

NEW TENDENCIES APPLIED IN PROCEDURAL APPROACH TOWARDS QUALITY CONTROL

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Abstract: In the contribution are stated new tendencies used at quality control branch today. These tendencies support production effectiveness in most general form. Upon correct and consequential application they may also help to find out critical places of the processes. Nowadays quality can not be understood just like specialisation, respectively like added value, but must be embraced like indivisible part of all processes.

In contribution is deeply described problems of management of quality cycles, PDCA cycles and shortly is shown principle of Quality Journal methodology. Mentioned tendencies are suitable for application at company management on all management levels – it means from Top management even to production process itself. Their significance grows up with more dynamic trend of quality assurance and closely contextual producer's responsibility for product.

Keywords: quality, management of quality, PDCA cycles, Quality Journal

1 INTRODUCTION

Already several decades economic world fights for better quality. In this context the term *quality* is understood as for needs of practical life as for needs of company management like „total summary of entity marks that affect capability to satisfy given and presumptive needs“ [3]. Below the term entity we can imagine product, activity or process, organization, system or person. Via interaction of single entity type we may come to life quality.

World widely most dynamic increasing of quality has been reached at last two decades. It is pleasant to know that this trend positively hit Czech Republic as well, in practice of ISO or VDA conception and QS 9000 with companies connected to automotive industry. TQM conception did not reach stronger expansion in our country because management of companies thinks of quality like about product quality problems. Question of quality assurance of processes which is over then scope of ISO is left out.

Quality is in industrial matured countries considered as one of most important factors of political economy effectiveness. It is also considered as a critical factor of consumer's protection, company and/or state business name, safeness and living environment.

However, the reality is such that if our companies would survive in hard competition, they should pay basic attention on quality management.

Research focused on company quality management that has been realized by EFQM in cooperation with European committee proved that effective quality management leads to :

- economical results improving
- higher interest about customer's requirements
- company culture development and managing of people
- significant changes at personal development of employees

2 NEW TENDENCIES IN QUALITY CONTROL

Recently we can see necessity of new tendencies in quality control. What is the main sense of these tendencies is expressed as follow :

- to pass from quality which has been dictated according to customer requirements to quality which will be deducted from customer expectancy or wish that would not be even told
- expenses of product usage (it means operating expenses with long-term use product) must be reduced, by increased reliability, lower energy consumption, for example.

- to reach better quality via product innovation upon lower consumption of limited production sources (raw materials, energy)
- life cycle of the product from design to its liquidation must be economical as much as possible (quality of life)
- guaranty providing to quality in whole range of life cycle of product or service (this is not only question of guaranty specified by warranty)
- prevention of defects and at the same time an inspection weakening, care about the quality is moving into pre-production stages (80%)
- quality control penetrates more and more into service scope and the control is not restricted on production sphere only
- stronger responsibility of ordinary employees in all stages of reproduction process over own job level making

2.1 Productivity increasing

Most of managers hold the view that terms high quality and high productivity contradict each other. However, the contrary is true. High quality leads to high productivity because upon high quality assurance we would have less finishing jobs and repairs. Logically, it means less wasted work.

Via quality improvement is possible to change time losses of working shift to better fabric or service producing. Outcome is a chain reaction (fig. 1).

This chain reaction is commonly known all over the world. Into everyday practice has been established by Top management at Japan in 1950. To reach production quality would be corporate and by whole society accepted target.



Figure 1. Chain reaction

2.2 Management circles

The management circles is a new controlling method that shall help to companies to pass into next century. The method is based on conception of four circles of management – environment management, process management, personal management and strategic management (fig. no.2). If the method is applied correctly, it would cause continuous improvement of life style of all employees.

• Environment management

Environment management includes transformation of managing company culture, it means transformation of complexion thinking of managers. It defines a lot of managing conditions that compile environment for quality work. In such environment all employees have chance to contribute to company success. Environment management is overall.

To realize successful transformation is very important so that managers must understand to their company culture. Some employees will support the new philosophy. Other will deprecate and opinion of majority would lie between adoption and rejection. Top managers must recognize such employees that accept the new philosophy and would lead other towards transformation.

Managers must care about detection and cancellation such conditions that are against improvement of company environment, company culture. Top managers must first of all to create managing group whose main task is to plan procedure of company culture change. They must behave like leaders and must be good sample to be followed by others.

- **Process management**

Process management has its position inside of Environment management. It focuses its attention on improvement and innovation of processes, products and services thereby that it allows to identify, analyze, improve and innovate systematically. Conservative approach of quality control focuses on error finding already made products. New approach focuses its attention on such process modification that would eliminate production of different products. Main goal is to reach production of consistent products only.

Employees at single workplaces generate local managing teams. These teams are responsible for activity that execute intra-plant quality control. Their main task is to enable and stimulate innovatory effort by means of training, critical processes finding, quality indicators determination.

Main task of the top management is to generate such system in all company that allows continual improving inside of each working unit of the company. However, successful company transformation may take a few years. No work as on management level as on technical level is finished until the system of its continual improving is completed.

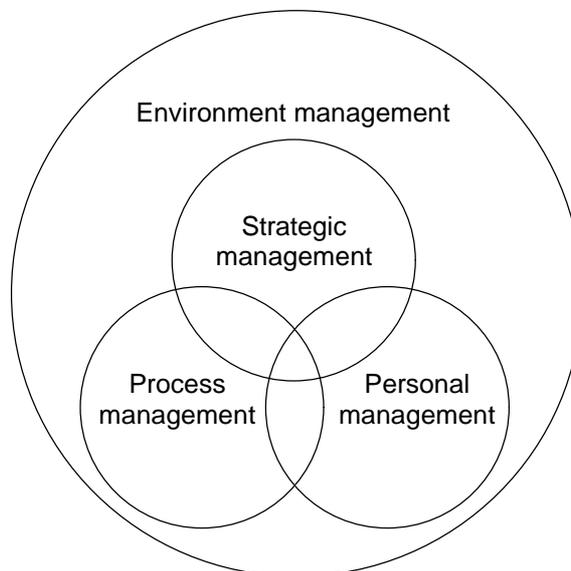


Figure 2. Management circles

- **Personal management**

Personal management is overlaid with Process management partly and is fully included into Environment management. Personal management includes continual improvement of process control and helps to employees focus their attention on own work improvement.

Process of Personal management starts with company objectives elaboration in personal branch and elaboration of critical goals and check indicators in Strategic management (see below). Targets that are kept by managers are not strong enough for changes creation in company. That is why these managers rather should evoke in employees feeling of responsibility for future of the company.

Upon Personal management is necessary to identify key managing functions. Main duty of each employee is continual seeking of methods how to improve his/her own processes, respectively activities.

- **Strategic management**

Strategic management investigates and publishes questions of company function, objectives, virtues and turning-points. It is improving process of whole company structure. It requires own planning and distribution in the company. Strategic management is method of decision-making decentralization and also method that assures so that accepted decisions would be according to company targets. The Strategic management consists of three separate parts :

- general strategy that destinies the direction and activity character
- critical targets that company must reach during one year, if the company would reach its long-term vision
- methods that say how would be got of critical targets and according to which plan every single method would be implemented

Thereby the items is clearly specified company politics and traced plan that verges to company objective, it means there, where company wants to be after established time spell (let say after 5 years).

Strategic management begins with clear and connected definition of target, function, virtues, merits and task of the company :

- the definition sets up clearly with one or two sentences where the company should be after 5 years, way to company objective does not need to be straight but it must not be lost out of sight
- function gives reasons why company exists
- virtues and merits indicate direction of employee's activities, they determinate barriers, movement behind them is not allowed
- task determination that is necessary to do to reach the goal

Further important step is method and technique planning by the help of them we would like to reach the goal. If we would find answer on question why, what, when, where, who and how, we have composed a perfect program of realisation. Implementation of such program of realisation requires integration of all employees on all levels. All parties must the plan improve continuously.

Among main causes of idleness inside of the company is waiting for advisees and instructions from Top management. Thence it follows that new managing method shall be applied better in case that the Top management would beat out the pathway for the implementation. Even that, every single employee has chance to plan out his own work intra his actuating.

All the time growing world market will pushes us to improve quality of our processes, produce more quality products and services because of the fact to be able to compete. In most companies it means to utilize new managing methods, it means management circles implementation.

2.3 Shewhart's (PDCA) cycle

Base of the procedure upon finding and solving problems with quality is a continual diagnostics of situation and procedures development, a negative progress gaining and knowledgeable, active and head drafting and realization of changes that would contribute to quality improvement. Basically, the procedure can be characterized by Shewhart's (PDCA) cycle that runs in following stages :

Planning (planning of the change)

Employee must answer few basic question :

- What we would get?
- What we have to overcome?
- What are most important required results?
- Have we available the information?
- What new information we need?

Doing (change realisation)

Realisation of the change in small scale or just for trial due to obtain data for next procedure.

Checking (appreciation of change effect)

Monitor and measure „effect“ of change or test implementation.

Acting

- Does information confirm the plan?
- Do other causes affect?
- Are risks of transform to other change necessary and profitable?

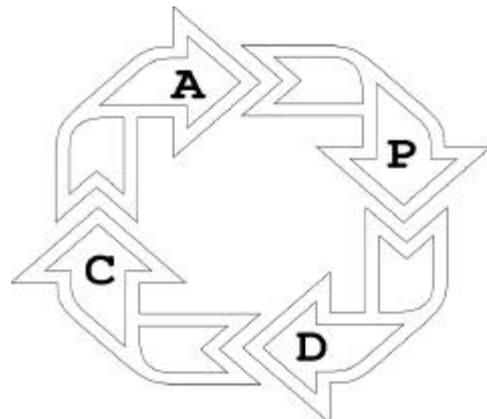


Figure 3. PDCA cycle

Whole process shall be repeated on qualitatively higher level with all production factors in context of moving requirements of customer and market. Intention or plan is modified according to results and outcomes that rise from first cycle and then follows continual repeating of all steps.

1.4 Quality Journal

Quality journal is used upon problem solving and it shows a total summary of activities. Further more it shows reached progress thus anybody may look at activities that are in connection to problem solving and propound another proposals of improvement.

Total approach can be split into seven steps :

- I. To define problem clearly – it means a factual description of problem range and its effects on whole system and explanation of reasons why it has been chosen
- II. To monitor problem – it means problem investigation from different visual angles, in different time intervals, on different places, etc.
- III. Determinate main causes of problems – this step is divided into two parts : in first one we think about causes of the problem, in second one we check up the hypotheses
- IV. Admit to action that would eliminate main problems – we use information for evaluation of different possible problem resolutions. It is necessary to take care so that solution would not have any side ill-effects. We will choose solution and would be implemented
- V. Check up – in this step shall be compared situation before and after change. In case that action was effected according to planned manners and it did not take required effect, it is necessary to verify other solution
- VI. Standardisation of solving – this is done after we shall got required effects. It means to elaborate new standards and train employees in company. Afterwards is necessary to think out system of deviation checking from set standard
- VII. Conclusion – in the last step the whole process must be checked, then note what in process of improvement came right (respectively what was unworkable) so that other employees could be instructed for future problem solving.

3 CONCLUSION

Managers must not focus their attention on an idle understanding of total quality control only. They must know everything, what matter in reality on Top managing level as well as in production sector. If it is not like this then come following result – feeling of urgency of total quality control demand and necessity of its implementation as a main condition of incoming success would be lost.

Customer started to be more demanded. Importance is also put on product safety and its potential negative influence on living environment. Nowadays it is necessary to apply quality control not only to production stages as well as manly into pre-production stages and post-production stage, it means, now is expected product warranty during its whole lifetime. Above mentioned must be done during a synchronous product costs decreasing as well as reducing of customer's costs. Quality control must be applied also on secondary products that rising in production process unwillingly. Basically, main objective is transformation from quality control towards quality of control.

Quality management applies practically procedure which is split up into following stages:

- quality planning, where whole procedure is set up from first intention of new product preparation to an individual realisation of production process (quality objectives determination, identification of market segment, understanding of customer needs, design of the product and production process)
- Quality regulation assures operative quality control in-process of product creation
- Quality improvement, it means quick mending of weaknesses thus cost reducing

Finally, total quality control is tool of guiding, not guiding in itself. If it is used correctly, it is highly useful instrument. However, it is absolutely absurd or even contra-productive if it is used incorrectly or never. It is necessary so that total quality control would be appropriately understood and implemented. With this contributes implemented and well running quality system.

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