

The New Shipping Environment and Future Shipboard Organization

**Professor Park, Yong-sub, LLD.
Master Mariner.
Korea Maritime University*

Contents

- | | |
|------------------------------------------------------|----------------------------|
| 1. General. | 6. Updating of Knowledge. |
| 2. Philosophy. | 7. Automation System. |
| 3. New Pattern of Shipping | 8. Shipboard Organization. |
| 4. Increase of Crew Cost and Less
Manning System. | 9. Conclusion. |
| 5. Inppovement of Shipboard Living
Standard. | |

1. General

The Korea Shipping Industry (KSI) has been in deep depression amid international shipping recession and in the situation of appreciation of Korean currency to the U. S. dollar. This will be another disadvantage for the KSI to regain international competitive power after the merger policy in 1982.

The KSI has been influenced by the free trade pressures from the United States as an external factor : Koyea Seafarers Union requires to increase and improve their wage and social welfare as the same level as those of shore industries as an internal factor.

The KSI continuously and positively will have to find the economical operational measures in economic of the fleet despite of the above disadvantages. For the purpose of it, shipowners would

like to adhere to the reduction of direct operating cost, that is, the less manning system. But this is too much different idea from the manning policy of government or shipowners accordingly.

Moreover the KSI has been at unfavorable situation in this country because the government and banks have designated this industry as troublesome and hopeless one due to severe deficit after 1982.

From the result of the said problems, The KSI might have been almost sunk under the sea level until a recent date. During the period of a few of years, the KSI has been greatly supported by banks with financial assistance and by government with administrative protection. In order to refloat the KSI, the government reformed many small-scaled shipping companies to several large-scaled one, and that is called the rationalization of shipping industry.

* 정회원, 한국해양대학

2. Philosophy

“Philosophy” is not a difficult meaning in this society. The philosophy of shipping could be described in view of two aspects, one based upon commercial business and the other upon national defence as a fourth army.

From the view of developing countries, the shipping has been considered to be one of national key industry that shows the independence symbol of politics and economics in the later 20th century.

Generally speaking, the shipping is a commercial activity in the global trades and a basic maritime industry which is leading other maritime activities to be developed. The shipping, of course, is only one available industry for international transportation using vessels and port facilities including communication systems.

The commercial nature of shipping is that it is severely competitive with no firm share of the internal market within the territorial area of the flag nation. On the other hand shore businesses could enjoy holding some permanent customers depending upon their productivity and reliability.

In addition, port facilities must be available at any time when vessels approach, enter, lie, handle cargo and sail from berth without any danger. and also shipping is a tool of lower transportation cost because a ship can carry massive quantities of cargoes over a long miles, though she can afford lower speed than others. Shipping is the most economic transportation system in the global trade.

3. New Pattern of Shipping.

Korea is an important nation supplying seafarers for the worldwide shipping industry. This means the KSI has some merits by which it can overcome the difficulties of international competi-

tion in shipping.

Manning is a major important issue because it has occupied a large share of the direct operating cost of a ship, that is, about 30 to 40% of the direct operating cost. The direct operation cost consists of bunker consumption, lub oil, victualling, stores, spares, repairs, overtime charges, maintenance and crew wages including social welfare and repatriation etc.

In order to avoid high operation cost, shipowners have indulged themselves in improving their fleets by way of adoption of high technology, such as electronics and automation, including use of bunker of low quality, and specialized carriage system, etc. Accordingly, shipowners are to be expected to reduce remarkably the direct operation cost, mainly crew cost.

In recent times, ship and fleet has become bigger and more expensive. Cargo more complicated and specialized. Merchandise in container is stored by computer and auto-controlled system, and cargo operation in port is supervised by supercargo or port captain. Navigation route is directed by shore-based ocean weather station. And also most of maintenances, repairs, and surveys are carried out by port engineers. All accounting of a ship as well as payment of crew has become routine responsibility of a shore staff. Before 1950s ship's master had had the responsibility for the said affairs.

In accordance with the change of shipping pattern, shipowners recently seem to believe that the smallest number of crew per ship is one of the best way to maintain cheap operating cost of a ship. That is one of the reasons why shipowners are trying to rationalize. This rationalization has been studied and developed from the view of practice during 1970s by the advanced maritime from the view of practice during 1970s by the advanced maritime countries such as Japan, West Germany, Netherlands and Nordic countries.

But we, in Korea, have hardly done in following the above process of leading countries, except copying thoughtlessly from them. Before we copy this new system we have to study thoroughly and modify it for our shipping environment. But unfortunately the KSI dose not take any positive and continuous investment and research activity including an actual shipoard experiment and an estimation of the result. This program should be carried be carried out on the basis of social views, traditional culture, educational system, employment circumstances and psychological attitude.

Generally speaking, the attitude of the KSI has been just satisfied with adoping all the materials from Japan without any assesment or rearrangement of Japanese system. The KSI sued to like only chasing a system developed by the said countries and enjoying the smallest unumber of crew on board even on the conventional ship without adding modern equipments or facilities, or without modernization of shipboard organization

4. Increase of Crew Cost and Less Manning System

The KSI has enjoyed employing Korean crew at lower wage ad minor social welfare until recent date. But after 1987 Korea has rapidly changed into the liberal community against authoritarian and created a social movement pursuing reasonable standard of living conditions and working environment.

The Korean Seafarers Union has been directly influenced from this movement and then the society requires to increase wage and to solve other related social problems for the benefit of its demands.

On average the crew cost of the KSI was one fifth or two fifths of that of the advanced nations in 1987. The Korea Maritime Press issued a comparative statistics regarding annual crew costs as follows :

<i>Nation</i>	<i>Annual Cost</i>	<i>Index</i>
<i>Korea</i>	294	100
<i>Japan</i>	1,400	475
<i>Nordic</i>	780	264

(unit : US\$ 1,000)

The above statistics shows the cost of Korean crew is lower than others, but many factors will result in making Korean crew more expensive in the near future.

Firstly we have been facing iwth the appreciation of the korean currency to the US \$ since 1987, and this will influence on the Korean crew cost, making it increased continuously according to continuous Won (Korean Currency) appreciation.

Secondly, with the change of social environment, the Seafarers Union adopts a new measure intending to improve employment terms and conditions as well as increase of wage.

Thirdly, the younger do not prefer to live sea life in proportion to higher living standard in recent times.

Fourthly, crew cost will be automatically increased in proportion to the national income and improvement of employment terms of the society.

The said factors will make severely adverse wind to the KSI, and render less competitive power than other foreign shipping companies that have powerful fleet of FOC(Flag of Convenience) or less manning auto-controlled ship.

In order to create a good competitive power against the foreign, the KSI must form a research group that will study about the higher operational cost and manning scale including efficiency of the Korean fleet. We have to consider the increasing percentage of crew cost of the total running cost.

So far as the shipowner has no other practical way to reduce his running cost, because his technique, finance, insurance, inflation or revaluation of currency is out of control on his part, he considers realistic manning cost of ships.

Finally, it is necessary of refer to payments. It is a turning point that the cost of employing Korean crews is rising faster after 1987.

According to the estimation of percentage of

<i>year</i>	<i>1987</i>	<i>1988</i>	<i>1989</i>	<i>1990</i>	<i>1991</i>	<i>average</i>
% (+)	18	20	15	10	10	about 15

As of spring of 1988 the total amount of crew cost for ocean going vessel is approximately US \$ 420,000 per year according to the agreement between the labor and the management. It is necessary to note that the cost will be estimated as US \$ 500,000 in 1989.

Crew cost consists of basic payment, supplement and indirect pay :

(1) Basic Pay : monthly wage, overtime charge, pension contribution, social security payment and victualling

(2) Supplement : handover/standby pay, training expenses, leave allowance, study time and sickness expenditures

(3) Indirect pay : travelling costs, cadet training and sundry

The KSI has realized the crew cost to be a big share of total operating cost. But the KSI does not understand the phylosophy of the less manning and the crew cost, because there is no harmonization between the crew cost, the modernization of ship and the less manning.

On the matter of these issues, the other maritime nations have already carried out studies and researches on various aspects by shipowners, shipbuilders, seafarers and other interests.

The KSI would prefer adopting a new less manning system without any scientific, economic or reasonable analysis and assessment from the view of social, labour, technical and psychological aspects prior to its application to the fleet.

Nevertheless, the KSI has already started to proceed the less manning system. Therefore the

the increase of the Korean crew cost surveyed by the Korea Maritime Institute, Seoul, May 1988, the average percentage shows som 15% annual increase between 1987 and 1991 as follows :

shipboard organization has been changing too rapidly at present moment.

5. Improvement of shipboard Living Standard

In the past sea life was depicted as romantic and manly, but there is not any more romanticism in a love song, except only a severely tightened space on steel at the sea.

Since the sea life has been carrying out at sea far away from shore, we could not realize that sea life is very unattractive in human life. This means that the employment conditions and environment at sea have been recognized very slowly not only as a working place but also as a living place for humanbeing. Owing to the separated environment from shore, the environment of shipboard employment and the standard of living would not have been achieved so remarkably as that of the shorreside, even in the later 20th century.

In addition to it, the employment conditions and envirnoment of seaside have never been tried to be improved as a living place for humanbeing rather than as a working place only to give an unemployment relief of the unskilled. In case of FOC, for example, the beneficial owners could have enjoyed unlimitedly taking some extreme profits from such a shipboard organization that they do not care about the nationality of the crew ; on the other hand it is true that there is a possibility of a good payment, relatively higher payment in their society from the view point of our overseas employees by the foreign shipping companies in 1970s, for the unskilled seamen of

the less developed countries who are employed on the FOC vessel by the beneficial owner.

Anyhow the employment conditions and environment are surely inferior, for example, small pigeon cabin, narrow access and passage, unprotected stairway, self-catering and cleaning due to short hands, a small box of medical chest and very poor physical and recreational facilities, regardless of class or nationality and the ship. These factors must have brought out a poor and dangerous circumstances of working condition in physics and unstable thinking in social life in metaphysics at sea.

There will be other issues regarding some practical improvements.

Watch-keeping hours must be modified or compensated in due time in order to make stable humanity and to protect human right.

According to the Korea Seamen Act, the watchkeeper on board has to work 56 hours a week compulsorily with no overtime charges. That means that they must be on duty in the afternoon and night of Saturday and full day of Sunday, let alone all the official holidays by reasons of underway at sea. Regardless of 56 hours working a week, all officers and engineers might be required to do some extra works every day at sea or in port, because officers or engineers must be in charge of all shipboard duties such as watchkeeping, maintenance of hull, machinery, or equipment, documentation and managing shipboard organization.

These phenomena could frequently arise in shore industry, but Labour Standard Act strictly prohibits and kind of overwork without proper payment prescribed on the collective agreement.

Seaman Act provides that a seaman is entitled to require 30 days of annual leave after 10 months sea service. We must interpret these 30 days not to be maximum legal days but to be minimum. There is no provision to give a seaman

proper holidays in excess of 30 days per every 10 months in Korea. Some foreign shipping companies which have employed Korean crews on its FOC vessels agree to give 45 to 60 days every 10 months.

This is a problem of human life rather than a legal provision lacking the flexibility of humanism.

From the view point of sea life, we are aware that ship is both home and working place which is isolated from his family and neighborhood.

Strictly speaking Sunday or holiday at sea is not a real holiday because, as long as seaman remains on board, he is not able to enjoy his holiday with his families or neighborhood. In such circumstances he is unable to recreate refreshment for himself to get ready for the next task.

In the days of GNP 3,000 US\$ or more the said issues raised by the Korean seafarers society will soon require a change for the better standards as the shore. The shore labourers are enjoying 22 days of annual leave in accordance with the Labor Standard Act. Therefore only 8 days are in excess of vacation at sea than that of the shore.

From the above view it is necessary to note that the provision of annual holidays of the Seamen Act must be interpreted as, we emphasize, that their real and true vacation should be in every way fitted for social and family life instead of a mere vacation in the society of GNP 4,000 or 5,000 US\$ in the later 20th century. This will result in increase of the crew cost in the near future.

6. Updating of Knowledge

The pattern of modern shipping has been changed very quickly and adopted high technology for ship-building, operating and managing.

This country has various schools for the merchant marine from junior officers to ratings as follows ;

(a) Korea Maritime University

It has two departments for the merchant marine officers who are employed as junior officer or engineer with the degree of Bachelor of Engineering (B Eng)

(b) Mokpo Merchant Marine Junior College

It produces merchant marine officers who are employed as junior officers or engineers.

(c) Korea Maritime Training Institute

It is vocational training and refresh courses for the trained or only experienced seaman on board in accordance with short term programmes. The main subject is STCW, IMO.

(d) Maritime High School and Seaman School

They are vocational schools of high school grade for boys: the former has three departments—deck, engine and radio for lower class of licence, the latter is dual technical school mainly for ratings and they are eligible for lower class of licence.

Korea Maritime University is only one national school for higher advanced course for operation and management of merchant ship with four years courses. This university is provided with facilities including an average-sized training ship of GRT 3,500 and navigational and engineering simulators. Mokpo Merchant Marine Junior College is an only vocational, technical school for three years course. This school has moderate training facilities including old-fashioned training ship of about GRT 2,000. The other high schools do not have very good equipments or facilities because of lack of financial support.

It must be pointed out that most of the teaching staffs of the said schools except Korea Maritime Training Institute do not have proper sea experience at all. Especially most of teachers of the three high schools are graduates from the Fishery College not from the Korea Maritime University except a few of them. And also they have

no experience on board merchant ship.

Therefore we must recognize that all the teachers must have a chance to join in merchant ship in order to make a good experience for their school boys. The KSI should consider giving them, if available, on-board training on container ship, larger tanker, LPG or LNG carrier, car carrier, chemical carrier, special heavy cargo ship or off-shore supplier.

This cooperation will be greatly helpful to make a good knowledge and skill for young sailors who are suitable for modern less manning ship.

With regard to the automation, the less manning and updated knowledge must be kept in mind to be a basic policy of settlement to survive from severe competitions of the international shipping.

The KSI must promote all officers and ratings of the deck and engine departments to be high qualification with update knowledge of the safe and economic operation of the ship and cargo as well as management of shipping, in order to achieve the less manning scale. In addition there must provide another shore supplementary team to give assistance to the above ship berthing, cargo operation or maintenance in port.

It is true that a mere reducing number of crew should be brought unstable and uneconomical results if there is no any refresh training for update knowledge or high technology without delay any more.

7. Automation System

A reduction in the number of manning on board is the only one way to save operating cost of a ship. This will require not only a further automation of machinery and equipment including cargo operation but new philosophy of shipping and economic value of automation. In this case we should consider, of course, making standards of automation and reducing number of crew by

comparative method.

In the process of shipboard automation, we must understand the philosophy and concept of it prior to the settlement of new equipments and less manning system as throwing kinds of conservative view. Additionally the KSI have to be ready for this new system through pre-training and education and know what the philosophy and profit of this system is and how to use it economically and reasonably.

Shipboard automation, however, has been rapidly adopted by the advanced maritime countries since 1970. Unfortunately this country has prepared no steps toward it in genuine sense. Nevertheless, the KSI are exerting its effort to proceed to the next stage to reduce operating cost by way of cutting the number of crew with simultaneous automation.

Shipboard automation falls into five main categories :

- 1) Navigation and Anticollision
- 2) Main Engine and Auxiliary Machineries
- 3) Cargo Operation
- 4) Communication
- 5) Management and Administration

At the beginning stage, shipboard automation was simply adopted from the shore for such as navigation, engine, power system and cargo operation. At the second stage the communication system has been developed with high-tech of electronic. At last the management and administration system is being installed to connect shore with sea through the computer and high-tech communication system.

The above well-automated system have greatly contributed to reducing the direct operating cost of fleets.

Especially the automation of management and administration process will involve data communication between ship and ship and/ or ship and shore, followed by more effective organization.

Therefore if there is reasonable harmonization between automation and less manning, the shipping industry will have a great competitive power in the future.

With regard to the economic operation of fleet the KSI could be carefully recommended to find out the way to the said projects before adopting foreign systems thoughtlessly, and we have to take into account of our training system and philosophy.

As long as we pursue prudently a new programme of automation and less manning as Japan has done positively and carefully, the KSI will have successfully achieved shipboard automation system which is contributing to the business.

With regard to automation the KSI must, first of all, understand all ratings of the deck and engine to be general purpose crew (GPC) or dual crew (DC) fit for automated ship in the near future, because most of ratings and/ or the KSI are currently being satisfied with conventional way of acting. Therefore the KSI should substantially have to change such concept of theirs and idea of manning for the automation and the less manning. Automation is done for the less manning in order to lower the direct operating cost of a ship.

In addition to the purpose of the above, the vocational GPC training is basic tools and means of encouraging safe operation as well as reducing crew cost.

In fact GPC should be recognized as an excellent mechanic on the shipboard organization not as a mere odd-job man.

8. Shipboard Organization

The KSI has maintained strictly the conventional shipboard organization which is subdivided into three departments ; deck, engine, communication-catering. Major disadvantage of this system is that there is no way of interchange among me-

mbers of this organization in the era of less manning and shipboard automation.

Since 1970s foreign shipowners have tried to get over this problem by adoption of the system of GPC or DC holding a pace with development of automation on board and with improvement of employment terms and conditions. As the result of that, the ship side would have become more burdensome in conceding too much fringe benefits for keeping smaller manpower.

So, it is necessary for a shipowner to have a very clear definition and concept about managing requirement of his business in order to rebuild

a new shipboard organization in new shipping area. For the purpose of new shipping area, we must bear in mind the following factors :

- (1) Design and Equipment of Ship
- (2) Education and Training of Crew
- (3) Trading Pattern of Shipping
- (4) Standard of Automation
- (5) Employment Terms and Conditions

According to the change of shipping pattern and shipboard machinery, the manpower organization should be duly required to modify within reasonable time to match with new area.

(1) Conventional Manpower . . . 25 crews / 30,000 dwt

Dectk		Engine		Radio	
Master		C/Eng.			
C/Off.		1/Eng.		Radio Operator	
2/Off.		2/Eng			
3/Off.		3/Eng.			
Ratings	6	Ratings	6	Catering	4
Subtotal	10		10		5

The above data was abstracted from the conventional merchant ship that was equipped with less automative system.

But the data of newly-equipped merchant ship has been remarkably reduced to the number of

22, 20, 17 or 14 Of course there should have been much investment by the shipowner to achieve the goal of less manning. In case of the KSI, there is an example of about 22 crews of the same-sized bulk carrier.

(2) Multi-purpose Bulk Carrier . . . 22 crews / 30,000 dwt

Deck		Engine		Radio		Catering	
Master		C/Eng.					
C/Off.		1/Eng.		Operator			
2/Off.		2/Eng					
3/Off.		3/Eng.					
Ratings	6	Ratings	5			Ratings	2
Subtotal	10		9		1		2

But this system should be pointed out that the arrangement of shipboard manpower is logically disordered and unfair as 10, 9, 1, and 2 in 3,000

dwt vessel. For example catering department has only 2 ratings for management of health, cleaning and cooking for the other 20 crews. Probably

there is no GPC of deck and engine crew.

Regardless of such a manpower framework, cutting of men on board has been kept in favor of shipowners with no resistance of crew on board or the Seafarers' Union in spite of unfair operating system of ship due to improper automation or unfavourable reorganization. Although there

could be some issues, the KSI will have carried out further less manning system in the near future with smooth agreement with seafares.

In the early 1980s British shipbuilder designed a new bulk carrier for 1980s having general automation and less manning of 17 as follows ;

(3) New Bulk Carrier . . . 17 crew / 30,000 dwt or more

Deck	Engine	Radio	Catering
Master	C/Eng.		
C/Off.	1/Eng.	Operator	
2/Off.	2/Eng		
3/Off.	3/Eng.		
Ratings 4	Ratings 1		Ratings 3
Subtotal 8	5	1	3

• All ratings of deck and engine are GPC.

Radio operator is classified as deck officer.

A new shipboard manning system has already been modified in the Japan Shipping Industry (JSI) for the 21st century. The master, head of ship will be appointed as the direct manager of the ship out of senior officers of the three departments in conventional role system, so far as he has a master's certificate regardless of his major in his role.

Before the JSI execute this new system it has agreed to take the Watch Officer System.

The Watch Officer is coming from ratings who has some watch experience in bridge or engine room. After watch keeping duty under authorized officers for a certain period, he will be qualified to take examination to enter to the normal officer's or engineer's group. Of course any student will be a watch officer upon satisfying sea training that is given during his school years.

According to the future scheme of the advanced maritime nations, the complement will be 16 on average and finally 12.

Comparative Manning Scale

Nation	Intermediate scale, near	Final scale
Norway	13	11
Sweden	16	11
W.Germany	14	12
Japan	16	16-k * *
Taiwan	16	12
England	21	12
U.S.A.	21	?
Korea *	18	?

* It is estimated ; available no materials for the KSI

** allowance

From the view of rational operating scheme, the measures of new shipboard organization of the KSI is considered having been recklessly formed by no way of proper studies up-to-dated.

The KSI does not understand properly what the philosophy of less manning and less cost is, even if this cost occupies a large portion of the total direct operating cost, because there is no logical harmonization between the crew cost, the modernization of ship and less manning system.

9. Conclusion

Shipping company is an international enterprise with severe competition in the worldwide transportation. Shipowner does not have any other alternative of save the cost expenses of shipping except saving the direct operating cost. Crew Cost is a major share of the direct operating cost about 30 to 40%. Therefore shipowner has already chosen reducing the cost of crew in order to survive in the international competition.

For the purpose of this policy, shipowners have decided to strengthen automation of his fleet and then tried to reduce manning scale.

Since 1987 the KSI has faced with an unfavour-

able business environment due to a rapid social change including labour movement in which they insist that they have the human right to live and to think as humanbeing.

It is necessary to recognize that the KSI should carry out some positive activities to achieve international competitiveness on the ship side and cost of crew.

Especially the KSI must do as automative and labour-efficient as those of the advanced maritime nations for the next decade.

In order to provide this, the Korea Shipping Society as well as maritime schools must form a working group or research group.

For the next decade and for the 21st century the KSI and other interests have to realize a good manning system in every way fitted for such class of merchant ship from the view point of the high industrial society.

In addition a shore supplementary team should be established to carry out ship operations such as berthing, cargo operation or maintenance during the relevant period in port in order to achieve this proposal.