Using the quality management system for risk management by the seaport administration

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Abstract. An increase in the number of ships in the world merchant fleet, their tonnage and speed has significantly enhanced the intensity of navigation, and the accident rate. Despite the fact that ships are equipped with the latest integrated navigation and power systems, the improvement of shore services and the quality of crew training, the accident rate of ships in port waters remains high. The main reason is the “human factor”, which is understudied. The problems and potential of implementing the quality management system were analyzed by Burkov, Irikov, Buyanova, Vetrenko, Vilsky, Voropaeva, etc. The purpose of the present study is to determine the most promising and effective method for developing the quality management system in the Seaport Administration. To achieve this goal, the concept and role of the quality management system, the role of the seaport administration in the system of the transport industry, duties of top managers related to the quality management system in the seaport administration were explored. The object of the study is the Seaport Administration. The study is novel as it develops a new scientific approach that can improve the efficiency of the quality management system in the Seaport Administration, the role of top managers, the methodology for training transport industry workers in order to eliminate emergencies and AS.

1 Introduction

An increase in the number of ships in the world merchant fleet, their tonnage and speed has significantly enhanced the intensity of navigation, and the accident rate. Despite the fact that ships are equipped with the latest integrated navigation and power systems, the improvement of shore services and the quality of crew training, the accident rate of ships in port waters remains high.

ISO 9000 distinguishes between the quality management system requirements and the product requirements. The purpose of continuous improvement of the quality management system is to increase customer satisfaction. ISO contains certification requirements, organizational requirements, management requirements, service requirements (customer orientation). To improve the effectiveness of the quality management system, it is necessary to follow the ISO principles, pay more attention to the management functions. Each Seaports Administration must develop, implement, and use a quality management system certified in accordance with the international standards.

The purpose of the study is to determine the most promising and effective method for the implementation and development of the quality management system in the Seaport Administration.

The object of the study is the Seaport Administration. The subject of the study is methods intended to improve the effectiveness of the quality management system.

The analysis of international experience in the management of seaports shows that the role of the government is crucial. In most countries, land plots, hydraulic structures, main communications, navigation safety systems and some other objects belong to the government of municipalities.

Human activities are associated with risks, the maritime industry is particularly susceptible to these phenomena, both in terms of human life, environmental damage, as well as man-made risks. Ensure safety in the maritime industry with professional communities and standards.

In the maritime industry, there is a need to provide quality services that are backed by safety standards to meet the various needs of customers. To achieve these goals, various quality standards have been developed for the effective operation of the quality management system (hereinafter, the QMS). In 1900, the International Association of Classification Societies developed a single standard for the QMS of classification societies, which was called the "IACS Quality Management System Certification Program". The above Program is based on the international standard ISO 9001. The ISO 9001 standard assumes that any organization independently chooses methods for implementing certain requirements. The specificity of the IACS PSCS lies in the fact that several methods, proven by practice and time, must be used by the classification society. One of them is vertical verification of contracts, which implies a direct verification of the survey process, when an auditor is present on the ship together with the inspector of the
classifications and, in turn, checks the activities of the inspector, covering not individual stages of work, but all actions within the framework of the survey, starting from survey planning and ending with the registration of the results of the survey.

Surveys and inspections can only be carried out by IACS members. The Russian Federation has been a member of IACS since 1992. As a member of IACS, Russia has implemented and uses the international standard ISO 9001 and the Program in its quality management system. Consequently, the level of services provided by the Russian Federation in the maritime industry meets the highest international requirements and standards, as well as a high level of safety.

It should be noted that a positive result from the implementation and use of a quality management system in an organization is possible only when the company effectively identifies the range of risks, and can also determine the possible consequences of the occurrence of such risks.

The use of a quality management system is a universal method that can be effectively implemented in various areas of the maritime industry, in particular, in the provision of services by the Russian Federation Ports Administration. Moreover, the quality management system can be implemented and successfully used by private companies and organizations in the maritime sector to avoid financial losses.

2. Leadership of the head, that is, the head of the organization, in this case, it is the captain of the Administration of the seaports of the Russian Federation, must formulate the goals and directions of the organization's work.

3. Involving people in the process of the organization's activities, that is, all employees must be involved in the work of the organization.

4. A systematic approach to management and the process, that is, everyone should understand each stage of work.

5. Continuous improvement of the process and improvement of the organization's activities

6. Actual approach to decision making.

7. Mutually beneficial supplier relationship.

As a result of the economic reforms in Russia, most seaports, which were federal enterprises, were privatized and transformed into joint-stock companies with their subsequent reorganization into competing commercial structures in the form of stevedoring, freight forwarding, agency and other companies.

The transformation of federal enterprises — seaports — implied that in addition to servicing ships used for merchant shipping, servicing passengers, transporting cargo and providing other services, federal port control is performed which is the international legal obligation of Russia that cannot be transferred to any enterprise. The question also arose about federal property, which was not subject to privatization.

To perform federal functions to ensure the safety of navigation, to perform federal port control and manage federal property not subject to privatization, in accordance with the Decree of the Council of Ministers-Government of the Russian Federation dated December 17, 1993, No. 1299 "On the organization of management of maritime ports", maritime port administrations were created. Decree No. 1299 provided for the principles of financial and economic activities of maritime port administrations. In addition to the powers for the operational management of federal property not subject to privatization (berths and other hydraulic structures), the maritime administrations were entrusted with the functions of ensuring the safety of navigation in the port water area, supervising the technical operation, repair and reconstruction of hydraulic structures, including new constructions, as well as monitoring compliance with the international treaties and the legislation of the Russian Federation on merchant shipping. Port dues and rent for the federal seaport property were determined as the source of financing for these activities. For the successful implementation of the quality management system, the Seaports Administration needs international recognition of its services, stability, and consumer confidence.

The Administration often face resistance from the staff when implementing or improving the quality management system, explaining their unwillingness to accept the requirements by the lack of time and distrust in the management. To avoid these problems, it is necessary to set goals which should be achieved.

For the successful implementation of the QMS, it is necessary to involve the management in the system,
which should be simple and accessible, and the management should also be able to pay for this work.

The process of obtaining the ISO certificate involves costs - inspections. The organization should prepare staff for the implementation of the QMS.

When implementing the quality management system in the Seaports Administration, the Manager may face the following problems:

1. Staff resistance.
2. Lack of time.
3. Lack of understanding.

The standards will contain the requirements for environmental management, which helps the organization to minimize the negative impact on the environment, to comply with the requirements and rules aimed to ensure environmental safety. All technological processes must comply with the environmental legislation, which contributes to the successful audit and effective management.

The article aims to analyze activities of the Seaports Administration in terms of quality management of services provided and personnel management. Risks arising from the implementation of the quality management system were studied.

The purpose is to study activities of the Seaports Administration in order to determine the most effective method of implementing and developing the quality management system, to develop a method that would save time on adapting personnel to new methods of managing employees, onto identify effective ways of controlling and analyzing activities of the Seaports Administration and ways of interacting with government bodies and other institutions and organizations. The quality management system is a multidimensional phenomenon. The article analyzes this phenomenon using both theoretical and empirical methods. The formalization method was used to analyze the structure of the quality management system. The idealization method as used for assigning ideal theoretical criteria and characteristics to the elements of the quality management system. The methods of comparison and observation were used to develop the most effective method for implementing the quality management system and minimizing management risks.

### 3 Results and Discussion

The IMO and UNCLOS conventions contain many requirements for flag, coastal and port states. As of September 2019, after the IMO system of voluntary verification of member states was implemented, only 41% of the member countries have passed the verification. Based on these audits, the IMO made the following conclusions. The root reasons why organizations failed to pass the test were: underdeveloped procedures, insufficient resources, insufficient coordination of participants, lack of national regulations, insufficiency of training programs.

In accordance with the ISO requirements, the organization must determine procedures required for the quality management system and facilitate their application, determine the sequence of these procedures, criteria and methods for ensuring the effectiveness in both the implementation and control of these procedures, ensuring the availability of resources and information necessary for the operation of processes, monitoring and analysis of these processes, continuous modernization of these processes. All these processes must be performed in accordance with the international requirements.

The organization shall provide the necessary resources to implement and maintain quality management systems and continually improve their effectiveness. And also the organization provides resources to satisfy the consumer. For the development of a quality management system, the organization announces the requirements of the consumer, the requirements of the charter and regulations, and also establishes the direction of the quality policy.

Half of the audits conducted showed a lack of national provisions as the root cause. This should include the following: The organization's documentation should reflect the quality objectives that are consistent with the quality objectives.

The organization shall determine the required level of competence of staff responsible for maintaining the quality of services and products and increase the level if it lower than required. The organization must evaluate the effectiveness of the measures taken, ensure that staff are aware of the significance of their activities, maintain records of education, training and experience of staff.

In accordance with the legislation, Seaport Administrations must maintain the quality management system for performing activities of the flag state. ISO 9000 distinguishes between the quality management system requirements and the product requirements. The purpose of continuous improvement of the quality management system is to increase customer satisfaction. ISO contains certification requirements, organizational requirements, management requirements, service requirements (customer orientation). To achieve the effectiveness of the quality management system, it is necessary to follow the ISO principles and pay more attention to the management functions. Each Seaports Administration must develop, implement and use the quality management system certified in accordance with the international standards.

The seaports administration, as an inspection body analyzes compliance with internal documents, performs Flag State Inspections and Port State Inspections. The Administration is guided by the following principles: impartiality and independence; subcontracting; inspection methods and procedures. The administration ensures stability of the healthcare system both on a merchant ship and in the transport organization. [1]

The Seaports Administration as a certifying body certifies seafarers and other personnel in the Administration. As a certifying body, the Seaports Authority has a special structure, imposes special requirements on examiners; the certification process involves assessment, examination and r-certification.

The ISO includes an environmental management system, which involves the assessment of the environment
at ports, the assessment of the period of operation, funds, ships, and the exchange of environmental information.

With regard to the safety of navigation, the seaports administration implements the safety and environmental protection policy, develops instructions to ensure the safe operation of ships and protect the environment, coordinates activities of shore and board staff, inform about accidents, emergency preparation procedures, conducts internal audits. At the stage of digital transformation of the transport industry, the Seaport Administration is implementing innovative methods in the field of security and control in the water area of the seaport. [2]

The documentation management process as a component of the effective quality management system involves checking documents before they are released, updating documents, ensuring availability of appropriate versions [3], readability of documents, preventing the unintentional use of obsolete documents. Records that are maintained to provide certification for the effectiveness of the quality management system must comply with the requirements. Records should be easily identifiable and retrievable.

The organization has the right to conduct internal audits. Reasons for checks can be objective evidence in case of inconsistencies.

The Seaports Authority has two main functions:
1. Vessel registration - customer service (Each state determines conditions for granting its nationality to ships)
2. Control over ships - control body (Each state exercises administrative, technical and social control over ships with its flag). [4]

As a control body, the Administration obliges States to explain why they are blacklisted. The administration is the executor.

There are key elements of the ISO standard that specify the principles of staff training and working with external participants.

The Seaports Administration does not pursue the business goal in working with the consumer; the main direction of interaction between the consumer and the Administration is provision of services to national organizations. The Seaport Administration monitors the safety of the seaport water area. [5]

Key points of services provided by the Seaports Administration:
1. Consistency.
2. Importance of services.
3. Ability to adapt to policy changes.

To implement the principles of consistency and effectiveness of the quality management system in accordance with international standards, the Seaports Authority should provide services at the proper level and increase customer satisfaction through the effective application of the quality management system. Human resources must be highly competent, as the competence of the staff affects the achievement of the result of the quality management system. The seaports administration improves the qualifications of the staff and keeps records of their experience and qualifications [6]. The seaport authorities should keep in touch with the consumer, including consumer complaints, order fulfillment.

Special attention should be paid to information management, which means that the Seaports Administration is obliged to store information and interact with suppliers of computers and data [7].

4 Conclusion

The Seaport Administration is experiencing some difficulties in the implementation and improvement of the quality management system. However, since the Seaport Administration has international relations and is a federal institution, the implementation of international standards is determined by the nature of its activities. Local regulations and activities of the organization are controlled by the government. In addition, the Seaport Administration performs control functions and trains personnel in the transport industry.

The study showed that in the absence of an effective quality management system, there will be no profit. If there are no correct commitments from the management, there will be no competent managers and no profit. To understand the methods of the quality management system, managers must provide personnel with accessible and quality resources. Transport organizations interact with each other in determining the standards of the quality management system, methods of improving the means of managing employees [8].

References

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