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IMPROVEMENT OF THE PRODUCT QUALITY MANAGEMENT SYSTEM AT TEXTILE ENTERPRISES

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ABSTRACT

Product quality management, continuous quality control, and consideration of modern standards at textile enterprises are among the most pressing issues today. This article, based on the results of scientific research, describes a methodology aimed at studying the root causes of defects based on the requirements of international standards, taking into account the complexity and diversity of textile production.

KEYWORDS

FMEA, PDCA, Khanteks group, Weaving workshop, Weaving workshop, Dying workshop, Root cause of the problem, Information bulletin, Continuous improvement, Corrected causes, Functional description, Main problem, Immediate cause.

INTRODUCTION

In the world, special importance is attached to the issue of assessing the quality of products and their rational use, based on the expansion of the production of high-quality textile products, the introduction of international standards and determining the effectiveness of the quality management system. Currently, textile production in developed countries will increase from \$573.22 billion in 2022 to \$610.91 billion in 2023, with an annual growth rate of 6.6%. By 2027, the textile market is expected to grow by 5.5% to reach \$755.38 billion. [1]. In this regard, special

attention is paid to increasing the efficiency of product quality management based on the development of optimal mechanisms for quality management systems specific to textile enterprises, identifying the root causes of problems arising in the production process, and assessing quality indicators.

Scientific research is being conducted around the world aimed at significantly improving the quality of textile products, in particular, optimizing regulatory documents and quality principles when assessing product quality, defining the requirements of a quality

management system based on the PDCA cycle, and improving the mechanism. [2]. At the same time, research into identifying problems of ensuring product quality at the initial stage and improving the mechanisms of the quality management system based on the requirements of international standards specific to textiles are considered to be relevant tasks.

METHODS

A number of scientists have conducted scientific research on significant improvement of product quality in textile enterprises, product quality management

taking into account the requirements of modern standards. In order to accurately and effectively analyze the costs of product quality in the textile production process, it is important to control the costs of product quality [3]. Also in the research works of D. Panyukov [4], based on the FMEA method of studying product quality, the American Douglas S. explained specific aspects of statistical methods [5] for assessing product quality using specific examples. In conducting research processes at textile enterprises, we have developed a modern method aimed at studying the root cause of problems aimed at studying the quality of products (Fig. 1).

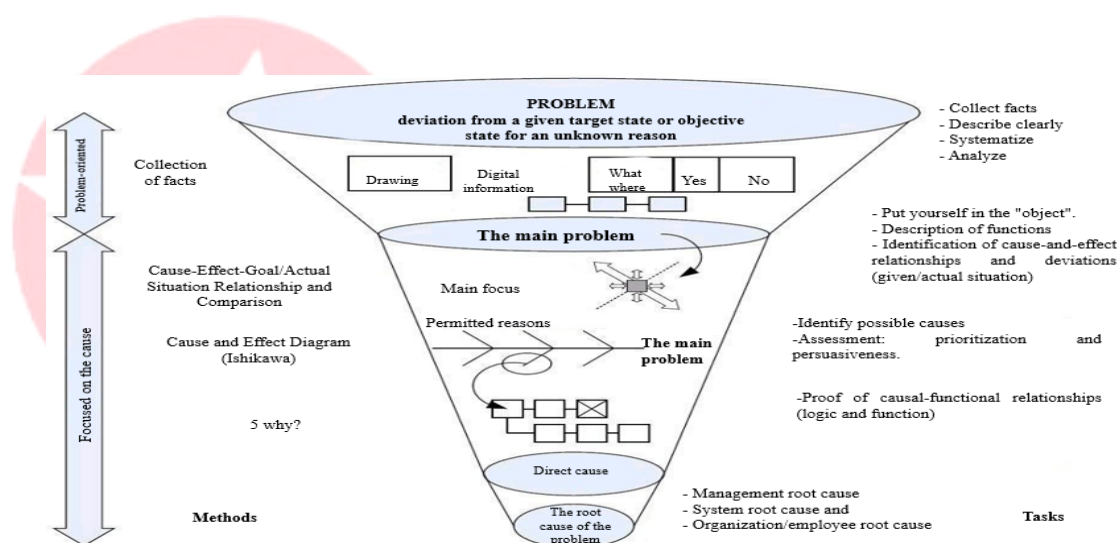


Figure 1. Method aimed at studying the root cause of surface defects in textile enterprises.

RESULTS

We applied a methodology developed during scientific research aimed at studying the root causes of surface defects at the textile enterprises “Khanteks Group” [6]

and “Kuva Textile”. A towel manufactured in a weaving shop was produced in a defective condition. We investigated the root cause of the defect using the proposed methodology. The learning process is illustrated in Figures 2 and 3 below.

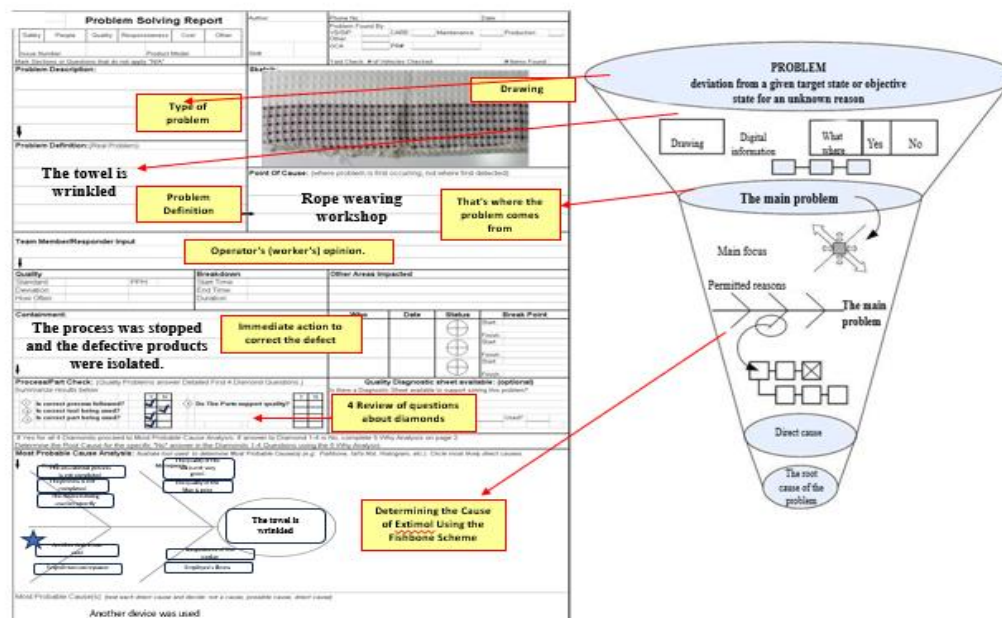


Figure 2. The process of studying the defective output of the towel

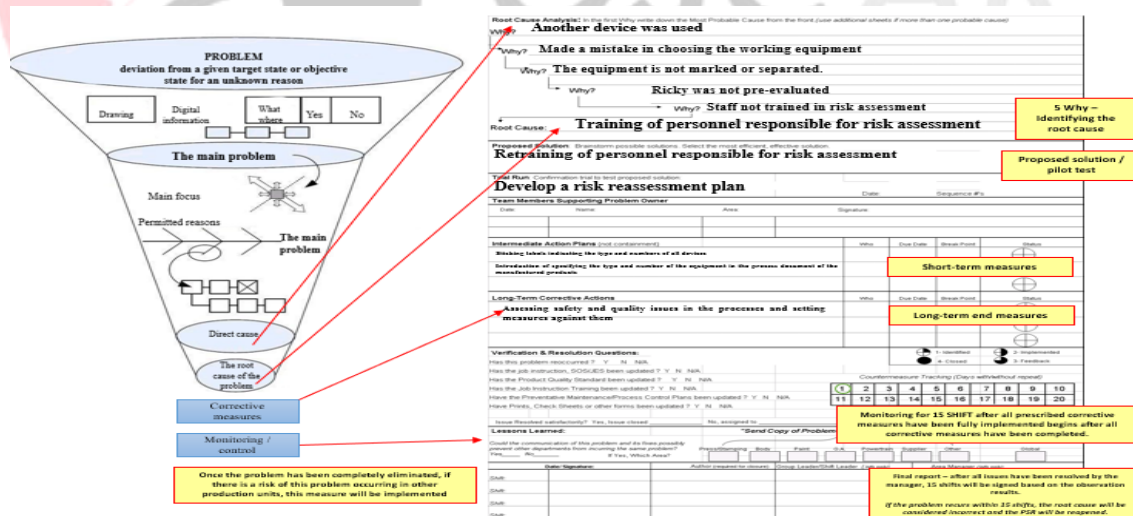


Figure 3. The process of studying the defective output of the towel

DISCUSSION

As a result of the implementation of the above method, the product quality indicators at the Khatex

textile enterprise in 2020 averaged 96%, while it can be noted that the product quality in 2023 increased by

1.58% compared to 2020 due to the application of scientific innovations in practice.

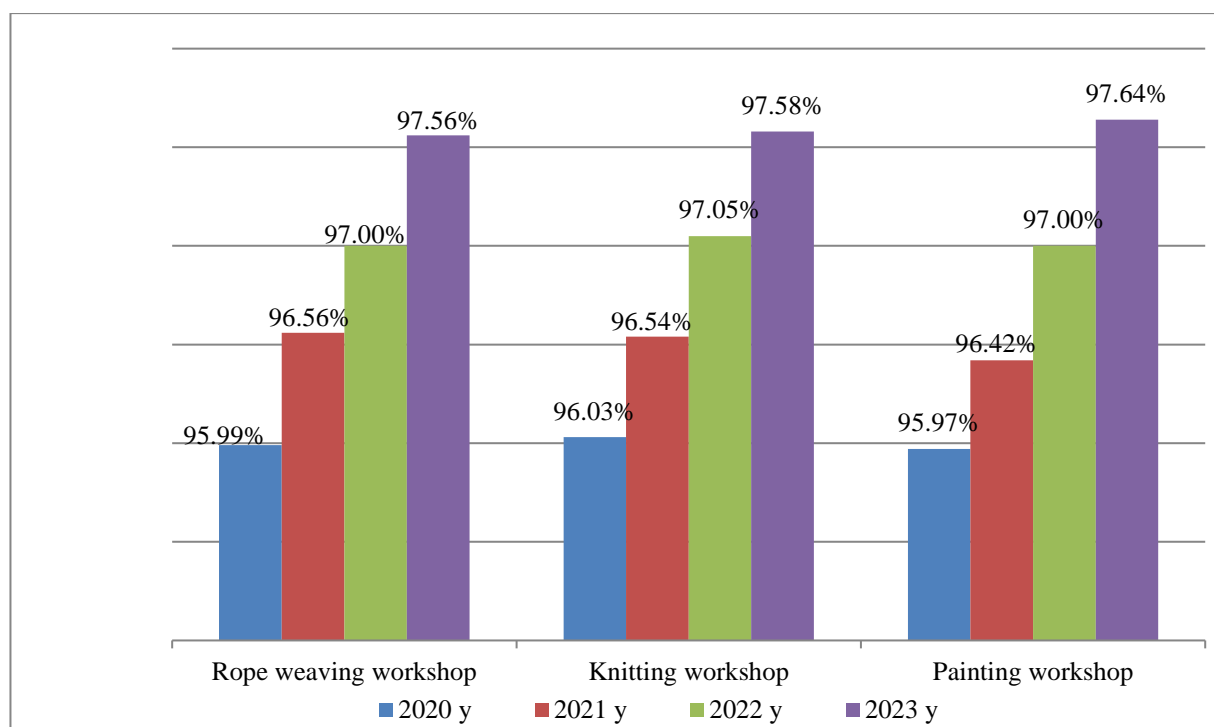


Figure 4. Dynamics of changes in the quality of products of the textile enterprise "Khanteks group" in 2020-2023

Although the method we proposed is used in a number of manufacturing enterprises, its application in textile industry enterprises is also confirmed by the results obtained.

CONCLUSION

In conclusion, the evaluation, improvement and continuous monitoring of textile product quality will bring comprehensive benefits to enterprises. It is important to implement modern methods based on the requirements of international standards to study the root causes of defective products. Therefore, the method we propose differs from other methods in its efficiency, focus on the root cause of the defective

product and quickly creates the basis for the textile enterprise to reach a higher level.

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