

## **TQM IMPLEMENTATION IN THE WOOD INDUSTRY**

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### **ABSTRACT**

*The paper presents some experiences in implementation of Standards series ISO 9000ff to TQM in wood industry in Una-Sana Canton. Research was conducted in the companies that possess certificate ISO 9001:2008. The possibility of TQM implementation in wood industry production was presented.*

**Keywords:** TQM, implementation, ISO 9000ff, development, process, improvement, EQA.

### **1. INTRODUCTION**

The purpose of this paper is to indicate the state of the wood industry in Una-Sana Canton, in organizations that have introduced quality management system and laid out ground for TQM. TQM indicates three things:

- Philosophical concept from the quality theory,
- Culture and behaviour of the organization in relation to buyer or customer,
- Model of the integrated quality management system in the organization.

Elementary explanation of TQM can be given according to the scheme of Deming circle [2].

### **2. DEVELOPMENT AND QUALITY**

In Una-Sana Canton quality management system series ISO 9000ff, 14000ff, and 18000ff was introduced in 50 organizations, while in Bosnia and Herzegovina in around 1200 organizations, which presents small number compared to the needs of Una-Sana Canton and the entire Bosnia and Herzegovina. Organizations that introduced quality management system usually choose recertification for the same standard, while 30% of organizations integrate their systems with other standards. During the third recertification these organizations choose the direction towards TQM. Reputation of these organizations is on high level and they have advantage in European Union market. Such organizations demonstrate visible application of basic joint elements of each TQM model, which are divided into two major groups: competence and results. Each TQM model contains the following joint key elements:

1. Management commitment,
2. Organization policy and strategy,
3. Engagement of all employees,
4. Resource disposition,
5. Process management,
6. Buyer and customer satisfaction,
7. Positive influence on the society,
8. Achieved improvement and business success.

In order for the organization to be efficient, its each part needs to work together in appropriate manner. Each activity and every employee can influence the organization, thus allowing others to influence the organization as well. Inconsistencies manage to multiply, and the failure to meet the demands in one part or process can create a problem, which leads to more inconsistencies. Benefits to conduct a process in the right way for the first time are manifold. Quality, defined as the customer demand satisfaction, offers people in different functions in the organization a common improvement risk. Some of the most interesting applications of TQM in wood industry appeared as a result of the process, which could see small significance when that concept was first introduced after the second recertification. After the training, employees in all processes of the organization can apply new technology. Process staff can monitor and increase successful sales calls, office staff can use TQM to prevent errors in text processing and improve entering data in the computers, staff working with customers can monitor and decrease the number of complaints, and distribution department can control delay and interruption of delivery [6].

### 3. QUALITY CULTURE

In wood industry quality culture indicates that basic TQM concepts are integrated in the company culture. According to Standard 9004:2008 they include orientation towards customers, team work demand, justice and sense of ownership over businesses and processes. Employee consciousness is of crucial importance so that cultural changes follow the implementation of TQM program. Without quality culture there is no TQM program implementation.

The basic obstacles in quality culture implementation are the following:

1. Lack of leadership.

Leadership is not active in planning and implementation of total culture program. If relations with main suppliers are not established, in this case in Una-Sana Canton with PE Una-Sana Forests Bosanska Krupa, TQM will not stand firm. Those organizations that remain without concrete arrangements with PE Una-Sana Forests are required to change the supplier. In this situation they cannot be competitive and are directed towards bankruptcy.

2. Short-term measures.

Organizations that are in the process of TQM must set long-term objectives in accordance with the set quality policy. It is rather long period in the wood industry for direction towards customers or team process to be rewarded. Setting short-term financial results will suppress all efforts for TQM, especially in the organizations that operate in domestic markets with low percentage of collection of receivables.

3. Poorly designed businesses.

It is difficult to achieve defined measurable objectives in the wood industry. The worker in the process should know what the best way to achieve the defined objectives of the process is, and one of the first steps is to establishing total quality culture. It can be conducted only if all employed workers are involved in designing their own work methods.

4. Insecurity of the workplace.

In order to successfully implement TQM program, the workers need to be introduced to the concept of security of the workplace. This must not include the reduction of the number of employees, and if there exist surplus of workforce, the workers should know what caused this situation, i.e. this information should be given to them in clear and understandable manner. In order for TQM to function, instead of firing workers, the organization needs to conduct pre-qualification or reassign workers to other work tasks.

5. Lack of long-term commitment to quality.

If the management does not conduct continuous review according to the demand BAS EN ISO 9001:2008 point 5.6, that is the sign of lack of long-term commitment to quality management system [3].

If the organization does not contain permanent education program, or has undefined visions, missions, quality policy, objectives, no clear strategies and lack of strategic planning, undefined processes, lack of success criteria, lack of responsibility matrix, insufficient employee motivation, undefined market demands, lack of process measuring, lack of methods and techniques in work evaluation, no improvement measures, than the TQM cannot be implemented. The stated activities have to be conducted during the quality management system implementation [5].

#### **4. TOOLS AND METHODS OF IMPROVEMENTS**

Key to success of each organization lies in the application of tools and methods of improvements and quality improvement. In the infinite search for improvement of the ways to conduct a process, measurable objectives and information create the basis for understanding, decision making and action, whereas the foundation lies in detailed data gathering system assisted by the tools and methods of improvements. Besides basic quality elements that enable measuring foundation, there are series of methods, such as seven basic tools. Tools and techniques should be used so as to understand maximum data use. Organizations are offered tools for gathering, collection, presentation and analysis of data, which go beyond the number of seven:

- Process block diagram – what to do?
- Register checklist – how often are they conducted?
- Histogram – how total changes appear?
- Scatter diagrams – what are the relations among factors?
- Stratification – how data are combined?
- Pareto analysis – what are the major problems?
- Cause-consequence analysis and thinking about ideas – what causes the problem?
- Obstacle analysis – what will prevent or help to change the solution?
- Control tables – what variations to control and how [6]?

In the organizations that conduct the TQM program it is necessary to implement methods, such as:

- Brainstorming,
- Brainwriting,
- SWOT analysis,
- GANTT – charts (Gantograms),
- Web planning technique,
- FMEA method,
- QFD method,
- Benchmarking,
- Process reengineering,
- Taguchi method and loss probability inverse function,
- Six Sigma [1,4].

There are basically two approaches to TQM implementation and the exact choice of method is extremely important in order to minimize the resistance. These two types of methods are: fast method and slow method.

Fast method – is the approach in which the entire organization, in its regular course of business, is rapidly exposed to TQM, and it starts with mass and intense TQM team training. This can lead to many problems. This approach is possible only if the organization has implemented integrated quality management system, introduced new technology and implemented training plan for all employees.

The second approach is “slow method” – planned approach causes gradual changes, so that regular course of business becomes total quality management. The first important phase in this process is to convince the top management to move on to TQM, so that it can enter the organization with the support from the top.

The importance of tools and methods lies in the fact that most of them can be successfully used in all systems for monitoring various parameters and business activities. In the wood industry practice proves that the highest number of tools and methods are being used in quality subsystem. Modern methods stress normal measures that maintain trends and long-term improvements. In doing so, they simultaneously enable support in making managerial decisions and motivate participants in business processes for continuous improvements.

In each business we encounter the problem of data accuracy – incorrect data are bad data. Without statistical analysis (process quality) there are no efficient business activities: 95% problems of the organization can be easily solved with the application of basic tools. With the application of appropriate tools and methods and little investments great results can be achieved. Tools and methods primarily help in disposing, decreasing and elimination of errors, thus decreasing or eliminating costs, which means creating big effects with little investment. The largest investment through application of tools and method of improvements is in education and training of staff, so that staff can accept, understand and apply tools and methods.

However, there is a tendency in spreading tools and methods on entire systems [3,5]. Organization that does not apply tools and methods of improvements is not able to implement TQM program. Techniques in TQM area cover very wide and rich area [2].

## **5. CONCLUSION**

The key to success of every organization is to produce its customer, and the first task is to create an attractive product of world-class quality. TQM program implementation creates flexible organization that enables a constant product quality. Application of integrated quality system and TQM creates the possibility for increasing level of excellence through continuing improvements. Without TQM implementation we will not move forward, which means there will not be improvements necessary for better and safer position on the market and total business. This approach to application of methods, techniques and tools is crucial for the success of the company. TQM presents the volunteer act, but without it many of the technical, technological, economical and market barriers would not be urgently and efficiently removed. According to all existing forecasts, the development of all world TQM models is directed towards the model that would enable reaching organization business excellence. Developing theories and practice of modern quality is practically impossible without clear insight into the historical and spatial development of TQM basic models. European Quality Award (EQA) is the youngest existing quality award.

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