



## BEST PRACTICES FOR IMPLEMENTING MANAGEMENT LABORATORIES USING STRATEGIC INDICATORS.

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**ABSTRACT:** This article seeks to establish a system for measuring the relevance of metrological services in the processes, and quantifying intangibles relating to customer perception ability of laboratories to transcend his calling, generating comprehensive income and thus contributing to the fulfillment of the mission Inmetro, and thus ensuring its sustainability, is becoming essential to the management system of enterprises.

**Keywords:** *intangible aspects, mission, sustainability.*

**1. INTRODUCTION:** The total quality management was developed as a method of management strategy aimed at creating awareness of quality in all organizational processes.

The awareness that we can assign different levels of effectiveness, i.e., we can measure the market perception regarding the level of quality of services offered.

The term "total" should not only apply to the various levels of an organization, but also the entire chain of services (subcontractors, suppliers of materials and equipment, etc.). It consists of several stages, including planning, organization, control and leadership.

The awareness and the pursuit of quality as well as the recognition of its importance, made the certification of quality management systems essential because:

1. Minimize internal costs;
2. Increases productivity;
3. Generates continuous improvement;
4. Increases customer satisfaction and trust;
5. Customer loyalty;
6. Reduces technical barriers.

The certification process allows us to evaluate the degree of compliance of internal processes, ensuring the customer a material, process, product or service designed according to standards, procedures and standards documented.

The sine qua non "for a company to perform the desired goals by its owners, directors or shareholders is that she is alive. If this condition is not verified, no goals can be pursued, much less reached. The best way to ensure a company's survival is through quality.

Vicente Falconi in his book "TQC - Total Quality Control Japanese-style" shows this clearly. The best way to ensure the survival of a company is through the quality, perceived not as lack of defects, but as a new form of values, which leads to management.

Quality is a subjective concept that is directly related to perceptions of each individual. Several factors such as culture, mental models, type of product or service, needs and expectations directly influence this definition.

The term comes from Latin *qualitate*, and is used in very different situations. For example, when discussing the quality of life of people of a country or region, when talking about the quality of water we drink or the air we breathe, when speaking of quality of service provided by a particular company, or when discussing the quality of a product in general.

With respect to products or services sold in the market, there are several definitions for quality: "conformance to customer requirements," "cost effective", "fitness for purpose", "value-added that similar products not possess," "do it right the first time"; "product and service with effectiveness." Finally, the term is generally used to mean "excellence" of a product or service.

The quality of a product or service can be viewed from two approaches: the supplier and the customer. From the viewpoint of the supplier, the quality is associated with designing and producing a product that meets customer needs. From the viewpoint of the customer, quality is associated with the recognized value and utility to the product, while in some cases also linked to the value of marketing.

From the viewpoint of customers, quality is not one-dimensional. That is, customers do not evaluate a product, taking into account only one of its features, but several. For example, their size, color, durability, designs, etc. functions it performs.

Thus it appears that quality is a multidimensional concept and it has many dimensions it becomes more difficult to define. As such, it can be hard to express what the customer believes a product / service quality. From the standpoint of business, however, if the goal is to offer products and services with quality, the concept cannot be left to chance. It

must be defined clearly and objectively. This means that the laboratory should determine what the needs and expectations of customers and function of, set requirements for quality of service.

**2. THEORETICAL FOUNDATIONS:** The requirements are defined in terms of variables such as length, width, height, weight, color, strength, durability, functions performed, delivery time, sympathy, who serves the customer, speed of service, price, etc.

We can create a check-list containing those requirements; you can feed a database that will enable further analysis. With such information with each requirement previously established, measured and weighted, we obtain a form through which the quality can be observed and understood by all stakeholders (business, workers, managers and customers).

Quality control, quality assurance and quality management are concepts that impact the final outcome of quality in industry and services.

- Quality Management involves the design of processes and products / services, involves improving the processes and quality control of these.
- Quality assurance actions are taken to continuously improve processes and consequently the reduction of defects.
- Quality control is the actions related to quality measurement, to diagnose whether the requirements are being met and that business objectives are being met.

### 2.1 Measuring quality

To meet the ongoing business, it is necessary to establish measurement parameters, not only objective but also subjective, which facilitate managers in decision making. The measurement of quality of products and services through the use of management indicators come meet this need.

Traditionally organizations have sets or systems of performance measures, aimed at assessing the financial performance, and sometimes yield. But what is proposed is that the indicators of quality performance indicate whether the organization is competitive in relation to what customers want. Therefore, the proposed new use of indicators is that they are reflections of the organization as a whole, pointing out where is the direction that the organization should follow. Indicators are modes of representation - both quantitative and qualitative - of characteristics and properties of a given reality.

When it comes to qualitative indicators have as examples the development of questionnaires and questions to be answered by customers.

With respect to quantitative indicators are the most common examples of the time, quantity of products / services, number of information, etc.

*"All things that can be accessed through our knowledge have a number, because without the numbers we cannot understand or know." Mari (1997)*

So as well as qualitative indicators, the quantitative data are essential for organizational progress.

### 2.2 Indicators strategic

With use of indicators, especially those aimed at developing strategies, companies enjoy a profound knowledge of the business. We can make possible know the focus of its work. Clearly identifying what your strengths, explore more business opportunities for the frames, and knowing their weaknesses can prepare for future threats.

Knowing the market, the decision-making on the strategic, operational tactics and are more assertive, allowing the company greater competitiveness and better meet the needs and expectations of its customers.

To carry out these actions are determined, indicators are excellent tools because they reflect business reality. Thus, if there is any difficulty in carrying out actions, the manager can see the consequences in advance, and thus correct strategy according to the type of problem.

Put quality and intrinsic value is the best way to survive, however, it is important to note that quality alone is not an end but a means towards the end. Quality is a management tool by which the company can understand what the market expects of its products or services and adjust to these market requirements, thus ensuring its success.

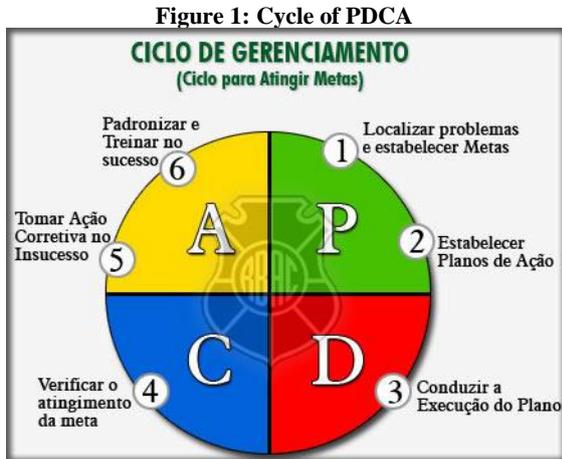
We define quality in numerous ways, considering it is a differentiator and an essential attribute as a measure of value or excellence, fitness for purpose, conformity to specifications, or even using the words of Vicente Falconi, "a product or service quality is always the one that suits perfectly and reliably, affordably, safely and on time to customer needs. "

### 2.3 The basic principles of quality

- Produce goods or services that respond specifically to the needs of customers;
- Ensuring the survival of the company through a continuous profit obtained from the field of quality;
- Identify the most critical problem and solve it with the highest priority (Pareto);
- Talking, thinking and deciding based on data and facts;
- Administer the company throughout the process and not results;
- To reduce the dispersions methodically through the isolation of root causes;
- The customer is king did not allow him to serve not with quality products;

- Prevention should be the amount as much as possible;
- In the logic of Anglo-Saxon "trial and error," never allow a problem to be repeated;

The logic by which companies can develop under these assumptions is the PDCA (Plan, Do, Check and Act), which shows the phases takes place as a process or product design / service (see Figure 1 below).



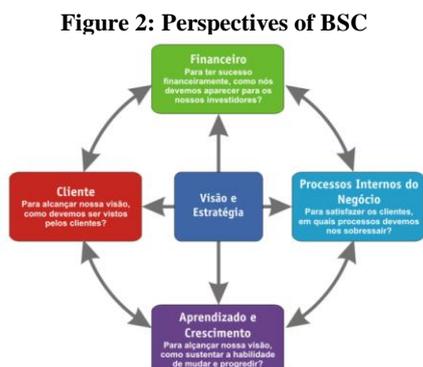
## 2.4 Definitions of classical quality

- ✓ *Minimum of loss that gives the product. Taguchi*
- ✓ *Accordance with the agreed requirements. CROSBY*
- ✓ *Fitness for use. Juran*

## 2.5 Quality Categories

- Quality of design;
- Quality of conformity;
- Applicability;
- Field service.

Every professional in the field of quality is concerned to ensure the adequacy of the standards process. For this reason it must be continually updated to the standards and good practices such as ISO 17025, ISO 9001 and ISO 14001 among others, ensuring standardization, traceability, integrity and authenticity of information, thus facilitating the fulfillment of the requirements. A good way to structure the strategic management is to map the processes in accordance with the Business Scorecard - BSC (Figure 2).



## 2.6 Standardization of processes

But how quality management can help in the standardization of processes?

- Ensuring the effectiveness of improvements implemented from the date of validation,
- Increased adherence to operating procedures established by means of computerization and mandatory steps,
- Centralization of information.



## 2.7 Data Integrity

What about the integrity of the data, how can it be obtained?

- Ensuring the authorship of recorded information and recording the changes made,
- Controlling access obtained through passwords and profiles under autonomy and knowledge,
- Robust validation and storage of data through encryption.

## 2.8 Audits facilitated

The internal and external audits can be facilitated and have greater credibility in the light?

- The rapid access to information through search engines in the database;
- Traceability of the history of the life cycle of the samples and analysis, responsible and date and time changes and electronic signature;
- Records and traceability of information as related supplies and equipment used, analytical quality control, among others.

**3. DISCUSSION:** The certification process to meet the requirements of different regulations today in the international market creates a vacuum between the reason the company opted for certification and proof of adding value effective.

From basics like benchmark, using material available in institutions like the National Quality Foundation - FNQ, or the Excellence Model Management - MEG, we can transfer responsibility, today the institution to be certified for a model that favors a ranking system for similarity and market position.

Through this analysis the level of maturity that is, in fact, we can determine the adherence to the values cited in the strategic mission and vision of the company.

When evaluating customer satisfaction proceed from a premise that we have to satisfy a customer who has already approved the proposal for services, however, to ensure its sustainability, laboratories should gain new customers. In this respect it is unusual to use tools and techniques to measure the percentage of market positioning relative to competitors, or even to assess what the customer needs for the future. Laboratories often credited the low volume of services to market characteristics, but do not bother to assess the causes and trends of the market where they operate.

The strategic indicators cited by the Management Excellence Model (MEG) provide the accredited scope increased periodically, and the greater the volume and types of services offered. By basing its strategic planning in the structure of the Business Score Card (BSC) laboratories obtain a structured tool to identify where the pillars establish its strategic plan:

**Financial Perspective:** Evaluate the profitability of the strategy. Allows to measure and evaluate results and provides the business needs for its growth and development as well as to satisfy their partners. Among the financial indicators that can be considered, listed returns on investment, economic value added, profitability, revenue growth, cost reduction and other financially driven goals that are aligned with the strategy.

**Customer Perspective:** Identify the market segments targeted and the measures of success in that segment. Identify the factors that are important in designing the customer is a requirement of the BSC, and the concern of the general stands at around four categories: time, quality, performance and service. In terms of indicators considered as essential in this perspective, the listed market share, customer acquisition, customer retention, customer profitability and satisfaction of consumers.

**Internal Process Perspective:** It is made after the financial prospects and customers, as these provide guidelines for their purposes. The internal processes are the various activities undertaken within the organization that make possible since the identification of needs to customer satisfaction. It covers innovation processes (creation of products and services), operations (production and marketing) and after-sales services (customer support after the sale). The improvement of internal processes in the present is a key indicator of future financial success.

**Perspective Learning and Growth:** Provides the basis for achieving the goals of other perspectives. With it identifies the infrastructure needed to promote growth and improvements in the long term, which comes from three main sources: people, systems and organizational procedures. It also identifies the capabilities that the company should have internal processes to get able to create

value for customers and shareholders. Some important indicators can be considered: the level of employee satisfaction, employee turnover, profitability per employee, training and employee training and employee participation with suggestions for reducing costs or increasing revenue.

These perspectives should be linked together in cause and effect that "tell the story" of the company's strategy, as shown in Figure 2.

### *3.1 Measurement of Customer Satisfaction*

The perception of customers for services rendered can be collected through questionnaires, interviews or other forms, such as rate of return, increased market share, indicating a third party, etc.. However, due to operational issues of customers, many times the volume of return is not statistically significant compared to the volume of services provided. It is up to the lab to create ways to motivate the feedback, such as discounts on future services in trainings offered by laboratories. If still no response is sent, the laboratory shall provide technical visits to clients to analyze the level of customer satisfaction for the services rendered. Such information is essential to meeting the requirement for management review on NBR ISO/17025 defined.

The limit of satisfaction should have a goal set and adjusted in accordance with the strategic objectives set annually. Another important aspect related to customer perception about the metrological services due to lack of definition of a professional profile that recognizes the person responsible for metrological control in enterprises, thus, this control is done by appointment of the head, gathering activities of the production process and of metrological reliability. This factor creates a weakness in the market, and also the opportunity for laboratories without compromising the quality distorted the image of the segment. The best way to get around the problem is the labs committed to quality taking a proactive stance, extending their activities, supporting customers, as also given in NBR ISO/17025.

Of course, for it must be rules for availability of hours in core activities, reducing the availability of technicians at end activities, or they can identify potential multipliers within the organization that are not directly responsible for implementing the services.

The actual management of the laboratory in accordance with regulatory requirements established by the NBR ISO/17025 requires be evaluated requirements management review and the requirements are established between the maximum commitment for management activities, expansion of scope, evaluation of staff, infrastructure, etc.

Thus the strategic planning should indicate the path to be followed by the laboratory, assessing their strengths and weaknesses, their opportunities for improvement or threats, and from there to give talks to various conditions. An analysis involving the various aspects in the structure of existing laboratory, such as: processes, partnerships,

marketing and technology provide us a broad view of the market positioning of the laboratory as well as a possible basis for decision-making at the strategic level.

**Figure 4: Graph of customer satisfaction**



### 3.2 Normative References to the Evaluation Process and Capability Maturity

The international standard ISO/IEC 15504 - Process Assessment sets out principles, requirements and methodologies applied in the evaluation (assessment) of the state of capability and maturity of the companies, according to the process model defined by ISO/IEC 12207 - Software Life Cycle Processes. Under this standard, the assessment process is based on a two-dimensional model, containing the size and scale of the processes of capacity. The first describes the processes in accordance with its objectives and expected results and is provided by an external process model for ISO / IEC 15504. The second defines how to measure the state of these processes.

#### 3.2.1 Benefits arising from the ISO/IEC 15504

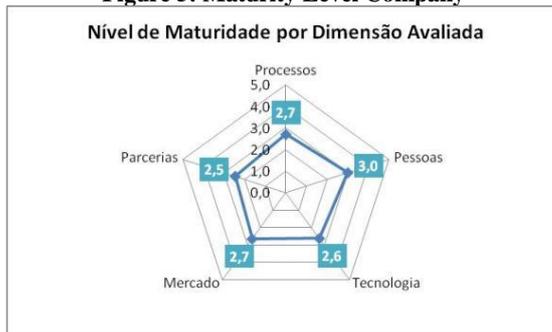
##### 3.2.1.1 Determination of Process Capability

This standard is a tool that allows companies to assess the state of your processes against best practice by identifying their strengths, weaknesses and risks. On this basis companies can decide whether they have the capacity to undertake a particular project.

##### 3.2.1.2 Process Improvement

Companies in possession of information generated by the assessment can identify which processes need improvement, what should be done to it and deduce where they invest in first place, with a view to achieving rapid and significant returns. Simply put we can say that from the results of this evaluation to identify an organization know where you are, where you want to go, and how to achieve that goal.

**Figure 5: Maturity Level Company**



**4. CONCLUSION:** Every day that passes the global market demonstrates the importance of formal recognition and expertise in meeting customer needs. It is a global trend towards demand for professional certification in several segments, and competitive advantages are the certifications of quality, environmental, information security, social responsibility, etc. They came to be a tendency to break or create technical barriers and trade. The tools and techniques discussed in this article are not new, however, been known for decades, though the manner proposed, how to structure data collection, and the discussions to seek to achieve the goals set at the strategic level are a new approach for a familiar topic. The level of competitiveness of the service sector has long shown that customers' requirements become more complex, with constant change, frequent and urgent. Only with tools and techniques that enable managers to view these trends and assess how they would react to such fluctuations can we ensure the sustainability of laboratories. The service cost is negligible by the cost of interrupted production for the customer, thus, the customer bears the risk of completion of service when there is no surge capacity to meet the requirements within the market. Only by knowing the market, customers, and the factors that influence them is that the laboratories may align it with trends and seek thus their sustainability.

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