

## APPLICATION OF THE QUALITY MANAGEMENT TOOLS IN THE TEXTILE INDUSTRY

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**Abstract:** Textile and apparel industry in Europe is faced with higher cost structure than many of its competitors on world markets. Focusing on higher quality is a way to distinguish from competition and reduce total cost. In the past few years this industrial branch has been expecting problems because the total production is significantly smaller. Therefore, industry management has been warned about giving constant attention to: reducing costs and promoting their own brands. Hypothesis of this paper are that: Croatian managers in textile and apparel industry are not familiar with quality concepts; and that application of quality tools and concepts contributes to achievement of better business results and competitiveness. It was critically assessed by survey sent to 150 managers in Croatian textile companies. Results showed that managers were not familiar with different quality concepts, but their perceptions about benefits from application were positive.

**Key words:** quality, management, tools, textile, Croatia

### 1. INTRODUCTION

Textile apparel industry is a sector where quality is one of the key competitive factors, and current competition does not only concern the individual firm but, rather, involves the entire supply chain (Evans *et al.*, 1993; Forzaet *al.*, 2000, cited in Romano & Vinelli, 2001). Quality management is now extremely important for all organizations, especially for the textile and apparel industry as it struggles with competition from less developed countries that offer much cheaper products. Tools for quality management can help companies in this industry to reduce costs, realize zero defects and thus achieve better results. Furthermore, the application of the quality tools help companies to identify the causes of the problems and to manage that problems.

Seven basic quality tools are (Lazibat, 2009):

- Cause and effect diagram,
- Check sheet,
- Scatter diagram,
- Flowchart,
- Pareto chart,
- Control cards,
- Histogram.

They are called *basic* because they are suitable for people with little formal training in statistics and because they can be used to solve the vast majority of quality-related issues. In 1976, the Union of Japanese Scientists and Engineers (JUSE) saw the need for tools to promote innovation, communicate information and successfully plan major projects. A team researched and developed the seven new quality control tools, often called the seven management and planning tools, or simply the seven management tools. Not all the tools were new, but their collection and promotion were (Tague, 2005). The seven management tools are:

- Affinity diagram,
- Relations diagram,
- Tree diagram,

- Matrix diagram,
- Matrix data analysis,
- Arrow diagram,
- Process decision program chart.

It is management's responsibility to ensure that the people who are solving the problems have the proper training and facilitation. It is also management responsibility to make sure the problems being attacked are of interest to the enterprise and not trivial (Davis & Stanley, 2010). Therefore, this paper analyses the attitudes of managers in the Croatian textile and apparel industry regarding the application of tools for quality management. The purpose of this study is to validate theoretical assumptions that use of quality tools and concepts can help textile companies to achieve better business results and improve competitive position. The survey was conducted on a sample of companies in the Croatian textile and apparel industry from May till November 2009. Limitations of this study are: generalization only to Croatian textile and apparel industry, low rate of return and subjectivity because results are based on the attitudes of managers.

### 2. RESEARCH RESULTS

An anonymous questionnaire was sent to 150 managers in Croatian textile and apparel industry. The rate of return was 26%. Of the 39 managers who responded the survey, 27 were male and 12 female. Most of respondents had higher education degree. Small and medium sized companies dominated in the sample.

Quality tools and concepts haven't been used sufficiently in Croatian textile and apparel industry. Thus, we started survey with questions about use of basic tools and concepts in order to define level of knowledge and application.

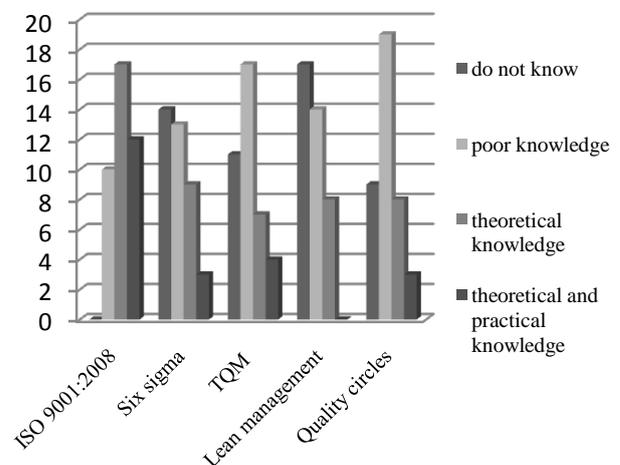


Fig. 1. Croatian managers evaluate their knowledge of quality concepts and methods

Managers have been familiar with ISO 9001:2008 standard and mostly haven't been informed about other concepts or systems (see figure 1). What lacks the most is a practical knowledge. Results indicate the need to educate Croatian managers about quality concepts and systems.

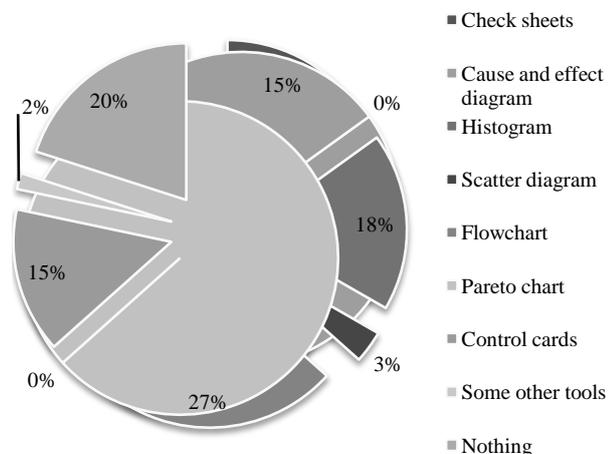


Fig. 2. Application of the basic quality tools in the Croatian textile industry

The results showed that companies mostly haven't used any of listed tools, and some of them used only one or two (see figure 2). Pareto and cause and effect diagrams haven't been used generally, but more disappointing is the fact that 20% of analysed companies didn't use any of basic quality tools.

Following figures show the agreement of managers with certain claims. When using Likert-type scales it is imperative to calculate and report Cronbach's alpha coefficient for internal consistency reliability for any scales or subscales one may be using (Gliem and Gliem, 2003). Cronbach's alpha in this survey is 0,8640, and standardized coefficient is 0,8686, thus we can conclude that items have relatively high internal consistency.

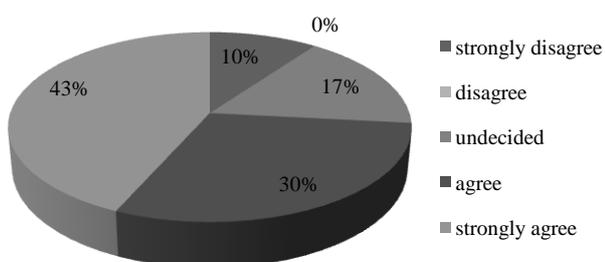


Fig. 3. The most important success factor in applying the tools for quality management and quality management system is management support

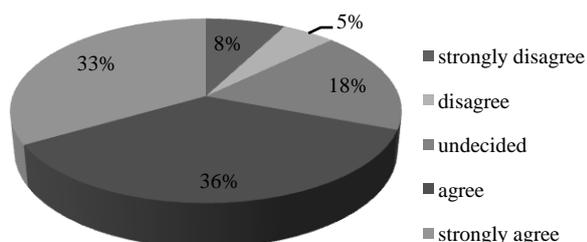


Fig. 4. Application of tools and concepts for quality management contributes to a better competitive position of Croatian textile and apparel industry

Most respondents (73%) agree with the statement that management support is very important factor for successful application of tools for quality management (see figure 3). Consequently, managers are aware of their role in creating preconditions for the effective implementation of the quality management tools. Furthermore, 69% of managers believe that implementation of the quality tools and concepts contributes to a better competitive position (see figure 4). Results match theoretical assumptions that quality management tools and techniques contribute to a better reputation and the competitiveness of the company (Lazibat, 2009).

There are many benefits from the application of the analysed tools and concepts. Some benefits are: reduction of costs and non-conformities, increased customer and employee satisfaction, process improvement, better competitive position and better business results. Some of these benefits have been proven in the survey, and some have been derived from theoretical assumptions (Tague, 2005; Lazibat, 2009; Goetsch and Stanley, 2001). Managers in Croatian textile and apparel industry should initiate improvement actions, implement new tools and management systems, in order to enhance their results.

### 3. CONCLUSION

Throughout this paper, the underlying assumption has been that application of the quality management tools contributes to the achievement of better business results and competitiveness. The survey was conducted in order to analyse the perceptions of management and highlight importance of application of the quality management tools and concepts for the development of Croatian textile and apparel industry.

The results showed that managers haven't been familiar with the different quality concepts. Furthermore, they haven't used quality tools sufficiently. In addition, managers are aware of their role in the system and they are familiar with the advantages connected with the use of the quality management tools. Finally, results confirmed initial assumption that the use of these tools and concepts contributes to achieving better competitive position. Therefore, the overall conclusion is that there are many improvement possibilities. The positive is the fact that managers recognize their responsibility to initiate improvement activities, while the negative side is lack of knowledge and resources for the rapid changes that are necessary.

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