

THE ROLE OF BUSINESS PERSONNEL IN IMPROVING PRODUCT QUALITY

OLIYNYK Olga,

Candidate of Economic Sciences,
Ivan Ogienko Kamianets-Podilskyi National University, Ukraine
e-mail: o.s.chernuk@gmail.com

BELINSKA Kristina,

Candidate of Technical Sciences,
Ivan Ohienko Kamianets-Podilsky National University, Ukraine
e-mail: kristina0612@ukr.net

Abstract. *Due to the relevance of the research topic, the author draws attention to the quality issues of the products manufactured today. The article gives an example of a real enterprise operating in Khmelnytskyi region, reveals the issues of improving the quality of products, as well as the organization of management staff and specialists for successful operation of the enterprise. Attention is paid to the importance and ramifications of the tasks facing the enterprise and their mandatory implementation. It is indicated that this company has a quality management system, which covers 12 processes. Each of these processes is important for the production of quality products and encourages their production to increase the quality level of products. The solution of this problem will lead to strengthening of market positions and continuous customer satisfaction on the basis of increase in consumer value of the enterprise's products.*

Key words: *quality, products, level, issues, enterprise.*

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1. Introduction

Formulation of the problem. At each stage of development of social production there are specific requirements for product quality. In the early stages of industrial development, the main requirements for quality were accuracy and durability. Quality requirements are the expression of certain needs or their translation into a set of quantitatively or qualitatively established requirements for the characteristics of the object to enable their implementation and verification. Quality indicators are quantitatively or qualitatively established specific requirements for the characteristics of the object, which allow their implementation and verification [2].

When conducting technical assessments, the definition of "quality" is used variously, namely - when comparing objects in order to identify the degree of superiority, i.e. relative quality; in quantitative statistical evaluation - the level of quality; when conducting an accurate technical assessment - a measure of quality.

2. Analysis of recent research and publications

Theoretical-methodological and economic-organizational aspects of product quality assurance are reflected in the works of leading national and foreign economists: I. Ansoff, Z. S. Geiler, D.S. Demydenko, B.E. Lastovetskyi, L.A. Matveieva, V.S. Ponomarenko, V.M. Sokolenko, A. Subeto, A. Feigenbaum, Z. Yu. Khamdamov, D. Harrington and others. However, scientific and technical progress is not standing still, and the problem of quality is also in motion. Therefore, there is a constant need to adapt it to the requirements of the time. That accounts for the relevance of the chosen topic, determines its purpose and specific objectives.

3. Setting objectives.

The purpose of the article is to study the issue of improving the quality of manufactured products.

4. Presentation of the main results

The internal hierarchy of quality is formed within the organization which forms the basis of the so-called quality pyramid reflecting the impact of quality on society in general [1].

Product quality and its improvement has always been a topical issue of the enterprise. The same issue has arisen since the early 1970s at the Krasyliv Aggregate Plant in the Khmelnytskyi region. At that time, the company had a comprehensive product quality management system. In 2004, the company developed and implemented a quality management system based on the "process approach", which allowed ensuring the continuity of management at the junction of individual processes within the system, as well as their combination and interaction. Who managed this process? The answer to this question was - senior management - Chairman – General Manager of the company, who formulates policies and objectives in the field of quality, provides processes with the necessary resources and is responsible for implementing quality policies and achieving short-term goals that should meet strategic goals.

The main document that regulates and establishes the policy in the field of quality at the "Krasyliv Aggregate Plant" Co is the quality manual. This document contains a complete description of the elements of the quality system and the principles of their interaction within the enterprise. This guide contains the policy formulated by the company's management in the field of quality, quality objectives, approved organizational structure of production, defines responsibilities, powers and procedures, as well as processes and resources that ensure the implementation of quality management and compliance with its requirements.

Management requirements are mandatory for all divisions of Krasyliv Aggregate Plant, and apply to processes related to the design, manufacture and sale of products, as well as the processes of setting up, operating and improving the quality system.

This document was developed and controlled by the quality department, agreed with the heads of structural units of the enterprise and chief specialists, approved by the General Manager and put into effect by order of the enterprise. The main role of quality policy is to highlight the aspirations of the company to manage the enterprise and processes on the basis of goals and principles in the field of quality, and the main task - involvement of all the company's employees in the process of quality improvement in order to ensure constant demand for the company's products.

The policy in the field of quality is promulgated with the help of factory radio in all divisions of the enterprise; its role and value are discussed and explained at the production meeting to all employees of the Krasyliv Aggregate Plant. The quality policy is open to all consumers, suppliers and other stakeholders. For this purpose, it is presented as a separate document.

The purpose of the quality policy of the Krasyliv Aggregate Plant is to strengthen market positions and continuously ensure customer satisfaction by increasing the consumer value of products.

This goal is achieved by the staff of the enterprise when solving the following tasks: development and implementation of a modern quality management system; reconstruction of foundry production with the introduction of advanced technological processes; introduction of modern control methods and measuring equipment; modernization of technological equipment in procurement and machining sections; continuous professional development of the company's staff; improving the processes and management structure of the enterprise.

The quality of the company's products necessarily begins with jobs and is continued by the heads of divisions, thus ensuring the effectiveness of the activities of the division headed by them and the involvement of each employee in the activities of the Policy.

The company's management authorizes a quality management system aimed at implementing the Quality Policy and achieving the stated goal, and the company's policy reveals the content of the function in the field of quality and ensures a stable financial situation to guarantee the competitiveness of products, well-being of its employees and shareholders.

The Krasyliv Aggregate Plant Co has established production quality management facilities at the production stage and the main provisions for production management. Senior management of the enterprise brings to the attention of the whole team the importance of satisfying the needs of the consumer, as well as regulatory and legal requirements. Quality Commissioner - The Chief Engineer is responsible for fulfilling this obligation, promoting an understanding of consumer requirements

throughout the enterprise.

Top management defines the purpose and objectives of the quality management system. They are documented and announced in the form of quality policy and quality objectives. The Chairman of the Board, namely the General Manager, periodically reviews the effectiveness of the quality management system to ensure its suitability, efficiency, and adequacy to the conditions of the enterprise.

Analysis is used to assess the current status and level of compliance with the requirements of the quality management system, on the basis of which the chairman – General Manager, initiates actions to further improve the system. Top management is required to provide the resources needed to implement and improve the quality management system.

The basis of the company's policy in the field of quality is to meet consumer demands in terms of product quality, range, volume and timing of its delivery, while ensuring the profitability of the enterprise, satisfaction of factory staff and continuous improvement of quality management system.

The Krasyliv Aggregate Plant monitors product quality levels through a grid of processes that are subject to constant analysis by senior management. The structure of this grid is quite problematic, because most processes interact with each other.

To ensure adequate process management and organization of interaction between the processes described in the stereotypes of the enterprise, certain company's employees are appointed to oversee the above operations. These company's employees are responsible for the operation, they provide unambiguous judgment for all participants in the process as to their responsibilities and rights; organize interaction in solving problems involving several functional units of the enterprise.

In general, the effective application of the quality management system based on the "process approach" is the responsibility of the quality commissioner - chief engineer, who implements the organization of process control by conducting internal tests and informs the CEO about the consequences of such tests.

The developed processes are documented in the quality manual, standards, technological processes, and technological instructions. The quality system implemented at the enterprise is aimed at broad satisfaction of demands and expectations of buyers

Therefore, special management methods are applied to the processes that directly affect the quality of products whose manufacture is outsourced to other companies (suppliers).

The company management has identified the main processes that create additional value, as well as processes that ensure the functioning of the main processes and have a direct impact on the financial and economic performance of the company and the quality of products manufactured by it. The process means the interaction of people, machines, material and procedures aimed at providing a specific service or manufacturing a specific product. The inputs to the process are usually the outputs of other processes. Processes are usually planned and implemented in a managed environment to add value. Any type of activity can be represented as a process.

Documents describing the processes used by the company contain: requirements for input data; requirements for output data; sequence of working stages and operations; data on process participants (structural subdivisions of the company); control points in the course of the process; data on the owners or managers of the process; indicators for evaluation of results of specific operations are established

Documentation of the quality management system is represented by the following types of documents: Policy and goals in the field of quality; quality manual; quality management system procedures containing description and requirements for work processes, standards and other normative documents, design documentation, technological and working instructions, consumer documentation, supplier documentation, quality reports (plans, schedules, protocols, acts, cards, invoices, journals and other quality records).

In general, the process in the company is determined by a special feature: consumer orientation. This process begins and ends with the consumer. The organizational chart corresponds to the structure in which the processes become operational.

Chairman of the Board - General Manager of the company is responsible for planning and applying the processes of monitoring, measurement, analysis and improvement at Krasyliv Aggregate Plant. Deputy Managers in the relevant areas organize the collection of objective data and evaluate the

activities of subordinate services and departments

Heads of departments monitor, measure and analyze data on the effectiveness of authorizing the quality management system in departments. Measurement and control operations are aimed at guaranteeing and verifying the conformity of the product as defined in the specifications to the agreements (contracts), technological documentation, and standards of the company.

The enterprise systematically measures and monitors compliance with the requirements of technological discipline, implementation of plans for production and marketing, procurement, compliance with labor and environmental protection requirements, use of material and financial resources and other indicators.

At production meetings, Chairman of the Board – General Manager, deputy managers, chief specialists and heads of structural units control the performance of the processes used by the company, for example: quality of supplies; quality of products made by the company; implementation of production and supply plans; work of the company on purchase and sale of the products; execution of the company and divisions' budget compliance with the requirements of labor protection, industrial sanitation; unplanned downtime of equipment, compliance with the tax payment schedules; training of company personnel; implementation of quality plans, etc. The processes of the quality management system are regularly reviewed by senior management to identify any possible failures or breakdowns, as well as opportunities for improvement.

The following processes of the quality management system exist at Krasyliv Aggregate Plant:

1. Analysis of agreements (contracts), regulated by company standards STP 7.2.1.-72 -551. Deputy Business Manager is responsible for the process. The purpose of the process is to reduce consumer risk and prevent their unreasonable requirements after delivery. Indicators for assessing the process: the ratio of the number of realized customer requests to the total number of requests received by the company; the number of changes in agreements (contracts) at the initiative of the company; consumer satisfaction data.

2. Analysis of the quality management system by senior management, regulated by STP 5.6.1. - 39 - 555. - Chairman of the Board – General Manager of the company is responsible for the process. Objectives of the process include systematic assessment of the suitability, adequacy, effectiveness, and efficiency of the QMS, taking into account quality policies and objectives. Indicators for process evaluation are effectiveness and efficiency of measures that have been developed based on the results of analysis by senior management

3. Procurement management is regulated by STP 7.4.1-58-561, STP 7.4-46-232, STP 7.4-58-155, STP 7.4-91-576. Deputy Business and Production Manager is responsible for the process. The purpose of the process is to ensure interaction with suppliers, which allows to maintain the quality of purchased products at the level of requirements proposed by «Krasyliv Aggregate Plant". Indicators for process evaluation include number of orders executed on time; number of accepted orders; number of claims on the quality of raw materials for each supplier; ensured compliance of purchased products during storage in warehouses.

4. Management of financial resources is regulated by STP 6.1-60-101. Deputy Business Manager is responsible for the process. The purpose of the process is to provide the economic activity of the plant with financial resources. A comprehensive indicator for measuring the process, which includes: the state and use of own working capital; condition and use of credit funds; observance of financial discipline by each structural subdivision and the company as a whole.

5. Planning and production are regulated by STP 7.5-61-450, STP 6.1-59-165, STP 7.5.1-63-574. Deputy Production Manager is responsible for the process. The purpose of the process includes fulfillment of orders within the terms stipulated by agreements (contracts). Indicators for measuring the process: implementation of the production plan in terms of volume, range and timing; the percentage of non-compliant products in total output; load factors of technological equipment; unscheduled downtime of equipment; fulfillment of product shipment terms; volumes of work in progress; losses due to complaints

6. Monitoring and control of technological processes and products are regulated by STP 8.2-45-373, STP 8.3-45-374, STP 8.2-80-520. Chief engineer, deputy quality manager - head of technical

control department is responsible for the process. The purpose of the process is to obtain objective data on the implementation of the established requirements for technological processes and products. Indicators for measuring the process include the number of violations of technological discipline; the number of claims and customer complaints.

7. Metrological support is regulated by STP 7.6-48-134, STP 7.3-48-478, STP 7.6-47-191, STP 7.6-48-256. Head of production control laboratory is responsible for the process. The purpose of the process is to ensure the suitability of measuring and testing instruments for measuring the quality of processes and products. Indicators for measuring the process include the number of cases of absence of the necessary SIT in production; the degree of compliance with the schedule of inspection, calibration; the number of cases of use of unsuitable SIT in production.

8. Delivery of products to the customer is regulated by STP 7.2-94-167 Technological instructions. Head of the financial and sales department, heads of shops ARE Responsible for the process. The purpose of the process is timely delivery of products to the customer, preservation of product quality achieved in the manufacture and in the process of its transportation. Indicators for measuring the process include compliance with agreements (contracts) for the supply of products by product list, completeness, quality, availability of shipping documentation; no storage violations of finished products (identification, handling of products, condition of packaging, storage and protection against damage); timely consideration of claims and prompt application of measures to rectify them.

9. Consumer satisfaction assessment is regulated by STP 8.2.1-49-558, STP 8.4-75-455. Deputy Business Manager is responsible for the process. The purpose of the process is to increase the number of customers. Indicators for measuring the process include the number of claims, consumer complaints; dynamics of the number of consumers working with the enterprise: 2 years, 3 years, 5 years and over 5 years; dynamics of supply volumes; the number of requests received by the company.

10. Maintenance and repair of equipment is regulated by STP 6.3-57-168, STP 6.3-57-568, STP 7.5-57-578. Deputy Chief Engineer for Equipment and Technical Re-equipment is responsible for the process. The purpose of the process is to ensure the efficiency and suitability of technological equipment for the manufacture of products that meet the established requirements. Indicators for measuring the process include implementation of the maintenance and repair plan: a) on time; b) by duration; the number of equipment failures in the repair period; timeliness of drawing up and execution of the schedule of periodic check of the equipment for technological accuracy.

11. Staff training is regulated by STP 6.2.2-67-554. Deputy Personnel, Regime and Social Affairs Manager is responsible for the process. The purpose of the process is to provide support and development of staff competence in accordance with the needs of the company. Indicators for measuring the process include data on the implementation of plans, training schedules; evaluation of training effectiveness; the number of employees studying by category, type of educational institution and mode of study.

12. Internal audit is regulated by STP 8.2.2-39-549. Chief engineer, quality commissioner is responsible for the process. The purpose of the process is to establish compliance of all operations of the plant with the policy and objectives in the field of quality, as well as the requirements of the documentation. Indicators for measuring the process include the number of detected deviations; the effectiveness of measures to eliminate deviations identified during internal audits; providing the possibility of conducting an analysis of the quality management system by senior management on the basis of data obtained during internal audits.

The quality system gives each employee freedom of action, as well as defines the powers and responsibilities within the requirements set out in job descriptions and in the regulations for structural units. Chairman of the Board – General Manager of Krasyliv Aggregate Plant designs the company's development strategy, the concept of maximum return on investment and the company's policy in the field of quality management, he is responsible for its implementation and ensuring the functioning of the quality system with the necessary resources. He is responsible for the results of all operations of the company.

Quality Commissioner - Chief Engineer manages the technical support of production activities of "Krasyliv Aggregate Plant", he is responsible for developing plans to improve the quality of products,

organization of scientific, design and technological support of production to achieve and maintain the required contract product quality. He also manages the development and implementation of measures for the introduction of quality management system, standards and indicators governing product quality. Manages the work on the development and improvement of the quality system of "Krasyliv Aggregate Plant", provides internal audits of the quality management system in the company .

He has the authority and is responsible for the following tasks: implementation, support and continuous improvement of the quality management system; providing operational information to the Chairman of the Board – General Manager of Krasyliv Aggregate Plant on the functioning of the quality system in order to assess its effectiveness and take corrective action; ensuring understanding of consumer requirements at all levels of enterprise management; coordination of relations with external organizations on issues related to the quality of products and services.

All heads of structural units are to some extent responsible for product quality, so deputy quality manager (head of technical control department) is responsible for the organization, condition and improvement of technical control in the company, correct and timely execution of documents certifying compliance with updated rules; conducting incoming control of purchased products.

He provides operational control throughout all stages of the production process, quality control and completeness of finished products, etc.. The duties of Deputy Production Manager include managing the activities of the company for the operational regulation of production, ensuring the rhythm of production, providing production with technical documentation, equipment, tools, materials, components, transport, loading and unloading means and is responsible for the implementation of the production program and product quality.

Deputy Quality Manager - Head of the Technical Control Department has the authority to interact with consumers to consider their proposals, complaints and claims. Head of the legal service has the authority to legally ensure interaction with consumers. The study of consumer requirements includes all aspects related to products and related services that may affect the satisfaction of consumer requirements and expectations.

The study of consumer requirements includes all aspects related to products and corresponding services that may affect the satisfaction of consumer requirements and expectations. The needs and expectations of the consumer are determined and checked in the process of order analysis, installation, service work and author's supervision. Information on consumer needs and expectations is analyzed and prepared from various sources: consumer research and direct contacts with consumers in the process of studying agreements (contracts); consumer research and direct contacts with consumers in the process of exhibitions and other forms of advertising.

These sources include the following data: consumer requirements stated in agreements (contracts); consumer complaints and claims; consumer feedback on the company's website; reports on the results provided by chief of installation and chief of adjustment section, welding works at installation of machines and equipment, works related to reconstruction and modernization of machines and equipment in order to extend their service life; reports on service of machines and equipment covered by warranty and in the post-warranty periods; reports on the author's supervision submitted during the performance of chief of installation and service work. Collection and analysis of information on the degree of consumer satisfaction is carried out in accordance with STP 8.2.1-49-558 "Identification of consumer satisfaction".

5. Conclusions

Thus, at the presented company work on the maintenance of production quality level by all employees headed by the top management is in place . The company's staff constantly monitors the weak points of product quality and makes adjustments to the relevant documentation, which, accordingly, leads to a positive effect.

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