

QUALITY MANAGEMENT SYSTEM IN MSUN: ACHIEVEMENTS AND WAYS OF DEVELOPMENT

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In this article we have dealt with the problems of developing and implementing of Quality Management System in Admiral Nevelskoy Maritime State University. We have proved it's necessary to implement the methods of quantative and qualitative educational assessment, to use statistic methods and methods of self-examination and self-assessment.

Keywords: quality management system, certification, accreditation, quantative assessment of educational quality, macro-processes, self-asseessment, SWOT-analysis.

The main purpose of the Russian educational policy according to the “Conception of the Russian education modernization till 2015” is to provide modern education by saving its basis and accordance to the perspective principles of the educational strategy. The quality management system according to the ISO 9000 series was implemented to achieve and to modernize the suitable level of quality. The basis for the purposes achieving in the educational institutions is the development of scientific and methodological basis to implement the quality management system (QMS) in universities; studying and methodological materials; the creation of staff training in the field of quality management; teaching of all levels to the modern ways of quality improvement.

The QMS can't be implemented in the educational institutions from outside. It can be "grown up" by the governing bodies to ease the work and with the help of the collective. QMS provides efficiency, promptitude, and completeness of made decisions in quality questions.

We offer practical experience of Admiral Nevelskoy Maritime State University (MSUN) in the field of QMS working out according to the GOST P ISO 9001 – 2008 and the usage of total quality management principles. It will be useful both for executives and staff in the organizations and universities.

Recently the activity of the MSUN's quality system has been directed for the specialists training improvement. The basis which helped to make a state towards the improvement of the university quality system was the accumulation of personnel and methodological potentials in the quality management. There is the principle in the QMS: the employer is responsible for the business: as a result of this principle the Department of Standardization, Certification and Quality was established. The main task of this Department is to co-ordinate and control the work towards the management system improvement, to analyze the system effectiveness to find out the inconformity, to teach executives and personnel to manage the quality and to be responsible for the result of the QMS implementation under the supervision of authorized person.

The university started working out and implementation of the QMS in 2002. In 2003 Admiral Nevelskoy Maritime State University participated in the competition held by the Ministry of Education and Science of the Russian Federation (RF) "Interuniversity systems of providing of specialists trainings quality" and became the award winner in the competition. In 2004 the University was certified by the RF State Standard in the QMS for the accordance to the requirements of GOST R ISO 9001 – 2001 (ISO 9001:2000). This standard is implemented in the educational field and in the field of the scientific researches. The University was re-certified in 2008.

In 2004 Admiral Nevelskoy Maritime State University was accredited with the integrated management systems. The accreditation gives the MSUN the right to certify other higher-education institutions, organizations and it also can share its experience. In 2005 "Far Eastern

Center of Professional Skills Improvement and teaching the QMS” was established on the basis of the MSUN.

Admiral Nevelskoy Maritime State University has the documentation of the QMS which includes: the Policy of governance in the field of quality, Direction on quality, 38 documentary procedures where the requirements to the process results are defined.

This information model includes not only the documents of the first and second levels but also the documents of the third level: guidelines, provisions, personnel instructions, methods directions, certified procedures, organization’s standards, and process of life validity (PLV), etc. this model is included in the corporative network of the MSUN and it is constantly improved. It helps to improve the QMS implementation and to increase the work effectiveness of the university.

To start the working out and implementation of the QMS in Admiral Nevelskoy Maritime State University we focus our attention on the following requirements: the system must be in accordance with the international achievements, it must be certified in the Russian and international systems of certification; it must be clear, short and suitable and it mustn’t have a lot pf papers; it also must be practically useful.

Nowadays the university has accumulated the practical experience in the working out, implementation and modernization of the QMS according to the GOST R ISO 9001-2008.

The network of the MSUN’s activity process was found at the first level of the implementation and working out, mentioned on Figure 1 below:

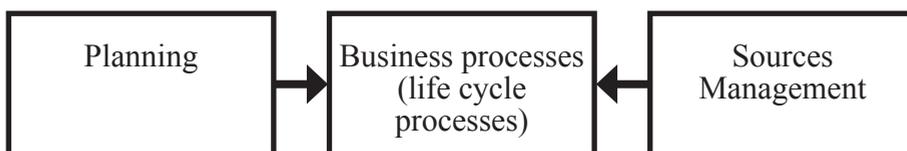


Figure 1. Basic macro-processes of Admiral Nevelskoy Maritime State University

The analysis has shown that the most important processes which influence on the quality of the specialists training are the life cycle processes (LCP). They are connected with the consumers, pre-university tutorial, perspective students selection, educational, methodological,

scientific, organizational and pedagogic activity, additional education and graduates distribution. We showed the processes of planning as the processes of the strategic management. They are based on the perspective and current plans of work of all the branches. The results of planning are to be analyzed annually.

The corrective and preventative activity according to the results of the planning and analysis provide the actualization and searching the problems in the functioning of organization departments.

Personnel training and re-training, financial and economic, scientific and technical activities, information support, material and technical support, life safety and its support define the processes of the resources management.

The above mentioned processes are the main processes to develop the documentation procedures and organization standards.

The control after the system functioning is held with the help of the inner due diligence and self-examination of all the organization departments. To realize this control the “Materials for inner due diligence and report on the quality management system” were prepared.

The system of governance in Admiral Nevelskoy Maritime State University is represented as the “Plans of Councils, Centers and Services functioning”, where the activity of all the organization departments is show. These plans also include the worked out documentation procedures. Principal Officers annually present the plan and analysis of the activity results at the Board of Studies.

Nowadays the Department of the quality management system certification works with different organizations and higher education institutions to check their certification on the QMS.

“Far Eastern Center of Professional Skills Improvement and teaching the QMS” works effectively. The education programs are worked out and implemented. The most popular program are “Establishing of the quality management system. Standards of the 9000 series version 2008”, “The quality management system due diligence for the accordance with the GOST R ISO 9001-2008”.

If we analyze the problems in the QMS establishing in the educational institutions (EI) of the higher and additional professional education we'll find that there's a connection between the processes of:

- Spreading in the country universities the work on establishing, implementation and certification of the inner universities QMS in accordance with the international standards of the 9000 series version 2008 and other QMS models.

- Transit to the complex assessment of the university activity and educational institutions of the additional education, which combines the re-certification, attestation and state accreditation. The indexes of the universities activity include the rate showing the effectiveness of the inner university education quality control system.

- The competition of the Ministry of Education and Science of the RF “Inner university systems for providing the quality of the personnel training” which has been held since 2000. More than 100 higher education institutions have taken part in this competition.

Nowadays there is a growing interest towards new ways and methods of the quality management system in the universities. It can be explained with the standards ISO series 9000 version of 2008, from the one side, and increasing competition and growing of the education service quality, from the other side. We can achieve the necessary quality level with the help of established, integrated and certified quality management system. We can use different instruments of the quality management such as functional analysis and criteria of educational service assessment.

Functional method of analysis is the method which allows defining new, alternative ways for the functions (macro and micro-processes) realization in the education. The subject of the functional analysis is different life cycle processes in a university (a perspective student selection, educational, scientific and pedagogical processes, scientific and research activity, additional education, information support, life support (infrastructure conditions), graduates distribution, etc.)

Today the higher education institution implement different methods of the quality management, which are based on new ways of governance, definition of the criteria for the educational process quality assessment, constant improvement in the QMS.

The implementation of the functional analysis method can be shown as an algorithm which includes the following stages:

- Definition of the analysis subject (macro-process) and the goal,

which includes the data collection, analysis, improvement and working out the process, the working out the activity on the improvement.

- Certification the quality plan, period of analysis.

Gathering, systematization and analysis of information in the MSUN is organized on the basis of the university policy and mission, quality supervision, provision about the organization department, personnel instructions, watching for work and oral questionnaire of the staff, organization standards “Scientific and research activity”, “Inner due diligence”, “Life cycle processes of the university”, “Documentation and records management”, “Control of non-conforming product”, etc.

After the analysis process the preliminary conclusion are made. And it is decided how to overcome the problems.

The qualitative and quantitative methods are used to assess the quality of the educational service. By the way the MSUN approbated the methodology of the quantitative assessment. The results of this methodology are included in the STO QMS “Quantitative assessment of the education quality”.

Admiral Nevelskoy Maritime State University also uses the statistic methods in the educational process. These methods are based on the usage of mathematics statistics and it is an effective tool to gather, analyze and interpret the information about the quality.

The usage of the statistics methods allows evaluating the condition of the subjects and processes in the quality system. These methods also help to predict and regulate the problems at all levels of the life cycle, and they also help to find optimal managerial decisions.

Admiral Nevelskoy Maritime State University uses three main groups of the statistics methods:

- Schematic methods, based on the implementation of the schematic ways of statistics data analysis (monitoring log sheet, diagram Pareto, etc).

- Methods of statistical aggregate analysis, used to research the information and to create the quantitative and qualitative dependence of studied phenomenon.

- Economics and mathematics methods. The central term is an optimization, i.e. the process of finding of the best variant among the majority with the help of adopted criteria;

The most popular and the easiest ways are “Seven tools to control the quality”. These methods are used in the MSUN and are included in the STO QMS “Statistics methods in the educational process in Admiral Nevelskoy Maritime State University”.

All the above mentioned methods help to evaluate the effectiveness of the QMS implementation in accordance with the standards ISO series 9000 version 2008.

Standards ISO 9000 are at an important place in different organizations and universities. They create the basis to improve the organization management and are oriented towards the quality of specialists training.

The control after the QMS is realized on the basis of the self-examination of the organization departments with the inner due diligence (STO QMS Inner due diligence 8.2.2. – 2010).

The Self-examination in the MSUN is realized in the basis of the European model, which includes 9 criteria and 52 sub criteria. The basis criteria of this model are:

1. The role of the headquarters in the process of realizing the quality provision for the specialists training.
2. The planning in the field of the quality support for the specialist training.
3. The usage of the teachers and staff potential, who are taught to provide the quality of the specialists training.
4. Rational sources usage.
5. Management of the processes in providing the quality of specialists training.
6. Satisfaction of the consumers (labor market) with the quality of the specialists training.
7. The satisfaction of teachers and staff with the employment in the university.
8. University influence on the society
9. Results of the university activity

The advantages and disadvantages are analyzed after the self-examination.

The self-examination allows planning the ways to improve of the university; to analyze, to find out the responsibility and sources management.

The management of the self-examination program in the MSU includes the teaching staff individual quality plan, organization departments quality plan, carrying the “Quality week” and analysis of the institute, faculty and department activity results. The Materials on the inner due diligences and report about the QMS include the EU model.

The MSU also uses the self-examination in organization departments which work for education (institutes, faculties, departments) on the basis of the standard STO 8.4.01-2010 QMS. Self-examination with the including of the accreditation data.

Self-examination is an analysis of the work towards the quality and its results. This analysis is devoted to the constant improvement of the organization activity in order to increase the satisfaction of the consumers (students, teachers, employers). Self-examination is realized by an organization if it wants. We can find and realize the steps towards the improvement after the self-examination.

Self-examination is very efficient to include the TQM (total quality management) into the activity of accreditation data improvement. It is very interesting how the QMS influences on the results of the university activity and quality of offered services. Before the self-examination we had studied the environment of the university.

The strategy of development which includes the policy, mission, mission–motto, intellectual potential, complex providing and strategic (general) purpose was taken as the basis. Policy is an advance training of competitive specialists with enough level of the professional competence. These specialists satisfy all the national and international requirements; they have an active life point to develop all the routes in the maritime activity.

Mission is an establishment of the intellectual potential for total support of the maritime organizations. This potential creates the competitive innovative economy. Mission-motto: “Admiral Nevelskoy Maritime State University is a way to the future, built on the knowledge and innovations”. Intellectual potential is characterized by the training of the highly professional specialists, who can undergo scientific and practical tasks. Highly professional specialists are characterized with the competence, successful practical experience, abilities to make

engineer and other decisions.

Integrated support means the support for highly professional specialists in the field of maritime activity.

Strategic (general) purpose is to strengthen and develop the leading positions of Russia in the field of highly professional specialists training and development of the maritime professional education.

Key factors which influence on the university development follow from the analysis of the environment. This environment is defined by the micro and macro-environment (see Table 1).

The analysis of the macro-environment includes the group of factors, existing in Russia. The analysis of the micro-environment is made in the Primorsky region.

Table 1. Elements of the macro- and micro-environment, influencing on the development of the university

Macro-environment	Micro-environment
<p><u>Governing documents</u></p> <ul style="list-style-type: none"> - National project “Education” - The basis of the RF policy in the field of science and technologies till 2015 and further perspective. - Strategy of the RF in the field of science and innovation till 2015. - Federal dedicated scientific and technical program for the research and working-out in priority direction of the science and techniques development. 	<p><u>Governing documents</u></p> <ul style="list-style-type: none"> - Governing documents of the Primorsky Region Administrations and Vladivostok
<p><u>Competitors</u></p> <p>Russian universities similar in majors and specialties</p>	<p><u>Competitors</u></p> <p>Vladivostok universities (FEFU, Far Eastern Fisheries University, VSUES)</p>
<p><u>Consumers</u></p> <ul style="list-style-type: none"> - Prospective university students - Enterprises of the maritime activity - Other Enterprises. 	<p><u>Consumers</u></p> <ul style="list-style-type: none"> - Enterprises of the maritime activity in Vladivostok, Primorsky region (PSCO, RIMSCO, FESCO, Sovkomflot, Norfes, Marine-Service, etc. Vladivostok Sea Port, Vladivostok Sea Fishery Port,

	<p>Trading port “Posiet”, freight forwarding companies “Dalfes” and “Transfes”, recruiting agencies).</p> <p>- Enterprises of other activities in Vladivostok and Primorsky region.</p>
<p><u>Suppliers</u> of the prospective university students: Schools of the Far-Eastern Region and Siberia</p>	<p><u>Suppliers</u> of the prospective university students: - Lyceum, maritime college, maritime technological college of the university - Schools of Vladivostok - Schools of Primorsky Region</p> <p><u>Teaching staff</u> Vladivostok universities Enterprises and organizations in Vladivostok</p>

The analysis was held according to the criteria of the self-examination and university activity improvement in the field of quality management connected with the European Fund of the Quality Management (EFQM).

Work groups where the most skilled organization departments were formed to assess the levels of improvement criteria, the results of the analysis and to form the solutions and recommendations for the further improvement.

Self-examination was realized according to seven criteria and five levels of improvement with 10 point scale.

1. The leading role of the headquarters
2. Planning in the field of the quality management
3. Personnel management
4. Sources and partners
5. Processes management
6. Personnel and consumers satisfaction
7. Results of the organization department activity

The 10 point scale correspond the five levels of efficiency (1 – 10 points). According to the requirements realization the following marks can be given:

- for the 1st efficiency level – 1-2;
- for the 2nd level – 3-4;
- for the 3rd level – 5-6;
- for the 4th level – 7-8;
- for the 5th level – 9-10.

Besides the accreditation criteria for departments were defined (such as density of the teaching staff, density of the teaching staff with degrees, density of Doctors of Sciences and State Commission for Academic Degrees and Titles professors; average annual volume of the scientific researches per the teaching staff for 5 years in thousands of rubles). Also these criteria were used for faculties and institutes (amount of postgraduate students per 100 students, density of postgraduate students passed Ph.D. defence in time, average annual volume of the scientific researches per teaching staff for 5 years in thousands rubles, average annual amount of monographs per 100 persons Ph. D. teaching staff for 5 years, density of the teaching staff with degrees and titles, density of Doctors of Science and State Commission for Academic Degrees and Titles professors, density of teaching staff, average annual amount of thesis defenses per 100 persons of teaching staff for 5 years).

The work group collected the data according to the model criteria, filled in assessment blanks, and handled the results in electronic tables. Then they analyzed the results and made the report, where they offered the steps to improve the assessment results.

Self-examination will be effective only if its purpose is the improvement in the organization activity. That is why the final stage of the self-examination is very important. We show the handled results as a radar plot, where we cover the self-examination results of the following institutes: Maritime Academy, Maritime Institute of Information technologies, Institute of Sea Protection, Maritime Humanitarian Institute, Institute of Economics and Ship Management and Opened Maritime Institute.

We got the system description of the current situation in the university as a result of the SWOT – analysis. SWOT-analysis includes: strengths, weaknesses, opportunities, and threats. SWOT – analysis held in the university is the procedure of an expert diagnostics of the

environment. This diagnostics allows describing the basic tendencies in the development, formulating basic ideas about the perspectives of the university activity; create the alternative ways and its further development.

Therefore, the offered practical experience of Admiral Nevelskoy Maritime State University in the field of quality management according to the GOST R ISO 9001-2008 requirements and usage of total quality management principles will help the enterprises headquarters and staff, organizations and universities to implement and improve QMS, and thus to increase the quality of the product and offered educational services.

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