

# The concept of Total Quality Management and the contemporary entrepreneurship in practice

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## ABSTRACT

**Purpose:** The analysis of the respondent's research on the implementation and application of the concept of total quality management in selected groups of companies.

**Design/methodology/approach:** At the present time each organization should develop a plan of continuous improvement taking into account the Total Quality Management activities in systematic way.

**Findings:** The Estimation /respondent's research/ of level of practical knowledge about Total Quality Management philosophy and modern entrepreneurship in chosen company.

**Research limitations/implications:** Described total quality management principles can be employed in company.

**Practical implications:** Defined of survey form by chosen companies directed to the quality.

**Originality/value:** The result of respondent's research of improvement of organization approach w has been presented.

**Keywords:** Total quality management; Shewart's cycle; Respondent's research directed to the quality

**Reference to this paper should be given in the following way:**

M. Dudek-Burlikowska, The concept of Total Quality Management and the contemporary entrepreneurship in practice, Journal of Achievements in Materials and Manufacturing Engineering 73/2 (2015) 229-236.

## INDUSTRIAL MANAGEMENT AND ORGANISATION

### 1. Introduction

Every functioning organization in contemporary world is aware of happening changes and dynamics of the market. A great competition, expectations of the customer, a quality, elasticity, a comprehensive risk, availability and

improvement are factors deciding of character and functioning of organizational units.

At present no enterprise, irrespective of its size, type of the production or character of the performed service will achieve the permanent success if one doesn't build the strategy of the permanent improvement, and hence doesn't

determine ways of striving after perfection and manners of its measurement.

Implementing the System of managing the Quality is the first step on the road to creating the organization directed to the quality. Later perceiving the organization through the reliability of its products or services, the effectiveness and the effectiveness of processes, for efficiency of the operation an implementation of the comprehensive total quality management will be a right step - of Total Quality philosophy the Management, as well as the self-assessment of the organization [1-5].

Every organization which implements TQM cannot expect fast effects and profits. Actually it is a slow process, well thought over and relying on introduction of gradual changes to every level of the organization in accordance with the principle of the Deming Wheel. Conducted quality operations are both the care of the organization of the product or the service as well as creating appropriate relations between customer and organizational unit [1,4,5,9].

Another important aspect of verifying conducted operations is application of objective ways of rating of the organization, and in it: self-assessments according to ISO 9004:2009; rating of the level of the TQM implementation through e.g. participation in competitions for quality awards. Implementing modern methods of the TQM is an additional aspect, which should cover strategic management of the organization, as well as realization and improvement of every process [1,4-12].

A statement confirming such an approach is by R. Karaszewski, K. Skrzypczyńska, that is: '... the total quality management widely went beyond the range of operations falling within the scope of managing the quality. It is a way-or rather a concept assuming subordinating the idea to the comprehensive, total quality of every of basic areas of functioning of the organization and thus improving her effectiveness, the elasticity and the competitiveness. (...) For the organization to be truly effective all her parts must function together assuming in addition, that every person and every action has a determined influence on the quality. Therefore ... TQM must become a way of the organization's life (...) ' [9].

Taking the importance of mentioned issues into account it was believed to be right to create the questionnaire form being aimed at obtaining the information as for the degree of the implementation was revealed and of the acceptance of philosophy of comprehensive managing the quality as the crucial element of improving the organization.

## 2. TQM philosophy in the organization -TQM Genesis

One of main precursors of Total Quality Philosophy was Walter Shewart who told the way of the development for production companies and possibilities of improving individual operations in the production system. Every factor having a negative influence on the quality of the final product should be minimized or entirely removed. His proposal to control the quality through detecting and the elimination of factors having negative influence on a course of the process has a positive effect and has meaning for limiting the changeability of properties of products. Shewart proposals were a reaction to threats which resulted from expanding distance amongst production and test possibilities of the operation of the man [5,7,10-16].

Along with the development of schools of the management, either: classical and behavioural, cost-efficient and still improved technological devices let the production in the fast way increase the size, but possibilities of the man in the control and rate of products were left on the level characteristic to crafts. Managers viewed it as an essential threat to the quality of manufactured products. The result of such contemplations was a Shewart proposal, concerning implementation of so-called subsystems in production systems for the quality control (Figure 1) [7,9,10,16,17].

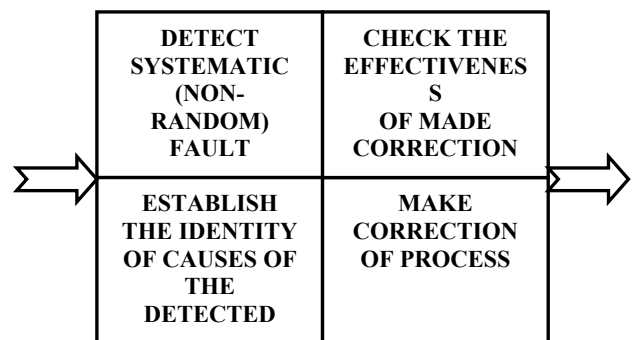


Fig. 1. Shewart's Cycle [16,17]

The acceptance of the Shewart idea in production companies had a positive effect on a possibility of perceiving controlling a production process through the quality. Thanks to that a real chance for limiting the changeability of controlled properties of the product arose, and hence to the improvement in its quality of the workmanship [7,9,10,17].

W. E. Deming also deserves attention as it is possible to say that he did giant step into the TQM development. Staying in Japan he promoted his way of perceiving the comprehensive quality. Particularly he paid attention for linking tools i.e. the card control suggested by Shewarta with the concept of creating the quality in the organization which he described in 14 principles [7,12].

In our times with little changes they constitute the important element of improving managing the Quality in enterprises introducing the System compatible with the norm ISO 9001: 2015.

In Deming's deliberations he "took over" from Shewarta idea of the cycle of corrective operations and modified it according to needs of comprehensive managing the quality and enriched for the market reference [12].

In literature it is called the Deming's cycle. In accordance with the system of operations one should plan every activity, and in it define quality aims and try to predict possible crash barriers for their accomplishment; later to make, to verify, and if only it is possibly to improve them. Signals from the both more distant and closer neighbourhood, issued by the market must but processed in the Deminga cycle and should be used for initiating the activity of different kind in the sphere of preventions, being aimed at a development of the production and improvement of process in which it is produced. Later Deming modified the concept - Inspection (Check) exchanged for teaching (Study), taking into account importance of analysed operations in order to reduce the number of places in the process which could weaken it [10,12,14,17-20].

### 3. Main TQM assumptions-contemporary approach

Comprehensive managing the Quality which in English is the Total Quality Management is an expression which very well defines the core of this philosophy, focuses on multi-layered pro-market perceiving quality operations and quality problems in the enterprise. In literature a lot of definition and interpretation of meaning of TQM words, in the literal translation reads as follows [7,16,17]:

TOTAL

which embraces with its scope the entire organization irrespective of the profile and legal character of the unit.

QUALITY

in other words fulfilment of specified requirements of the widely understood Customer

MANAGEMENT

management being aimed at a positive change of all processes of the enterprise.

In the norm from 1994, that is PN-EN ISO 8402 TQM is defined as "method of managing the organization based on the commitment and the cooperation of all employees, for which the quality is a central point of the interest. She is aimed, through achieving satisfying customers, at providing for the enterprise the long-term success as well as benefitting members of organizations and the society".

R. Kolman in his deliberations pointed out that people which through their integral operation create the quality were an essence of the total quality management. A quality policy of the enterprise is a set of guidelines describing operations needed for achieving established quality aims, among others appropriate division of duties, systematic trainings, complexity of operations, complicity, unceasing improvement which are a base of the system of companies aiming at the perfection [21-23].

British Quality Association determined TQM as the team concept of managing the organization, where in the foreground needs of the customer and aims of the organizational unit are integrated. It stresses nature of cooperation amongst employees of all levels of the enterprise in every occurring process including deliberate applying available methods, techniques and tools of the quality. A confirmation of such an approach is an opinion by L. Wasilewski who turns attention on the role of the management of the organization cooperating with employees, who consciously apply tools enabling to fulfil expectations of the customer, both those already defined and those about which they only think [9,24].

E. Skrzypek thinks that shaping and applying the concept of the total quality management in the organization requires commitment of employees and their everyday breaking of current ways of thinking with systematic improving intellectual capital and directing one's attention on so-called 5 K, that is: the customer, the cost, the creativity, the communication and the culture [3].

Both above quoted definitions as well as a lot of available in the literature on the subject points out to the need of perceiving comprehensive managing the quality as form of the management correcting the effectiveness, the elasticity and the competitiveness of the organization as whole.

It is worth quoting the way of defining TQM philosophy by John Oakland who underlines that apart from cultural and communication aspects three main elements of TQM idea exist. These elements mutually influence on themselves, mutually complement each other

and are subject to an uncompromising commitment oneself into quality operations of the organization, they are [8]:

- substantiated system of managing the quality;
- statistical control of production processes;
- team effort for improving the quality.

Oakland's model is based on simple assumptions, among others that in the entire system a customer is most important - supplier, recipient, therefore the organization should concentrate on everything what he will fulfil in the integer of requiring them. The scheme shows that the compliance exclusively to ISO norms won't be enough to achieve planned aims. According to the author only integration of all elements of the model allows for achieving success in the future (Figure 2) [8].



Fig. 2. Model of comprehensive managing the quality according to Oakland

In the literature of the subject, it is possible to distinguish a few universal principles in area TQM of which the accomplishment is oriented for achieving quality purposes, which are [1,3,5,10-24]:

- Involving the management board of the organization in solving quality issues. Achieving one's goal, that is satisfying the customer or the reduction in costs aren't possible without support of the highest management. The participation of the management is understood as the rating and the continuous inspection of the work of subordinates, as well as the involvement in the work of improvement units, of teams of the quality and active offering the help.
- Eliminating communication barriers in the organization -improvement in the communication both between the employee and the manager or the staff. TQM ensures that assignments and aims to be achieved are assigned

and known in the entire organizational structure of the enterprise.

- System of trainings and motivating employees. The element of the personnel management suggests that investing in employees guarantees the realization of high quality requirements. Achieving good results of economic and high quality standards isn't possible without the commitment and the constant development of intellectual capital of human resources. So investment in staffs is a way to contribute to the development and the success of the enterprise.
- Conduct of employees oriented for streamlining products and processes. The concept assumes that everyone on the given position can make a mistake what in the end negatively influences the image of the enterprise. In order to help it it is possible to increase entitlements of employees on workstations. It causes the increase in liabilities for the quality of the performed work as well as purchasing abilities of taking proper activities in the time of appearance of disruptions.
- Getting to know consumer's expectations, through the research on the opinion of the customer from provided services e.g. through questionnaire forms. This data will deliver to the information about weak and strong points of individual departments of the enterprise, on the basis of which it is possible to determine and to implement correcting operations.
- Realization of the principle "zero defects" - which is possible to reach only when causes of problems are eliminated, not only their effects. Zero mistakes are an only accepted level of the quality. When the level of gaps exceeds the zero, one should immediately take correcting or preventive operations. The overall reduction in gaps is possible thanks to the competent organization of processes, proper training the staff or keeping the infrastructure.

#### 4. Comprehensive managing the quality in practice

Every organization operating on the market knows that introducing the Quality Management System (QMS) is the first stage of shaping the quality awareness of organization. Commitment of all employees of the organization, and hence fulfilling needs and requirements of the customer with simultaneous holding of the defined and assumed quality the product are determinants to the study and entering of concepts Comprehensive Quality Management

(Total Quality Management TQM). Considering the presented approach it is correct to conduct examinations concerning the degree of the implementation, the knowledge and the awareness of organizational units in relation to functioning according to TQM philosophy.

The questionnaire form was built on the basis of issues concerning two areas (Table 1). The first part of the questionnaire form/the first stage of examination/s included questions concerning improving the quality, of principles of managing the quality and the crucial information of aspects to be implemented of TQM concept. In the second part/the other stage of examination/s questions concerning possibility of implementing and applying quality methods, techniques and tools at the realization of the idea of comprehensive managing the quality. The questionnaire includes also general information into account as for size of the organization, its type of activity, legal status.

Questionnaire surveys were taken in two stages since the February to October 2015 in enterprises in the area of southern Poland. Organizational units were grouped as follows: the first group it of 112 enterprises of the machine and metallurgy industry (Group A), second is an automotive industry in the quantity of 86 enterprises (B Group), the third industry is the service sector with functions of the service of manufacturing processes but including transport, IT, trade (C Group) in the quantity of 136 units. Results of the first stage of examinations will be presented in the paper.

Table 1. Issues used in the questionnaire

Issues constituting the basis of the survey	
1.	Having implemented QMS and other.
2.	Time of the QMS possession.
3.	Acquaintance of principles of managing the quality / according to the ISO 9001:2000 norm/ Importance of principles.
4.	Acquaintance of assumptions of the TQM concept.
5.	Functioning of circles of the quality in the organization.
6.	Degree of employing employees on different ranks.
7.	Motivating employees, the organization of trainings.
8.	Improving processes and products.
9.	Applying principles, tools and methods of the mark of the quality.
10.	Confirming the rightness of TQM functioning in the organization.

The results of conducted examinations show that quantity of organizations which introduced the System of managing the Quality compatible with ISO 9001:2000 is over the 70% of respondents. Both the environmental protection and the safety constitute the important aspect for over 60% organizations about production character and c 25% about service character.

Due to the need to function on the market in the automotive sector, implementation of the system compatible with ISO/TS 16949-2002 declares 95% of respondents while the integrated system from QMS has as many as 81 %. In the service sector QMS has 72% respondents (Figure 3).

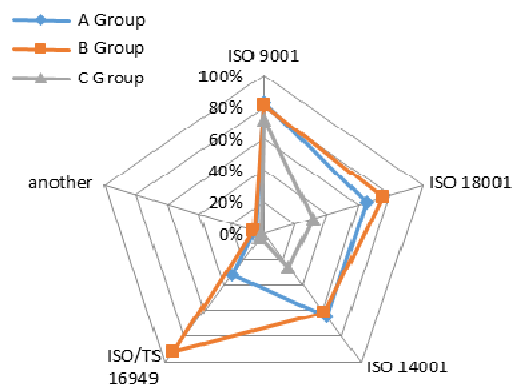


Fig. 3. Share of the possessed systems according to proper standards

Next part of examinations shows (Table 2), that the longest internship of the acquaintance of pro-quality issues in enterprises has an automotive industry (55%) and machine and metallurgy (42 %). Service industry has had only 5 last years of establishing purposes according to the quality approach.

Table 2. The time of having the all systems in researching companies

Industry	Time of having systems			
	Above 10 years	10-5 years	5-2 flies	Rather small than 2 years
A Group	42%	29%	19%	10%
B Group	55%	25%	11%	9%
C Group	11%	19%	49%	27%



In 2000 Principles of Quality Management were defined (PQM). For enterprises they are certain kind of tidying up the idea of managing the quality and the base for the TQM implementation. Thanks to their versatility all organizations can apply them, whatever the industry and the amount of workers employed.

Every of principles constitutes the individual element of improving separately defined area, but their cooperation is just an answer to the part of the well defined strategic aim of the organization.

In conducted questionnaire surveys acquaintance of (PQM) declares in: A-83%; B 81%; C-of the 64% of respondents.

In order obtain more information as for connecting the TQM concept with principles of the enterprise participating in the survey, they were asked to rank importance of individual principles.

The scale was created according to assumptions of the Likert's scale (Table 3).

Table 3. Defined scale of the mark

Mark	Meaning
1	Indifferent
2	Unimportant
3	Important
4	Very important
5	Essential

Results are presented in the form of table diagram (Figure 4).

	Customer focus	Leadership	Involvement of people	Process approach System approach to management	Continuous improvement	Factual approach to decision making	Mutually beneficial supplier relationship
A Group	5	4	5	4	5	3	4
B Group	5	4	5	4	5	3	4
C Group	5	3	4	4	5	3	5

Fig. 4. Table diagram estimation of PQM

The enterprise applying the TQM concept cannot expect very fast effects and profits. Actually it is a slow, well defined process. Acquaintance of assumptions of the concept of Comprehensive managing the Quality by employees in examined organizations is described in Figure 5.

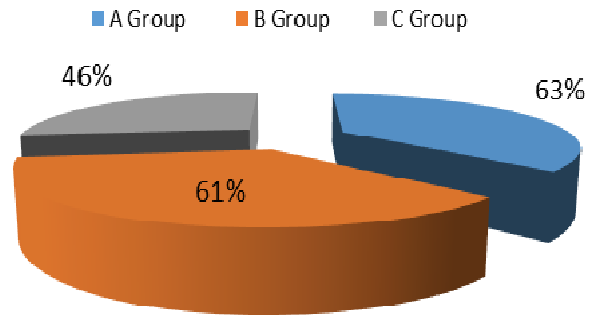


Fig. 5. The level of knowledge of TQM

Conducted questionnaire surveys show that the highest management and the manager staff are just aware that a success of the TQM concept depends on them.

Over 70% of the staff constituting top management in the automotive, machine and metallurgy industry and around 50% staffs of remaining levels confirms very good acquaintance of pro-quality purposes of the organization and defined aims of functioning of the total quality management (Figure 6).

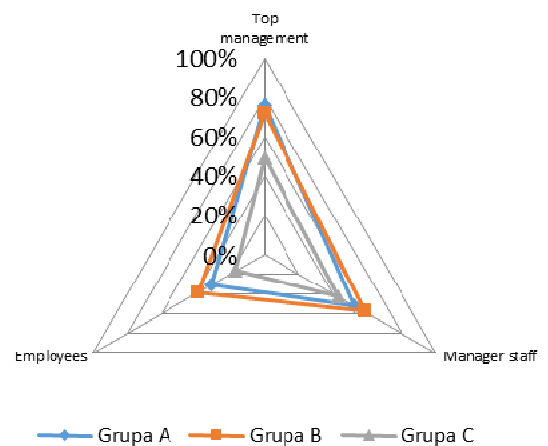


Fig. 6. TQM Acquaintance with the division into human resources of the organization

Polled enterprises emphasize the importance of the acquaintance of the TQM concept by the top management.

This approach constitutes the priority in effective achieving established quality purposes. Introduction of the TQM idea is an element of the long-term strategy of the organization, which without the expected activity of the top staff may not bring assumed results.

Later the top management along with the manager staff and employees assessed the importance of TQM principles. In the mark a scale was taken into account (Table 4).

Table 4. Defined principle of the TQM used in questionnaire

Principle of the TQM concept	
Z1	Involving the management board and the highest management of the organization in pro-quality operations.
Z2	Eliminating communication barriers in the organization, the improvement in the communication and information exchanges between employee-manager; employee-employee; employee-customer.
Z3	System of trainings and motivating employees.
Z4	Conduct of employees oriented for products and processes optimisation.
Z5	Acquaintance of requirements and expectations of customers.
Z6	Realization of the principle "zero defects".
Z7	Applying tools and methods of the mark of the quality.

Principles subjected to the mark were presented in the diagram (Figure 7)

	A GROUP			B GROUP			C GROUP		
	Top Management	Manager Staff	Employees	Top Management	Manager Staff	Employees	Top Management	Manager Staff	Employees
Z1	5	5	5	5	5	5	5	5	5
Z2	4	4	5	4	5	5	4	4	4
Z3	4	5	5	4	4	5	4	4	5
Z4	4	4	4	4	4	3	4	4	2
Z5	5	5	4	5	5	4	5	5	4
Z6	4	5	5	5	5	5	4	4	3
Z7	4	5	3	5	5	5	4	4	3

Fig. 7. Estimation of principle TQM according to defined estimation mark (Table 3)

The last aspect of this part of examinations is a need for functioning of the quality circles in enterprises. Employees are aware how regular meetings in small groups positively affect on processes and the final product.

Analysis of arising problems, proposals of solutions, improving implemented methods and the organization of the work are crucial elements of the success. It is worth noticing that at the moment the quality circles are better viewed as needed in production companies both automotive as well as of the metallurgy and machine industry (Figure 8).

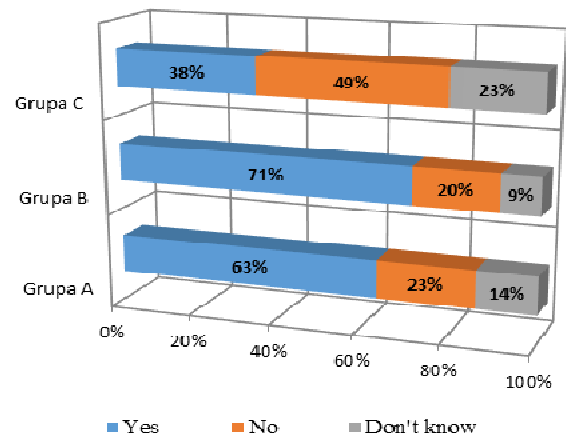


Fig. 8. Mark of the need of creating of the Quality Circles in organizations

In organizations of the service industry respondents assigned the lack of commitment to Quality Departments and therefore also a result considerably runs away from the level of production companies.

### 5. Summary

Conducted examinations confirm commitment of enterprises for the quality in the organization. The production industry overtakes services in these operations. However observing the increasing tendency one should expect reducing these differences in the nearest future.

Today having certificate of System of managing the Quality is a expensive beginning of the way of the continuous improvement. Ranking strong and weak points of the organization, observation of the neighbourhood including competition, defining chances and threats is a challenge for the organization directed to the quality.

Comprehensive managing the quality are changes about organizational, system, process, cultural and marketing character.

Every employee of the organization must understand the need of quality operations in his every activity and duties. The staff must set a good example and motivate employees appropriately. Widening intellectual capital of human resources, drawing the strategy of controlling the quality of each of processes, self-assessment, self-realization, understanding needs of the customer that's what decides about the success of implementing the TQM concept.

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