THE MYTHS IN QUALITY MANAGEMENT

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Abstract

The current paper points out at the most common myths in Quality Management. The authors understand that some of the statements below may raise objections, or, in a better case, discussion or dispute, which is actually the authors' intention.

Key words: *quality management, innovation, ISO norms, inspection*

INTRODUCTION

The concept of myth first appeared in the ancient Greek fables where the main characters were various supernatural beings endowed with extraordinary features. People believed in the existence of such beings. Nowadays, the notion of myth is encountered in a sense of something deceptive, i.e. a positive belief in the existence of something that does not actually exist, or that something is good and effective though it is not in fact. Surprisingly, such approach is quite frequent in Quality Management; both, practitioners as well as theoreticians keep claiming the statements that are misleading or outdated. The current paper points out at the most common myths in Quality Management. The authors understand that some of the statements below may raise objections, or, in a better case, discussion or dispute, which is actually the authors' intention.

MYTHS IN QUALITY MANAGEMENT

Myth 1: A quality system certificate according to ISO standards is a proof of the system effectiveness

This claim is widespread, yet misleading. When signing contracts, customers require suppliers to submit such certificate as a proof of the supplier's Quality Management System effectiveness. When refuting the claim, we have to go back to the period when the ISO standards were being designed. When justifying the standards, their designers argued that ISO standards should convince the customer that the conditions agreed in the contract would be standard in the whole production process. The ISO standards therefore focused solely on internal processes and their normative provision in particular. It should be added that, despite several innovations, the standards still focus exclusively on the supplier's internal processes.

However, the expression "Quality Management System" mistakenly suggests that the standards cover the total area of Quality Management, which is misleading. Interestingly, many experts in the area of consultancy and education refer to Deming, the well-known Quality Management guru. Yet not everyone knows that during a 3-day seminar in 1991, i.e. in the period when the standards were being introduced, Deming was asked a question whether the concept of Quality Management System as used in ISO standards was compatible with the concept of Quality Management. Deming responded with a smile that the application of the standards is just the first step in the Quality Management implementation in enterprises. The greatest danger of this myth dwells in the fact that the company management generally agrees with such a claim; however, it stops dealing with Quality Management after having obtained the certificate. Rather than on the internal processes, the current focus of Quality Management is on the external processes that are not covered by ISO standards.

Moreover, our professional community does not find it strange that, in the process of certification, , the certifying authorities are interested only in conformity of the company documentation with the standard, or at best adherence of the documentation, instead of checking whether the company produces high quality products. As a result, having the documentation in accordance with ISO standards, the company can obtain certification regardless of what it produces. This is misused by

many suppliers to mislead their customers who then wonder how a certified company can supply low-quality products. To illustrate the fact, we can mention the recent cause of Volkswagen, the holder of all possible certificates.

As mentioned above, ISO standards do not cover external processes. Even greater disadvantage is that they do not address quality economics. Let us underscore that quality management is a set of activities aimed at the production of the products meeting not only customer requirements, but mainly assuring effectiveness of invested capital. From that point of view, quality economics is the key process of quality management (quality economics will be discussed in the next myth), and consequently, if quality management system covers the entire area of quality management, the process is not interesting in terms of ISO standards. Certification problem is actually a problem of quality business.

From the historical point of view, the first ISO standard was excellent (1987); further amendments just provided reasons for the systems' recertification. One of the amended standards introduced the concept of Total Quality Management (while definition of the system is not in compliance with the generally applicable definition of a system). Further innovation introduced the concept of process approach. If admitting that process approach is synonymous with the process engineering, then processes underlie the organizational structure, and then we have to define processes first and only then design the organization structure.

Application of this standard actually means that the existing organization structure has just "put on a process coat", thus creating a process-organization bastard. Have you ever heard of a company where the process approach had led to the change in the organization structure or the payroll system? In compliance with the system engineering, remuneration has to be based on the economic results rather than on performance. ISO Standards could be discussed for hours. My answer to the question whether to certify or not is: to certify, since there is the EU pressure. It should be noted, however, that obtaining a certificate has a very little in common with effective Quality Management.

Myth 2: Quality costs are part of the cost of prevention, assessment, inspection, and failure due to poor quality production (PAF model)

In the previous part of the paper, we mentioned the importance of quality economics as the most important quality management process. Let me emphasize again: a company does not produce to satisfy the customer demands, but to assure a return on invested capital via sales of manufactured products. Companies therefore pay constant attention to monitoring the quality costs. The problem, however, is that PAF model was designed in the United States in 1946 to monitor quality costs in the economic practice. The model was designed for the post-war conditions of unsaturated market. That time, companies were happy to manufacture as many products as possible, while neglecting poor quality of production; by producing more products, they were able to use the resulting profit to cover the losses that were due to the poor production quality.

Therefore, PAF model is essentially focused on finding the optimum ratio of defects that is not worth of further reduction, since the reduction-associated costs are higher than the benefits from the reduced ratio of defects. Meanwhile, the economic conditions in the market have changed significantly: the market is not unsaturated anymore, and the offer significantly exceeds the demand. The quality concept has also changed. While at the time of the model development, quality product was the one in accordance with the technical specifications, while the present quality product is the one in compliance with the customer requirements. By purchasing such product, customers confirm that the product complies with their requirements. PAF model has thus completely lost its justification. Let us add, however, that the costs defined by the PAF model need to be monitored and reduced, since they reduce the company profit, which has nothing in common with the modern quality concept. For example, the losses from poor production quality actually represent a waste of material, energy and workforce in the production process and the amount of such losses is of no interest to the customer.

Even from the theoretical aspect, such waste in no way represents quality costs. Cost is actually a financial expression of the value-creation process, which is transformed into the product value and

paid by the customer within the price of the product purchased. The idea that a customer is willing to pay for the waste of material, energy and workforce within the price of the product purchased is naive, although there are still businesses in Slovakia that indicate the loss from the poor production quality in their calculation formulas.

Similarly, the one claiming that such waste is a part of quality actually does not understand the modern concept of quality as a compliance with the customer requirements. The same applies to the costs of prevention. Those costs are not focused on quality, but on the prevention of losses from low-quality production; expending such costs does not bring about the increased product quality. The situation is slightly different with the cost of assessment and inspection. But even here, the cost of production and inter-operation inspection are actually production costs, since inspection is an integral part of the production process, and though often performed by the quality management personnel, such costs cannot be considered as the quality ones. Similarly, indicators calculated from costs defined in such a way do not allow determining real quality costs.

Though the PAF model is currently outdated, it is still used in the economic practice and recommended at the universities as a topic for the habilitation and inauguration theses within the subject of Quality Management; even VEGA grant agency approves the research projects on the topic. Such concept of quality cost does not allow to measure rentability of quality, which should be a fundamental objective of quality economics Marginally, I want to point out that Assoc. Professor Nováková and I have designed so called **triad of quality** that represents a completely new approach to quality costs. We have lectured on the issue in such destinations as Australia, China and Israel. The designed indicators of rentability of quality represent the outcome of such quality costs concept.

Myth 3: Statistical quality inspection is the most effective form of quality inspection

This is also a kind of myth. Methods of statistical quality inspection were defined in the early thirties of the 20th century to replace the 100% inspection by a selective inspection, since the 100% inspection methods used that time were no longer capable of meeting the demands for such inspection. Development of quality management, however, is characterized by the return to the 100% inspection. The approaches known as Zero Defect or Poka Yoke in Japan aim to achieve the state of no defects or, precisely, that the defective product in no case gets to the customer.

Such approach is motivated by the fact that if delivery contains defects, customer loses confidence in the supplier and switches to another one. The losses in such case are much greater than the cost of 100% inspection. Statistical methods of quality inspection actually suppose that a certain ratio of products will be outside the tolerance limits, but they are not able to detect such nonconforming products. Nature of statistical quality inspection methods is based on the application of normal distribution. That means: if only accidental impacts occur in the manufacturing process, so within +/- 3 standard deviation, up to 3 defective products may occur within 1000 manufactured products; while the range +/- 2 standard deviations tolerates more than 50 defective products.

If considering the current indicators such as "ppm" which shows the number of defective units per one million units produced, the top domestic production sectors, especially in the field of electrical engineering, this indicator considers the tens or hundreds of products. Within the three-sigma limits, the indicator can take the value of 3000 and, within the two-sigma limits, the value of 50,000, which are the values considered unacceptable.

Another disadvantage of statistical inspection methods is that even the control chart frequently does not allow to assess whether defective products occur or not in the manufacturing process. For example, in the most commonly used control chart, the "mean and variation margin" is recorded in the control chart selection value average calculated from the measured sample values. In such a process, one or two out of five measured sample values may be outside the tolerance limits, but the sample mean may be within the regulation field. These considerations suggest that statistical methods of quality inspection can be used to monitor only accidental impacts without significant detrimental effects occur in the manufacturing process; however, they are ineffective as inspection methods.

It must also be emphasized that the role of quality control is often oversimplified. So-called fractional inspection developed in 1950 and based on separating defective products from those meeting the technical requirements still used in our conditions. After 1950, progressive companies started introducing the approach which is referred to as informative inspection. Its philosophy dwells in the fact that information about the occurring production defect must be used to gradually reduce production of defects and improve the manufacturing process. Later, the approach was supplemented by the concurrent use of statistical inspection, rather to increase the efficiency of informative inspection than to serve as an inspection method. Even today, many literary sources and modern companies consider this method to be the best possible solution to checking the production process. Neither this form of inspection can ensure zero defects.

As stated above, we are currently witnessing the revitalization of 100% inspection control. For example, the approach called "Zero check" is used in Japan. Its strategy dwells in detecting potential errors and, based on the feedback, eliminating any possible defect before it is transformed into a manufacturing one. It is essentially a combination of Poka Yoke system with the so-called inspection system at the source of manufacturing defects or, if appropriate, even with successive inspection. This issue, actually, does not concern the above-mentioned myth regarding statistical regulation; the advanced inspection methods would deserve a separate paper.

Myth 4: So-called Integrated System increases the effectiveness of management systems

In recent years, the approach known as integrated system has been used in quality management. It actually represents the integration of the management systems based on ISO standards. In other words, the processes that ISO standards are developed for are integrated into a single process. Formally, this integration is reflected in the fact that ISO standards focused on the various processes contain the parts with the same content. The objection regarding such integration is that the outcome of the approach is a document generally containing the number of the sections corresponding to the number of the processes integrated.

Such integration is merely formal and only provides the opportunity for further certification, since it does not change organizational structure and the existing departments of integrated processes are maintained. Furthermore, if there is a need for such integration, the structures of the main line should be integrated, i.e. research, development, pre-production stage, production, procurement, taxes, implementation, post-production and after-sales activities. Theory of enterprise management assumes that the integrated system means an enterprise or its individual organizational structures.

Enterprise management would not actually exist without the approach defined in the general definition of a system as a set of elements and mutual bonds among the elements (individual organizational structures of enterprise can be considered as elements). Basically, a perfectly elaborated document of organization rules with lists of activities, responsibilities and mutual relations of individual organizational structures can be considered as an integrated company system. In terms of the enterprise management theory, the elaboration of relatively independent integrated subsystems can be rather harmful than helpful for the company management.

Myth 5: The main company objective is satisfaction of customer requirements

The statement above is actually not a myth but a conscious lie; the issue will be therefore just briefly concerned in the paper. The main objective of any enterprise is not meeting the customer requirements, but return on invested capital. Manufacture of the products that meet customer requirements and are sold at the profit-making prices is just a way to achieve the above-mentioned objective. The American literature provides a number of examples when the orientation purely on customer satisfaction had led businesses to bankruptcy.

CONCLUSION

The aim of the paper is to show the most common misleading claims in both economic practice, teaching the Quality Management subject in universities or in various business training activities. The authors express their personal opinions of such claims, considering them as myths. They simultaneously realize that no lecture can persuade those having different opinions.

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