

Methods and theoretical foundations for assessing the quality of products and services of a transport firm

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Abstract: *The study of the formation process of the operation quality of a transport firm is the most topical, since this process significantly determines the dynamics of its evolution. The paper presents the concept of the product and service quality, describes the difference between the service and the product, as well as a step-by-step scheme of quality development. The history of quality management development is also discussed on the example of three leading regions of the world: USA, Japan and Western Europe.*

Methods for assessing the quality of products and services have been established, which are somewhat different from each other and are of great importance for assessing the activities of a transport enterprise.

Keywords: TRANSPORT FIRM, PRODUCT, QUALITY, SERVICE, EVOLUTION.

1. Introduction

Over the years, transport companies have been developed under the influence of the driving forces of the planned economy. At the same time, there were existing specific efficiency criteria, technical and operational indicators, their own systems for analyzing their activities. After the restoration of independence in Georgia, this system was dismantled and we moved to a market economy that is largely still under development. At the same time, the transition of the system from one dynamic mode to another always occurs in the phase of chaos, which is a precursor to new development for enterprises that have been functioning well.

In this regard, the study of the process of formation of the quality of operation of transport company becomes the most relevant, since this process largely conditions the dynamics of its evolution.

Despite the existence of undoubted achievements in this field, the continuous process of development of the market economy requires further research aimed at improving the quality of the operation of transport company in logistics systems maintenance [18.19].

2. Preconditions and means for resolving the problem

Quality is one of the most complicated categories that a person encounters in his work. The concept of quality is used when choosing items to meet various needs, and in the evaluation of the performance results of individual manufacturing operations or production and transport processes [3].

The quality system is a target subsystem of the organization's management system. According to international standards, the quality system involves the organizational structure, methods, processes and resources needed to effect a general quality change.

In 1986, the International Organization for Standardization (ISO) established quality standards for all sectors of business and industry. In 1994, the terminology was clarified. The following definition of properties has been standardized: quality - is a set of inherent properties of an object related to the possibility of satisfying stated and implied needs [3].

The methods for assessing the quality of products and services differ to some extent from each other.

The quality of industrial products is understood as a set of technical and production properties of industrial products that must satisfy the production needs in accordance with its purpose. The quality of industrial products is directly bound up with use-value, but they cannot be identified. Quality, being an economic category, expresses not just the usefulness of the product, but the extent to which it could be useful, the quantitative aspect of use-value of the product.

An economic bond between use-value and the quality of products occurs when the use of products by the consumer is considered. To assess the quality of industrial products, indicators

are used, which can be divided into two groups: singular and complex ones.

Singular indicators of quality characterize any one parameter (property) of products. Complex indicators of product quality characterize several product properties. For example, the availability ratio of product shows its reliability and maintainability simultaneously. Complex indicators of quality can be related to singular indicators through functional relationships, reflecting the laws of nature, or some combination, corresponding to the accepted definition of the complex indicator.

All over the world, the dominant idea is now that the focus should be shifted from the product quality to the quality of labor and fixed assets of the enterprise. This is reflected in the ISO-9000 standards.

ISO 9000/1 draws attention to the distinction between the quality system requirements and the product quality requirements. It is on the basis of this distinction that the ISO 9000 family of standards applies to any organization and any type of product. The quality system requirements are seen as complementary to product requirements.

The following four key aspects are a fundamental point of the new version of the ISO 9000 series of standards:

- quality due to demand;
- quality due to design;
- quality due to the conformity of the design;
- quality due by overall reliability.

In the definition of quality, the concept of demand is primary. Their characteristics must correspond to the quality characteristics of the object.

Definition - services (including transport) - includes services between the supplier and the client, the result of interaction, the result of the internal activity of the contractor to meet the needs of the client, and the provision of services is the activity of the service provider, which is necessary to ensure that the customer is satisfied. To ensure life activity of the person, services are no less important than products.

The difference between service and product is as follows:

- Services are intangible and therefore are difficult to measure.
- The client is often involved in providing services.
- Services are often used in parallel with their production, that is, services cannot be supplied, stored or transported.
- If there is a discrepancy in service delivery, it is too late to do anything. The consumer assessment is done immediately. The result of the assessment may be the suspension or modification of the service, depending on the behavior of the consumer.
- The client does not become the owner of any item when paying the service.

The manager is responsible for the quality of service and meeting the customer's needs, which is a quality policy. To achieve the quality objectives, management must put in place a quality system structure that ensures effective management, assessment and improvement of service quality at all stages of its delivery.

All service elements, requirements and provisions related to the quality system must be defined and documented as the entire documentation of the organization.

Consistent development of quality management methods and approaches in the world took place in accordance with certain laws (Fig. 1). The presented picture of the evolution of thinking in the field of quality confirms the continuous improvement and complication of activities that are commonly called quality management. The content of each subsequent stage of quality management assimilated new developments in quality theory and responded to the needs of customers, ensuring that their growing demands were met.

Consider the history of the development of quality management on the example of three leading regions of the world: USA, Japan and Western Europe.

The Industrial Revolution put an end to the handicraft production in America. The craftsman controlled the production process from start to finish. He was also a quality inspector, buying raw materials himself, doing sales and acting as a manager. Work became a source of pride for him, and in addition, he was able to exercise control over the final product [5].

As a result of the transition to mass production in the 19th century, a new type of worker was needed. Factories needed workers to perform simple, repetitive operations in a certain sequence. Such workers were not required to have a high level of training and professional

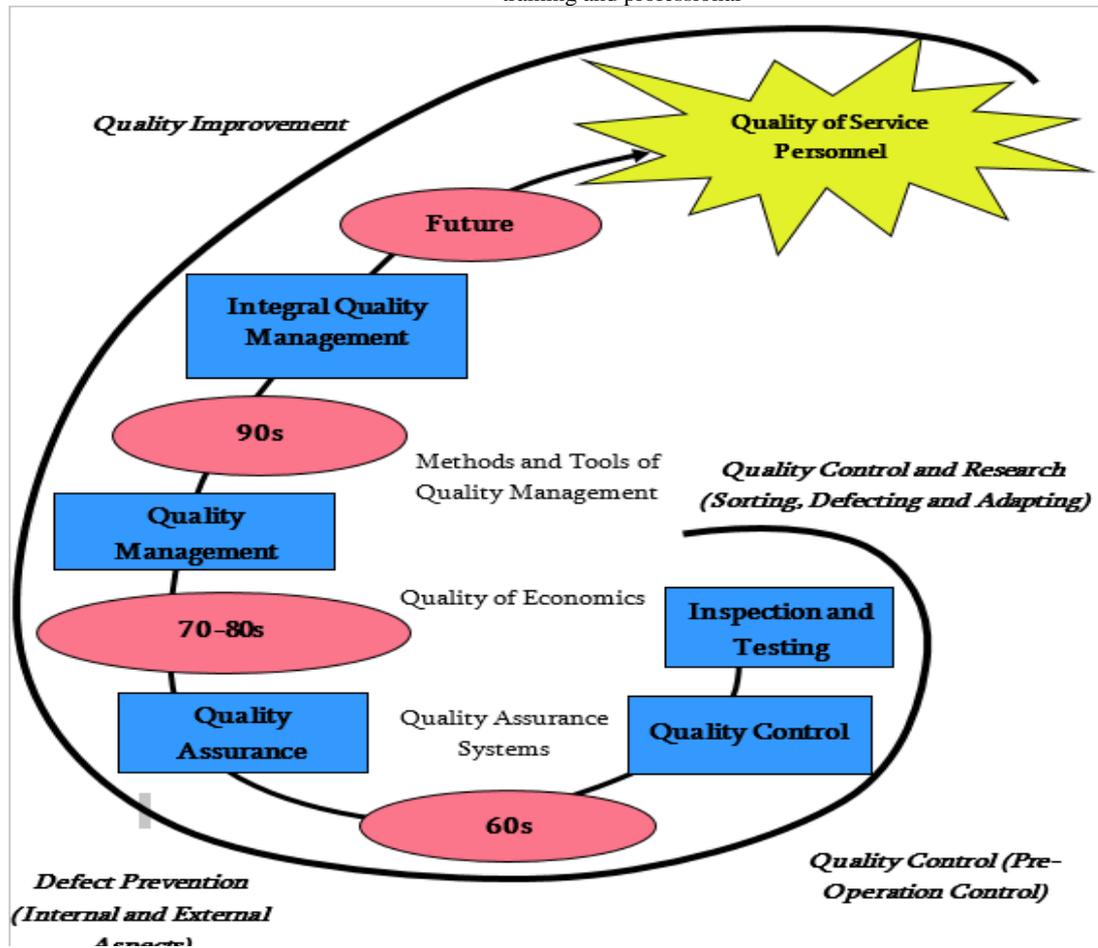


Fig. 1. Scheme of the stages of quality development

In America, this system worked well because it allowed to produce more goods and services at a lower cost. After the Second World War, when most of the global industrial potential was destroyed, an acute shortage of goods and services, including transport services, arose in all countries,

A major problem for the US industry was high costs because of the low quality levels. Many US specialists considered low quality to be the main barrier to growth of labor productivity and the competitiveness of American products [6].

At the same time, the most sensible managers of American companies realized the need to improve the quality of American goods. It was decided that attention should be paid to the development of aspects such as:

- employee motivation;
- methods of statistical control;
- raising the awareness among managers and staff;

- accounting of costs of quality;
- quality improvement programs;
- material incentives.

In the United States in the early 1980s, quality management was limited to quality planning - the predominance of the quality service field. At the same time, insufficient attention was paid to the customers of internal production - plans for the company improvement were developed without regard for the needs of company.

In the United States, the problem of quality have become more apparent. As the prominent American expert A. Feigenbaum said, "Quality is neither evangelism, rationalization proposals, nor slogans; This is a lifestyle".

Analyzing the American experience in the field of quality, we can consider the following characteristics:

- strict control of production using mathematical statistics methods;
- paying attention to the production planning process, taking into account volume and quality indicators, administrative control over the implementation of plans;
- improvement of overall company management.

Measures taken in the United States to improve product quality have had a positive effect on reducing the difference in quality levels between Japan and the United States.

The Japanese experience convincingly shows that quality improvement is a job that never ends.

In 1945, Japan was in ruins. Its industry was completely destroyed. In the late 1940s and early 1950s, Japanese specialists introduced the so-called Deming Cycle, which deals with improving the quality of design, production, marketing, analysis and resulting changes - the PDCA cycle ("plan-do-check-act").

The basic concept of the "Japanese miracle" is a perfect technology, whether it is production, management or service technology. Computing and microprocessor technology, the latest materials, statistical methods, which are completely computerized, are widely introduced in companies.

A characteristic feature of the development of the quality management system in recent years is that it includes a system of communication with the customer and the supplier.

Company leaders see ways to solve the problem of further quality improvement only in cooperation, mutual trust between suppliers, manufacturers and customers. They consider the main objective to be the mandatory determination of the causes of inadequate quality, regardless of where they are found - with the supplier or the customer, and in the implementation of joint measures to eliminate the identified causes as soon as possible.

According to Japanese experts, we need to start with the facts and their analysis, not following the logic of duties and responsibilities. We need combined efforts and collective decisions.

Thus, we can highlight the main aspects in relation to quality in Japan:

- wide introduction of scientific achievements in the field of management and technology;
- high degree of computerization of all operations of management, analysis and control of production of goods and services;
- maximum use of human capabilities, for which measures are implemented to stimulate creative activity, strengthen the loyalty towards their company, systematic and extensive training of personnel.

Western European companies have an intensive policy of product quality improvement, and processes are subject to stricter control.

Quality has become one of the factors to ensure the competitiveness of European countries. This strategy would require:

- Unified legal requirements (directives).
- Uniform standards.
- Uniform verification processes to ensure that the company meets market requirements.

The European market makes serious demands to companies from other countries that intend to enter it.

In order to survive in the conditions of competition, the largest European companies are joining forces in the selection of progressive forms and methods of product quality management. As is known, this includes stable technology, an appropriate system for maintaining the technological accuracy of equipment and tools, metrological means of product control and testing, and an effective training system.

Distinctive features of the European approach to solving quality problems are:

- Legal framework for the performance of all works related to quality assessment and verification;
- Harmonization of requirements of national standards, rules and certification procedures;

- Creation of regional infrastructure and a network of national organizations authorized to perform work on product certification and quality systems, accreditation of laboratories, registration of quality specialists, etc.

Convergence of quality levels achieved by different countries of the world became the reason for creative exchange of the best practices of quality improvement, integration of all approaches and methods that mankind has mastered on the evolutionary path of development of theory and practice of achieving high quality. Unified approaches developed in this way, recognized by experts in all countries, are now known as international principles of quality management (Fig. 2).

International quality management is not a theoretical discipline, but a technology for managing the quality improvement process. It consists of three parts.

1. The basic, key system - these are the methods and tools used for analysis and research. They are based on generally accepted mathematical apparatus, statistical control methods and are therefore used in all companies. They can be introduced into any country.

2. Technical support system - is the technique and software that you can use to train your staff to master these tools and use them correctly. This system reflects the specifics of the country and each enterprise, associated with the country's national culture and traditions. You have to create it yourself, and deviating from experience or translating documents into your language will do nothing.

3. System of continuous development of principles and content of TOM itself. It is even more specific, it reflects the national characteristics, the economic order within the country, as well as the legislation in force.

International quality management is a real revolution in management. The development of new relationships requires social and organizational experimentation. You should try, gain experience, determine the pros and cons of the system.

It is good when several companies are engaged in this at the same time according to coordinated plans. This saves time because one company will have to try different options simultaneously. Therefore, it is necessary to combine the efforts of a few dozen companies, conduct social and organizational experiments in parallel, and then jointly analyze the results and develop optimal solutions.

The goal of international quality management is to achieve the highest quality products and services.

The quality movement in Georgia has existed since the period of industrialization. Only through the systematic and comprehensive, interlinked implementation of technical, organizational, economic and social measures on a scientific basis, the quality of products can be improved quickly and sustainably.

3. Conclusion

The following conclusions can be made on the basis of the research conducted within this work:

1. Thus, the factors affecting the quality of services and products can be united in three groups: the quality of manufactured products depends on conditions within an enterprise, human factor and external conditions.
2. There is no criterion for assessing the quality of operation of a motor transport company in the complex, taking into account the influence of the external environment and the properties of the system.
3. Lack of methodology for assessing the quality of functioning and the quality management methodology of a motor transport company, especially during the transition of this system from a planned to a market economy.
4. Thus, the objectively running process of the transition of a motor transport company from the state, in which it was in the planned economy, to a more complex and dynamic state characteristic of market relations, occurs spontaneously without competent management, and in these conditions, issues of quality of functioning continue to receive insufficient attention.

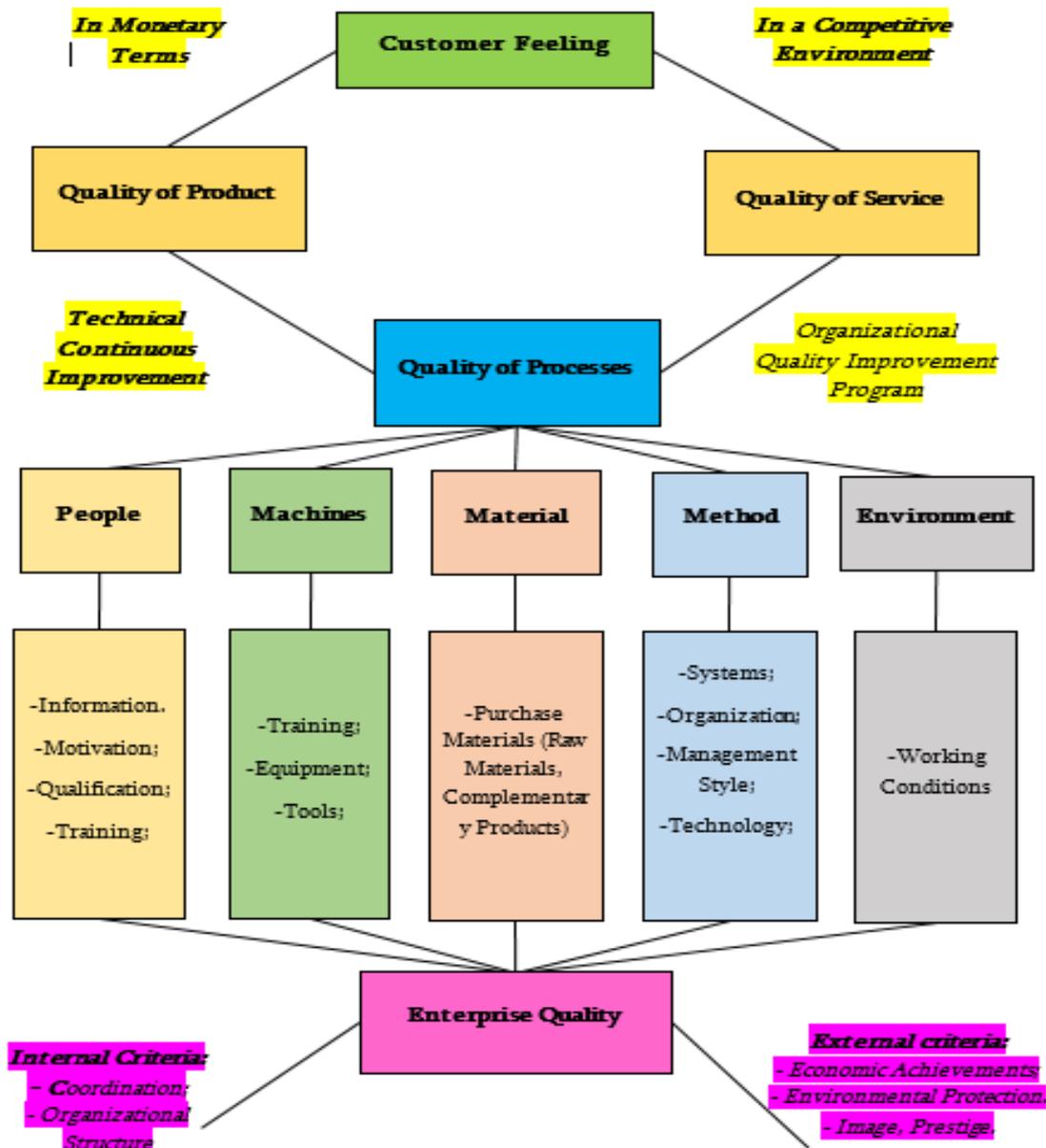


Fig. 2. International principles of quality management

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