



## QUALITY COSTS

Ion STANCIU<sup>1</sup>, Emilia PASCU<sup>2</sup>

<sup>1,2</sup> “Dimitrie Cantemir” Christian University, Faculty of Tourism and Commercial Management, Bucharest, <sup>2</sup>E-mail: [pascu.emilia@ucdc.ro](mailto:pascu.emilia@ucdc.ro)

**Abstract** *Costs related to quality is an important tool for valuing quality, a potential source of profit maximization organization. They are a tool to optimize processes and activities relevant to quality because through them it is possible to identify inefficient activities, critical points in the development process. Thus, there may be more robust, concrete or improvement actions required in a particular sector of the enterprise. Quality has a cost, and this fact can not be denied. At the same time, it is true that non - quality is more expensive. Quality is considered to be expensive, because one does not calculate the costs of non - quality. From the final cost of a product, non - quality is 20% -35%. In accordance with this idea all economic sectors contain costs caused by mistakes made during the production process. To get a realistic situation, it is necessary to know the amount of costs.*

**Key words:**

Quality, conformity, costs, evaluation

### 1. Introduction

The final cost of quality is the result of the following costs: prevention costs, necessary to exclude errors; evaluation costs as a result of a final product evaluation, and failure costs generated by us meet the purpose for which the product was created.

Gross cost of these support costs of quality. Currently, the problem inherent in how much the cost of quality is not the final cost.

European Organization for Quality defines quality-related costs as expenses that are involved in prevention activities, assessment and internal and external losses nonconformity. In other words (see ISO 8402/95), the quality costs represent costs to ensure adequate quality and losses when not achieved an adequate quality.

Costs related to bringing to the fore as the difference between the optimal performance and wasted. Quality-related costs do not relate strictly associated costs of making a product or providing a service related but the customer perceived value when purchasing the product or service.

In terms of quality, the period of noncompliance is material error, fault or deficiency in any of the situations in which the outcome of an action does not meet a certain specification.

Costs related to quality are grouped into:

- cost of quality assurance (CAQ);

- cost of non-quality (CNQ);

In turn, quality assurance costs comprise two major groups:

- costs of prevention (CP);
- cost evaluation (CE);

Non-quality costs also comprise two main groups:

- remediation costs due to internal nonconformity (CNI);
- remediation costs due to external nonconformities (CNE).

#### A. Addressing quality costs

*Juran says there are 11 categories of costs:*

Costs related to product design:

- costs involved in market research;
- costs involved in research and development;
- the cost of the design;

Costs ensuring product compliance with technical specifications:

- planning costs manufacture;
- costs of maintaining precision work;
- costs due to human and material resources;
- costs of unbundling appropriate promotional activities and related services;
- costs for product evaluation;
- costs of defect prevention;
- costs of permanent information of all staff;
- losses due to "failed" to achieve quality;

*Business practices using the following categories of costs:*

Masser (1957)

- Costs of prevention (prevention Costs);
- Evaluation costs (appraisal Costs);
- Costs of Failure (Failure Costs);
- Failure - nonconform specifications (to make monthly or quarterly);

Feigenbaum:

- Prevention costs;
- Internal failure costs (identified before delivery);
- Assessment and Control Costs;
- External failure costs (identified after delivery);

Grosby (proposing a simplified approach):

- Price conformity;
- Price mismatching;

Kelada:

*Direct costs of non - quality*

- Quantify = scrap, fixes, returned third destructive;
- Quantifiable = loss of control of a client;

*Indirect costs of quality*

- Quantify = maintaining inventory, reducing image, evaluating suppliers, standardization;
- Quantifiable = loss of sales, purchasing equipment with high precision, keeping costs under control growth;

B. Categories of costs of the units used in economic practice

These groups are as follows:

*Compliance costs:*

- Prevention costs;
- Evaluation costs;

*Mismatching costs:*

- Internal failure costs;
- External failure costs;

Quality costs - Costs will denote the quality (to suggest that they can be avoided, so that in fact the quality of "no cost "). This name was also approved by ISO 9000.

a) The costs of prevention - are the costs of efforts to prevent the occurrence of failures.

b) Evaluation costs - are the costs of tests, inspections and examinations to determine if specified requirements are met.

c) Internal failure costs - there are costs involved by correcting all nonconformities discovered before delivering products to the customer.

d) External failure costs - there are costs involved by correcting nonconformities discovered after delivery to the recipients.

ISO 9000 recommends the use of quality following cost categories:

Costs of achieving quality:

- Prevention costs and appraisal considered investment costs;
- Internal and external failure costs considered losses.

*External quality assurance costs* are costs that involve demonstrations and samples required by clients as objective evidence and specific clauses and additional quality assurance procedures, data, tests for demonstration and evaluation (eg, cost of testing the characteristics security, conducted by independent inspection bodies).

To assess the effectiveness of the quality system ISO 9004 consider three possibilities:

*Evaluation of the costs related to quality:*

- the costs of prevention;
- the cost of evaluating;
- the cost of failure;

*Evaluation of the costs of processes:*

- conformity;
- nonconformity;

Evaluation by the quality losses considering losses internal/external quality caused by improper. They may be material - immaterial.

Intangible losses are difficult to quantify:

- losses due to the negative impact of improper marketing of quality products on the company's image;
- loss of future sales due to customer dissatisfaction;
- costs to regain customer confidence.

C. Determination of quality and highlighting their costs

Is based on the existing data of the company from customers.

Highlighting is done with their "cost balances the quality".

Unlike the classical calculation "costs - as" now it is considered that it is possible to improve quality while reducing costs concomitant disruption and costs of prevention and appraisal (Schneiderman - costs for preventing failure and may decrease in conditions of increasing quality levels).

## 2. Conclusions

Any problem caused by deviations from quality management activities involved because the issue that requires additional procedures, other than the usual. This results in the involvement of management at the operational level, thus diverting activity based management. This results in an opportunity cost because management is distracted from the usual work tasks. From the perspective of quality-related costs, costs incurred as a result of coordination activities are

hidden costs of non - quality. If these costs are excluded from the cost of quality, result in a systematic under - estimation of the total cost of non - quality.

Some sources estimate that coordination effort can reach 30 % of non - quality costs for those organizations that have an average level of performance quality; therefore, coordination costs should be identified, monitored and mitigated through a program of continuous quality improvement.

To reduce the cost of quality will start with the design as the use of Six Sigma programs and streamlining unusual products to increase quality net plant resources and avoiding loss of quality inherent lower quality products.

### References

1. Breyfogle FW, Cupello JM, Meadows B. *Managing Six Sigma: a practical guide to understanding, assessing, and* Breyfogle FW. *Implementing Six Sigma: smarter solutions using statistical methods*: Productivity Press; 2003.
2. Dahlgaard JJ, Kristensen K, Kanji GK. *Fundamentals of total quality management: process analysis* and Evans JR, Lindsay WM. *The management*

*and control of quality*: South-Western College Publishing, 1999.

3. Hoyle, D. and J. Thompson, *ISO 9000: 2000: auditing using the process approach*, Butterworth-Heinemann, 2002.

4. Ilieș, L., Crișan, E., *Managementul calității totale*, Editura Risoprint, Cluj-Napoca, 2011.

5. Juran J, Gryna F, Bingham R. *Quality Handbook*. Republished McGraw-Hill. 1999.

6. Kemp, S., *Quality management demystified*, McGraw-Hill, 2006.

7. McCarty, T., Daniels, L., Bremer, M. and Gupta, P., *The Six Sigma black belt handbook*, McGraw-Hill New York, 2005.

8. Nicolescu O., Verboncu I., *Metodologii Manageriale*, Editura Tribuna Economică, București, 2002

9. Olaru, M., *Managementul calității*, Editura Economică, București, 2003.

10. Rusu, B., *Managementul calității totale în firmele mici și mijlocii*, Editura Economică, București, 2001.

11. Stanciu I., *Managementul calității totale*, Editura ProUniversitaria, București, 2007.