

PROSPECTIVE ANALYSIS OF QUALITY VS. LABOR PRODUCTIVITY: THE CASE OF THE LABORATORY OF CALIBRATION OF THE DIVISION OF METROLOGIA, CRCN-RECIFE

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Abstract: The present work presents a prospective analysis of the implementation of Norm ISO17025 and PNQ criteria in the Laboratory of Calibration of the CRCN. The adopted methodology was described by Griffith. The results showed an average increasing of the 70.25 in all evaluated parameters, demonstrating the importance of the implementation of the quality norms and accreditation.

Keywords: quality assurance, accreditation, calibration services.

1. INTRODUCTION

The Regional Center of Nuclear Sciences (CRCN) was inaugurated in August 1998 and it integrates the Brazilian Nuclear Energy Commission (CNEN), an federal autarchy of the **Ministry of Science and Technology**. The installation of this center at this part of the country aims at disseminating of nuclear technology which represents a very important tool to contribute to the regional development. The CRCN comprises four technical division, including the Division of Metrology, where is established the Calibration Service.

Since the beginning of our activities at the Calibration Service, we have been implementing the requirements of quality established in Norm ABNT NBR ISO/IEC17025:2005 as well as in the Criteria of Excellency of the National Plan of Quality (PNQ) with the objective of reaching the INMETRO (National Institute of Metrology, Standardization and Industrial Quality) and FNQ (National Foundation of the Quality) accreditations. We believe that these accreditations will improve the institutional marketing, in terms of visibility, competitiveness and trustworthiness.

For this purpose, in 2005, the Quality Manager, which is responsible for the establishment of quality norms and quality criteria. The first action of the Quality Manager was to write and to publish the Quality Manual, and to establish the Quality Committee. This committee is composed by a member of each technical division of the CRCN, and it is responsible to deliberate actions to reach the laboratory accreditation.

As can be seen, all activities of the Quality Manager aims the INMETRO accreditation, and, in this way, the improvement of the institutional marketing, in relation to the

society, to our clients and to other Brazilian research institute.

The study of the marketing can be performed in different aspects, such as: State, public companies, institutions etc. For the best marketing understanding, it is necessary to define its fields of study and action.

There are many definitions concerning the marketing concept. However marketing must be considered as an wide definition: as an exchange process (VAZ, 1993). Richers (1985) affirms that the marketing processes occur by systematic activities of an human being organization aiming the search and accomplishments of exchanges with its environment with a specific objective. This exchange should be systematic and intentional, and it should come toward an expectation of foreseeable results, qualifiable or not. The exchanges of the marketing derived from non-profit organizations are intellectual goods. This evolution of the marketing thought in the organizations with and without profits results in interaction between techniques and marketing objectives in their specific actions, resulting in the institutional marketing. According to Rabaça (1994), the institutional marketing is a modality of the marketing that covers a series of others, such as cultural, sportive, communitarian and ecological marketings. The aim of the institutional marketing is the creation of favorable attitudes in diverse public segments in relation to the company and to the setting of the trademark and the corporative image.

The prospective analysis is carried through nearly at the end of the phase of project definition. The objective of the prospective analysis is to evaluate the suitability of a project to initiate the period of execution by the evaluation of the Front-end Loading and Team Development Indexes, and by the use of Practical of Improvement of Applicable Values. The prospective analysis also supplies benchmarks of average performance of the corporation for the measurement of the project critical results, including the estimated cost, the chronogram and the presumed operational performance of the project (Griffith, 2005).

2. OBJECTIVES

The aim of the present work is to perform a prospective analysis of the **implementation of Norm ISO17025 and PNQ criteria in the Laboratory of Calibration of the**

CRCN, evaluating the impact of this accreditation in image and products of the Laboratory of Calibration (DIMET/CRCN).

3. METHODS

The adopted methodology was an adaptation of the prospective analysis proposed by Griffith (2005), by utilizing marketing indicators rather than financial pointers, because the purpose of our laboratory is different from the usual activities of profit companies. We defined the following parameters for the prospective analysis: enterprise visibility, trustworthiness, competitiveness and development of the team.

These indicators were evaluated following a numerical scale. In this scale, zero (0) represents the absence of the indicator, and 100 represents the fully accomplishment of the indicator.

The valuation of these indicators was based on the following parameters: i) enterprise visibility: advertisement on Internet, on Brazilian Calibration Net (RBC) and other non-profit ads; ii) trustworthiness: number of clients reclamation and plea about obtained results; iii) competitiveness: increment of number of clients, after non-profit ads; and iv) development of the team: number of internal reclamation and personnel qualification.

4. RESULTS AND DISCUSSION

The obtained results are showed in Table 1:

Table 1. Results of prospective analysis based on marketing pointers.

<i>Situation</i>	<i>Visibility</i>	<i>Trustworthiness</i>	<i>Competitiveness</i>	<i>Team Development</i>
Before	14	30	30	25
After	95	95	95	95

According to our analysis, the visibility of Calibration Laboratory will increase in 81 points (in absolute values) because of the insertion of the name of the laboratory in the Brazilian Calibration Net (RBC) and the INMETRO declaration as authorized laboratory for the calibration of radiation detectors. After this recognition, the name of our laboratory will be at the list of accredited laboratories in INMETRO and RBC sites, as well as in the public sites of search (as Google for example), incrementing our publicity.

In relation to the factor "trustworthiness", the accreditation will allow us to use two official trademarks: the INMETRO and RBC trademarks. As known, these agencies are certifiers institutions of highest credibility, increasing the earned value of the products and services offered by our laboratory. Besides, the accreditation process includes a detailed inspection of all important actions to the irradiation/calibration processes, and the verification of non-conformities. Therefore, after accreditation and correction of all detected non-conformities, the calibration results will be more accurate, which will contribute to increase the clients satisfaction and trustworthiness.

The increase of the visibility and the trustworthiness will be responsible for the increment of the competitiveness, increasing of the service demand since this laboratory is

located in the Northwest Brazilian region, where there are few laboratories which can offer these services.

The growth of the team development will be by means training, lectures and techniques of motivation, based on the relevant norms. The establishment of a quality policy at CRCN, based on good relationship and productivity, will reduce the interpersonal differences drastically and it will raise the competitive power of our institution and it will serve as tool for the determination of the institutional actions.

5. CONCLUSIONS

Based on the prospective analysis result, we could notice a marketing necessity of the implementation of the quality norms (ISO 17025:2005 and Criteria of Excellency of PNQ) in intention to keep the our institution competitive and qualified to develop new works, directing in criteria previously tested and technical competitive. In this way, our laboratory can remain itself in prominence in world-wide market-institutional scene.

The establishment of the Excellence Criteria of FNQ and of ISO/IEC 17025:2005 will support the development organizationally full and socially correct of the CRCN.

The accreditation by official agencies represents a strategic and marketing powerful tool, which should be utilized to the decision of actions in research and teaching institutions.

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