Methods of Processes Management in the Organization

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Abstract: *The basis of any successful organization is to provide an action to achieve pre-determined social and economic goals. The economic goal creates profit and on the basis of profit the assumptions for the continued existence of the organization are created. If the profit is correct and sufficient, then the quality of services and products is also good. These actions are closely linked to customer satisfaction. The higher the level of quality management of the organization is, the higher the customer satisfaction and this supports the fact - lower costs and higher prices. The aim of the paper is to analyze the state of production, improvement and optimization of the production process, process management, process sorting and processes improvement.*

Keywords: *optimization, process, Andon, Lean, preparatory process*

INTRODUCTION

Nowadays, it is very important that in process management, methods are followed to streamline production and the whole process. The process can be characterized as a continuous activity that takes place throughout the organizational structure. Process management itself belongs to the group of management activities, because it constantly pays attention to the methods, systems and procedures that are used throughout the production management and production process. Each organization aims to streamline production with the shortest time, but with the best performance. The better the performance and management of the organization is, the better the final overall result and the satisfied the organization and the customer. (Žitňák et al., 2015)

MATERIALS AND METHODS

Production quality management has the task of making the entire production process do exactly what is expected of it and maybe something more. It is important that the organization's management is constantly innovating and that new technologies and methods are used that facilitate the process itself and thus ensure satisfaction with the end result. (Drucker, 2007)

The main goal was to develop an overview of statistical methods used in quality management.

The production process forms a large part of the entire operation of the organization. It is the sum of interacting and overlapping activities that change from inputs to outputs. It is defined as a recurring event that has its goals, customers, inputs, outputs, indicators, resources, and start and end. It is a collection of activities that follow each other and many take place at the same time.

RESULTS

Within the organization, it is extremely important to know the process management and its quality. It is an activity that transforms an organization from a functional orientation to a process-type organization. To comply with this process, we consider the following areas: teamwork, compression of individual jobs, finding the most suitable place for work and the sequence of work.

Improving the quality of the production process helps organizations to increase customer satisfaction, long-term prosperity and continuous economic benefits. Therefore, it is important that organizations implement statistical methods in their processes.

There are several methods for improving the quality of a production process, its efficiency and the productivity of the organization. In this paper, we describe selected management methods used by organizations in managing production processes - ANDON, 5S, Internal 8D and KAIZEN. (Kassa, 2020)

ANDON – visual management

The purpose of the method is to ensure that the departments respond as quickly as possible and to identify the priorities to be used where the problem is located. Based on the type of signalling, the authorized operator is authorized to suspend the process and the production system automatically sends information to the quality and production department about a possible problem. This method is based on traffic lights and is used precisely because it displays the current state of the production process. With the help of colored lights, trained workers can find out in which mode the whole production process works and when it is necessary to cancel and solve a possible problem. A huge advantage of the method is that it effectively reduces time and works on process control. Identified problems can be solved immediately. If a detected problem is found, information is usually sent about the technical fault, or about missing material or incorrect machine settings. As the method is characterized by the fact that we also call it as a light board, the characteristic colors are: white, orange, green and red. Each color characterizes a different state of the organization.

If necessary, the employee uses a button or touch screen and this information is recorded in the system, which sends the information further by SMS or email to the relevant employees.

Color characteristics:

- White – no production, outage (mostly scheduled),
- Orange – tool change,
- Yellow – production process,
- Red – error, fault.

If a problem is detected, the system displays the device on which the error is located and the estimated repair time is also displayed. This must be addressed immediately and those responsible will shut down the entire production process. As soon as the problem is resolved, the cancel button is pressed and the system no longer shows any fault signaling and the production process continues. The manufacturing process that uses this method can check its current status and ongoing processes. When the production process is completed and the finished product is ready for the customer at the end, the signaling lights up green and the entire production process is over. If the production process has not yet been completed, or if an error or fault occurs, the signal lights up red. Then must come an responsible operator who can manipulate the device and evaluate the immediate situation.

Internal 8D

We characterize the method as an analytical technique that solves an unexpected problem. It does not work as a preventive method, but is only used when a problem has arisen that needs to be solved. This method works as a comprehensive team analysis, which aims to solve, identify and investigate the problem. At the beginning of the method, a simple form consisting of 8 parts must be filled out. The use of the method is enforced if the problem that has arisen is not specifically given, therefore it is unknown to the employees and several employees must be used to solve it. The method was established in the automotive industry in America.

The main role of the method can be characterized as: defining and finding the cause of the problem and its task is to take measures that identify and correct the existing problem and prevent a similar problem or error in the production process in the future. At the end of the use of the method, there is a questionnaire, which has the task of serving as a document of the process.

Phases of 8D method:

1. Opening 8D - through the quality manager, which was caused by a complaint / serious failure
2. 8D processing - this operation is performed by the whole team or the master.

3. 8D Approval - The process is approved by the quality manager.

5S

The basic conditions for the production process of high quality products are characterized and it is characterized by any or minimal waste. The basic feature of the method is also the high efficiency of production processes.

The main goal of the method is to improve the working environment in which employees find themselves and to reduce and eliminate losses and recurring errors. It is used in any type of organization.

The 5S method consists of several pillars:

4. SORT –Sorting. The main role of the pillar is to distinguish the essential things from the insignificant and subsequently to remove from the workplace those that are not necessary.
5. STORE –What belongs in the workplace and in what amount it belongs there.
6. SHINE –The area deals with regular cleaning of the workspace so that the items are accessible to everyone.
7. STANDARDIZE – Standardization.
8. SUSTAIN – The area of preserving its place, that is, that each thing still has its designated place. The area of preserving its place, that is, each thing still has its designated place. (Kassa, 2020)

KAIZEN and its importance in improving processes

This method is used to make ongoing and small changes. Its application is mainly in the production phase and focuses on reducing the costs of the production process. This reduction can be achieved by increasing the efficiency of the process, where partial changes in production processes and design are used. It philosophy is two words, which are: KAI - improvement and ZEN - continuous improvement.

The method focuses mainly on improving work with materials, improving processes in machines, improving production methods and procedures, increasing quality, reducing time, improving working conditions, eliminating unnecessary work during the production process, creating an optimal working climate, safety at work increases and communication is at a high level and employees are satisfied.

Table 1 *Advantages of the KAIZEN method*

Organization	**Employees**	**Customer**	**Supplier**
Cost reduction	Remuneration	Improving supply quality	Better planning
Improving quality	Self-education	Clarification of delivery dates	Defining requirements
Increasing productivity	Active motivation	Material minimization	Standardization of customer requirements
Improving cleanliness	Teamwork support	Reducing prices	Improving communication with the customer
Improving communication	Increasing safety at work	A better solution of the problem	Optimal climate

CONCLUSION

Nowadays, every production organization must monitor its production processes. Using statistical methods, organizations can evaluate processes and propose preventive or corrective measures, thereby reducing their costs, increasing product quality and increasing competitiveness.

It is important to monitor the constant stability of the production process and the individual machines that carry out the production process. Statistical methods can determine which machines are unnecessary, which can be replaced by other and new machines. Organizations also use machines that show change in variability and statistical methods can

evaluate possible changes in machines. Statistical methods find out which machines can be reorganized and used for another purpose.

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REFERENCES

[1] Drucker, P. (2007). The essential Drucker. Butterworth-Heinemann. 275 s. ISBN 978-80-7506-5806-1.
[2] Kangalov, P., (2012). Failure theories and fault detection. Ruse: Angel Kanchev University of Ruse, 2012. ISBN 978-619-90013-5-6.
[3] Kassa, P., (2020). Statistics methods in quality management. [Bachelor thesis], Nitra, 2020.
[4] Keřkovský, M., Valsa, O., (2012). Moderní přístupy k řízení výroby. 3. Dopl. Vyd. V Praze: C. H. Beck. 153 s. ISBN 978-80-7179-319-9.
[5] Pristavka, M., Findura, P., Kangalov, P., Malaga-Tobola, U., Kubon, M., (2018) Using the EFQM Model in Selected Organization. Agricultural, Forest and Transport Machinery and Technologies, 2018, Vol. V – Issue 1, pp. 74-82, ISSN: 2367 – 5888
[6] Pristavka, M., Beloev, H., Kangalov, P., Nikolov, M., Findura, P., Bartos, P., Urbanovicova, O. (2020) Standardization of Cooperation between Production and Supply Quality in Production Organization.// Agricultural, Forest and Transport Machinery and Technologies, 2020, No V. 7, No. 1, pp. 41-47, ISSN 2367-5888.
[7] Stasiak-Betlejewska, R., Prístavka, M., Beloev, H., (2014). Qualitative Analysis of the Combine Harvesters Production. In: Agricultural, Forest and Transport Machinery and Technologies, Ruse, Bulgaria, 2014. Vol. 1, ISSN 2367 – 5888
[8] Suntingerová, Ľ. 2010. Kreativita v manažmente. SPRINT. 296 s. ISBN 978-80-8939-321-3.
[9] Tomek, G., Vávrová, V., (2007). Řízení výroby. 2. Vyd. Praha: Grada. 378 s. ISBN 80-2471-479-0.
[10] Žitňák, M., Kollárová, K., Macák, M., Prístavková, M., Bošanský, M., (2015). Assessment of risks in the field of safety, quality and environment in post-harvest line. In Research in agricultural engineering. 61, (2015), s. 26 –36. ISSN 1212-9151.

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