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Diagnosing total quality management—part 2

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Abstract *From extensive literature research a total quality management (TQM) model is developed. This model describes the basic elements of the concept of TQM. It also provides a way in which the basic elements can be made operational in practice. Based on this model a quality diagnostic instrument is developed to establish the actual TQM situation in an organization. The instrument has been tested in two cases in an existing company and the results look promising for purposes of using the instrument in the process of realizing TQM and 'measuring' and stimulating continuous quality improvement.*

Introduction

In the first article the developed total quality management (TQM) model was described (Bossink *et al.*, 1992). TQM is presented as a concept composed of eight basic elements which can be operationalized into more concrete concepts, methods and techniques. Determination of the presence or absence of these concepts, methods and techniques that are supposed to support the quality management of an organization, provides insight into the degree and way of implementation of TQM.

This article describes the translation of the TQM model into a diagnostic instrument, to be used for determination of the status of TQM within (part of) an organization.

The first section discusses the role of management in the TQM concept. The second section describes the diagnostic instrument and the third section reports on two cases in which the diagnostic instrument was applied. Conclusions will be drawn in the final section.

Management and quality

Since quality improvement takes place in an organization operating in a dynamic environment, it is important that the diagnostic instrument to be developed is based on an appropriate approach: an instrument which includes an organizational approach as well as an instrumental approach. This includes in-depth consideration of the functions and tasks of management relating to quality.

Earlier research has shown that management commitment is an essential condition for a successful start and continuation of quality improvement processes (Blauw, 1988). Management commitment was already mentioned in the previous article as one of the basic elements of TQM. A number of primary tasks exist which *must* be performed by the (top) management of an organization:

Policy-making and implementation

Long-term planning is extremely important within a TQM organization: the TQM concept is operationalized in a quality policy and quality plan that fit the general policy and plans of the organization. In addition to this, attention is given to short-term matters: long-term planning is translated into concrete action plans with workable short-term goals so that the organization's quality policy is realized within the daily routine of the organization in a step-by-step process.

Formulation as well as implementation of a quality policy (based on, and integrated within the general policy) are responsibilities of top management. According to Juran (1990) the most important tasks of management in this field are the definition of the goals, the creation of an infrastructure, the provision of resources, the evaluation of improvement and the visible expression of appreciation.

Positive attitude

It is also essential that (top) management exhibits a positive attitude towards quality, in both word and deed. In practice, quality should evidently have priority. According to Desurmont (1989), a positive attitude is shown in the amount of time that managers devote to the support, guiding and motivation of their employees. Middle management plays a very important role, being the link between the top and shop-floor.

Adaptability

Since compliance with the changing desires and requirements of the customer has priority, the organization must be able to adapt constantly in order to meet the needs of the market. This asks for a flexible attitude and flexible organization and processes as well (see Wall & Zeynel, 1990).

Attention to horizontal links

In almost all organizations, hierarchical relations exist. The organization usually is managed along these hierarchical vertical lines. However, due to the ever-increasing complexity of products and production processes, situations in which different disciplines and points of view are present, are becoming increasingly common. In these situations vertical relationships alone are not sufficient. In addition, attention must be paid to horizontal and diagonal relationships within an organization. The production processes are, by nature, horizontal and not vertical. Vorstman (1990), in addition to the hierarchical model, mentions accountability as a means for coordination and mutual adjustment while according to Williams & Bertsch (1989) a project-based approach is best to improve horizontal relationships. Problems which transcend functional and departmental boundaries can be solved more quickly and easily this way. In such a situation, the removal of departmental boundaries and hierarchical barriers is an important task for management.

In the above the specific management tasks relating to quality have been described. However, it is also possible to examine the job performance of management from a more general point of view. As a result of research, Mintzberg (1973) distinguished 10 management roles, which can be grouped into three categories:

- (a) *inter-personal roles*: (1) the performance of ceremonial tasks, (2) the performance

- of a leadership role and (3) the creation of contacts outside the vertical chain of command;
- (b) *informative roles*: (4) searching for relevant information and its distribution to (5) employees and (6) persons outside the organization;
 - (c) *decision-making roles*: (7) initiating improvement or change as a result of changing environmental factors, (8) solving problems, (9) the allocation of resources and (10) negotiation in cases where it is thought necessary.

The 10 roles are inextricably linked and form an integrated whole. Good job performance demands attention to all 10 roles; negligence of one or more of these roles will lead directly to (negative) consequences for the job performance.

A manager thus has a number of important tasks concerning quality management. These quality tasks must fit the tasks concerning other relevant working fields of the manager. In other words, a manager must integrate the quality tasks (policy-making and implementation, positive attitude, adaptability and attention to horizontal links) in his overall job performance and thus fulfills the 10 management roles of Mintzberg in, from a quality point of view, a satisfying way.

Diagnosis

A doctor making a diagnosis deals with an ill patient and tries to determine which disease the patient is suffering from in order to cure the patient. Diagnosing an organization, however, does not always imply that the organization is 'ill'. The concept of organizational diagnosis has a somewhat broader meaning. Organizational diagnosis is a phased process resulting in the gathering and analysis of information concerning the functioning of the organization in such a way that assessment is possible (Jonker, 1990). This assessment frequently leads to the initiation of actions to improve the current situation, either because the assessment is negative or because (even in the case of a positive assessment) opportunities for improvement appear to exist.

An instrument for diagnosis can be extracted from the developed TQM model. The intention in using the instrument is, in accordance with the definition of organizational diagnosis, to enable determination of the present here-and-now-situation within the entire organization or a department on basis of which improvement activities can be initiated. The intention to improve is based on the image of 'the ideal TQM-organization': an organization where management commitment is present, where there is a clear understanding of the capabilities and limitations of the available concepts, methods and techniques of quality such that a rational choice can be made for application.

This ideal TQM organization is a dynamic, open one: the way in which management commitment is realized can differ from one part of the organization to another. Moreover, the choice to apply, or not to apply, certain concepts, methods and techniques can also differ throughout the organization.

The diagnostic instrument which has finally been developed from the TQM model is built up around two checklists.

Checklist 1: management commitment

The degree to which management actively promotes quality management is determined by means of a large number of questions (the first checklist). This means that it is possible to

determine whether or not a manager has integrated quality-related tasks into his job and actually gives shape to them in practice.

Checklist 2: quantitative and qualitative application of concepts, methods and techniques

The second checklist includes a summary of the concepts, methods and techniques which can be found and/or applied in the different parts of the organization. This checklist is an aid to gain insight into the degree to which the concepts, methods and techniques of quality actually are applied as well as to the degree in which they are applied correctly.

The diagnosing process consists of six phases, shown in Fig. 1. The objective is an assessment of the job performance of management relating to quality and the presence or absence of concepts, methods and techniques of quality in the department. The condition is that the diagnosis is performed by an objective auditor who has no link with the department being audited.

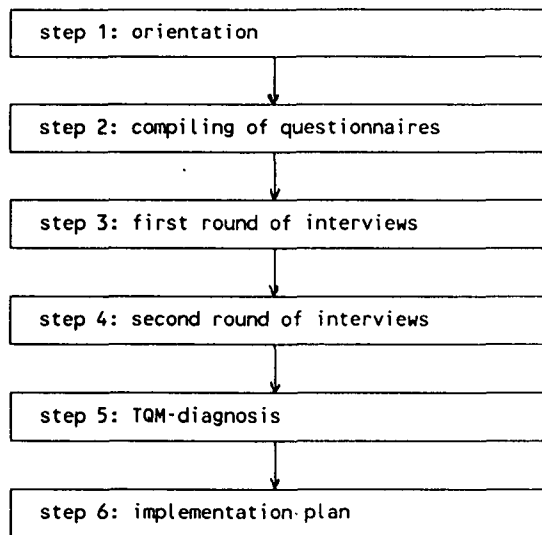


Figure 1. Schematic diagram of the method of diagnosis.

Step 1: orientation

In an introductory discussion between the auditor and the manager of the department to be examined (duration: approximately 30 minutes) the auditor will try to obtain an impression of the department (number of personnel, type of activities, etc.) and inform the manager about the methodology, objective and content of the diagnosis.

Step 2: compiling of questionnaires

From information received during the initial conversation, the auditor compiles two questionnaires based on the checklists. The purpose of the first questionnaire is to determine whether the manager actually performs quality management tasks and integrates them into

general management roles (often called quality-minded management). The purpose of the second questionnaire is to determine what quality-related concepts, methods and techniques are applied within the organization and to assess the degree in which they are applied correctly.

Step 3: first round of interviews

The next step is an interview with the manager (duration: approximately 1.5 hours) for which the auditor uses the questionnaires.

Step 4: second round of interviews

Once the results of the interview with the manager have been evaluated, interviews are conducted with at least two of the manager's employees (duration: each 0.5 hour). These interviews are intended to provide a check on the correctness of the manager's answers, to clarify any uncertainties on the part of the auditor and again to determine the appropriateness of the application of the concepts, methods and techniques of quality that were found.

Step 5: TQM diagnosis

The results of the interviews enable the assessment of the degree of quality awareness exhibited by the manager in interpersonal, informative and decision-making areas. In addition, the application of the quality-related concepts, methods and techniques can be assessed both qualitatively and quantitatively. This assessment is then noted in Fig. 2. The strong and weak points relating to the activities of the examined organization, which were noted during the interviews, are evaluated and also noted in Fig. 2. The completed figure is called the 'TQM profile' of the department.

		assessment					strengths	weaknesses
		--	-	--	+	++		
quality management	inter-personal							
	infor-mation							
	decision making							
applica-tion of methods, concepts, techniques	quantita-tive							
	qualita-tive							

Figure 2. The TQM profile.

The final assessment provides the basis for recommendations on improvement activities. For this purpose, the auditor uses the improvement advice form shown in Fig. 3. The auditor has a choice of a combination of three basic recommendations:

- (1) improvement of management;
- (2) improvement of the application of the existing concepts, methods and techniques;
- (3) implementation of new concepts, methods and techniques.

basic recommendation	activity	action-object
improvement of management		
improvement of the application of the existing concepts, methods and techniques		
implementation of new concepts, methods and techniques		

Figure 3. The improvement advice form.

		assessment					strengths	weaknesses
		--	-	--+	+	++		
quality management	inter-personal			x			communication with customers	
	information				x		customer information	
	decision making		x					policy-making authority
application of methods, concepts, techniques	quantitative	x						insufficient personnel training
	qualitative			x			knowledge of SPC	

Figure 4. Example of a TQM profile.

Step 6: implementation plan

In the sixth and final step, the author and manager discuss the results of the diagnosis and the resulting recommendations. They subsequently draw up an action plan to improve the current situation. For instance, the basic recommendation to 'implement new concepts, methods and techniques' can result in the activity 'send personnel on a (basic) quality management course'. The formulation of this activity can lead to a discussion with, for example, the personnel manager ('action object') concerning the course to be attended.

basic recommendation	activity	action-object
improvement of management <input checked="" type="checkbox"/>	policy-making authority concerning quality to be extended	- higher organs in the hierarchy - strategic planning department
improvement of the application of the existing concepts, methods and techniques <input type="checkbox"/>		
implementation of new concepts, methods and techniques <input checked="" type="checkbox"/>	send personnel to a basic quality management course	- personnel department - budget management - planning department

Figure 5. Example of an improvement advice form.

Figure 3 is a tool to help translate the recommendations into an action plan to improve the present situation in the part of the organization being examined. Use of this form focuses on the search for concrete actions to realize the recommendations in practice. Moreover, it stimulates consideration of the consequences of such actions within the organization.

When all steps are completed, the final diagnosis forms will appear similar to the examples of Figs 4 and 5.

Evaluation

In order to verify the usefulness and practicability of the diagnostic instrument, it has been applied within two departments at DAF, Eindhoven (the Netherlands): a production planning department and a development department. In these 'tests' the first five steps of the diagnosis procedure were performed for both departments.

In both cases it appeared that a diagnosis could be made in a relatively short time. The interviews (including preparation) took relatively little time. In both cases, the diagnosis resulted in a TQM profile and a determination of the strengths and weaknesses of the department. By making choices from the standard recommendations, a route was defined for the realization of improvements. With respect to the practical use of the instrument, it can be said that the initial results were encouraging and motivate a further application.

The diagnosis is, by nature, positive: use of the diagnostic instrument results in recommendations for improvement and initiation of improvement actions. The auditor functions not as a judge who waves an admonishing finger, but as an advisor and consultant. A prerequisite for successful diagnosis is positive cooperation of the department that is audited. The manager of the department must clearly understand, for instance, that it is not the intention to assess his management style as 'poor'. The objective of the assessment is to improve the management aspects related to quality.

The instrument is sufficiently flexible to allow modification by the auditor such that it can be applied to a wide range of organizations and situations. A prerequisite is that the

auditor has sufficient tools at his disposal such that a subsequent recommendation can be supported by the provision of assistance during the implementation of resulting improvement activities.

The outstanding power of the instrument is maximized in an organization which has already attained some results in the area of quality management. Use of the instrument in a department which has only just begun to apply quality management is less profitable, since the diagnosis result will be negative in all areas and will not indicate any particular areas for improvement actions.

Tracing TQM throughout an organization is difficult if a manager claims to work according to the zero-defects principle, it is extremely difficult to verify that. Such an assessment asks for consultancy capabilities of the auditor with respect to his insight, expertise and experience. The auditor has the final word as to which data are, or are not, relevant in order to arrive at an assessment of the part of the organization under examination.

Conclusions

Application of the TQM diagnostic instrument has provided promising results. The instrument can be included in a consulting programme to assess the TQM status of (part of) the organization for the purpose of initiation and continuation of improvement processes.

By performing a diagnosis within continuous consultancy and improvement processes, trends can be measured enabling progress to be visualized.

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