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ANALYSIS OF THE QUALITY CONTROL PROCESS IN SELECTED COMPANY

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Abstract

The current fast changing times represent a situation that requires demanding solutions and decisions from companies. On the other hand, proactive companies see it as a challenge, and by the constant implementation of changes they can respond to environmental pressures. Businesses that are constantly moving forward define and improve their processes and follow the trend of quality orientation in all areas and are able to participate and succeed in the competitive struggle. In this way, they can build competitive advantages that are sustainable over a long term. Currently, quality refers to all areas, not just products. However, for manufacturing enterprises, the quality of production and its subsequent control is a key area, and that is why such attention is being paid to it. Within the engineering company Eurosvit, s.r.o., we have carried out an analysis of the quality control process, which we consider to be essential. In the beginning, attention was paid to describing the process and its functioning within the company. In the next part of this work, we divided the process into three key areas, such as input, inter-operational and output control. Later, we were analyzing the complaints, which clearly belongs to the quality control process; they evaluate its performance through feedback from customers. The last part is devoted to summarizing the data obtained, and the output is a set of measures to improve the quality control process. We have stated the number of complaints in each year, but there more reasons why. The first is the detailed record we keep and the introduction of the information system and the second reason is the complexity of production; Eurosvit's orientation. According to our research we came up with four main areas which should be improved and those are higher operator engagement, increased training frequency, purchasing a 3D measurement device and introduction of night shifts.

Keywords: *quality control, quality, process, analysis*

JEL classification: *M130, M000, M190*

1 Introduction

Quality is a concept that can be understood in different ways and at different levels, depending on the company and management. The basic definition of quality according to Leščin is the compliance with the stated requirements as the object of customer satisfaction and quality as well as an emotional means of delighting customers. On the other hand, according to Korenko, a qualitative measure with such a set of custom features that meet the requirements of customers and other stakeholders. Quality in an organization can be understood as the quality of production or products. Control can then be defined as a systematic and continuous acquisition and analyzing information about the course and outcome of the managed process and acceptance measures to regulate it by detecting the deviations characterizing it the difference between the intention (plan) and the result of its implementation. On the other hand, quality is also perceived in terms of meeting customer needs and reaching their satisfaction. But quality must be based on the inside of the organization and its internal needs. It begins with the quality of the organizational structure, processes, and it continuously follows the production and, afterwards, customer satisfaction. If the company wants to increase its overall performance and ensure growth, it must implement a quality system and quality management in every single area of the organization. Only an integrated system can produce positive results. It is precisely because of the growing importance of quality that we decided to analyze the quality control process, which we consider to be a key factor for a manufacturing company.

1.1 Quality policy

In order to make it possible to analyse the quality control process, it is necessary to know the quality policy established by the company. Eurosvit, s.r.o. has developed a quality policy, whose main goal is to achieve customer satisfaction. The management of the company is responsible for the elaboration of the quality policy, and all of the executives are made familiar with it. The company is committed, in the framework of the quality policy, to fulfilling all the requirements resulting from the ISO 9001:2008. The main objective of the company, within the framework of quality policy, is the constant improvement of the efficiency of the quality management system. Quality policy represents a framework for setting the quality objectives and will be constantly reviewed to meet all the needs of company. The main principles of the quality policy of the company Eurosvit, s.r.o. are the following:

- stabilizing the position of the company on the market and ensuring the conditions for its continuous development,

- ensuring a process approach that includes the definition of the main processes, process owners as well as systematic measurement of process capabilities and performance, and analysis of results,
- creating an organizational structure that meets the latest trends of the new organizational model. The organizational structure is flexible, flat, network, team and global,
- continued efforts to best meet the needs of clients and the evaluation of customer satisfaction,
- providing the employees with access to lifelong learning,
- accurate and clear definition of the responsibilities and competencies of all employees,
- effective communication throughout the company,
- continuous development of infrastructure and use of information technology in order to achieve the desired quality and thus meet the needs of our customers,
- ensuring continuous improvement of the company in all areas (product development, performance of the company, use of new technologies and procedures, etc.)
- optimizing the use of all company resources,
- taking responsibility for our products

1.2 Quality control process

For a manufacturing company such as Eurosvit, s.r.o., quality control is one of the most important business processes. Quality is understood in several ways. In our article, we will focus on the quality of products. The quality control process in Eurosvit, s.r.o. is carried out at three basic levels, input, inter-operational and output control. Each department in the company Eurosvit, s.r.o., technologists, foremen and operators must pay attention to the quality of products. The most important role here is played by the Technical Quality Control Department, with two controllers. A part of the trained operators are authorized to perform inter-operational checks. The basic prerequisite for high-quality products is meeting customer's requirements with our products. In most cases, production is based on drawing documentations, which contain all the necessary data (material quality, dimensions, etc.). Eurosvit's general rule is to inspect 10% of its production. However, there are exceptions when a larger proportion of products are examined, mainly because of a higher number of complaints in the past and in the light of experience. All necessary data are included in production plans and also in the production software.

Quality control in Eurosvit is focused on the following areas:

- checking the key dimensions
- visual inspection (ridges, scratches, etc.)
- checking the accuracy of materials (quality, thickness, etc.)
- surface treatment inspection
- checks on packaging

2 Data and methodology

The main objective of the article is to describe and analyse a part of business processes in the company Eurosvit, s.r.o., the quality control. The very quality of products is a key to the company. In this article, special attention was paid to the description of the quality control process; it was divided into three areas: input, inter-operational and output control. Each type of control has been described in details. The next part is devoted to the analysis of claims with an emphasis on their number. The last part of the work consists of a set of recommendations for improvements, as the total output of the analysis. The data that were used to perform the analysis were obtained from the company's internal resources.

3 Results and discussion

In the analysis of the quality control process, we divided it, for clarity, into three areas that we describe below.

3.1 Input control

All manufacturing processes depend on and develop from the input control, and therefore this type of control is crucial. In Eurosvit, s.r.o., it is the input material (especially the sheets) that is primarily inspected, and there is an act of communication between the purchasing and quality control departments. In this case, both controllers and stock-keepers are informed in order to ensure the unloading and inspection of the input material. The input control record is also stated on the production plan, and it is not allowed to use the material without its completion. A specific part is the control of semi-finished products, which the company purchases from its suppliers. In the case of sheet metal, the trained staff are also able to perform the check; but for semi-products (nuts, pipes, fasteners), the inspection must be carried out by a quality inspector, who has the necessary skills.

3.2 Inter-operational control

As it is already clear from the title itself, the inter-operational control is carried out between the individual operations during which the product is manufactured. Individual operations are recorded on the production plan, which begins and ends with quality control (input and output) records. For simple products (laser cutting, cutting, etc.), the inter-operational control is omitted; and obviously, it is also skipped with products that are made in one operation. Eurosvit introduced inter-operational controls before the implementation of the ISO 9001 standard in 2015, mainly due to the increasing number of complaints and rejects. In the case of complicated products, susceptible to discrepancies, the production plan indicates the increased number of items that need to be checked and the operation after which it is necessary to carry out the inspection. As mentioned above, a part of the employees are entrusted to carry out self-checking and record it on the production plan. In other cases, the control procedures are carried out by the Quality Control Department.

3.3 Output control

The output control is the last operation listed on the production plan, and it is the most important procedure in the quality control process. In most cases, the controllers check 10% of the produced pieces, which are measured and visually inspected. More complex products are checked as necessary. In some specific cases, we record even 100% control. A specific case is the surface treatment inspection (cataphoresis, zinc plating, coating, etc.). The majority of products are usually sent for surface treatment after all processes have been completed in Eurosvit, then they are returned to be adequately inspected (some of the dimensions must be measured even after surface treatments) and packed in accordance with the requirements of the customer. If the situation requires, in exceptional cases, the controller is sent to the supplier to perform the examination there. The last point of the output control is the adequate packaging of products, which is the responsibility of the storehouse personnel. The products are visually inspected once again and packaged according to the customer's requirements, which are also recorded on the production plan. Unless there is a special requirement, the warehouse packs the products according to the general regulations.

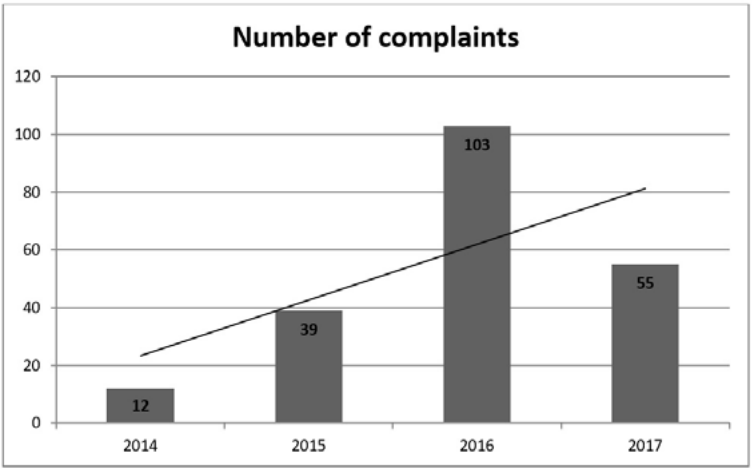
3.4 Number of complaints

There is no more important indicator in the quality control processes than the number of complaints. Under the term *complaint* we understand, in Eurosvit, the

products returned by customers due to the lack of quality or other deviations. In most cases, the products are sent back to the company together with the documentation of non-conformity (description of the reason for the complaint, photo documentation, quantification of the possible damage sustained, the number of items claimed, the number of pieces produced, and the like). The Quality Department records such a complaint into the system, listing all available information, informs the technologists and evaluates the adequacy of the complaint. If a claim is considered inappropriate, it will be declined and the customer informed. If the complaint is justified, the controller and the technologist assess whether the product can be repaired, or it must be discarded and subsequently new pieces manufactured again. The items of complaint are physically stored in a special place and marked with green (already repaired), orange (suitable for repair) and red (inappropriate, necessary to discard) in order to avoid mixing these products. Upon resolving the complaint, the quality manager lists the additional costs incurred, draws the conclusions and considers the appropriate corrective measures (staff training, changing of technology, etc.).

In the graph below, we have stated the number of complaints in each year. The company Eurosvit, s.r.o. has been keeping detailed records since 2015, the year 2014 was recorded only later. We register the year 2017 up to 31 October 2017. The graph shows that the number of complaints is growing every year. An exception could be the year 2017, when it appears, at the end of October, that the number of complaints will be lower than it was in 2016. However, there are many reasons to explain it. The first is the detailed record we keep and the introduction of the information system, recording each complaint, describing the solution, calculating the costs, and proposing corrective actions. The second reason is the complexity of production; Eurosvit's orientation, after joining the joint venture, has shifted to world-renowned foreign companies that have high demands, and for this reason a higher number of complaints have been made. The last point is the increased management requirements and the introduction of the ISO 9001 standard. Of course, it is clear from the graph that this trend must be stopped or lessened, as it was also determined by the company in its objectives. Measures are proposed in the next section.

Figure 1 **Number of complaints**



Source: Internal data of the company Eurosvit, s.r.o.

4 Conclusion

The number of complaints in Eurosvit, s.r.o. grows every year. In order that the company can alter this trend, it is necessary to implement a number of changes. We have identified four critical areas:

- **introduction of night shifts** (a foreman with 12 hours work time and a new controller)

Eurosvit employs two quality controllers, who cover the morning and afternoon shifts. The night shifts, which are characterized by a higher number of rejects, in spite of the fact that only a small number of operators work, are without a controller. We are fully aware that it is necessary to resolve this situation. We suggest employing 12-hour work time controllers, but this may be partly inefficient. The second solution is to hire a new quality controller. The question, however, is whether his/her presence would be efficiently utilized during the night shift. The most effective solution is to train a foreman for night shifts, who would be able to substitute a quality controller during this period.

- purchasing a 3D measurement device

Quality controllers are currently working with manual measuring instruments, which makes their work very difficult. It is tedious, ineffective, and of

course, the human factor and errors in measurement also enter the game. We suggest purchasing a 3D measurement device, which has several benefits (higher efficiency, lower error rates, lower human factor impact, etc.)

- increased training frequency

As a matter of fact, in measuring and product quality controlling, the technology or trends are making huge advances. In this area, also in the context of the requirements of ISO 9001 on the constant improvement, we propose a higher frequency of training, especially for the quality manager and quality controllers.

- higher operator engagement

As we have already mentioned above, quality controllers are extremely busy due to the implementation of new products. In this case, we propose a higher involvement of the production operators, who could be involved in quality control; this way, the controllers could devote their efforts to other activities (inspection of measuring instruments, implementation of new products, proposal of remedial measures, etc.).

References

1. KAPSDORFEROVÁ, Z. (2014). *Manažment kvality* , Nitra: Slovenská poľnohospodárska univerzita v Nitre, 2014. ISBN 78-80-552-1250-0
2. KORENKO, M. (2012). *Manažérstvo kvality procesov*, Nitra: Slovenská poľnohospodárka univerzita v Nitre, 2012. ISBN 978-80-5520789-6
3. LEŠČIŠIN, M. (2006). Manažment kvality. Bratislava: Ekonóm, 2006. ISBN-80-225-2237-6
4. MRÁZIK, P. (2008). *Naša stratégia*. In *Eurosvit*. [online]. 2008. [ciz. 2018-01-03]. Available at: <www.eurosvit.com>
5. TN EN ISO 9001:2008
6. ZÁVADSKÝ, J. (2006). *Metódy, nástroje a techniky manažérstva kvality*. Zvolen: Univerzita Mateja Bela, 2006. 180 p. ISBN: 80-8083-189-0