

SCTMG 2023**International Scientific Conference «Social and Cultural Transformations in the Context of
Modern Globalism»****QUALITY MANAGEMENT SYSTEM FOR RISK MANAGEMENT
IN THE SEAPORT ADMINISTRATION**

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Abstract

The growth of the world's merchant fleet has led to a significant increase in shipping traffic and, unfortunately, accidents. Despite ships being equipped with advanced integrated navigation and power systems, ship accidents in ports remain a common problem. This study examines the urgent need for the development and implementation of an effective quality management system (QMS) in seaport authorities. To achieve this goal, an analysis of the concept and role of QMS in organizations and enterprises was carried out: A deep understanding of the basic principles of QMS, its role in increasing efficiency and compliance with requirements. The role and place of the Seaport Administration in the quality management system was also determined. The unique role that Seaport Authorities play in ensuring shipping safety and preventing accidents was explored. The scientific novelty of the research lies in the development of an innovative approach that increases the effectiveness of QMS in seaport authorities. This approach includes strengthening the role of management. There is also recognition and strengthening of the role of managers in creating and maintaining a culture of quality. Particular attention is paid to the development of training methods for transport workers. It is also expected to develop and implement specialized training programs aimed at eliminating emergency situations and increasing safety awareness. The implementation of this approach will allow seaport authorities to play a more active and effective role in ensuring safe and reliable shipping, reducing accidents and increasing the safety of maritime transport.

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1. Introduction

As global trade expanded, the number of ships in the world's merchant fleet, their tonnage and speed increased rapidly, greatly increasing shipping activity. However, along with the increasing intensity, the frequency of accidents has also increased. Although ships today are equipped with advanced integrated navigation and propulsion systems, as well as advanced devices, and shore services and crew training levels are steadily improving, accidents in port waters continue to prevail. The ISO 9000 standard is based on the principle of separating requirements for a quality management system from requirements for products. This approach allows organizations to focus on creating an effective management system that ensures ongoing compliance and quality improvement. In addition to technological and operational factors influencing accident rates, human factors also play a significant role. Crew fatigue, inattention or lack of experience can lead to errors that increase the risk of accidents. To solve the problem of accidents, a comprehensive solution is needed, including:

- i. Investments in further improvement of equipment and technologies
- ii. Improving the level of training of crews and coastal services
- iii. Development and implementation of effective quality management systems in accordance with the principles of ISO 9000
- iv. Strengthening international cooperation and harmonization of maritime regulations and standards

By continually improving their quality management system, organizations strive to continually improve customer satisfaction, which is the cornerstone of success in a competitive business environment. The implementation of ISO international standards provides organizations with a reliable basis for achieving this goal. ISO requirements cover a wide range of areas, including certification, organizational and management aspects, as well as customer service requirements, emphasizing the central role that understanding customer needs plays in ensuring customer satisfaction. To ensure an effective quality management system, organizations must strictly follow ISO principles, paying particular attention to management functions, including planning, organizing, directing and controlling. Effective implementation of these principles creates an enabling environment in which quality improvement initiatives can flourish. In the maritime sector, ISO standards are of particular importance. Seaport authorities face unique challenges in handling ships and cargo safely and efficiently, and ensuring customer satisfaction while meeting stringent regulatory requirements. The development, implementation and certification of a quality management system in accordance with international ISO standards, such as ISO 9001:2015, becomes integral to ensuring that ports can consistently provide high-quality services that meet the rapidly changing needs of global trade.

The main goal of this comprehensive study is to identify and analyze the optimal approach to the implementation and improvement of the quality management system (QMS) in the Seaport Administration.

Object of study:

The study focuses on the Seaport Authority as the subject of study.

Subject of the study: As part of the study, methods and approaches aimed at increasing the efficiency of QMS implementation will be comprehensively assessed and investigated. It includes: Analysis of existing methods and practices for implementing QMS. Identifying gaps and areas for improvement. Development and evaluation of new and innovative approaches to the implementation of QMS. Identification of factors influencing the effectiveness of QMS implementation. Formation of recommendations for optimizing the QMS implementation process and ensuring its long-term success.

It should be noted that a positive result from the introduction and use of the quality management system in the organisation is possible only when the company effectively identifies the range of risks, and it can 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 field of service provision by the Russian Federation Seaport Administration. Moreover, the quality management system can also be implemented and successfully used by private companies and organisations in the maritime industry to avoid financial losses.

2. Problem Statement

For a comprehensive understanding of quality in this area, a comprehensive definition is needed that covers its multifaceted aspects:

- i. In relation to maritime transport: Quality is the sum of the characteristics and properties of maritime transport services that meet or exceed the expectations of customers and stakeholders. It includes aspects such as safety, reliability, timeliness, cost-effectiveness and environmental sustainability.
- ii. In relation to maritime infrastructure: Quality refers to the level of conformity and excellence of the physical facilities and systems used to support maritime transport. It covers the reliability, strength, durability, safety and environmental friendliness of ports, terminals, waterways and support structures.

A sound quality management system for maritime transport and maritime infrastructure is the basis for achieving and maintaining high standards throughout the industry. It provides a systematic approach to quality management, covering all aspects of operations, from planning and design to operation and maintenance. This is:

- i. realisation of all product and process properties;
- ii. combining human resources and process efficiency;
- iii. compliance.

Providing uncompromising quality of service is the cornerstone to achieving exceptional results in the maritime industry. A central element of this strategy is the leading role of the Russian Sea Ports Administration, which is responsible for the implementation of effective and efficient management tools. The quality of the services provided is inextricably linked with comprehensive systems for monitoring and evaluating products. Continuous quality assurance implies comprehensive control over the entire chain of processes, which is achieved through the implementation of a quality management system (QMS). This system plays a fundamental role in improving the efficiency and effectiveness of the

organization in achieving its goals. The QMS provides the basis for process transparency by clearly defining areas of activity and assigning responsibilities to the appropriate individuals. It acts as a tool for thoroughly analyzing processes to identify areas for improvement. Regular reviews and assessments carried out as part of the QMS enable continuous improvement of processes, eliminating inefficiencies and increasing overall productivity. The introduction of a quality management system not only helps to improve the quality of services provided, but also creates the basis for further development and improvement. It provides continuous feedback, allowing the organization to quickly respond to changing market conditions and requirements. The QMS acts as a driving force for innovation, stimulating creativity and the search for new improvements. In conclusion, effective quality management is an integral component for achieving success in maritime operations. By implementing a quality management system, the Russian Sea Ports Administration can ensure the consistent provision of high-quality services, which ultimately contributes to the overall prosperity and development of the maritime industry in the Russian Federation. Within the framework of the international standard ISO 9001, the following principles of the quality management system can be distinguished:

- i. A customer-centric organisation, that is, the organisation must know and fulfil the desires and current needs of consumers.
- ii. Managerial leadership, i.e. the head of the organisation. In this case it is the captain of the Russian Seaport Administration, who should clearly formulate the goals and directions of the organisation's work.
- iii. Involvement of people in the process of the organisation's activities, i.e. all employees should be involved in the work of the organisation.
- iv. A systematic approach to management and to the process, i.e. everyone should have an understanding of each stage of the job.
- v. Continuous process improvement and improvement of the organisation itself.
- vi. Factual approach to decision-making.
- vii. Mutually beneficial relationship with the supplier.

As a result of economic reforms in Russia, most seaports (which were state-owned enterprises before the reforms) were privatised and transformed into joint stock companies with their subsequent reorganisation into competing commercial structures in the form of stevedoring, freight forwarding, agency and other companies.

But the specifics of the transformation of state enterprises – seaports – was that, in addition to servicing ships used for commercial navigation, passenger service, cargo operations and other services normally provided in a commercial seaport, the seaport was subject to state port control. Its content was almost entirely constituted by Russia's international legal obligations and which, due to its administrative and authoritative nature, could not be transferred by the state to any other company. At the same time, the issue of state property, which by law was not subject to privatisation, also arose.

In order to perform state functions to ensure navigation safety and order in the seaport, to exercise state port control and to manage state property not subject to privatisation, in accordance with the Decree of the Council of Ministers, Government of the Russian Federation No. 1299 of 17.12.93 "On Organisation of Seaport Management". State institutions or seaport administrations were established in

seaports, to which state property, not subject to privatisation, was transferred for operational use. Decree No. 1299, which at that stage was an important step in the creation of the state management system in seaports, also stipulated the principles of financial and economic activities of the seaport maritime administrations. The source of funding these activities was determined to be port fees and rent for leased seaport property owned by the federal government and not subject to privatisation to stevedoring companies.

Successful implementation of the quality management system by the Seaport Administration requires international recognition of its services, stability of the organisation and customer confidence in the services provided, and most importantly, management control over all processes.

Often the Administration faces resistance of the staff in the implementation or improvement of the quality management system, explaining their unwillingness to accept the requirements of the manager by saying that there is no time and distrust of the management itself and its actions. In order to avoid such problems, it is necessary to explain to the staff why they are engaged in this work, explain the result that will be achieved.

Successful implementation of QMS in AMP requires management involvement in the system, which must be simple and accessible, and management must be able to pay for the work.

Obtaining ISO certification involves costs: carrying out audits. The organisation should prepare staff for the implementation of the QMS, and as many staff as possible should be trained before they start work.

When establishing a quality management system in the Seaport Authority, the Manager may encounter the following problems:

1. Staff resistance.
2. Time.
3. Lack of understanding.
4. Cost.

The Standards contain requirements for environmental management, which helps the organisation to minimise the negative environmental impact of the organisation's activities, to comply with the requirements and regulations to ensure environmental safety, and to improve the activities in the abovementioned direction. All technological processes carried out by the Seaport Administration must comply with environmental legislation, which contributes to successful auditing and effective management.

The purpose of the study is to examine the activities of the Seaport Administration to determine the most effective method of implementation and development of the quality management system. Proposing a new method would save time for personnel adaptation to new methods of employee management, identify effective ways of control, inspection and analysis of the activities of the Seaport Administration, as well as interaction with various bodies, governmental and various institutions and organisations. The quality management system is a multidimensional phenomenon, and as a consequence, various methods of cognition and research are used. In this paper, the author has considered only one of the sides of this phenomenon. Both theoretical and empirical methods were used to conduct the research. The method of formalisation was used by the author to analyse the structure of the quality management

system applicable to the activities of the Seaport Administration. The method of idealisation was used to assign ideal theoretical criteria and characteristics to individual elements of the quality management system. The author also used the method of comparison and observation to propose the most effective method of implementing the quality management system in the activities of the Seaport Authority and minimising management risks.

3. Research Questions

In this article, the author explores such topical issues as: ensuring the safety of navigation through the introduction of effective methods and means of regulating the quality management system in the administration of seaports. One of these tools is the training of not only ship crew members, but also all workers involved in the transport industry, since the main risk factor in the field of maritime transport is the human factor.

4. Purpose of the Study

The main goal of the study is to identify effective and efficient tools for building a mechanism for the functioning of the quality management system in the transport industry of the state. The analysis is given using the example of the activities of seaport administrations as one of the key elements of the transport system.

5. Research Methods

The IMO and UNCLOS Conventions contain a large number of flag State, coastal State and port State requirements. As of September 2019, following the IMO's introduction of a voluntary verification system for States Parties, only 41 per cent of participating countries have passed the verifications. Based on these verifications, IMO has drawn the following conclusions. The root causes for not being verified were a lack of or an insufficient procedure, insufficient resources, insufficient coordination among participants, a lack of national regulations, and a lack of or insufficient training programmes.

According to ISO requirements, the organisation must define the processes required for the quality management system and facilitate their application in the organisation's work, define the sequence and interactions of these processes. It must define the criteria and methods required to ensure effectiveness in both the implementation and management of these processes, ensure the availability of resources and information required for the operation of the processes. It also should monitor and analyse these processes, continually updating them, all of the above, and ensure that the quality management system is designed to meet the needs of the organisation.

The organization shall ensure that sufficient resources are allocated to implement, maintain and improve the effectiveness of the quality management system (QMS). It must have the resources necessary to meet the needs and expectations of its customers. To continuously improve the QMS, the organization must clearly communicate customer requirements, as well as legal and regulatory requirements, to all interested parties. In addition, it must establish a clear quality policy that guides the development and

improvement of the system. A recent audit found that about half of the non-compliance was due to a lack of clear national standards. To resolve this issue, the organization should take the following steps:

- i. The organization's documentation should clearly reflect its quality objectives, which should be consistent with the quality policy.
- ii. The organization shall identify and document the processes necessary to achieve its quality objectives.
- iii. Systems and processes should be regularly assessed and reviewed to identify opportunities for improvement.
- iv. The organization shall provide training and support to personnel involved in implementing the QMS to ensure their understanding of and commitment to the requirements of the system.
- v. The organization should encourage a culture of continuous improvement in which employees have the opportunity to make suggestions and participate in improving the system.

The organisation shall determine the required level of competence of personnel responsible for compliance with the quality of services and products. If the level is not appropriate, the organisation should raise the level. It is also the responsibility of the organisation to evaluate the effectiveness of the taken measures, to ensure that staff are aware of the relevance of staff activities, and to maintain records of staff education, training and experience.

According to legislation, Seaport Administrations must maintain a quality management system to carry out flag State activities.

The Seaport Authority, as an inspection body, shall conduct analyses in accordance with internal documents. It carries out flag state inspection and port state inspection. In carrying out this type of activity, the Administration is guided by the following principles: impartiality and independence; subcontracting; inspection methods and procedures. The Seaports Administration, in addition to the legal regulation of the activity of the authority itself, ensures a stable health care system both on the merchant ship and in the transport organisation itself (Lantseva & Migda, 2022).

ISO includes an environmental management system, which consists of environmental assessments at facilities and organisations (ports), operational period assessments (the assessment system includes own facilities, own vessels), and exchange of environmental information.

With regard to maritime safety, the Seaport Authority implements safety and environmental protection policy, introduces instructions and procedures to ensure safe operation of the vessel and environmental protection, establishment of coordination between personnel on shore and on board, accident reporting, emergency preparedness procedures, internal audit procedures. As the active phase of digital transformation of the transport industry is currently underway, the Seaport Authority is actively introducing innovative methods in the sphere of ensuring safety and control in the seaport water area (Strelnikova et al., 2021).

The process of document management as a component of an effective quality management system includes checking documents before they are issued, updating documents, availability of appropriate versions in places of their application (Pechnikov & Hekert, 2019), ensuring the readability of documents, preventing the unintended use of outdated documents. Records maintained to provide certification for the

effectiveness of the quality management system shall comply with the requirements. Records shall be readily identifiable and easily retrievable.

The organisation has the right to carry out internal audits. The reasons for audits may be objective evidence in case of non-compliance.

In the context of ISO, the Seaport Authority fulfils two main functions:

1. Ship registration or customer service (Each state determines the conditions for granting its nationality to ships).

2. Control of Ships or Control Authority (Each State effectively exercises administrative, technical and social jurisdiction and control over ships flying its flag) (Boikova et al., 2022).

As a monitoring body, the role of the Seaports Authority is to examine the results published in the Paris IP and to oblige states to explain why they have been blacklisted. The Authority is the enforcer.

There are key elements of the ISO standard that clarify the principles of staff training, as well as working with external stakeholders.

At the moment, the Seaport Administration does not pursue the purpose of business in work with the consumer; the main direction of interaction between the consumer and the Administration is rendering services to national organisations. Also the Seaport Administration monitors the safety of the seaport water area (Vaskov & Mironenko, 2019).

Key points in the Seaport Authority's Service are:

- i. Consistency.
- ii. Competence and understanding the importance of service delivery.
- iii. Ability to adapt to policy changes.
- iv. Competence.

In order to realise the consistency and effectiveness of the quality management system in accordance with international standards, the Seaport Administration demonstrates its ability to provide services at the appropriate level, as well as to increase customer satisfaction through the effective application of the quality management system. Human resources must be highly competent, as the competence of the personnel influences the achievement of the quality management system result. The seaport administration improves the competence of the personnel; hence, the organisation keeps records of the experience and qualifications of the personnel (Boran-Keshishyan et al., 2019). The seaport administration should keep in touch with the customer, including customer complaints, fulfilment of orders.

Special attention should be paid to information management, which is the responsibility of the Seaport Authority to store information and interact with computer and data vendors (Botnaryuk & Klassovskaya, 2021).

6. Findings

To sum up the comprehensive study, it is clear that the seaport authority not only plays a critical role in providing the transport industry with highly skilled professionals, but is also a vital component of the efficient and effective operation of the port itself. Its activities go far beyond local influence, having a significant impact on the economic stability of both the surrounding region and the entire seaport. The

activities of the seaport administration cover a wide range of responsibilities aimed at ensuring the smooth and safe functioning of the port. It acts as a regulator, setting rules and procedures for all operations related to shipping and cargo transportation. The Authority is also responsible for the supervision and control of the maintenance and operation of port facilities, ensuring that they meet the highest standards of safety and efficiency. In addition, the seaport administration plays an important role in the development of human resources in the transport industry. It offers training and development programs for seafarers, dock workers and other professionals involved in port operations. This not only increases the level of professionalism of workers, but also ensures the availability of the qualified workforce needed to maintain high standards of service. Thus, the seaport administration is an indispensable element in the functioning of the transport industry. Its comprehensive role in ensuring safety, efficiency and economic stability makes it one of the cornerstones of a modern seaport.

7. Conclusion

Summing up the results of a comprehensive study, it should be recognized that the Seaport Authority, like any other organization or institution, faces a unique set of problems and opportunities when implementing and continuously improving a quality management system. Given the international nature of the activities of the Seaport Authority and its status as a government agency, compliance with international standards is of paramount importance. These standards serve as the basis for local regulations and guide the organization's operations, ensuring compliance with the highest levels of productivity and efficiency on a global scale. In addition, the Seaport Authority performs a number of important control functions, acting as a guarantor of quality in the maritime sector. It is actively involved in training and development of workers in the transportation industry, contributing to the development of a skilled workforce and improving the safety and efficiency of maritime operations. Thus, the implementation and improvement of the quality management system in the Seaport Directorate is a multifaceted and multifaceted process. The organization faces unique challenges associated with its international connections and role as a government agency, but also has the opportunity to benefit from this position by drawing on best practices and learning from world-class expertise.

The study shows that if there is no effective quality management system, there will be no profit. That is, if there is a lack of correct management commitment, there will be a lack of quality management workforce. Hence there will be a lack of profit for the organisation, in this case, the Seaport Authority. In order to adequately understand the workforce of quality management system methods, management must provide staff with available and quality resources. In addition to the above, transport organisations interact with each other in determining the standardisation of the quality management system, determining ways and methods of improving the means of managing the organisation's employees (Abramyan & Golubkina, 2019).

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