

INTEGRAL METHODOLOGY FOR DESIGNING AND IMPLEMENTING OF TOTAL QUALITY MANAGEMENT SYSTEMS WITHIN COMPANIES

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Abstract

The subject of this paper is linked with the valorisation of the meaning and the perspectives of Total Quality Management (TQM) system design and implementation within the domestic companies and creating a model methodology for improved performance, efficiency and effectiveness. The research is designed as an attempt to depict the existing condition in the Macedonian companies regarding quality system design and implementation, analysed through 4 polls in the "house of quality" that's top is the ultimate management, and as its bases measurement, evaluation, analyzing and comparison of the quality are used. This "house" is being held by 4 subsystems e.g. internal standardization, methods and techniques for flawless work performance, education and motivation and analyses of the quality costs.

The data received from the research and the proposal of the integral methodology for designing and implementing of TQM system are designed in turn to help and present useful directions to all Macedonian companies tending to become "world class" organizations. The basis in the creation of this model is the redesign of the business processes which afterword begins as a new phase of the business performance - continued improvement, rolling of Deming's Quality Circle (Plan-Do-Check-Act). The model-methodology proposed in this paper is integral and universal which means that it is applicable to all companies regardless of the business area.

Key words: *Quality system, TQM, internal standardization, SPC, costs, education and motivation, methodology.*

1. Introduction

New current trends worldwide impose a new manner of thinking, working and incorporating into the new flows of the market economy and with the consumer's orientation. In times of major competitions and

presence of many entities on the market, the accent of the quality of the total work performance and business flow within a company needs to be increased. Arousing on the market demands a quality product with an acceptable price and within the set deadline (Deming [1]).

The phenomenon of ISO 9001 and the TQM philosophy has brought a massive usage of this strategy: being set as a market strategy in order to fulfill the needs of the consumers in one hand, and on the other, coming as a superior style of work for improvement of the competitiveness and efficiency, reducing of costs and long-term sustainable development (James [2]). Making a new approach towards quality demands new activities in the area of education of the employees, requests introduction of standardization of all processes and introducing a statistical process control in order to achieve a flawless business and new approach to the cost analyses. All this requires a scientific, methodological and planned approach as well as persistency and systematic work. In parallel, it refers to a drastic change within the employees' attitude, radical changes in the organization setting, clear defining of rights, obligations and responsibilities to each employee (Oakland [3]).

The given statements are opening dilemmas such as:

- whether Macedonian companies are prepared for the global market?
- are they able to create values and build a business culture, as a response to the developments of the competitions and fast adapting of the consumers/ buyers needs and desires?
- whether they have built a system to manage quality according the ISO 9001:2008 standard which is actually the basis of constant improvement of quality?
- whether they are ready to accept TQM philosophy?

Basic idea in the realization of the research (Mitreva [4]) in order to give quality information to the scientific and professional audience and according the analysis is to present a methodology for designing and implementing a TQM system within Macedonian companies and set the directions that need to be taken in order to gain a success of the process. Setting a directions and strategy for development of the systematic approach towards quality could assist the managers within the building of quality system to a more comprehensive manner in a short notice.

2. Materials and Methods

The research has been done in a form of attempt to face the current condition within Macedonian companies in the domain of designing and implementation of quality system through four polls of the "House of quality" (internal standardization, methods and techniques for flawless business, analysis of quality costs, education and motivation), whose pick is represented by the top management and as base come the measurement, evaluation, analyzing and comparison of the good/bad quality (Mitreva [4]). A special attention is given to the collecting of the entering data included in the research. As an instrument there was a questionnaire used that was designed to give an accurate analysis in a manner of entire and correct fulfilling. At the same time there were some direct contact made with the top management and the employees, in order to depict the authenticity of the questionnaire and to present the realistic condition of the companies.

The data received from the research are processed with adequate mathematical-statistical methods. Pareto analysis was used for frequency as well as for analysis in order to calculate the involvement of certain answers in percentages. The structure of the examined companies (151) - the participants in the research according the economic activity that it belongs to (National qualification of activities - NKD Rev. 2 - "Official Gazette of R. of Macedonia" No. 147, 26th of November 2008) is given in a Figure 1.

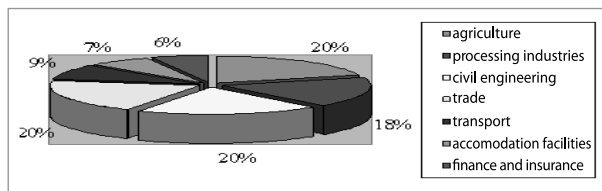


Figure 1. Companies' participation divided according their economic activities

3. Results and Discussion

The usage of the internal standardization and quality providing within Macedonian companies

If the quality system is introduced and certified according the ISO 9001:2008 standard, it means that the companies will be aware about the values of quality and will be able to operate with it. There is a stiff determination of the top management regarding quality; also there is a defining and organizational culture, documentation for the system and trained individuals as well.

The alerting fact is that only 40% of the examined companies (151) owe a quality system according ISO 9001:2008, which appears as a relatively small figure. The need of training according international standards has forced some of the managers and owners to implement a quality system. The structure of the companies that have certified a quality system according ISO 9001:2008 and the assets from its implementation is seen through the following:

- 60% of the companies that have implemented the quality system, see the assets in gaining a better quality of the products/services, reduction of the total costs, consumers/ buyers contentment etc.
- 25% of the examined aim to *get ISO* certificate hanging on the wall, without real purpose to improve the company, to manufacture quality products, and to settle the business processes for a cooperation with the buyers and partners worldwide;
- 15% of the examined that have implemented the quality providing system of products/services but considered that only serve to realize additional unnecessary expenses and bureaucracy, *do not see assets*, do not realize the desired advantages on the market, and do not fulfil the demands of ISO 9001 standards.

Macedonia owns a huge number of companies that have certified a quality system according the ISO 9001 but did not succeed to survive the transition period because of a bad implemented transformation. The managers have estimated the obstacles within the process of implementation of the quality system:

- monopoly of certain companies;
- management style and culture;
- attribute the peculiarities;
- tendency to improvise;
- the attitude that it's someone else's fault for a certain problem;
- claiming that the quality system is destroying the creativity;
- the attitude that quality is expensive and luxury;
- the opinion that quality is provided through control;
- fear of changes - maintaining status - quo;

- mentality, lethargy and shallowness - **we do not have a time to do that.**

The usage of quality methods and techniques within Macedonian companies

Quality providing methods and techniques are instruments for implementing actions in order to improve quality. Those are integral part of quality management according a defined policy, aims and responsibilities of the company, as well as creating comparative advantages on the market. In order to find out if the Macedonian companies have established a control of processes by achieving defined quality with least costs of working, the question is raised: what type of quality control of products/services do they practice?

- 113 companies have claimed that they possess quality control;
- 48 of them use a line control;
- 107 of them practice 100% control;
- 29 implement statistical control;
- the alerting fact is that in 137 companies, 5 to 15% is receiving the daily production returned for an additional processing.

The quality as a phenomenon within the Macedonian companies is at a lowest level because of the bad managing of the business processes, inefficient control, and huge percentage of defects, which exceeds the permitted one. The technical equipment of the companies is close to a sufficient level and fulfills the current demands of the purchasers/ customers, but the problems are mainly originating from the badly organized business processes and the inability to meet the required quality standards. The reasons are not the deficiencies of modern technology but weak managerial abilities, qualifications and completeness and qualitative leading of business processes. They mainly use line form of company leaderships (in separate phases) that are known by the higher costs of working.

Do Macedonian companies learn new things?

In order to get the real picture of the Macedonian companies, whether they learn and whether they stimulate the individual and collective education in order to improve the outcomes of the organization in a way that is important for all users, there are few questions raised: do those companies gain additional knowledge and is there a cooperation with the educational institutions?

- 97 of them practice training from time to time at work;
- 40 of them do not practice trainings for gaining additional knowledge;

- only 5 of them have attended a training twice a year that is a minimum of a yearly professional improvement in the era of education;
- 57 of them *have used the services of the educational-research centers.*

The alarming is the fact that 40 companies do not practice training for gaining additional knowledge and a lifelong improvement is the condition for survival on the modern business. Those real indicators show that not attending training on a regular basis is one of the reasons for being uncompetitive at the global market.

How much is the motivation a significant factor for quality providing?

The motivation of the employees is the most sensitive part of the organizational behavior and is expressed through contentment of the employees. The question how do the companies motivate the employees, the answer that appears most frequently is the increase of payment:

- 120 of the examined have responded that they motivate employees through salary raise;
- 15 of them motivate the employees by bonuses apart from the salary raise;
- 10 of them do it by allowing a development to a higher valued position in the company;
- 6 of them motivate the employees using combined and complex methods that are known and accessible to all employees.

The necessity to build a solid system of quality and usage of TQM strategy within Macedonian companies would be realized only by *building a system for motivation as a consisting part of the house of quality*, and this refers to: integrity of motivation factors, as measure for stimulation and strategies that will systematically and planned incorporate within the working and organizational activities, in order to motivate the employees. But in order to achieve that, the top management needs to:

- attract and maintain the most quality personnel;
- provide a quality realization of the undertaken tasks;
- stimulate creativity and innovativeness;
- provide an identification of the employees with the company and their engagement in its constant development.

How to manage the quality costs within Macedonian companies?

Quality costs appear because of existence or a possibility of a bad quality. The question whether the companies make analysis for quality costs (defects, reclamations, discarded products etc), the gained results refer to the following:

- 29% of them make analysis of costs in terms of quality;
- 71% of them set the analysis to a check up of reclamations of purchasers/ consumers, without analysis of the discarded, no check up of its origin and reasons.

All of this leads to a major loss, not realizing of planned financial outcome, loss of respect, loss of additional time and material for corrections. The practice within Macedonian companies refers to the fact that they do not pay attention to the analysis of costs for quality because of their lack of knowledge therefore the products/ services are not competitive enough at the market.

- weak quality care;
- insufficient attentiveness for continuous education;
- weak investment in innovations;
- small number of companies where the quality system is built;
- insufficient care towards the employees, purchasers, delivery personel and the community;
- weak usage of statistical process control;
- working along with huge expenses;
- teamwork is considered as a taking a step back;
- lack of macro climate for quality development in Macedonia;
- shortage in motivation for quality development within companies;
- weak usage of information technology within production;
- getting a certificate by all means;
- deficiency in strategy planning and effective managing (usually one man is multi-functioning).

In one word, the **reengineering** is a necessity within Macedonian companies. The need of reengineering could appear to companies into a deep crisis or ones expecting the crisis. The usage of the reengineering is present to companies that are in a good condition and owe a potential for development and raise, but also willing to go along the trends of the global market. In that sense, there is a suggestion for a *model – integral methodology for successful designing and implementing of TQM system in Macedonian companies* (Mitreva [4]).

The suggested integral methodology for designing and implementing TQM system starts with the desires and necessities of the purchasers/ consumers and ends up with the measuring of their contentment and the outcomes of the company. The integral methodology for designing and implementing of TQM system within the companies is done in three phases:

1. first phase: Methodology for strategy level of management;
2. second phase: Methodology for a tactical level of management;
3. third phase: Methodology for estimation of success of the designed and implemented system according TQM.

Not including the participation of the top management and its dedication and decisiveness, there are no doable changes, because it all begins and ends from the top. The usage of the information technology is a necessity in the designing and implementing the TQM system within Macedonian companies.

First phase: Methodology for strategy level of management

At a strategy level the determined sections are:

- development strategy through policy for quality;
- plan for strategy development (gantogram).

The quality policy is created bt the top management, and its implemented by the tactical and/or operative level. The quality policy should be in accordance with the business policy of the company such as:

- clearly written and comprehensive to all and mostly to the managers of all levels;
- applicable to all elements of the system;
- applicable in every documentation and segments of the company (offices, departments).

The plan of strategy realization for designing and implementing a TQM system consists tasks and activities that need to be clearly defined, according the initial base: plan-do-check-correct and having precisely determined: who-what-where-when- to whom is responsible through the achieving of the plan.

Second phase: Methodologies for tactical level of management

The second phase of the designing and implementation of TQM system according the plan and strategy for realization of the first phase, the following actions take part: design of the reengineering and the radical redesigning of the business processes in order to achieve an integral management with quality with least costs of working.

If top management makes a decision for a radical reengineering, the current structure is being ignored and the business processes are being defined all over again. Second phase is consisted of the usage of methodologies for design and implementation of subsystems of TQM system, Figure 2:

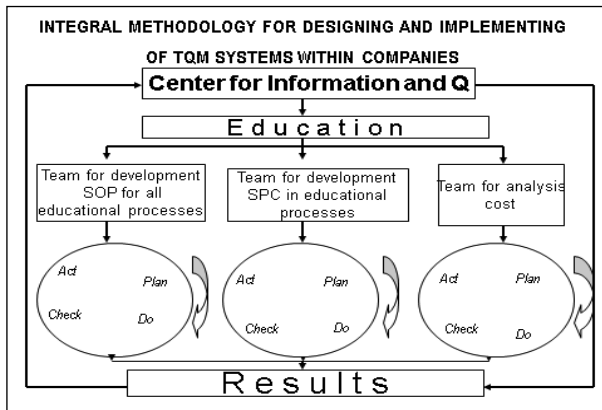


Figure 2. Proposal for an integral methodology for designing and implementing of TQM systems within companies

- 1) Methodology of subsystem - *internal standardization*;
- 2) Methodology of subsystem - *statistical process control*;
- 3) Methodology for analysis for total costs of a given process;
- 4) Methodology of subsystem - *education*;
- 5) Methodology for building a subsystem for *motivation*.

Methodologies for tactical level of management are done through the following steps:

- designing the subsystems in the TQM system;
- election of teams for each subsystem;
- plan for designing and implementing the subsystems.

Those subsystems are designed by the management from the tactical level (in large-sized companies), and in the small-sized companies the selection could be by the managers from operative or strategy level, introducing the policy for quality as a base according to which the quality system begins to be developed into practice. *In the second phase of the TQM system design, the key business processes and their sub-items are being determined, therefore the strategy is set to a recognizable and everyday activities and the functional approach is replaced with the process. The model methodology that is being suggested is an integral and universal, meaning that it's applicable to all companies regardless of their business type and the success of its usage will depend only if the integration of information technology is achieved by: internal standardization, methods and techniques for flawless production, system for analysis of costs and continuous education and motivation of the employees in order to provide competitive advantage. The base in creating this model is redesign, reengineering of the business processes, subsequent to the beginning of a new*

phase for business dealing – continuous improvement and spinning the Deming's quality circle (Plan-Do-Check-Act).

Methodology for assessment of success of the designed and implemented TQM system (Audit)

Self-evaluation, as a basic principal for usage of integral methodology of TQM system is significantly crucial for proper usage of the system itself. The self-evaluation is realized through number of documented procedures for comparison of the realized model in terms of the planned one. The monitoring does not penetrate only within the quality of products/ services but within the adequacy of total TQM system within the implementation of the quality functions.

4. Conclusions

- One part of the suggested methodologies for the subsystems in the house of quality are tested through the practice at some companies in Macedonia, all from different sectors and they have presented results that lead to the fact that the suggested methodology is certainly applicable. It should be emphasized that the assets from the introduction on this model cannot be visible immediately, but during a longer time period. Nevertheless, it should not be one of the reasons to resign from the starting initiative because quality comes as a long-term process.
- Without dedication of the top management towards the set aims for quality and consistency within their implementation, all the effort might be just a waste of time and finance and at the same time a good reason for reduction of success to a further initiative of such type.
- The assets from the usage of such model is not only to increase the level of dedication of top management and the employees, but to achieve a content to the purchasers, employees, auctioneers, suppliers and the community in general as well as increasing the business outcomes of the companies that would further in serve as a starting power for continuous improvement.

5. References

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