
- A4: Communication between shipowners and high-ranking officials of the provincial port administration.
- A5: Lack of job security.
- A6: low income level.



Table 2 shows the pairwise comparisons between the owners' group and the seafarers' group.

	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	A <sub>6</sub>
A <sub>1</sub>	1	9	5	7.1	9.1	5.1
A <sub>2</sub>	11.0	1	26.0	2	10.3	16.0
A <sub>3</sub>	20.0	84.3	1	65.3	08.6	44.0
A <sub>4</sub>	7	50.0	27.0	1	85.3	20.0
A <sub>5</sub>	9	32.0	16.0	25.0	1	17.0
A <sub>6</sub>	5	91.5	22.2	96.4	78.5	1

Table 2. Pairwise comparisons of owners and seafarers

Table 3 shows the geometric vector and the final weight related to the group of owners and seafarers.

	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	A <sub>6</sub>	Weight
A <sub>1</sub>	06.0	59.0	33.0	009.0	007.0	013.0	167.0
A <sub>2</sub>	016.0	150.0	039.0	301.0	467.0	002.0	166.0
A <sub>3</sub>	013.0	252.0	065.0	239.0	399.0	08.0	161.0
A <sub>4</sub>	546.0	039.0	021.0	078.0	300.0	015.0	165.0
A <sub>5</sub>	825.0	029.0	014.0	022.0	091.0	015.0	168.0
A <sub>6</sub>	16.0	22.0	19.0	20.0	13.0	19.0	170.0

Table 3. Geometric vector and final weight of owners and seafarers group

The author defines the following factors of the port and maritime organization and ship control and inspection officers group with the following symbols:

A1: The port and maritime organization does not support the control and inspection officials.

A2: The organization is pressured by high-ranking officials from other organizations in the province.

A3: The organization does not provide financial support to ship owners.

A4: The organization does not support ship crews.

A5: Cooperation Insufficient organizations related to the implementation of the Convention. A6: How the Convention is implemented by control and inspection officials.

A7: The inspection and verification system for seafarers' certificates of competency.

A8: Lengthy investigation of crew complaints against shipowners.

Second step: The normalization of the direct correlation matrix - the sum of all columns and rows - is shown in Table 4.

	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	A <sub>6</sub>	A <sub>7</sub>	A <sub>8</sub>	Total Rows
A <sub>1</sub>	0	4	1	1	4	4	4	2	20
A <sub>2</sub>	4	0	2	4	4	3	1	1	19
A <sub>3</sub>	1	3	0	4	1	2	1	4	16
A <sub>4</sub>	4	4	4	0	1	3	2	4	22
A <sub>5</sub>	1	4	2	3	0	3	1	4	18
A <sub>6</sub>	4	3	1	3	4	0	4	2	21
A <sub>7</sub>	4	4	2	3	2	4	0	1	20
A <sub>8</sub>	1	4	2	3	4	2	1	0	17
Total Columns	19	26	14	21	20	21	16	18	

Table 4. Total of the columns and rows of Ports and Maritime Organization and ship control and inspection officers

According to Table 4, it can be seen that the maximum total number is 26; Therefore, the K value of the research is equal to 1.26, which is equivalent to: 0.038. Then the author multiplies the obtained K value to the arrays of the direct correlation matrix in order to obtain the normal matrix.

Third step: Calculation of the complete correlation matrix

First, the author forms the I-N matrix. The N matrix is the same as Table 4 and the matrix. (I) will be the identity matrix.

Table 5 shows the I-N matrix of Ports and Maritime Organization, ship control and inspection officers.

	<b>A<sub>1</sub></b>	<b>A<sub>2</sub></b>	<b>A<sub>3</sub></b>	<b>A<sub>4</sub></b>	<b>A<sub>5</sub></b>	<b>A<sub>6</sub></b>	<b>A<sub>7</sub></b>	<b>A<sub>8</sub></b>
<b>A<sub>1</sub></b>	1	152.-0	038.-0	038.-0	152.-0	152.-0	152.-0	076.-0
<b>A<sub>2</sub></b>	152.-0	1	076.-0	152.-0	152.-0	114.-0	038.-0	038.-0
<b>A<sub>3</sub></b>	038.-0	114.-0	1	152.-0	038.-0	0760.-	038.-0	152.-0
<b>A<sub>4</sub></b>	152.-0	152.-0	152.-0	1	038.-0	114.-0	076.-0	152.-0
<b>A<sub>5</sub></b>	038.-0	152.-0	076.-0	114.-0	1	114.-0	038.-0	152.-0
<b>A<sub>6</sub></b>	152.-0	114.-0	038.-0	114.-0	152.-0	1	152.-0	076.-0
<b>A<sub>7</sub></b>	152.-0	152.-0	076.-0	114.-0	076.-0	152.-0	1	038.-0
<b>A<sub>8</sub></b>	038.-0	152.-0	076.-0	114.-0	152.-0	076.-0	038.-0	1

Table 5. I-N matrix of Ports and Maritime Organization, ship control and inspection officers

In the next step, the author inverts the matrix obtained in Table 5; then multiply the obtained inverse matrix by the matrix of Table 4. In the next step, the sum of each row and column of the research is calculated.

	<b>A<sub>1</sub></b>	<b>A<sub>2</sub></b>	<b>A<sub>3</sub></b>	<b>A<sub>4</sub></b>	<b>A<sub>5</sub></b>	<b>A<sub>6</sub></b>	<b>A<sub>7</sub></b>	<b>A<sub>8</sub></b>	<b>Total Rows</b>
<b>A<sub>1</sub></b>	241.0	334.0	309.0	300.0	415.0	342.0	474.0	342.0	757.2
<b>A<sub>2</sub></b>	375.0	168.0	304.0	386.0	385.0	290.0	345.0	260.0	513.2
<b>A<sub>3</sub></b>	224.0	257.0	212.0	352.0	240.0	219.0	301.0	336.0	143.2
<b>A<sub>4</sub></b>	391.0	363.0	435.0	308.0	323.0	309.0	436.0	427.0	992.2
<b>A<sub>5</sub></b>	244.0	319.0	310.0	348.0	235.0	270.0	334.0	367.0	427.2
<b>A<sub>6</sub></b>	387.0	302.0	315.0	395.0	041.0	208.0	492.0	345.0	495.2
<b>A<sub>7</sub></b>	377.0	322.0	323.0	362.0	330.0	330.0	308.0	276.0	648.2
<b>A<sub>8</sub></b>	244.0	304.0	298.0	327.0	371.0	243.0	323.0	228.0	338.2
Total Columns) R(	239.2	369.2	506.2	778.2	340.2	211.2	333.3	581.2	

Table 6. Total of each row and column of the complete correlation matrix of the Ports and Maritime Organization, ship control and inspection officers

After forming Table 6, the author calculates the amount of D+R and D-R values (as shown in Table 7).

	<b>A<sub>1</sub></b>	<b>A<sub>2</sub></b>	<b>A<sub>3</sub></b>	<b>A<sub>4</sub></b>	<b>A<sub>5</sub></b>	<b>A<sub>6</sub></b>
<b>D+R</b>	743.10	251.10	596.8	404.8	407.8	181.8
<b>D-R</b>	373.0	201.0	124.-0	970.0	519.-0	811.-0

Table 7. D+R and D-R values of ship owners and seafarers group



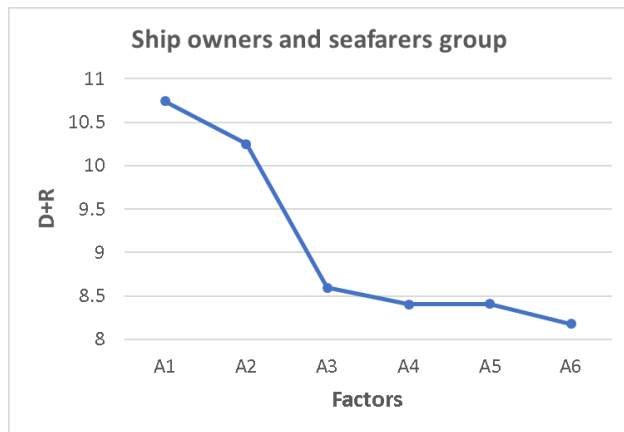


Figure.1 D+R values of ship owners and seafarers group

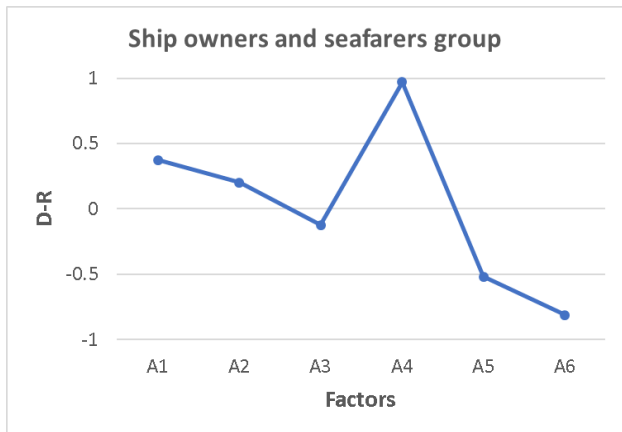


Figure.2 D-R values of ship owners and seafarers group

According to Table 7 and Figure 1 of section D+R, the highest interaction is related to A1 and the lowest interaction to A6. In other words, according to Table 7 and Figure 2 of section D-R, the most effective factor is related to A4 and A6.

To determine the relationship or lack of relationship between the factors, the author uses the variable in the previous tables. Thus, in this section, the average of the entire table is calculated. The values of the matrix fields whose values are below the average are given the value 0, and the values of the matrix fields whose values are above the average are given the value 1. The values of the matrix fields that are given the value 0 indicate that there is no relationship between these two variables, and the values of the fields that are given the value 1 indicate that there is a relationship between these two variables. The average value is 0.757.

	A <sub>1</sub>	A <sub>2</sub>	A <sub>3</sub>	A <sub>4</sub>	A <sub>5</sub>	A <sub>6</sub>	A <sub>7</sub>	A <sub>8</sub>
<b>D+R</b>	996.4	882.4	652.4	770.5	767.4	706.4	981.5	919.4
<b>D-R</b>	518.0	144.0	363.-0	214.0	087.0	284.0	995.-0	243.-0

Table 8. the D+R and the D-R values of Ports and Maritime Organization and ship control and inspection officers

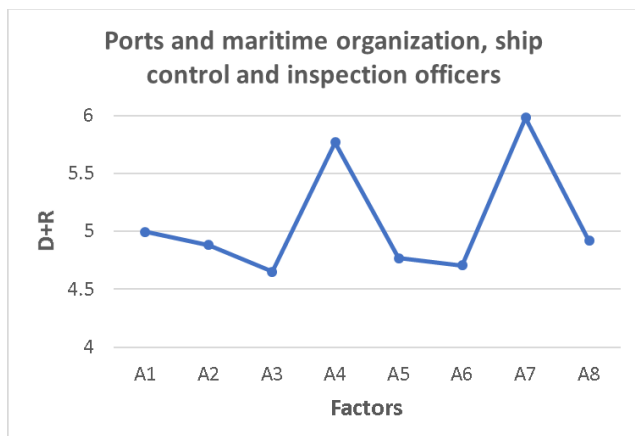


Figure.3 D+R values of Ports and maritime organization

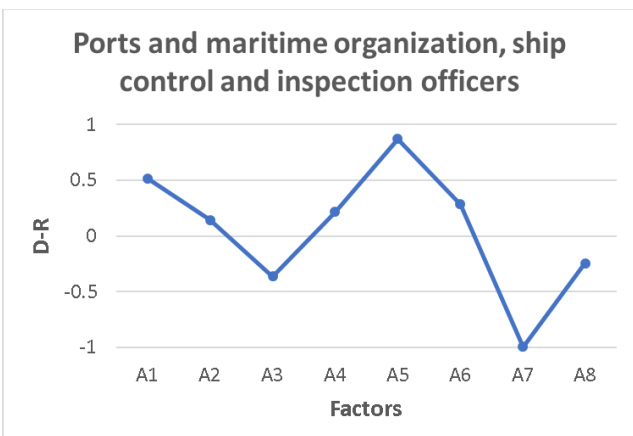


Figure.4 D-R values of Ports and maritime organization

According to Table 8 and Figure 3 of section D+R, the highest interaction is associated with A7 and the lowest interaction with A3. In other words, according to Table 8 and Figure 4 of section D-R, the most effective factor is related to A5 and A7.

The author considered the variables in order to determine the relationship or lack of relationship between the factors. In this section, the average of the entire table is calculated. The values of the matrix arrays whose value is lower than the average are given the value 0, and the values of the matrix fields whose values are above the average are given the value 1. The values of the matrix fields that are given the value 0 indicate that there is no relationship between these two variables, and the values of the matrix fields that are given the value 1 indicate that there is a relationship between these two variables. The average value is 0.317.

## Group of shipowners and seafarers

The variable of increased costs due to the implementation of the convention has the strongest interaction and the variable of low income level has the least interaction with other variables in this group. The variable of communication between the owners and the high-ranking officials of the provincial port administration, the most effective factor and the most influential factor was low income level.

## Group of ports and maritime organization, ship control and inspection officers

The variable of the control and inspection system for seafarers' certificates of competency has the strongest interaction, and the variable of the lack of financial support from the shipowners' organization has the least interaction with other variables in this group. The variable of Ports and shipping organizations do not support control and inspection officers is the most influential factor, and the most influential factor is the way the Convention is implemented by control and inspection officers.

The survey has shown that not only the MLC standards are complied with, but also that the shipping companies provide additional welfare facilities and quality services on board the ships. It should be emphasized that the welfare provisions aim to ensure the well-being of the individual as well as social development and teamwork (Progoulaki et al., 2013).

## 6. CONCLUSION

The MLC 2006 is considered one of the four most important conventions in the maritime industry, which has also come into force in our country. Originally, this convention was implemented in Iran for ships with a gross tonnage of over 500. So far, there has been no academic research in Iran to identify and categorize the challenges of implementing the MLC 2006.

This research is important because studying the current status of implementation of this convention and identifying the factors involved in its implementation can help to improve the implementation of this convention in Iranian ports. On the other hand, the effective factors for the implementation of MLC 2006 were identified based on the literature and research background. The identified items were designed in the form of a questionnaire which was confirmed using content and face validity and Cronbach's alpha of 0.915. Of the 126 questionnaires distributed to shipowners, seafarers of vessels with a gross tonnage of more than 500, control and inspection officers and port facility experts, 100 were fully answered and returned to the researcher. Considering that the significance level of Kolmogorov-Smirnov test was above 0.05, the research data was normal and t-test was used to analyze the questionnaires.

The Maritime Labor Convention 2006 (MLC), as amended, contains a number of mandatory requirements and optional recommendations for the working and employment conditions of seafarers. The latest MLC amendments were finalized in June 2022 and entered into force on 23 December 2024. In order to achieve more effective implementation of the MLC 2006 in Iranian ports, the following points are proposed based on the MLC amendments:

- Provide for seafarers to be informed of their rights to compensation for financial losses suffered as a result of non-compliance with obligations related to the provision of recruitment and placement services.
- Obligation on flag and port states to facilitate the prompt repatriation of seafarers, including where seafarers are deemed to have abandoned their ships, and to protect seafarers accommodated on ships on which seafarers have recently abandoned their ships.
- Provides that ILO member states shall ensure:
  - The prompt disembarkation of seafarers in need of "immediate medical care" and access to medical facilities ashore.
  - That seafarers are not prevented from disembarking by port authorities or shipowners on public health reasons.
  - Cooperation in facilitating the repatriation of the remains of seafarers who have died on board.
- Each Member shall require ships flying its flag to provide financial security to ensure that seafarers are properly repatriated in accordance with the Code.
- Flag and port states must be proactive in assisting seafarers entitled to repatriation, including those deemed abandoned. Where a port state deems it necessary to retain a minimum number of crew members on board to ensure the safety of the port, this includes the recruitment of replacement seafarers who have the same entitlements under the same MLC 2006.
- In particular, a member may not deny the right to repatriate a seaman based on a shipowner's financial circumstances or the shipowner's inability or unwillingness to replace a seaman.

- Provides that:
  - A range of appropriately sized personal protective equipment (PPE) must be made available to the crew by ship-owners.
  - ILO member states must ensure that all seafarer fatalities are adequately investigated, recorded and reported annually to the ILO for publication in a global register.
- In the case of members whose ratification of this Convention was registered prior to the adoption of the amendment, the text of the amendment shall be communicated to them for ratification.

## **CONFLICT OF INTEREST**

The authors declared no potential conflicts of interest with respect to the research, authorship, and/or publication of this article.

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