

Techniques of improvement often used

Between the managerial processes components of quality management, continuous quality improvement has a dominant role in reducing costs and in the economic growth of organizations. Continuous improvement refers primarily to improve the process and is used to identify, analyze and improve existing processes in an organization to achieve goals and objectives.

Depending on the complexity of the problems, degree of staff involvement, with or without statistical methods, methodologies used most in problems solving are:

- **PDCA** – (Plan-Do-Check-Act), also called the Deming cycle, which was designed and graphically represented by W.E. Deming and is considered the basic cycle of any improvement action;
- **Quality circles** or "quality control circles" - groups of volunteer employees to solve problems in teams; have appeared in Japan since 1957;
- **Field Force Analysis** – a method used to identify positive forces and negative forces that affect a problem;
- **8D** – Methodology that can be used when there is a quantifiable system, the cause is unknown and the complexity goes beyond the ability of a person to solve the problem, solving the problems is based on teamwork;
- **Taguchi Methods** – based on statistical methods; these include building quality through robust product design, loss of quality function and target specifications of quality characteristics;
- **Six Sigma** – method in six steps (Define, Measure, Analyze, Improve and Control) which combines the Methods of Statistical Process Control, Design of experiments within a general framework of continuous improvement of the organization's operational performance, practices and its management system by meeting the requirements of the customers;
- **Lean Manufacturing** – with specific methods in organizations – 5S, standardization, TPM, Kanban and **Kaizen** (KAI = change, ZEN = better) a principle recognized globally as an important pillar of any competitive organization, with a long-term strategy. Kaizen is actually the continuous improvement in which the big results come from small changes, accumulated over time with the major involvement of all personnel;
- **Shanin** – a suitable system for problems solving for operating processes, a high-volume environment with available data where statistical methods are widely used and intervention in this process is difficult;

All of these methods, methodologies or principles use simple basic tools such as: *Process Map, Cause – Effect Matrix, IPO, Pareto, Brainstorming, Dot Plot, Histogram, Box Plot, Ishikawa (Fish Bone), 5 Why, Control Diagrams, X-Y Diagram, Poka-Yoke*, etc.

These simple methods used together with *Process Statistical Control (SPC), Measurement System Analysis (MSA), Hypothesis Testing, or Design of Experiment (DOE)* complement the tools used in the improvement methodologies.