A study on the introduction of quality management system for improving the international competitive power of the shipping companies in Korea*

Tae-Woo Lee
Department of Shipping Management, Korea Maritime University, 1 Dongsamdong, Yeongdo-ku, Pusan 606-791, Korea

Abstract

This paper suggests a prototype for a quality management system (QMS) of seafaring labour, which itself would be a sub-system of the total quality management (TQM) system in a shipping company, on the basis of the ISM and the ISMA Codes, ISO 9002, ISO 9004, and other quality management guidelines. The paper argues that the QMS is essential for the survival of the Korean shipping industry and that it will contribute not only to assuring the quality of crew, but also, consequently, to increasing the international competitive edge of the shipping companies in Korea.

1 Introduction

The search for cost-effective or cost-saving options has always been in the forefront of the shipowners' and ship managers' minds, particularly in the bulk and low freight trades. The economics of running a merchant ship are closely related to the employment of qualified crews at a low cost. In addition to this, the concept of the shipowner's responsibility for seaworthiness has been extended in case law and by implication to include not only the quality of the crew on board, but also the shore management systems that have some effect on the quality of the shipboard operations [12]. Therefore, the

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concept of quality management is rapidly becoming a vital element in the shipping industry [4].

The purpose of this paper is to design a prototype for the quality management system (QMS) to ensure quality assurance (QA) of seafaring labour, which would itself be a sub-system of the total quality management (TQM) system in a shipping company. This prototype will be based on *the 'International Management Code for the Safe Operation of Ships and for Pollution Prevention'* (International Safety Management Code, ISM Code) by IMO, *'International Ship Managers' Association Code of Ship management Standards'* (ISMA Code), and the quality management guidelines by various classification societies, such as the LR, the DNV and the BV.

2 The necessity for the QMS in the Korean shipping industry

In this section various reasons are given to explain why the Korean shipping industry urgently needs to develop the QMS.

Since the late 1980's it has been very difficult for Korean shipowners to recruit qualified seamen at the required time, owing to the deteriorating quality and the decreasing number of applicants for training at maritime schools. As far as the rating classes are concerned, Korea is rapidly changing from a supply country to a demand one. As a consequence, from 1991 onwards the Korean shipowners have been employing Korean-Chinese ratings to overcome the shortage of seafaring labour and to save crew costs. In the period between 1991 and 1994 they have recruited approximately 800 seamen, who came mainly from the Province of Guilin in China [7]. However, owing to the supply of unqualified seamen, cultural conflict between Korean and Chinese crews, the latter's lower labour productivity, lack of cost consciousness caused by the Chinese socio-economic system, and high crew turnover, a recent survey showed that the effects of crew cost-saving were less significant than most Korean shipowners had expected.[9]

Meanwhile, the marine accidents and incidents which have occurred in the recent years, have served to focus the attention on the quality of the seamen in Korea. The problems associated with poor levels of communication, the consumption of alcohol, as well as inadequate training, have all been identified as the major causes of marine casualities. The alarmingly increasing rate of ship losses by Korean crews has caused Korean shipowners to pay additional insurance premiums, not to mention suffer operational losses. As a consequence,

this has resulted in the increase in the total shipping costs and the deterioration of their international competitive edge.

In these circumstances, Korean shipowners will have to find other alternatives to improve international competitive power. Flagging options aside [7, 10], the QMS has been positively considered since 1993. In the introduction of a QMS in association with foreign classification societies, the initiative is being forced upon, rather than taken by the major Korean shipping companies, e.g. Hyundai, Yukong, and Hanjin. However, the interviews with the top executives and the QMS task-force teams from Korean shipping companies carried out by the author revealed the following problems associated with the development of the QMS:

- most owners were reluctant to become involved in developing the system, as it is described in the ISM Code, displaying the 'I am too busy to get involved' attitude.
- without understanding of its impacts and implications, they regarded the certificates of the QMS as a license to do business in the international shipping market.
- expecting the slimming effect [12], they tried to utilise the QMS as an opportunity to restructure, or reengineer, their organisations.
- they did not understand that the QMS would merely generate costs with few short term benefits [1, 6, 8, 11].
- the QMS is not related to the sales or the general administration departments but mainly to the marine and the technical ones.
- if the ISM Code had not been adopted, they would not have seriously considered the development of the QMS as they are doing now.
- effective company-wide communication systems were not established.
- conflicts between shore-side management and shipboard management teams existed.

The above findings are the most common causes of problems associated with the installation of the QMS and they must be resolved in order to overcome the adverse current climate in the Korean shipping industry.

3 A prototype for the system of the QA of seafaring labour

There are many documents available to assist organisations in the design and implementation of a QMS. These include: the ISM and the ISMA Codes, ISO 9000, ISO 9002, ISO 9004, ISO 9004-2, *'Guidelines on the Application of the IMO Code'* developed by the International

Chamber of Shipping and the International Shipping Federation, '*Guidelines for Administration on the Implementation of the ISM Code*' by the IMO, and the quality management guidelines of various classification societies, such as the LR, DNV, and the BV [2, 5].

The understanding of, and the familiarisation with, the ISM and the ISMA Codes, ISO 9002, and ISO 9004 are recommended to the Korean shipping industry for a variety of reasons. Compared to others, they are much more involved in ship management, the safer operation of ships and pollution prevention, in addition; they are closely interrelated in a variety of ways with the notion of profit by quality as put forward by Moir [8] and Parker [11] amongst others and inevitably international competitive power.

To satisfy the requirements of quality management of seafaring labour, a useful approach for understanding the training process is to consider the process as a system whose boundaries interact with the rest of the business operations. Training needs and requirements are firstly identified, then training is provided to meet them. The output is compared with the requirements and any necessary changes are made to the system to obtain the desired output. Whilst this approach helps the crew managers to understand how the training process operates [13]. It must however be emphasised that it be considered within the boundary of the TQM so that training forms an integral part of the whole system [14].

A common approach to the evaluation of training is to assume that the relationship between training investment and improved organisational effectiveness is a straightforward case of linear cause and effect [13]. However, in the vast majority of instances, the training must be considered in relation to its role as a causal agent in the process of generating a quality culture. In this respect a quality trainer must have a wider outlook than a linear model allows and seek to influence not only the individual performance, but also the development of improved communications and team work [13] (see Figure 1). This figure illustrates the basic concept of the quality loop of seafaring labour, and was taken originally from ISO 9004 and modified for this study. Starting with market needs, the IMO and other quality requirements, these constitute the activities essential to the quality of seafaring labour.

The combination of the figure above and a modified quality system of ISO 9002 can be suggested as a prototype for the QC and the QA of seafaring labour. The box on the left in Figure 2 includes five

requirements that concern management of a formal quality system. These requirements are closely related to the ISM and the ISMA Codes, ISO 9002. Not only will the accessors need evidence that all the system control requirements are met but they also need to understand that the system cannot work for any given time without the mechanisms covered in this part of the international training standards. The middle box in the figure indicates the nine requirements which relate to the training process. This is closely related to the conceptual model of the quality loop in Figure 1.

Figure 1 Quality loop of seafaring labour.

Each requirement is titled according to the quality management guidelines. Anyone planning this system must also read the relevant information published and is also advised to consult any available interpretation document for the shipping industry.

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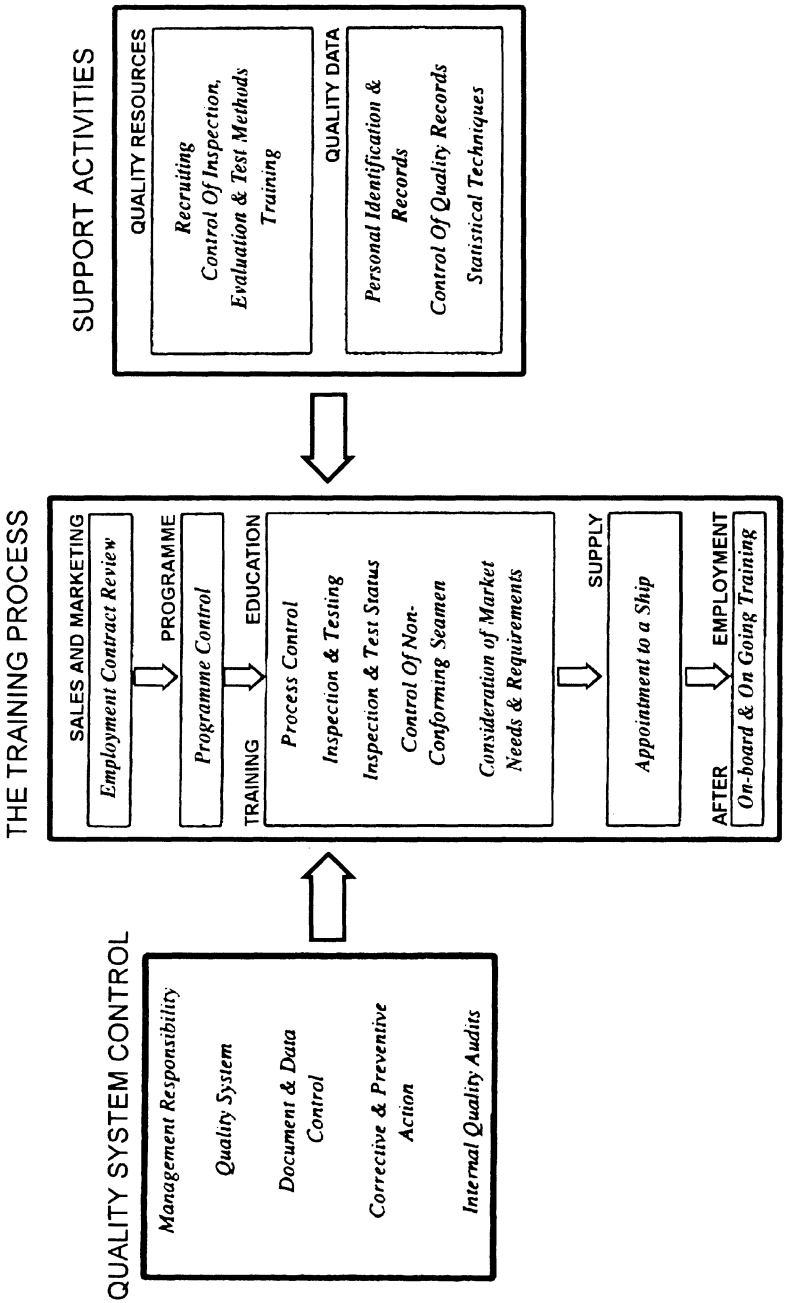

Figure 2 A prototype for the quality management system of seafaring labour.

The box on the right in Figure 2 concerns the support activities carried out to enable the training process to work effectively. As shown in the figure, these include those relating to the provision of the key resources and those concerned with the data arising from the operation of the QA. Although it is developed to match the requirements of the international legislation, it is important to note that the QMS has to be dedicated to its own organisation and must meet the QA needs of seafarer qualification and ship operation.

4 Conclusion

As Korean shipping companies endeavour to compete strongly by utilising cheaper crew combinations and flagging out arrangements, there is the risk that the quality control aspects of the ship operation may be disregarded. Paradoxically the provision of cheaper crews from developing countries increases the need for greater control and monitoring performance. On the basis of the ISM and the ISMA Codes, ISO 9002, ISO 9004 and other quality management guidelines a prototype for the quality management system was designed for quality control and quality assurance of seafaring labour from both Korea and developing countries. In this paper it has been argued that the quality management system, as a subsystem of total quality management system, is essential for the survival of the Korean shipping industry. It will contribute to assuring the quality of seamen and, consequently, to increasing the international competitive edge of shipping companies in Korea.

To establish a continuous competitive edge, Korean shipping companies will have to commit resources to a quality management system that results in reliable quality control and quality assurance regardless of the crew combinations and other factors.

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