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# History of Quality Management System Development

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**Abstract:** Annotation: Quality management and certification activities reflect the modernity of production in many sectors of the economy and in all industries, complex automation of technological processes, high quality of various manufactured and imported products, compliance with the requirements of regulatory documents, consumer products. ensuring the safety of the population, the use of advanced, long-standing world standards and their implementation in our country.

**Key words:** History of quality management, implementation of quality management systems, origin, enterprise, quality policy.

In order to further clarify the work being done in the development and implementation of quality management systems based on international standards, we would like to briefly dwell on the essence of the quality system and its evolutionary origin.

First of all, it should be noted that the quality management system is not considered as a system of quality products.

According to analysts, the quality system can be considered an important component of the so-called "enterprise" of the organism. The quality system is just as important in terms of quality policy as the nervous or circulatory system is in determining the vitality of an organism. The system should be characterized by the rapid and effective prevention of any serious deviations from the established principle of quality policy and comprehensiveness.

Historians have recorded a record of quality data from 2150 BC. A set of justice laws of Hammurabi, king of Babylon from 1792-1750 BC, and even more so from the laws of King Ur-Nammu (2112-2094 BC). We know from Hammurabi Code 229 that in the event of damage to a building or structure, resulting in injury or damage to the building, the builders are subject to severe fines, for example, if someone is killed, the builder is severely punished, even would be executed.

A similar principle was found in the Phoenicians: a Phoenician would deviate from the quality requirement set by the quality controller (auditor) and order the cutting of the manufacturer's hand in order to prevent another recurrence for the mistake he had made.

During the reign of King Boyazid II, Ikhtisabi, Bursa, various decrees were issued in Turkey on the color, location and quality of paints. Sometimes these decrees also provide penalties for violating certain rules.

Chinese emperors required manufacturers to seal their goods in order to ensure further tracking of manufacturers and goods. Penalties (often the death penalty) were imposed if the goods did not meet the requirements. Even in those days, serious attention was paid to quality and variety. In those days, goods and goods were not divided into varieties, but the country in which they were developed was sometimes sold under the name of the master (Iraqi soap, Iranian carpets, Chinese silk, etc.). Manufacturers are well aware that "Quality" requires labor, it is impossible to obtain high quality with less labor.

There is a legend about the construction of the Kalon Minaret in Bukhara, which has been standing with dignity since the Middle Ages. No matter how hard the master tries to explain the lack of time, he will not change his mind. The master finally agrees and starts working. It takes more than a year to work the foundation. A year later, the master disappeared without a trace. A few years later, the master reappears and explains why he escaped to the Emir: . The tower, built in the period you set, is not 7 generations, not even 3 generations. But at the time, it was natural for you not to accept it, so I ran away. Now the foundation is in place, and the tower will last for centuries. ” The Amir confesses his courage and forgives his sin. Indeed, the tower is still strong.

The period of increasing importance to the issue of quality began in the XIX century, when manufacturers began to brand their products and were very proud of it.

The development of modern quality philosophy to date can be divided into 4 intersecting and continuous phases: the phase of separating the invalid; quality management phase; phase of continuous quality improvement; quality planning phase.

Disability separation phase. During this period, artisans and craftsmen introduced the use of random, random, rather than matching components and items to make their products. That is, it can be seen as interchangeable. It uses a variety of calibers and sizes. Non-compliant ones were removed as invalid (defective).

Large-scale production in this way dates back to the 70s of the XIX century. Its first representatives were the Samuel Colt plant. Later, in the early 20th century, Henry Martin Leland (founder of Cadillac) and Henry Ford introduced this method. Leland was one of the first in the automotive industry to use "passable" and "impassable" calibers.

In 1908, experts from the British Automobile Club accidentally separated three of the consignments of Cadillac cars sent to England and spread them to the last bolt. All the parts were put together, some of them were replaced with spare parts for sale, and the cars were reassembled. Two cars started on the first try, and one started on the second try. After proving that the quality of the cars was the same, the car club awarded Cadillac with a special diploma and a silver trophy with the inscription "For Standardization". The Cadillac then featured the company's standard logo, "Standard of the World."

In many countries, along with rapid economic development, attitudes toward product quality issues have begun to change for the better, with a scientific approach to quality management alongside the natural sciences.

In 1905, the first quality management system, the Taylor System, was introduced. He set requirements for the quality of parts in the form of permits and created a quality management system for each item. The first quality inspectors began to work to ensure the success of the Taylor system.

Quality management phase. This phase of development begins in the 1920s. Its main purpose is to reduce the weight, although not completely eliminate the imbalances inherent in the previous phase.

In May 1924, W. Schuhart, a technical control officer at Western Electric (USA), developed a proposal for the use of statistical methods-based control maps in quality management .

V. Schuhart suggested that engineers, experts and managers pay special attention to the process variations (deviations from the established regime) from specific imbalances and defects. According to him, two important factors must be taken into account:

it is not necessary to look for the culprits, but to identify and eliminate the causes of the imbalances with the involvement of all relevant persons;to know that the cause of imbalances and defects is a variation of processes.

In the 1930s, global manufacturing practices developed the idea of workers, supervisors, and managers working together to solve product quality problems. One of the main factors in improving the quality of products is the "working life", ie the quality of production workers.

Phase of continuous quality improvement. In the second half of the twentieth century, in the economic life of developed countries, ensuring the quality of products to meet the needs of the population, became one of the factors squeezing (breaking) companies on the basis of demanding competition. In the 1950s, A. Feigenbaum formed the content and essence of total quality control (TQC - Total Quality Control), and in the 1960s laid the foundation for the creation of a new philosophy in the field of enterprise management.

"The problem of quality is much more difficult now," Feigenbaum said. "It can only be solved successfully if a new organizational structure is formed." The reason for these problems is the existence of an "outdated" organizational structure. "

At that time, the American expert in the field of quality management J. Djuran put forward the idea of integrity as an indicator of product quality. The program of quality management, developed by Edward Deming in 1950, is the basis for the formation of modern philosophy of quality. This program was widely introduced until 1992.

For the first time, E. Deming developed a program to improve quality by studying and enriching Schuhart's scientific ideas. The program is based on 32 pragmatic axioms ( rules that are accepted without proof and summarize the results of the practical work of managers). Accordingly:

Pragmatic axiom 1 - Voluntary activity can be seen as a technological process and therefore can be improved.

Pragmatic axiom 2 - production can be seen as a system of stable and unstable. So it's not enough to solve specific problems, you just get the results that the system can give. Fundamental changes are possible.

Pragmatic axiom 3 - the top management of the company should in any case take responsibility for the activities of the company.

Quality planning phase. This phase began in the mid-1960s, and began to take shape in order to further develop the ideas put forward in the previous phase, to fully meet the needs of consumers. The origin of the quality planning phase is mainly explained by the development of products and services in the world market, the sharp increase in competition in the market and the rise of consumer protection to the level of public policy.

 

In 1976, the famous Japanese expert K. Ishikawa proposed in his work to use the method of constructing a cause-and-effect diagram to solve quality problems. At the same time, the famous Japanese scientist G. Taguti described in detail in his work the method and idea of ensuring product quality by making optimal decisions at the design stage of the product.

The growing demand for quality in the new phase has led to the following conceptual frameworks:

most of the defects in the products occur during the production phase due to insufficient quality of design work;

identification of structural and technological defects before the start of the production phase through the widespread use of mathematical modeling of the properties of products and products and their production processes;

Replacing the concept of "0 defect" with the concept of "consumer satisfaction";

high quality should be offered to the consumer at a reasonable price, which is constantly declining as a result of strong competition.

The quality of products is affected not only by market competition around the world, but also by other factors, such as economic, environmental and technological requirements.

In the late 1980s, the Total Quality Management (TQM) methodology was developed and defined. Quality-based overall management is a business based on the application of skills and knowledge gained to increase customer satisfaction and the continuous improvement of the productivity of senior management with the help of general training and continuous improvement of all types of activities and leadership in teamwork. is a philosophy. TQM was one of the first to pave the way for the emergence and widespread implementation of the ISO 9000 series of standards.

In the modern conditions of the global economy, only enterprises that supply products that are in demand in the market and of optimal value can succeed. The current economic situation encourages managers to focus not on the efficiency of individual workers, but on a systematic approach to enterprise management, which leads to the production of products or services that meet the requirements of the enterprise, consumers, as well as environmental requirements. 'p is seen as a harmonized interaction of processes. This approach to management can be explained by a review of the goals and objectives facing enterprises at the current stage of development of the world economy and a reassessment of priorities as a result of the process of continuous improvement. The principle of continuous improvement in the current competitive environment is a guarantee of corporate success, but also forces managers to look for ways and means to increase the competitiveness of products and ensure consumer confidence in their quality and environmental safety.

The first recognized systems - quality and quality standards - were introduced after World War II as a result of the development of industrial production processes and technological changes.

These changes were first felt in the United States, and the following standards were used to standardize military weapons:

MEL-Q-9858 Specifications of quality system

MIL-1-45208 Control system requirements

Both standards are still in force today and apply to military contracts and other purposes.

These standards are also the basis for a set of standards known as AQAP (Integrated Quality Assurance Materials) within NATO.

Over time, the need for quality standards began to emerge beyond the military industry. That is why the British standards BS 4891 and BS 5179 were introduced. They are largely like practical guidelines and cannot be used as contractual requirements. Since the AQAP standards were related to military requirements, it was difficult to consider them applicable. This problem was solved in 1979, when the BS 5750 standard was published in three parts, 1, 2 and 3. They were similar and subjective and required additional explanations, as well as additional sections (4, 5 and 6) with information on the application of the standards.

BS 5750 was used by consumers and suppliers in contracting cases. However, in addition, the BSI (British Standards Institution) introduced a third-party registration scheme. This allowed the BSI to register companies that met the requirements of the relevant organizations. Registration could serve as a guarantee of quality on behalf of all existing and future customers. Due to the high frequency of such cases in international practice, the 176th Committee of the International Organization for Standardization (ISO) published a series of standards based on BS 5750 in 1987, which was the basic series of ISO 9000 standards. Since 1987, the development of ISO 9000 series standards has continued. In addition to the development of the new ISO 9000 series of standards, there are plans to revise the basic standards adopted in 1987. The revision took place in two phases: the first in 1994 and the second in 2000.

 

The ISO 9000: 2000 series is the third edition of the ISO standards and includes the following standards:

ISO 9000: 2000 Quality management system. Basic rules and dictionary;

ISO 9001: 2000 Quality management system. Requirements.

ISO 9004: 2000 Quality management system. Performance Improvement Descriptions.

These standards are included in the State Standardization System of the Republic of Uzbekistan in 2002. OzDSt ISO 9000: 2002 Quality Management System. Basic rules and dictionary. adopted a state standard in line with international standards.In 2005, some terms and definitions of ISO 9000 were amended and in 2008 the ISO 9001 standard was republished.

At present, the ISO 9001: 2008 standard has been adopted in Uzbekistan in accordance with the original ISO 9001: 2009 standard and is used as the main normative document in the wide implementation of the quality system in the Republic.

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