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FIJESRT INTERNATIONAL JOURNAL OF ENGINEERING SCIENCES & RESEARCH TECHNOLOGY CONTINUOUS QUALITY IMPROVEMENT Ing. Ivan Litvaj, Ph.D

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ABSTRACT

One of the important components of today's modern management is improvement. Improvement is meant as a process in companies, and various institutions. For these reasons, improvement is an integral part of the management's work. The central, main topic of the article is continuous quality improvement. In the current market economy, due to trends and changes in the market, I observe a constant growth in the importance of the quality improvement process.

KEYWORDS: Quality, quality management, improvement, quality improvement.

1. INTRODUCTION

Quality management through which we manage quality in the company consists of the following basic parts: Quality planning, Quality assurance, Quality management, Quality improvement. Continuous quality improvement is, therefore, an integral part of quality management. Quality must be improved continuously. Quality of products and services, quality of business processes, quality of management - all these elements must be constantly improved. The PDCA Cycle, for example, reflects and captures this fact well. The PDCA Cycle also tells us that improvement is its part; it should be a part of every activity of managers and employees. The importance of continuous improvement in the changing conditions of the global economy and business is constantly growing, which is a very important fact. This fact is related to the growth of competition in world markets and to globalization. If a company wants to remain competitive in such challenging conditions of today's market economy (new trends and changes in the market, frequency of changes, turbulence in the global market, growing uncertainty in decision-making, etc.), it must constantly improve in terms of all processes and activities.



Figure 1 The PDCA Cycle [3]

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2. METHODOLOGY

I used in preparing the paper a systemic approach. I used theoretical methods - analysis, synthesis, induction, deduction and empirical scientific procedures. I worked with specific knowledge related to quality management and quality improvement. By using this knowledge, I have worked on concrete results and practical applications. The results of the paper will bring closer Quality Improvement from several points of view.

How to Improve Quality Management Consistently

Quality Management, a relatively recent phenomenon ensures that an organization, product or service is consistent with quality. It is based on both prospective and retrospective reviews. However, the scope of Quality management is not just limited to product or service quality but also deals with the means to achieve and maintain quality standards. Thus, Quality Management may be defined as an act of performing all the activities and tasks which are needed to maintain a desired level of excellence. This includes creating and implementing quality planning and assurance, as well as quality control and quality improvement.

What Is Quality Management Improvement?

Continuous and consistent quality improvement is a must pre-requisite for all the Quality Management Systems. Quality improvement is a recurring process and should be repeated at regular intervals. It is an ongoing process, not a one-time effort and lasts with the life of an enterprise. Different examples across industries have proved that any negligence on product quality and process improvements end up in serious catastrophic results for the company and its products. [1]

3. 7 WAYS TO IMPROVE YOUR QUALITY MANAGEMENT PROCESS

Quality management can be a make-or-break point for a manufacturing or distribution business. It can be the difference between putting out great products that satisfy your customers and producing unsatisfactory or even dangerous merchandise. It's often not an easy process, but the rewards of getting it right are immense. So, what can you do to make quality management not just part of your business, but a strength that separates you from your competitors? How can you reduce the cost and improve the efficacy? What are the key concepts that create real value in your processes?

These seven tips can help you break open the secrets of quality management:

1. Understand the Cost of Quality model.

The <u>Cost of Quality (COQ) model</u> is the basic principle on which most quality management programs are based. Put simply, it states that quality always has a cost, but that investments to increase quality are more productive the earlier they're introduced. Fixing a problem at the design stage, for example, is much cheaper than fixing it in production, and fixing it in production is massively cheaper than fixing it once it's gone out the door. If you're having trouble making upper management see the need to invest in quality management processes, a Cost of Quality analysis can be a great tool for making your case.

2. Know the different methods of quality management and choose the right one (s) for you.

Many different methods of quality management are used today, and each has its own advantages and drawbacks. <u>Some of the most common</u> include:

- Six-Sigma: An extremely popular method heavy on data crunching and measurement that has produced <u>great results for many big names</u>.
- FADE Model: A <u>simple step-by-step framework</u> of Focus, Analyze, Develop, Execute that can be integrated with many different strategies.
- PDSA Model: A cyclical model of Plan, Do, Study, Act that's <u>good for evaluating changes in real time</u> as they are implemented.
- Total Quality Management: A system designed to <u>get employees at every level involved</u> in the long game of improving quality.

No one system is right for every company, and some can be used in conjunction with each other. Do your research and decide if implementing a new system can give you something you don't currently have. [3]

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3. Take a good look at your AQL and decide if it's at the right level.

In most models, the Acceptable Quality Level (AQL) is a foundational tool for quality management. The AQL defines the minimum level of quality that's acceptable in a product and determines whether a batch passes or fails its quality inspection.

4. Integrate your quality management and training programs.

For quality management improvements to go from theory to practice, it's best to start improving employees' knowledge of best practices as early and comprehensively as possible. That's why it's important to incorporate your quality goals into training procedures. They'll be much more achievable if all employees are moving toward them with a unified purpose, especially new hires.

It's equally crucial to make sure that floor supervisors have a good understanding of your quality goals. In many cases, they're the ones who will help guide employees through the execution of quality improvement plans, so they should be among the first to know what's going to change and why.

5. Generate employee buy-in by keeping them in the know and involved.

Changing the status quo is often unpopular, even when it's done in the name of improving quality. To counteract this, many organizations choose to use strategies that <u>maximize employee involvement in quality</u> <u>management</u> and thus ideally maximize buy-in:

- Personalize each employee's tasks in ways that play to their strengths and allow them as much autonomy as possible in problem solving.
- Use TQL strategies to involve employees at all levels in the processes most important to quality management.
- Ensure that employees have a thorough understanding of why a change needs to be made and how it's going to work.
- Follow up throughout the process and make adjustments as needed. Don't be afraid to "change the change" and modify what isn't working.

6. Invest in new quality management technologies.

The applications for technological improvements in quality management are almost limitless. Consider the needs of your methodology and your sector and decide which areas you want to invest in:

- Improved data collection and customer feedback.
- More intuitive and in-depth training tools.
- Better automatic quality control sampling technologies.
- IoT devices to monitor manufacturing processes and detect defects early.
- More durable and accurate equipment that produces fewer errors.

Make sure, for example, that your quality control labs have the tools they need, such as microscopes to examine fine-tolerance parts. And, of course, training is essential to generate ROI from technology—employees need to understand how to use microscopes properly as well.

7. Make your solutions proactive.

Quality management can often be a frustratingly reactive process, but it doesn't have to be. Think back to the COQ model and remember that the ultimate goal of quality management should be to introduce improvements as early as possible in the process. If you're having quality problems right now, reactive processes may be necessary—but don't lose sight of the end goal of transitioning your quality management to a proactive model. Releasing quality products is the best way to make a name for yourself in manufacturing, and robust quality management is the only way to ensure that it happens. Remember that it's an ongoing process and that there's no finish line, so attack your quality management challenges with equal doses of patience and vigor. The rewards are rarely immediate, but they are substantial. [2]

In general, organizations have reserves in improving quality. This fact is also evidenced by a survey conducted at a major conference in Slovakia.

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The largest space for improvement in production is in the area of productivity - The DIGITAL ENTERPRISE 2015 conference was held in 2015. The organizer was the CEIT Group, which is dedicated to innovation and research. As part of the presentation stand, firm ANASOFT surveyed the needs and shortcomings in manufacturing companies based on questionnaires filled out by conference participants.

4. SURVEY RESULT

- As many as 75% of respondents expressed the need to improve the productivity of manufacturing companies.

- The area of logistics was described as problematic by 56% of respondents, **44% saw space** for improvement in the area of production quality,

- 25% in business maintenance management,

- 15% of respondents indicated the area of product safety and traceability of data on manufactured products.

Other topics that the conference visitors identified as potential for improvement were:

- Supervision of assembly activities of workers,
- Systemic and setting of internal processes,
- Monitoring the quality of outputs.

The concept of Digital Enterprise 2015 touched the most important issues of the strategic line INDUSTRY 4.0, which determines the future direction and development of industry in Slovakia and abroad. [4] **Finally, we propose and briefly describe ten step-by-step steps in improving quality.**

5. CONCLUSION

In the article, I focused on quality improvement in a defined area. Quality improvement is an integral part of quality management. The importance of improving quality in companies and institutions is constantly growing, as I emphasize. In the article, I also briefly describe the PDCA Cycle, as well as procedures and some methods of improvement.

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