

Quality as a factor of operational management in production organizations

Katerina Kareska¹,

¹ University "St. Kliment Ohridski"- Bitola, Scientific Tobacco Institute- Prilep, R. North Macedonia

email: katerina.kareska@uklo.edu.mk ; katekareska@gmail.com

ABSTRACT

Every organization's response to environmental challenges is to improve quality by adopting modern concepts and a new approach to quality. This includes, of course, the developed and implemented quality management systems. Ensuring quality and managing it today is an inevitability, so a great effort must be made in that sphere, and the winners will be those organizations that manage to develop modern working methods where employees will accept them and be their bearers. Today, quality is becoming an integral work strategy of organizations.

Keywords: organization, quality, quality management, competitiveness, competitive advantage

Definition and concept of quality

The quality of products and services in companies is becoming more and more a decisive factor that sets each organization apart from the rest. In this sense, managers often have to answer the following questions:¹

- Why is a certain buyer willing to pay more for certain products and services than for some others?
- What is it for which the buyer pays?
- What are the value components of a certain product or service?
- What is most important for the buyer when buying the product or service?

When it comes to the quality of the products, then it is the result of the increasing and increasingly diverse needs of the buyers. But when it is connected with the strong strengthening of competition, with the globalization of the world market, then it is the result of the development of technology. The answer of every organization to the challenges of the environment is the improvement of the quality by accepting the modern philosophies and the

¹ Srdoc, A., Sluga, A., Bratko, I.: A quality management model based on the "deep quality concept", International Journal of Quality & Reliability Management, 2005., str. 278-302

new approach to the quality. This, of course, also includes the developed and implemented quality management systems. It is assumed that quality includes the whole society and management and all business systems. The most important goal of quality is customer satisfaction, and the prerequisite for achieving quality is the continuous improvement of products and services.

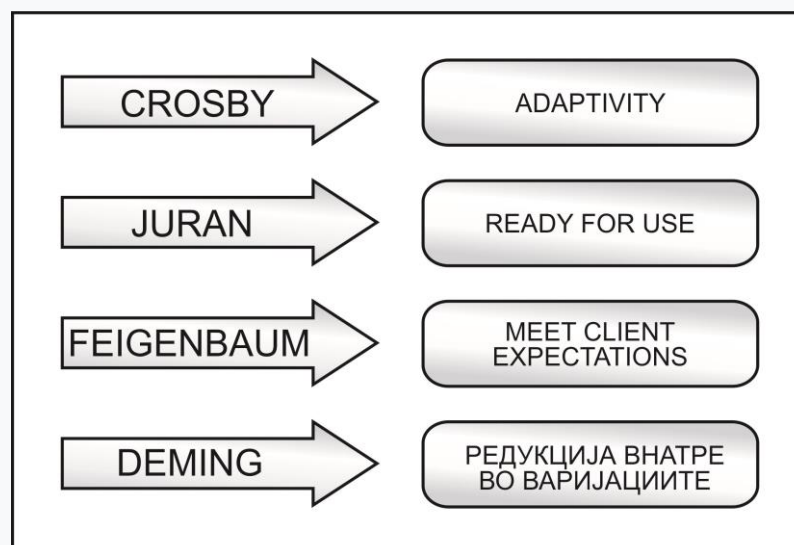
Today, quality is becoming an integral work strategy of organizations. The production of quality products is a goal that requires the total dedication of the entire business system.

The term "quality" is not easy or simple to define. In order to understand the quality, some commonly used definitions are listed, namely:²

- quality is the quantity and form of the used value of a product or service. Hence, it is also a measure that shows to what level a certain product or service satisfies the user's need;
- quality is a set of properties of the product, processes or services that refer to the possibility of satisfying established or indirectly expressed needs;
- quality is the integration of work and responsibility;
- quality makes customers happy;³
- quality is a set of all features of the product or service that relate to the ability to satisfy established or directly expressed needs with ease of use.⁴

So, it is evident that "quality" is a word with many different meanings, so it is the simplest to define it as the ability to satisfy the needs and expectations of buyers.

Figure 1: Definitions of quality by the pioneers of the quality system



Source: Avelini - Holjevac, I., Upravljanje kvalitetom u turizmu i hotelskoj industriji, Opatija, 2002., str. 8.

² <http://kvaliteta.inet.hr/>.

³ Crosby, B. P., Kvaliteta je besplatna, Zagreb, 1996., str. 7

⁴ Herrmann, A., Huber, F., Algesheime, R., Tomczak, T.: An empirical study of quality function deployment on company performance, International Journal of Quality & Reliability Management, 2006., str.347

Figure 1 shows what the quality definitions of the four pioneers of the quality system are aimed at. According to Crosby, quality means adapting the organization to the needs and demands of customers. For Juran, quality is convenience of use, and for Feigenbaum, quality means meeting the expectations of buyers through the use value and selling price of the product. Deming believes that quality is achieved through the realization and repetition of the P-D-C-A cycle with the reduction of internal variations, including all employees for continuous improvement. Quality is economically expressed through profit, which is the highest goal of any organization. So both the existence and non-existence of quality directly affect profit.

Evolution of quality

The evolution of the concept of quality starts from the management of the quality of the products, the essence of which is the relations of inspection, testing and verification of the products, through the provision of work processes, by applying one of the quality systems, to the approach to total quality management - Total Quality Management (TQM). Phases of quality management are:⁵ (picture no. 2)

- Phase QI (Quality Inspection) - final control that prevailed until the beginning of the fifties of the XX century. It is characterized by the use of tools and utensils used to determine the quality of the finished products.

- Phase QC (Quality Control) - This phase was developed at the end of the fifties of the XX century. A feature of this stage is that the statistical method of quality control is applied in the production process, which means that the production lines are controlled.

- Phase QA (Quality Assurance) - It appeared at the end of the 60s and the beginning of the 70s of the 20th century. It is characterized by the requirement that elements of the quality system be incorporated in all stages of the creation and consumption of the product. This means that this phase should be applied from market testing to disposal of the product after its use. The same ideas are incorporated in the ISO 9000:1987 standard.

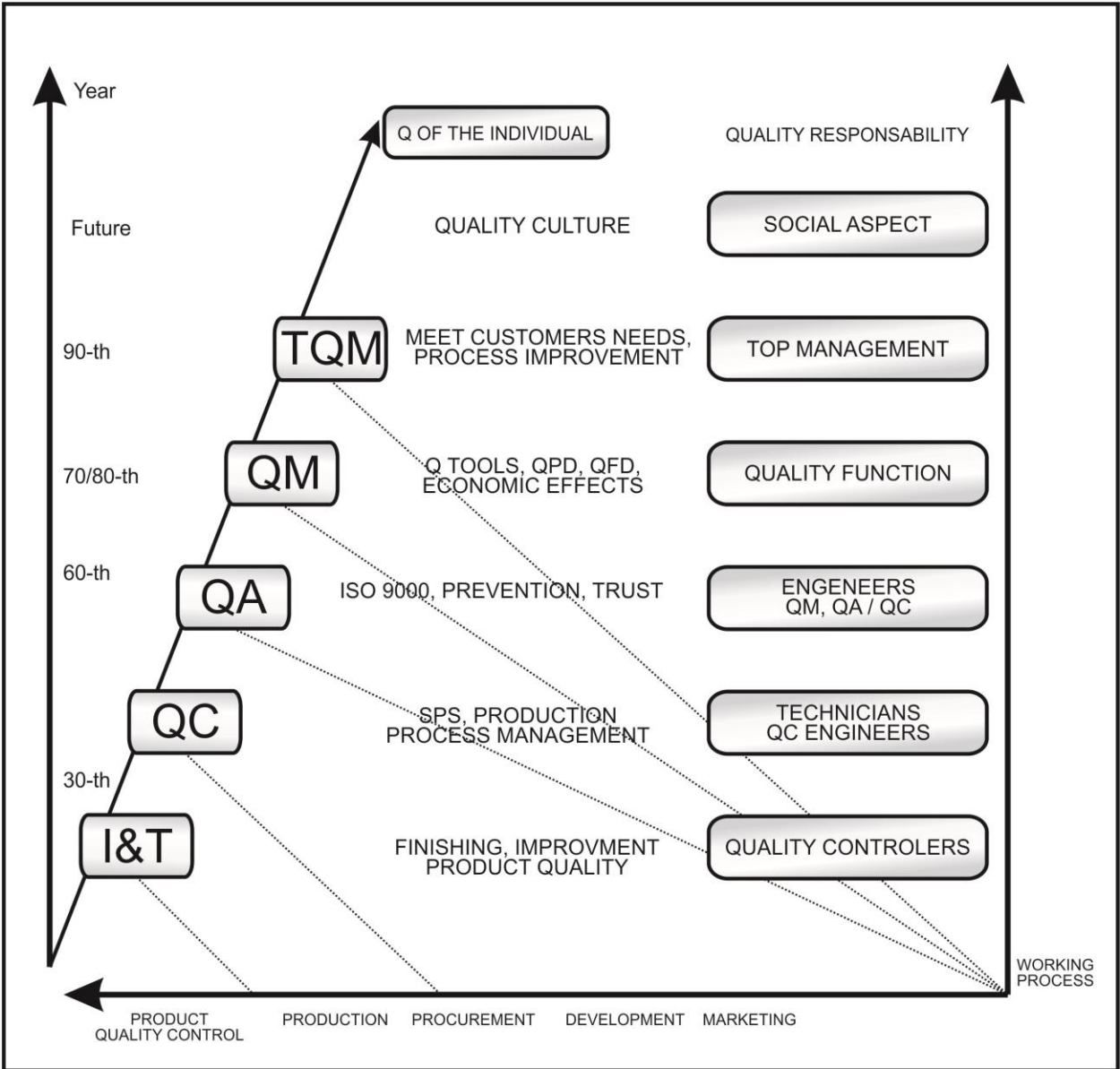
- Phase QM/TQC (Quality Management/Total Quality Control) as the fourth phase in the development of the quality management system, is called quality management/total quality control. It appeared in the late 70s and early 80s of the 20th century. Emphasis is placed on the approach to solving quality problems. Practically, it starts from the function of the goal, which defines: the vision, mission, goals and policy of the organization, and then the processes through which the set function of the goal will be realized are defined. In the end, they are monitored

⁵ Mashic, B., Startegijski Menadzment, Beograd, Univerzitet Braca Karic, 2001, str.353-357

through an appropriate information system, analyzed, improved, and all in order to satisfy the users and other interested parties. The ideas and objectives of this phase are incorporated into the ISO 9000:2000 standard.

- Phase TQM (Total Quality Management) - This phase was developed in the late 80s and early 90s of the 20th century. It is created as a continuation of the previous phase, as a result of constant improvements where the highest levels are achieved in the area of the quality of work in general. This phase is not yet subject to standardization.

Figure 2: Evolution of quality



Source: Mashic, B., Startegijski Menadzment, Beograd, Univerzitet Braca Karic, 2001, str.353-357

- Phase TQ (Total Quality) - complete quality appears as the ultimate goal in improving quality, which is the quality of living. That goal can only be achieved through a broad

understanding of society and acceptance of the new culture of living, protecting the environment and human aspects of quality.

Quality factors

Quality as a complex category is in direct correlation with the so-called 9M factors:⁶ man, material, machine, method, measurement, management, motivation, market and money.

Starting from the fact that man is the primary factor that is in direct correlation with other quality factors, the question arises whose responsibility is the realization of the quality of the finished product?

According to the traditional approach, the responsibility for achieving the required quality was held by the man using the machine, through the control mechanism. In the modern approach, quality is managed throughout the entire production process with the introduction of information and communication technology. Today, quality is managed by the top management, which is most responsible for the overall work in the organization, and each level, hierarchically placed, has its own respective responsibility.

Elements of quality

Considering the complexity and multidimensionality of quality, several elements of quality products are distinguished:⁷

- availability, which means that the product/service is easily accessible to the users;
- the guarantee, which refers to the need for the staff to be polite, caring and educated;
- communication ie. customers to be informed about all products or services in a language that will be understandable for them;
- the expertise ie. that the staff has the necessary knowledge and skills;
- the standards ie that the product/service corresponds to the set standards;
- the behavior, which includes the decency, humanity, care of the staff towards the customers;
- dissatisfaction, that is, if the quality of the service is not defined, it will affect the customer's dissatisfaction;

⁶ Чепујнска, В., Чепујноски, Ѓ., Основи на управувањето со квалитетот: филозофија, методологија, искуства, Економски факултет, Скопје, 1993, стр.13-14

⁷ Avelini-Holjevac, I: Upravljanje kvalitetom u turizmu i hotelskoj industriji, Fakultet za turistički i hotelijerskimenadžment, Opatija, 2002, str. 12.

- durability (expiration), which implies good performance of the product/service and a guarantee that they will last longer;
- engagement, which means that the staff shows understanding and pays individual attention to each product;
- humanity, that is, the product or service should be offered in such a way as to preserve the dignity and self-respect of the client;
- the effects, or the product/service offer an effect that is expected;
- confidentiality, which includes the ability to provide a discreet or confidential manner when selling products/services;
- responsibility, which implies a certain deadline for providing the services;
- reliability, or the product/service to be offered in the safest possible way and
- the guarantee, i.e. the product/service to be subject to a separate warranty.

Price is a sure sign of quality, but only in systems where value for money is respected. With the process of globalization of the market, quality standards are becoming more and more unified, so today there are separate world standards.

Quality management can be achieved by complying with a large number of requirements, of which the following stand out:⁸

- ensuring that the delivered product satisfies the function for which it is intended, i.e. suitable for use;
- reduction of costs incurred due to errors during production or performance of services;
- encouraging constant selection in order to improve the quality and reliability of the product with the final solutions;
- ensuring the necessary training of the people who will implement the quality management;
- monitoring of production processes and detection of errors, i.e. recording non-conformities and providing feedback;
- improving sales, as well as strengthening the confidence of buyers in the performance of the organization and its products/services by providing objective evidence that the product/service meets the requirements, thereby increasing reliability, mood, etc.

Organizations that are committed to quality must be oriented towards the three levels of quality, namely: organizational, process and operational level. Only after all those criteria are met, one can think about placing a quality product on a certain market.

⁸ Joiner, T.: Total quality management and performance: The role of organization support and co-worker support, *International Journal of Quality & Reliability Management*, 2007., str. 619-620.

Dimensions of quality

Mainly, eight dimensions of quality can be defined that define it from a consumer point of view, and they are:⁹

- Performance. Performance refers to the primary operating characteristics.
- Special features. These are the additional features of the product.
- Security. It refers to the non-existence of the possibility of malfunction or failure of a certain product.
- Conformance is the degree of adaptability of the product to consistent standards and specifications.
- Lifetime is a measure of the life cycle of the product and the degree of utilization, which is achieved by its use (including necessary repairs) until the need for its definitive replacement.
- Servicing refers to the speed, courtesy, professionalism and ease of correcting defects when providing services.
- Aesthetic characteristics refer to the appearance, sound, smell, taste of the product, i.e. the complete experience of the product.
- User perception of quality is related to the user's subjective judgment about the quality of a certain product or service, even when it is based on incomplete or undocumented information.

Here it is necessary to show the differences between the traditional and the modern approach in quality management, and this can be seen from the following table:

Table No. 1: Traditional and contemporary approach

Traditional approach	Современ пристап
Quality is a technical issue	Quality is a strategic issue
High quality costs money	High quality saves money
It is the responsibility of the quality department	Responsibility is shared among everyone in the organization
The goal is to meet the requirements	The goal is continuous improvement
Quality is measured by an average level	Quality is measured by zero defects
The emphasis is on detecting errors	The emphasis is on preventive

⁹ Thawatchai, J., Rao, S.: A meta-analysis of quality measures in manufacturing system, International Journal of Quality & Reliability Management, 2007., str. 82-84

	action
Quality defines the organization	Quality is defined by the user

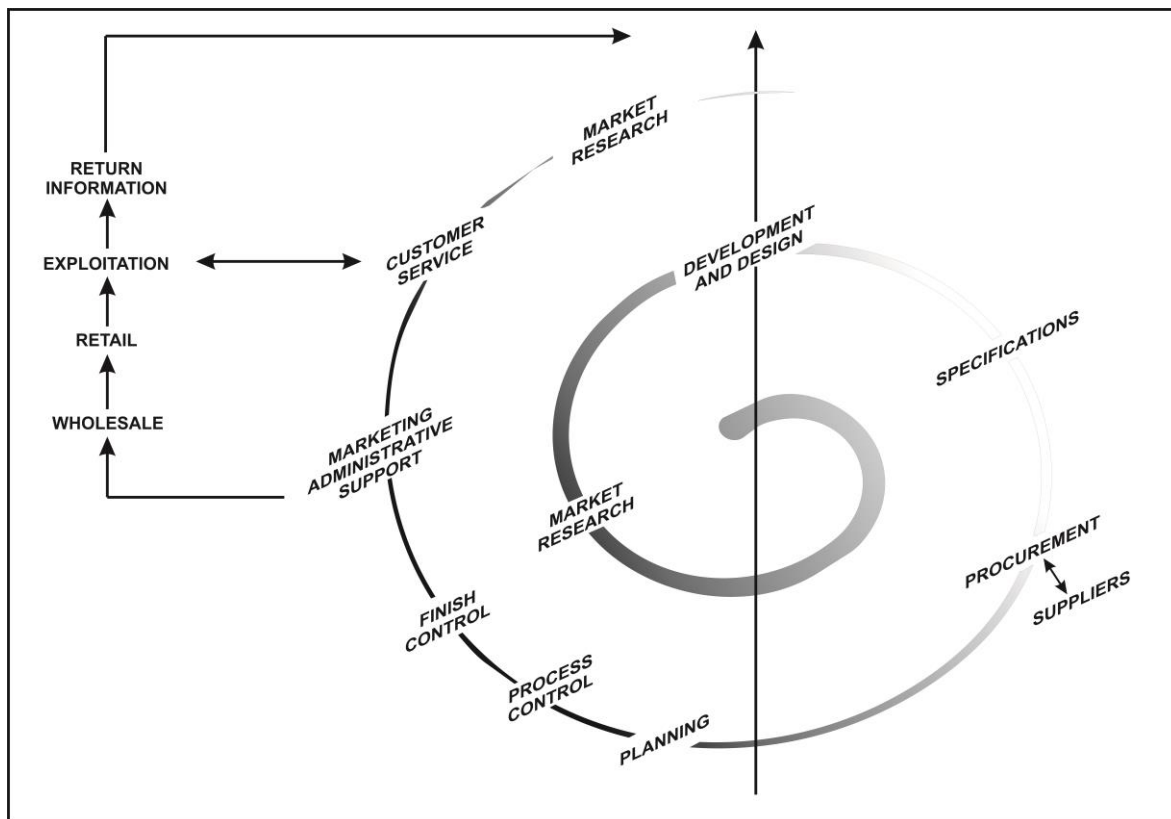
Source: Grigg, N., Walls, L.: Developing statistical thinking for performance improvement in the food industry, International Journal of Quality & Reliability Management, 2007, str. 360

Quality functions

In order to maintain quality, synchronization of various activities is imposed. As an example of this, the studies done on the needs of the buyers, the project reports, the examination of the products and the analysis of the claims are mentioned. Figure 3 shows the spiral of quality as a relative sequence of activities. Hence it is concluded that in order to perform the main activities (shown by the straight line) coordination of the auxiliary activities (human resources, finance, information technologies, etc., shown by arrows) is needed.

The spiral of quality¹⁰ shows that if the goal is to meet the expectations and loyalty of the customers, it is necessary to establish a connection between the majority of activities.

Figure 3: Spiral of quality



Source: Juran, J. M., Gryna, M., Planiranje, analiza kvaliteta, Zagreb, Mate, 1999, str.155

¹⁰ Juran, J. M., Gryna, M., Planiranje, analiza kvaliteta, Zagreb, Mate, 1999, str.155

The traditional understanding of quality and the activities related to its implementation, which refers only to physical products (a concept marked with a small "q"), has evolved into a modern concept according to which quality is attributed to all products, all activities and all industries. The modern understanding of quality is denoted by a capital "Q".¹¹

The differences between these two concepts are shown in the following table:

Table No. 2: Comparison of small "q" and large "Q"

Category	Мало „q“	capital "Q"
products	goods	all types of products, goods and services, regardless of whether they are intended for sale or not
processes	directly related to the production of goods	all types of processes: production, support processes, work processes
industry	commodity-production	all types of industry, commodity-production, service, governmental and non-governmental organizations
quality is observed as	technology category	work category
users	those who buy the goods	all on which the product and processes have an impact - external and internal
approach to quality	through the concept of functional organization	through the concept of universal technology
the cost of poor quality	the costs associated with the production of the defective goods	all costs that would be gone if everything were without error
quality assessment is based on	compliance with specifications, procedures and standards	response to user requests
promotions are aimed at	work of the sectors	the work of the entire organization

¹¹ Filipovic, J., Upravljanje kvalitetom, Ekonomski fakultet, Univerzitet Banja Luka, 2005

quality management training is	concentrated in the quality sector	present in the entire organization
coordination by	the quality managers	the quality council, made up of senior management

Source: Filipovic, J., Upravljanje kvalitetom, Ekonomski fakultet, Univerzitet Banja Luka, 2005

Table no. 2 clearly shows that the modern perception of quality goes one step ahead of the traditional perception of quality and results in the improvement of all categories and the expansion of the scope of action in relation to them.

Conclusion

Starting from the customer-oriented definition of quality, quality management means the management of all stages of planning, production and use of products in the most important goal, which is the fulfillment of customer requirements. Modern quality management is not understood as controlling operations to detect errors, but avoiding errors and optimizing teamwork at all stages. At the same time, quality is not seen as a cost factor, but can contribute to profiting of organizations against the competition and thereby establish and strengthen the competitive advantage. High quality contributes to achieving a competitive advantage for organizations, be it through differentiation and creating loyal customers and unique market positions, or through cost control and the contribution of high quality and zero-defect rules that reduce total operating costs.

References

1. Srdoc, A., Sluga, A., Bratko, I.: A quality management model based on the “deep quality concept”, *International Journal of Quality & Reliability Management*, 2005;
2. Crosby, B. P., *Kvaliteta je besplatna*, Zagreb, 1996;
3. Herrmann, A., Huber, F., Algesheime, R., Tomczak, T.: An empirical study of quality function deployment on company performance, *International Journal of Quality & Reliability Management*, 2006;
4. Mashic, B., *Startegijski Menadzment*, Beograd, Univerzitet Braca Karic, 2001;
5. Чепујноска, В., Чепујноски, Ѓ., *Основи на управувањето со квалитетот: филозофија, методологија, искуства*, Економски факултет, Скопје, 1993;
6. Avelini-Holjevac, I: *Upravljanje kvalitetom u turizmu i hotelskoj industriji*, Fakultet za turistički i hotelijerskimenadžment, Opatija, 2002;
7. Joiner, T.: Total quality management and performance: The role of organization support and co-worker support, *International Journal of Quality & Reliability Management*, 2007;
8. Thawatchai, J., Rao, S.: A meta-analysis of quality measures in manufacturing system, *International Journal of Quality & Reliability Management*, 2007;
9. Filipovic, J., *Upravljanje kvalitetom*, Ekonomski fakultet, Univerzitet Banja Luka, 2005;
10. <http://kvaliteta.inet.hr/>.