

## THE PATH TO CONTINUOUS IMPROVEMENT

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### ABSTRACT

*The paper presents the path to continuous improvement in small and medium enterprises. Continuous improvement is one of the most critical aspects of total quality management. Quality is not a fixed objective. From the perspective of the continuous improvement, it is a moving target. A four-part cycle usually makes the basis of most approaches to continuous improvement. That cycle has been developed by the quality expert Walter Shewhart. The continuous process of quality has no beginning and no end. It is observed as a cycle Plan - Do - Check - Act (PDCA).*

**Keywords:** continuous improvement, measurement, nonconformities, preventive actions, corrective actions, TQM.

### 1. INTRODUCTION

Building a productive and competitive organization is the fundamental objective, which is the responsibility of the management, but also of all employees in the organization. The question of how to, by improving quality, simultaneously increase customer value and profitability for the manufacturers will be addressed through the analytical approach of conditionality of profit increase, quality improvement, evaluation based on quality, and relationships and impacts of the quality on productivity, efficiency and profitability. The answer to this question can be given by the application of the Standard ISO 9001:2008 model, Section 8 (measurement, analysis and improvement).

Standard series 9000 ff is putting special importance on the processes of measurement, analysis and improvement. The measurement procedures are established as means of proving that the product meets specified requirements and define the manner, location and time of measurement as a way of recording the results. The measurement results are used as a basis for the analysis and decision making for corrective measures or actions in order to improve systems, processes or products. This standard emphasizes the importance of measurement, analysis and process improvement. In this way it ensures the proper conduct of the process, the realization of products or processes that make profit.

Quality improvement means better utilization of human resources, material resources, information resources, production resources with the basic objectives:

- To reduce costs and business risks
- To increase efficiency and productivity
- To ensure the planned profit

- To satisfy interests of the customers, employees, owners shareholders, subcontractors and the community
- To ensure competitiveness.

The most common consequences of the poor management of business processes include: long periods for products/services realization, high business expenses, poor adjustment to market changes, delays (exceed the amount of the agreed costs), ineffective decision making, errors in performing activities, poor quality of products/services, poor use of resources, environment pollution, dissatisfied customers and other interested parties, poor overall business results, insolvency and other problems. These critical questions should be analyzed and a plan of continuous improvement should be established, keeping in mind that there are existing processes in the organization [1, 3].

## 2. SHEWHART IMPROVEMENT CYCLES

Shewhart improvement cycle is called PDCA cycle of continuous quality improvement, which is today known as the Deming cycle.

This cycle of improvement always begins with the analysis of the existing problems in order to evaluate, analyze, and possibly eliminate the observed nonconformities. When this phase is over, a specific procedure or process is addressed, which consists of four phases, namely: Plan, Do, Check and Act. Deming took the famous Shewhart PDCA cycle and adapt it to his way of thinking so that today we more or less talk about the Deming four-step cycle. Kaoru Ishikawa further expanded the process in six steps under the motto always one step further.

Based on Deming basic postulates, Ishikawa has developed his own cycles of quality improvement in the following six steps:

- determine goals and targets,
- determine methods of reaching goals,
- engage in education and training,
- implement work,
- check and correct the effects of implementation,
- take appropriate action.

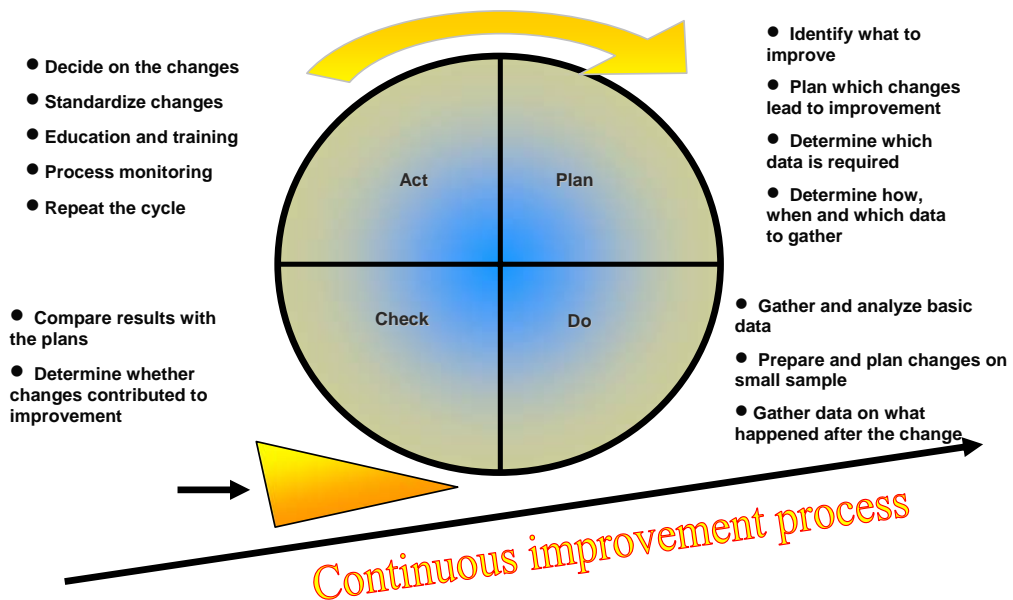


Figure 1. Continuous quality improvement – DEMING Cycle

Deming cycle usually forms the basis of the majority approaches to continuous improvement. It is a continuous cycle with no beginning and no end. It helps to can examine the status of the system, collect data and try to thoroughly understand the system. The path to continuous quality improvement is also the path to TQM. Employees who participate in the continuous improvement projects need to understand their exact role in the current process and what will their role be after the process is improved. An employee must carefully examine how he/she affects the improvement. Ownership in the organization must be clear. One of the biggest obstacles to improving the process is uncertain relations in the responsibility matrix. In order to achieve improvement in the organization responsibility matrix must be placed so that responsibilities and authorities are clearly aligned. For this purpose it is necessary to do the following: choose a project for process management, form a team, analyze customer demands, document processes, analyze processes, establish process indicators, monitor process and collect data, assess the process and take actions to improve the process. It is not necessary for something to be wrong with the process so that the team addresses its improvement. All steps of the process management are designed in order to achieve additional possibilities and improvements that can be applied to any process [4, 6].

### **3. MEASUREMENT, ANALYSIS, AND IMPROVEMENT IN THE ORGANIZATION**

Organization continuously improves the effectiveness of Quality Management System through the application of:

- Quality policy,
- Quality objectives,
- Audit results,
- Corrective and preventive measures (actions),
- Employee proposals,
- Review of the management.

At the beginning of each business year, based on the above stated inputs, the top management adopts The Annual organization performance program, and the process of continuous improvements that is implemented in the organization, for which the responsibility lies on the representative of the quality management and director.

The management and all employees in the organization undertake measures (actions) in order to eliminate the causes of nonconformities so as to prevent their repetition. Top management of the organization ensures that corrective measures are used as one of the "tools" for the improvement of the Quality management system.

Planning of corrective measure (action) involves evaluation of problem importance, for which we review the following:

- Operating costs,
- Costs of nonconformities,
- Product performances,
- Usability and security of products,
- Satisfaction of customers and other interested parties.

Corrective measures can be initiated on the basis of information that includes:

- Customer complaints,
- Reports of nonconformities,
- Reports of internal audits,
- Outputs from the management reviews,
- Outputs from the data analysis,
- Outputs from the measurement of satisfaction of customers and other interested parties,
- Relevant records of quality management system,
- Reports from the process measurement.

Defined corrective measure (action) is directed at eliminating the causes of nonconformities with the purpose to avoid the repetition of the identified nonconformity.

In order to determine the causes of nonconformities, depending on the types of problems, top management appoints the individuals or teams of experts from the organization, or hire outside experts. After determining the causes of nonconformities, a corrective action is defined.

Procedures for implementing corrective actions include the following activities:

- To define the cause of the occurred nonconformity,
- To evaluate the need for corrective action,
- To define, determine and implement activities to eliminate causes of nonconformities,
- To record the results in connection to the actions taken,
- To review the effectiveness of implemented corrective actions [2, 7].

#### **4. CONCLUSION**

The paper presents the path to continuous quality improvement. If perfection is the ultimate objective, then the continuous improvement is the process that, with the necessary efforts and resources, should gradually approach that objective. The conceptual foundation of continuous improvement to take action in this direction is in the cycle called Shewhart cycle or Deming cycle. If we want to be competitive in the global market we must have continuous improvements through reengineering. This approach is a good path to TQM. The initiative for the introduction of TQM is provided by the management of the organization that delegates the responsibilities and authorities, as well as the need for education and training, and application of methods and techniques for achieving this goal. Improving business processes is an important strategy in competitive markets for the following reasons: customer loyalty depends on the delivered value, delivered value is created through business processes, sustainable success in the competitive markets requires organizations to continually improve the value delivered to its customers, and in order to continually improve the capability of creating values, the organization must continually improve its processes that create the value. For the purpose of system stability, it is desirable that the management conducts internal and external audits several times a year, and constantly review quality management systems. The objective of internal and external audit is to improve the efficiency of the system, monitor the level of satisfaction of requirements, trends, and nonconformities by type and size.

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