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Quality leaders and quality management

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Abstract: *The concept of quality has been for many years, although its meaning has changed, has evolved and adapted in time. It has always been specific human nature to turn into leaders to those who contributed to the evolution of the thought and the progress of mankind. Regardless of their creation, people have always proved, as important as this. It was the case of quality and those who believed in it.*

The sooner the flaws are discovered, the cheaper it is their correction. The total quality costs are consistent with the sum of these costs. They are the difference between the real cost of a product or service and the potential cost (reduced) obtained whether the product or service would have been achieved or preserved in accordance with the client requirements.

The quality generates numerous costs, which may be grouped in two categories, category comprising the costs necessary to obtain higher quality, nominated quality (costs of prevention) or quality control (costs costs), and the second category comprising costs generated by reduced quality, namely the cost of the quality of the internal flaws (internal defects) or the failure (the costs of external defects).

Without uncertainty, quality specialists had the critical jobs to consume and change the idea of value from an insignificant specialized framework to a more extensive group of information known as absolute quality with the executive's suggestions underway.

Key Words: quality; leader; quality management; efficiency; quality improvement.

JEL Classification*: J53, M12*

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Introduction

To fully understand the movement of quality, we must understand the concepts issued by those who have shaped its evolution, contributing to knowledge and understanding the current quality of quality and quality management. Individual contributions of these personalities are summarized in Table 1.

Table 1 Individual contributions of quality leaders

Quality Leaders	The main contribution.
Walter A. Shewhart	-Contribute to the understanding of the variability of the process. -It creates the graphics of statistical control. -Create the PDSA cycle.
W. Edwards Deming	-Put the emphasis on the responsibility of the quality management. -It creates the list of 14 points as a foundation for improving quality by firms. -Variation theory.
Joseph M. Juran	-Defines quality as "compliance with the purpose of use. -It creates the trilogy of quality management. -It creates the concept of the cost of quality.
Armând V. Feigenbaum	-Insert the concept of Total Quality Control. -Define the quality of the client's perspective.
Philip B. Crosby	-It creates the 14 steps of improving quality. -Introduces the notion - quality is handy. -Insert zero defects.
Kaoru Ishikawa	-It creates the cause - effect. -It creates quality circles. -Identify the notion of "internal customer.
Genichi Taguchi	-It shall be steeled to the quality of the product project. -Develop Taguchi (loss function).
Masaaki Imai	-Method Kaizen

Source: Graphic processing by authors in literature.

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Working body

The first personality in the field was Walter A. Shwhart, American, engineer, physicist and statistician at Bell Telephonies Company for more than 30 years. Shwhart studied random character (Hazard), grateful that variability exists at all the production processes.

He developed the quality control charity for identifying whether the variability of the process is random or due to a certain cause, such as untrained labour or uncalibrated machinery.

He stressed that the elimination of variability is based on the improvement of quality. Its contributions represented the foundation of the statistical control of the process, which is actually doing today, Shwhart will still be considered -- father quality control.

Shwhart created, in Bell Labs, the cycle PDSA (Plan-Do-Study-Act) as a systematic number of measures for the accumulation of valuable knowledge and a valuable information suite to the continuous improvement of a product or process.

The statistical control of quality is the nucleus of the area far more advanced area of the quality management, that of engineering.

Shwhart developed his methods in labs, including the us army, in the best practices for the provision of armament during World War II.

Once more, the application for large quantities of high quality armaments led to the improvement of quality methods. In this case the problem was high cost and delays created by the obligation that each product was inspected after the manufacture and before delivery.

Shwhart found a way to apply statistical sampling in the inspection process. In this situation, he presented as only one part of a batch of products could be tested, and yet to make sure the whole lot fulfils the specifications and the requirements of the client, developing control charts and other statistical instruments for this activity.

The correct application of statistical theories on how to choose the probe and then the evaluation of the probe to control the limits that are falling within a stricter tolerance than the imposed by the requirements of the client, could give confidence that, if, for example, 10% of a lot is falling within stricter tolerances, and the sample fulfils certain requirements and specifications, then the whole lot satisfying the requirements of the clients.

After World War II, the American statistical teacher William Edwards Deming, granted advice and assistance to a number of Japanese companies in the area of improving quality.

Respect and consideration of which they have enjoyed, in 1951, the Japanese to create the Deming Award, an annual prize granted to undertakings demonstrating remarkable results in the field of quality.

Unlike Japanese firms, the American ones adopted and implemented Deming's philosopher after more than 30 years.

Edward Deming has been first, given the quality management as a rather, rather, an activity of organizations rather than a technical task for inspectors or a group of specialist specialists of quality insurance.

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He identified the quality as a responsibility of management, observing that managers must create systems and processes generating quality. A quality product combines good design with effective production methods, and only by fulfilling the conditions of the conditions a firm could ensure quality.

Deming stressed that the top management has a greater responsibility for improving quality than management at higher or average levels. Deming has pled for a continuous cycle of design, manufacture, testing and sale of product, followed by market studies, then redesign and return to zero point, all of these activities being cyclical.

He claimed that a better quality leads to greater productivity, which, in turn, leads to long - term competitive power. Deming's major idea, from the perspective of the "theory of reaction in chain "is that improving quality is not a costly option but a strategic imperative, essential for survival of any activities.

Furthermore, this theory that's "improving quality means less costs, because it generates fewer than the situation of replay, fewer mistakes, delays and obstacles and a better quality and higher prices - as a result, a firm can get a higher market share, maintaining in business and providing more jobs. (Figure 1)

In practice, with improvement in quality, it will improve and productivity, because a reduced number of errors involves a reduced loss. In exchange, increasing productivity, leads to price reduction.

Coupled with a higher quality, reduction in prices may lead to a higher market share which will result in both maintaining in specific activities, as well as the creation of new jobs.

Although the logic is also clear and normal in the'50s, the message was a revolutionary, especially for the guidelines oriented to the limitation of the cost of the sake of the Espy for the short term financial performance.

Figure 1 Graphic interpretation of the "Deming theory "theory

Improving quality.	Cost reduction	Increasing productivity	Price Reduction.	The increase in market share	Constance and the trainees of the activities	Increasing the number of jobs	The efficiency of the increased investment

Source: Graphic processing by authors in literature

With the theory of reaction in the chain, Deming was the creator of the cycle PDCA (Figure 2), constituted as a group of steps to be repeated on the path to the continued improvement.

Promoting PDCA, Deming has been Deming method between those of the management of total quality and continuous improvement, and in the middle of their descendants, including Six Sigma and ISO 9000.

From the prospect of continuous improvements, this cycle includes, in short, four steps:

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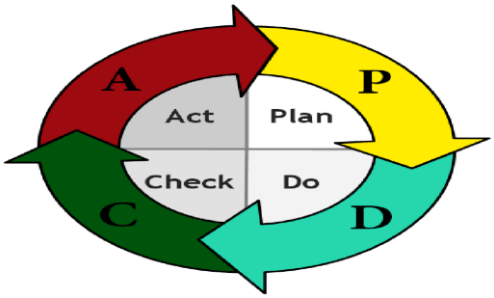
„The plan" - planning improvement - from the prospective of the company's activities, this step aims to establish the objectives and processes necessary to create results in accordance with the requirements of the clients and the organization policies;

„Do" - testing the plan by its application - implementation of processes;

„Check" - verification of compliance between the planned results and the obtained - The monitoring and measurement of processes and products in accordance with policies, the objectives and requirements of the product and reporting of these results;

„Act" - implementation of the plan - taking measures to improve the continued performance of the process.

Figure 2 The cycle Plan-Do-Check-Act (PDCA) created by William Deming



Source: Graphic processing by authors in literature

So, it can be said that his cycle of Deming (PDCA) it is an instrument of resolving the problems of the quality taken by the firms involved in the continued improvement.

In detail, the steps of this cycle shall include the following activities:

Planning (P) - The team shall select an upgrade process/processes, documenting the process/processes selected and set out qualitative targets.

After assessing the beneficiary and the costs of alternatives, the team shall create a plan for improving quantifiable measures;

Application (D) - Implementation of the plan - monitoring of the trial - data are continuously collected to measure the improvement of the process;

Check (C) - analyzing data collected in the previous step, to find out how much the results of the objectives set out in the planning step;

Action (A) - if the result of the previous step is of subsidiary, the team shall document the revised process for standardization.

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Once implemented, the plan will be improved by passing through a new cycle of PDCA. The benefit of the PDCA cycle consists of the ability to continue to apply the same subject, correcting the executing course of processes and activities to achieve better results. This type of repetition of a process is called iteration.

The PDCA can be applied both to amend the results - improving quality - and also to amend any type of process. Improving the process can lead to increased quality, increase efficiency, effectiveness, etc.

The greatest impact on the quality management had the engineer and the American economics of English origin Joseph M. Juan (1904 - 2008), born bracelet and emigrated to the United States of 1912.

This publicist in 1951 the entitled "the quality control manual while was responsible for the quality in the Western Electric company. In 1954, he travels in Japan, destroyed by World War ii, where he remains to collaborate with local producers and teaching quality classes.

Although its philosophy is similar to Deming's, there are some big differences. While Deming emphasized the need for a 'transformation organizational', Juran considers that the implementation and application of the quality initiatives should not rely on such dramatic modification and the quality management should be integrated into the organization.

After Deming, the jury had the greatest impact on theory and practices of quality management. Joseph Juran's contribution to the Total Quality of the quality was centered on:

- Definition of quality and quality costs;
- Habit (ignition) quality.;
- The quality of quality;
- Universal sequence of progress.

Juran defines quality as "suitable product for use, which resulting from the five major features of products:

- Quality of the design - specification;
- Quality of conformity;
- Availability - lack of problem;
- Safety and threat of damages;
- The field of use - packing, maintenance, etc.

One of the important contributions of Juran is his focus on defining quality and quality of quality. The jury is credited for defining quality rather than compliance with the purpose of use than as compliance with the specifications.

The definition of quality, as in accordance with the purpose of use, takes into account the intentions of the client use of the product, instead of just focusing on technical specifications.

The jury is also credited with the development of the cost of the cost of the quality, which allows the assessment and measurement of quality in terms of value than on subjective assessments.

Thus, he suggested the Group of quality costs in four categories:

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- The internal costs of defects/errors - costs occurring as a result of defective failure before delivery of the product to the customer;
- The external costs of defects/errors - costs occurring as a result of the identification of defects after delivery of the product to the customer;
- The costs of assessment - costs of the measures for the assessment of the product conformity of the product set out;
- Costs of prevention - costs due to prevention or reduction in defects.

Traveling over the years, from the moment that the jury has enunciated this grouping, we can say that the reason for which the quality has won the importance of today is due to understanding by the organizations of high cost of reduced quality.

Quality affects all issues on the organization and has dramatic implications on costs. The most obvious consequence occurs when reduced quality leads to unsatisfied customers and at the end, at losses in the economic activities deployed.

The quality generates numerous costs, which may be grouped in two categories, category, category comprising the costs necessary to obtain higher quality, nominated quality quality (costs of prevention) or quality control (costs costs), and the second category comprising costs generated by reduced quality, namely the cost of the quality of the internal flaws (internal defects) or the failure (the costs of external defects).

Prevention costs are all costs incurred in the process of preventing the production of lower quality and include, but it does not summaries, the quality planning, the provision's assessment, the revision of the new product, the projection of potential errors, the assessment of the skills, the assessment of the skills, the work of the quality of improvement in quality, the projects improving quality, education and training in the field of quality, and the projects in the field of quality, and the projects in the field of quality.

Of these most important are the costs of the quality planning, such as the costs of the design and implementation of a quality plan. It is also included in the design of the products and processes, from collecting information on customers until the design of processes which are in compliance with the specifications. The training of employees in the quality assessment is also part of these costs, and the costs of maintenance of information recording and data relating to quality.

The assessment costs are generated under the defective discovery process and include control and testing of goods and services acquired, verifying and testing of the process, but final, testing on the ground, the product's audits, the product, process, and the service, calibration of measurement and testing equipment, and the, uh,

Internal defects are associated with the discovery of lower quality before they reach the client and include the resume of activity, delays, the resume of design, the lack of raw materials, analysis of the escapee, the resume of testing, the resume of testing, the operation of the operation.

Of these most important are the costs of the resume of activity, representing the cost of correcting the product or the defective sub - assembly. Many times, the defect of the product or the sub - assembly is major, that

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it cannot be corrected and must be discarded. In this case, it is called rebating, and its costs includes costs with raw materials, labour and machinery that have achieved the product or the defective sub - assembly.

Conclusions

The costs of external defects are associated with all the quality problems showing up at the client and include, but not summarized, complaints and complaints, repair and reformation of services, guarantees, the will of customers, losses due to sales, pollution and other damages to the environment. All these costs are very important because, once upon a time, it generates changes equally important at the level of confidence and loyalty to customers, which once lost may be hard to regain.

Companies that consider important quality, invest massive in costs of prevention and assessment with the aim of avoiding the development of internal and external defects. The sooner the flaws are discovered, the cheaper it is their correction. The total quality costs are consistent with the sum of these costs. They are the difference between the real cost of a product or service and the potential cost (reduced) obtained whether the product or service would have been achieved or preserved in accordance with the client requirements.

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