

Informational system as an instrument for assessing the performance of the quality management system

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Abstract. At present there is used a significant number of techniques and methods for diagnosis and management analysis which support the decision-making process. All these methods facilitate reaching the objectives for improving the results through efficiency, quality and customer satisfaction. By developing a methodology for analysing the problems identified in the macro-productive companies there can be brought outstanding benefits to the management and there are offered new perspectives on the critical influencing factors within a system. Through this paper we present an effective management strategy, applicable to an organization with productive profile in order to design an informational system aimed to manage one of its most important and complex systems, namely the coordination of the quality management system. The informational organisation of the quality management system on management principles, ensures an optimization of the informational energy consumption, allowing the management to deal with the following: to ascertain the current situation; to seize the opportunities, but also the potential risks afferent to the organisation policy; to observe the strengths and weaknesses; to take appropriate decisions and then to control the effects obtained. In this way, the decisional factors are able to better understand the available opportunities and to base more efficiently the process of choosing the alternatives.

1. Introduction

The dynamic character of the economic processes and phenomena, in general, their complexity and diversity, have demanded the permanent preoccupation of the organisation decisional factors to continuously perfect the methods and techniques so as to manage them efficiently.

Among these, the periodic self-assessment process imposes as an important and imperiously necessary way by means of which the organization clearly identify its strengths and areas to improve, thus increasing its capacity to structure coherently the priorities so as to continuously improve the global performance.

Such a process should constitute for the organization a cross-functional feedback in order to understand and manage systemically the activities by keeping under control the correlations and interdependencies between them, an instrument for improving effectiveness and internal efficiency, and also for improving customer and other stakeholders satisfaction (Collins, 2010) [1]. Performance assessment represents, in the same time, a strategic management approach through which one identifies and promotes good practices and takes appropriate measures to deal with non-performance.



The process has to be continuous, and the result has to take into account all the significant aspects of the activity.

In order to determine the degree of implementation (the maturity) for the quality management system within the organization and the related costs, the effects on its performance, what there has been achieved regarding quality, what there is to be achieved, we propose to perform this self-assessment based on widely accepted criteria at European level, this being coordinated with responsibility by the organization quality management so as to appreciate its efficiency and effectiveness.

2. Assessment as Strategic Managerial Approach

The self-assessment process is a diagnostic instrument which can reveal the strengths and the aspects to be improved, opportunities exploration taking into account the associated risks and also the significance of "total quality management" by own experience. This underpins the prefiguration of the strategic actions according to the algorithm proposed in Figure 1.

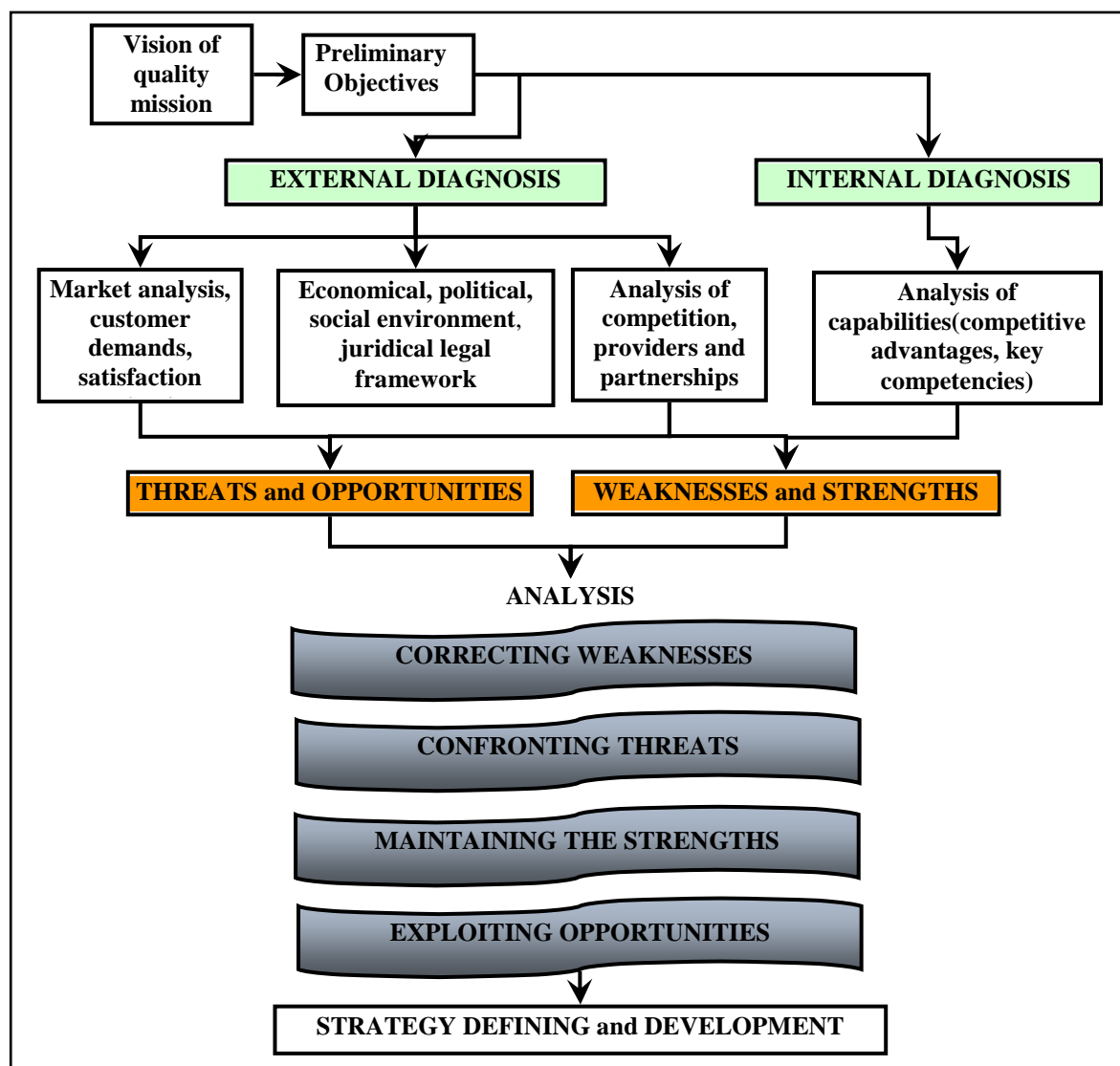


Figure 1. Informational Systems of Quality Management ISQM – diagnostic instrument.

Through its comprehensive character the self-assessment analysis represents a practical way through which, by means of the informational system we do the information "scanning" and assimilating regarding the internal environment and the influence of the external environment, which has a pivotal role in the strategic planning process and in understanding the context in which the organization evolves.

The decision-making management can so identify, through suitable methods and algorithms using relevant indicators which are positive conditionings that serve as means of propulsion in order to reach the objectives and also the weak points and threats that represent impediments or negative conditionings, by approaching a mind-set based on risk, as provided in the new edition of SR EN ISO 9001/2015 standard, [8].

The importance of performing the self-assessment analysis emerges from the functions this has, respectively:

- the cause - finding function which deals with the causes that can perturb the organisation state of normality;
- the adjustment function which consists in initiating the measures for re-establishing the activity;
- the verification function which checks the way in which there have been achieved the objectives which were prestablished in the business plan;
- the information-providing function whose purpose is to elaborate short, medium and long term strategies for the management control and the periodic and systematic audit.

The assessment with the purpose of decision making constitutes thus as a formative orientation, with a prognostic effect, able to offer not only a diagnosis of the current state of the phenomenon analysed at the system and process level, but also a forecast of its evolution. The specific approach to self-assessment is determined according to the enterprise culture and structure (the management has to create a culture that actively involve the staff in seeking opportunities to improve the performance of processes, activities and products), and also according to the advantages pursued by it.

Therefore, its essence is to compare the objectives and tasks with the results, so that the disorders and their effects be reduced or eliminated in the earliest possible date, by also taking into account the reverse link, namely, to inform on the successive level of fulfilling the decisions adopted, if the expected results were obtained, by adjustment and correction, by rationalizing the costs and maximizing the parameters related to the results quality and quantity and to the speed of their implementation. The stages of such a process are summarized in the scheme proposed in Figure no. 2.

The main benefits will result from saving time and effort in the forecasts preparation and accuracy and in providing the possibility of a quick and appropriate response when the demand changes.

In order to facilitate the management decisions it is necessary to assess the quality management system performance. This assessment is important and necessary for several reasons:

- it represents a support in the organisation's general managerial activity;
- it is an important support in decision making;
- it is a support in the enterprise's durable development by continuous improvement;
- it improves the communication between the enterprise and the interested parts of the enterprise (stakeholders) by quantifying the performance of the quality management system;
- the information obtained by the assessment process can lead to identifying both the existing problems and the potential ones and also the organisation's opportunities.

In an increasingly dynamic environment, characterized by a decreased reaction time and by increasing individual responsibility, access to relevant information in the shortest time is a guarantee of the immediate reaction in real time to change.

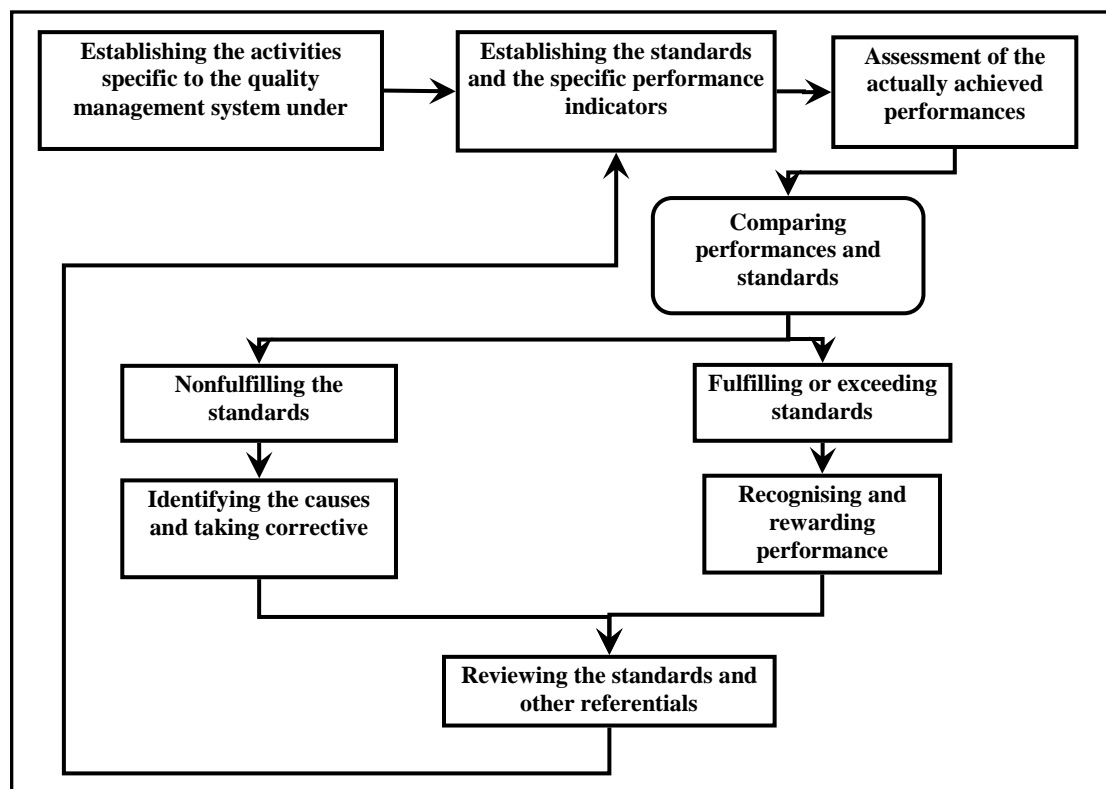


Figure 2. The stages for the internal assessment process of the quality management system.

3. Contributions to Creating a Framework Methodology

Without a methodology or framework model, timely access to relevant information, generating optimal decisions, valid results and limiting risks, requires experience and knowledge and often the solutions adopted are not the best.

Therefore, in this paper we propose a framework model for assessing a quality management system, customized for a productive enterprise, in which the information function plays a key role, through its human and strategic resources, but also through the technological elements and in which the benefits that are hard to control and to express in money, are the following: increasing the quality of the decisions, increasing management productivity (by automating some tasks and presenting only the required data, managers increase the time available for solving other tasks).

The assessment process represents thus an essential instrument used by the quality management, resulting in the formulation of qualitative and quantitative feedback about the status, evolution and perspectives of an organization.

In this approach we follow two aspects:

- the assessment of the QMS implementation degree, based on criteria relying on the principles specific to the modern quality management systems, and also on the EFQM Model – The European Foundation for Quality Management);
- the assessment, by means of an indicators system, of the effects the QMS implementation has on the organisation performance.

Structuring on the nine criteria (Figure 3), covers the main aspects to be taken into consideration in any organizational analysis.

The results the organization can obtain through the QMS implementation, according to the model, are the following: "*customer satisfaction*", "*staff satisfaction*," "*impact on society*" all these reflecting in "*the business performance*."

The model also constitutes a practical instrument which can be used in a variety of ways:

- as a self-assessment instrument;
- as benchmarking to other organisations;
- to identify the areas of continuous improvement and to coordinate the different initiatives in this field;
- as structure for the organisation's management system.

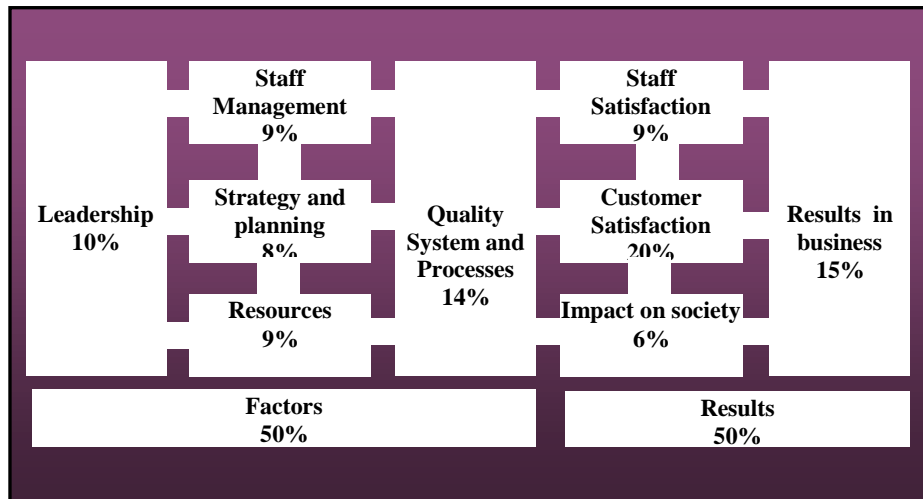


Figure 3. The EFQM Model [6].

The self-assessment can be used in a flexible way, consistent with the organization's needs. It should be performed by qualified personnel in order to obtain evidence and assess it objectively so as to determine whether the implemented system requirements are met, according to the reference standard (or standards, if we deal with integrated management).

It is necessary to define the relevant performance indicators system for analyses and decisions regarding the quality management, knowing that how an organization measures the performance affects the quality of decisions.

Therefore, selecting the appropriate methods for performance assessment, developing the system of indicators used and defining them is of overwhelming importance and should be carried out according to the organization's particularities and should consider the overall objectives regarding its quality. Devising a relevant *performance indicators system* (related to objectives of effectiveness, efficiency, delivery times, quality / nonquality, costs, etc.) has to allow the periodic observation and measurement of the evolution in implementing the QMS, positioning it in relation to the objectives, knowledge of trends in the organization, etc.

Each basic criterion of the model is detailed in several sub-partial criteria that require a response. For each sub-criterion there are mentioned issues to be considered. The assessment of fulfilling each criterion is based on a five-level rating scale (0%, 25%, 50%, 75% and 100%) by granting points. The degree in which these are found in the organization is assessed based on a scale. In Figure no. 4 there are presented the levels of maturity in which a quality management system can fit.

We defined five levels as follows:

- *Level 0 – Informal System.* The organisations having such quality management systems have unpredictable results and are characterized by lacking proofs in what regards quality.
- *Level 1 – Reactive Approach.* Such organizations have corrections based systems to solve the problems and not prevention based ones. Sometimes only a minimum of data on the improvement results is considered. Production costs are high and in many cases valuable vertical communication is weak or non-existent.

- *Level 2 – Formal and Stable System.* This level characterizes the organizations that have a systemic processes approach. There are visible signs of systematic improvements (continuous improvement, most often at a small-scale). There is available data on complying with the objectives set. Managers take into account the trend that processes have and have a good understanding of the meaning of the organisation's activities. A part of the middle management is interested in developing managerial skills. Such organizations have maximums and minimums in their lives, and do not always understand the specific causes, thus manifesting reactive approaches.
- *Level 3 – Continuous Sustained Improvement.* This level characterizes the organisations that have learned the lessons from the level 3 of maturity. These have understood the key role of the middle management, and the employees are an integral part of the organization and there is a good communication, regardless of the direction. The decisions are based on facts through data analysis and processing.
- *Level 4 – The best performance in the class.* At this level, the organizations perform benchmarking to demonstrate their competitiveness to the competition. The organisation's processes are strongly integrated, the employees are aware of the responsibility of involving in the processes, they benefit from high level necessary training according to their specific necessities. Customer demands satisfaction and anticipating their expectations is a permanent concern. Such organizations provide the best examples of how to manage a business instead of running it.

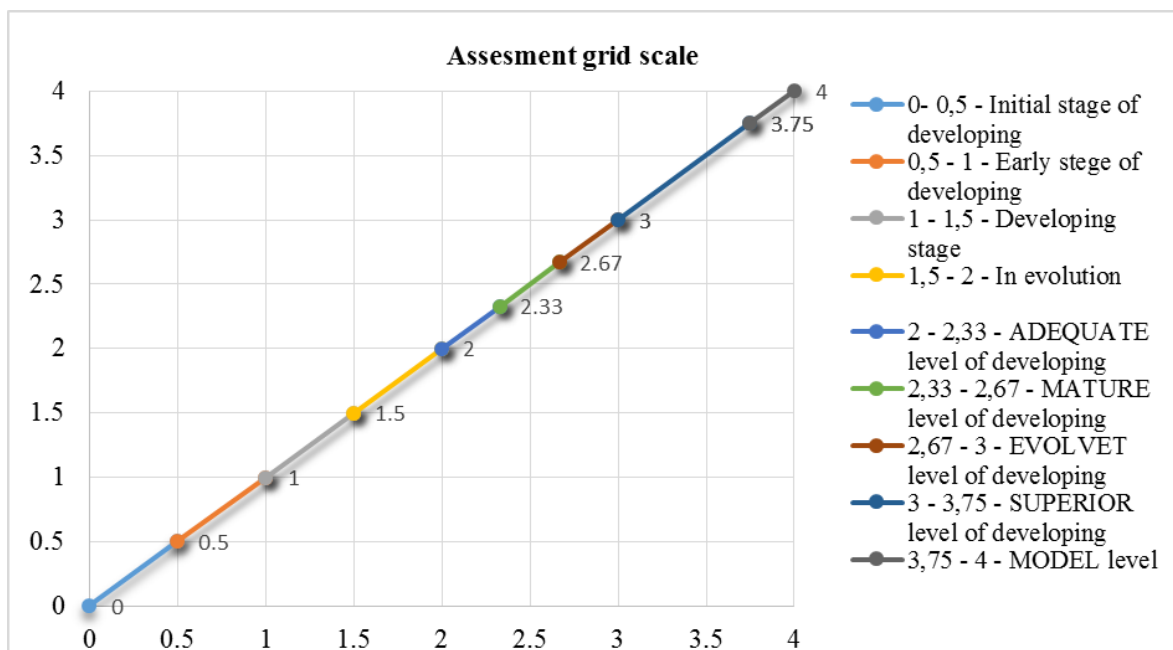


Figure 4. QSM Assessment Grid Scale of an Organization - adapted [5].

The assessment model of the quality management system proposed provides the centralization of the significant information in a single document, reflecting the dynamics of the phenomena analysed (through flexible reporting, e.g. Figure no. 5)

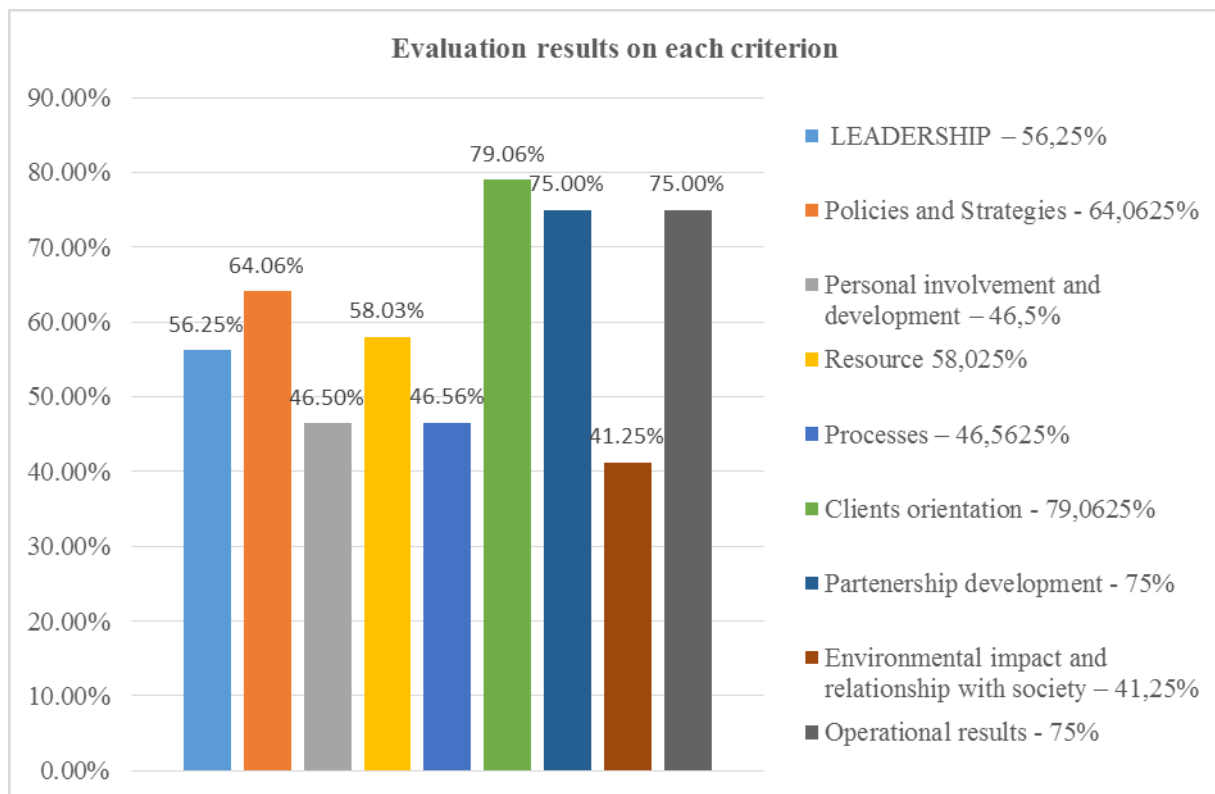


Figure 5. Results evaluation [4]

This model allows quality managers to pursue the main activities and take prompt decisions if it appears that the trend of the results is not the desired one; it has a predetermined accessible shape, which turns it into an easy to use instrument and it can also be considered a "piloting instrument" which performs the following functions:

- *the assessment-information function* – it provides the informational elements to assess the activity;
- *the warning function*, which sets the dynamics of the phenomena studied, the difference between previsions and achievements;
- *the analysis-diagnosis function*, which allows to diagnose the financial activity of the enterprise and identifies the strengths and weaknesses in the financial activity;
- *the communication ensuring function*, which consists in facilitating the communication between the organisation assurance quality (AQ) responsible and the decision makers on different levels of the organisational structure;
- *the improvement of the decisional system within the enterprise function*, supports managers in perfecting the management system so as to solve the problems they deal with.

To ensure the adaptation and continuous improvement of the management methods and procedures, the information on the results of the decision put in practice needs to return to the issuing bodies so as to assess the effectiveness of the methods used, in other words to provide a prompt feedback of the management activities, which should allow corrective adjustments for the performance improvement.

The information provided in this document constitutes the input data into the analysis the management undertakes on to identify the causes of these results, which is the difference towards the objectives proposed, what corrective actions should be initiated, but mostly the prevention and improvement ones.

4. Conclusions

Quality management is an essential component of organisation who wants to obtained the establish purpose. In the last years has been develop a lot of models and techniques who can be applied for support decisional system. So, the managers have at their disposal a wide range of analytical tools that facilitate achieving goals.

From managers point of view, evaluation and performance measurement represent "*the sum of all the processes that lead managers to take appropriate and necessary action now having to create and lead an active organization with high results in the future*", (Neely, 2006) [2].

The self-assessment model of the quality management system proposed, which provides the centralization of the significant information into a single document with a pre-established accessible form, in which the information function plays a key role, turns it into a piloting instrument, which is easy to use and which reflects the dynamics of the phenomena analysed, allowing quality managers to track the main activities and take prompt decisions if it appears that the trend of the results is not the desired one.

This *periodic self assessment* imposes itself as an important and imperiously necessary way by means of which the organization clearly identify its strengths and areas to improve, thus increasing its capacity to make qualitative and quantitative assessments on the status, evolution and its perspectives to structure coherently the priorities.

The degree of generalization of the model proposed and the fact that it's devising took account complying with the requests and the implementation of ISO 9000 given the opportunity to be a useful instruments for the management of any organization, becoming operable by adjustment and customization specific to the domain analysed.

By applying the method of self-assessment of an organization's management system can be identified and corrective action may be identified factors influential critics of the organizational system. This is due to changes and complex character of an organization that wants to meet a changing market and wishing to satisfy their customers permanently.

5. References

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