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IMPLEMENTATION PROCESS OF 5S FOR A COMPANY IN REAL LIFE - PROBLEMS, SOLUTIONS, SUCCESSES

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Abstract

Developed in Japan, 5S is a system of organizing workplace for efficiency, effectiveness and safety. Is 5s important? The answer is: "YES", because the implementation is about empowering employees to control their work area and create an environment where they want to work every day. It is a program that only works with grass roots level engagement. With commitment to safety, we are equally committed to 5S to ensure a safe place to work. It enabled us to indicate where waste was occurring and thus improve the work area sustainably. We recognized real problems, found solutions and ultimately we were successful in our endeavors. Throughout different companies, various words of similar meaning are used. No matter what specific words are used to identify the steps in 5S, the purpose remains the same: create a clean, organized and efficient work environment.

Key words

System 5S, process, 5S training, audit

INTRODUCTION

The system 5S was developed in Japan in order to increasing work efficiency, effectiveness and safety. We present a question: is it important to consider 5S? The answer is "yes", because the implementation and application of this theory helps empower employees to control their own jobs and help to create an environment where they want to work every day and feel good during the working process. This solution will work only if the employees are committed at the local level. Commitment to safety is a part of the 5S system; it helps provide a safe working process in a safe place. The implemented system improves the quality of the production environment. The waste generated during the production was processed according to the rules for maintaining a clean and green environment. During the implementation process, we recognized the real problems in the production processes and searched for the optimal solutions, which were successfully found.

BASIC INFORMATION ABOUT 5S

The system 5S was introduced by Takashi Osada in 1991. We know it as one of the most widely used productivity improvement methods. The main goal can be defined very simply: working comfortably, cleanly, and joyfully. The previous definition is not complete, of course, since the method is based on five Japanese words: Seiri, Seiton, Seiso, Seikitshu and Shitsukhe translated as Tidiness, Orderliness, Cleanliness, Standardization and Discipline. The claim that the principles of 5S came from Henry Ford who was using the CANDO (Cleaning up, Arranging, Neatness, Discipline and Ongoing improvement) method prior to the development of 5S. If you think about it, who would not like to work in an ordered, clean, safe, regularly maintained and well-organized workplace? (https://quality-one.com/5s/)

It is necessary to apply a work culture providing better process review, organization, optimization, problem detection, recognition and solution to the collective of employees. The staff should pay attention to their working environment, because the system is defined as a natural process, and should be practically automatic. The process works when all participants are convinced about the positive consequences.

We can increase productivity by 15-20%, because of the optimal organization of the material flow, while excluding unnecessary movement of material, tools and staff.

BASIC DEFINITIONS

The 5S Method is a standardized process that, when properly implemented, creates and maintains an organized, safe, clean and efficient workplace. Improved visual controls are implemented as part of 5S to make any process non-conformances obvious and easily detectable. 5S is often one element of a larger Lean initiative, and promotes continuous improvement. (https://quality-one.com/5s/)

Now we define the five basic elements (see Fig. 1) of the system.

SEIRI/SORT – clearly distinguish needed items from unnecessary items and eliminate the later. We must have optimal overview concerning the labeled items stored in well-organized stock. This task is not so simple of course.

SEITON/SET IN ORDER – maintain required items in the correct place to allow for easy and immediate retrieval. There should be a place for all necessary, but not continually used items, which should always be found here unless they are being used.

SEISO/SHINE – keep the workplace neat and clean; a process ensuring cleanliness of the work area, machinery, equipment etc.

SEIKETSU/STANDARDIZE – the method by which the previous 3 (sort, straighten, shine) are made habitual. This is one of the most important steps in the process of implementing the 5S system.

SHITSUKE/SUSTAIN – maintains established procedures, the last, but the most important step, ensuring the process. Continuous training, emphasizing the principles of the system is necessary for ensuring the process. It is important that all the employees should be self-motivated, should follow the rules of the system, and based on their own decision provide additional ideas for further development and rationalization of the working process.

Fig. 1 *5S methodology*
source: (http://www.continualbusinesssolutions.com/wp-content/uploads/2017/05/5S.png)

SITUATION AND PROBLEM RECOGNIZING IN DS SMITH

A. Mission Statement

DS Smith, according to the information presented on their website, "is a leading European company offering packaging solutions tailored to the needs of a specific customer with emphasis on the latest trends in appropriate packaging design and serving local customers". Comprehensive product lines from the transport packaging for consumer packaging and display sites, promotional packaging, as well as for specific protective packaging to industrial packaging includes almost everything that will meet all market demands. The Slovakian daughter company produces mainly sheets of extruded polypropylene and polycarbonate. The staff is made up of about 120 employees working with annual revenues up to EUR 17 million. The company has a significant position in the packaging market, so it is important for it to participate in quality assurance, and it is necessary to change the production processes more progressively by improving working processes and environment.

B. The Task

The implementation of the 5S system was defined as a central task. Our cooperation was started based on this task. We were forced to combine theoretical knowledge and practical experience to create a system corresponding to the rules of the 5S system and naturally supporting the quality of organization, safety requirements of a company having special production technology. (Company guidelines, 2016)

PROCESS

5S is the perfect tool to identify the first improvement projects in your company to eliminate waste. Although sometimes viewed as a housekeeping technique, it is actually an innovative management system that helps people think lean, paving the way for the adoption of Lean principles in the organization. Understanding the 5S methodology is one of the foundations of Six Sigma principles, and can be extremely beneficial for organizations of all kinds. (https://www.simplilearn.com/implementing-5s-methodology-to-achieve-workplace-efficiency-article)

A. Getting Started

The first step was to determine the target. The success of the implementation of our system depends on precisely determining the requirements in general. To say that you need to have a 5S system is easy, but to specify exactly the targets - that is the real problem. We focused on setting up a system based on the 5S philosophy, which is properly set up in a natural way, involving the natural behavior of the participants, such as compliance with the rules, elimination of conflicts and usual resistance.

We furnished the Gantt diagram for the implementation process, which includes the assignment of resources, deadlines, and milestones. Financial resources were not assigned to the time frame of the implementation because the company possessed the reserves which enabled implementation without risk.

During the preparation phase of the project, we reviewed and provided implementations. As a theoretical base, we used research results from companies in Slovakia and Hungary. Basic documents were prepared according to the materials from a lean–specialized company.

We defined a process that clearly illustrates in graphical form what to do step-by-step.

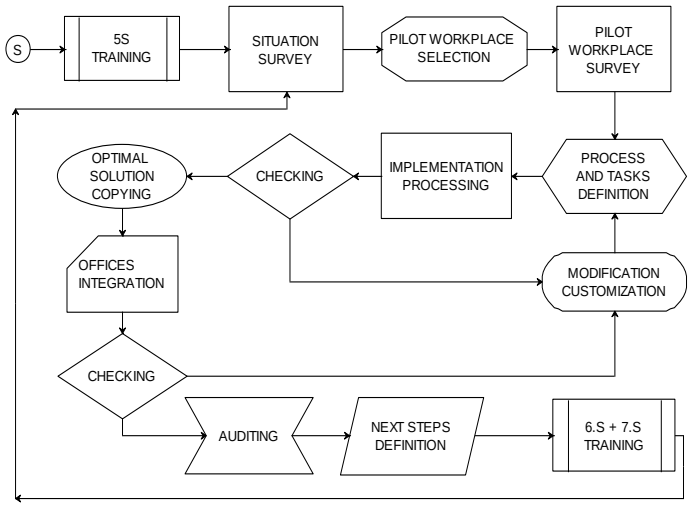

Fig. 2 *The 5S process*

B. 5S Training

The first step was to describe the essence of 5S to all participants involved in the implementation. Our aim was that every employee should feel the introduction process as his own and should retain the reached target continuously. We proposed that the involved employee should not treat the implementation process as a problem which must be solved, but consider it as an auxiliary device supporting a better, more effective well organized and efficient operation, and secure starting from the raw material input through the production process, up to packaging and finished goods delivery. At the end of the training, we asked the participants where they detected problems. Results from the survey enforced our theory about the necessity of training before starting of the implementation process. The evaluation of the survey showed critical areas which we should focus on in the future, during the project implementation. We confirmed that correct application and enrollment of information activities are prerequisites for successful implementation and for the positive opinions of the participants.

After the success of the first step, we started the surveying process within the Company.

C. Situation Survey

The survey was conducted by obtaining photo documentation. The critical places and incorrect solutions were highlighted in the photos. To the same photos, we attached the proposed solutions. Some examples of the above-mentioned processes are shown in Figure 3.

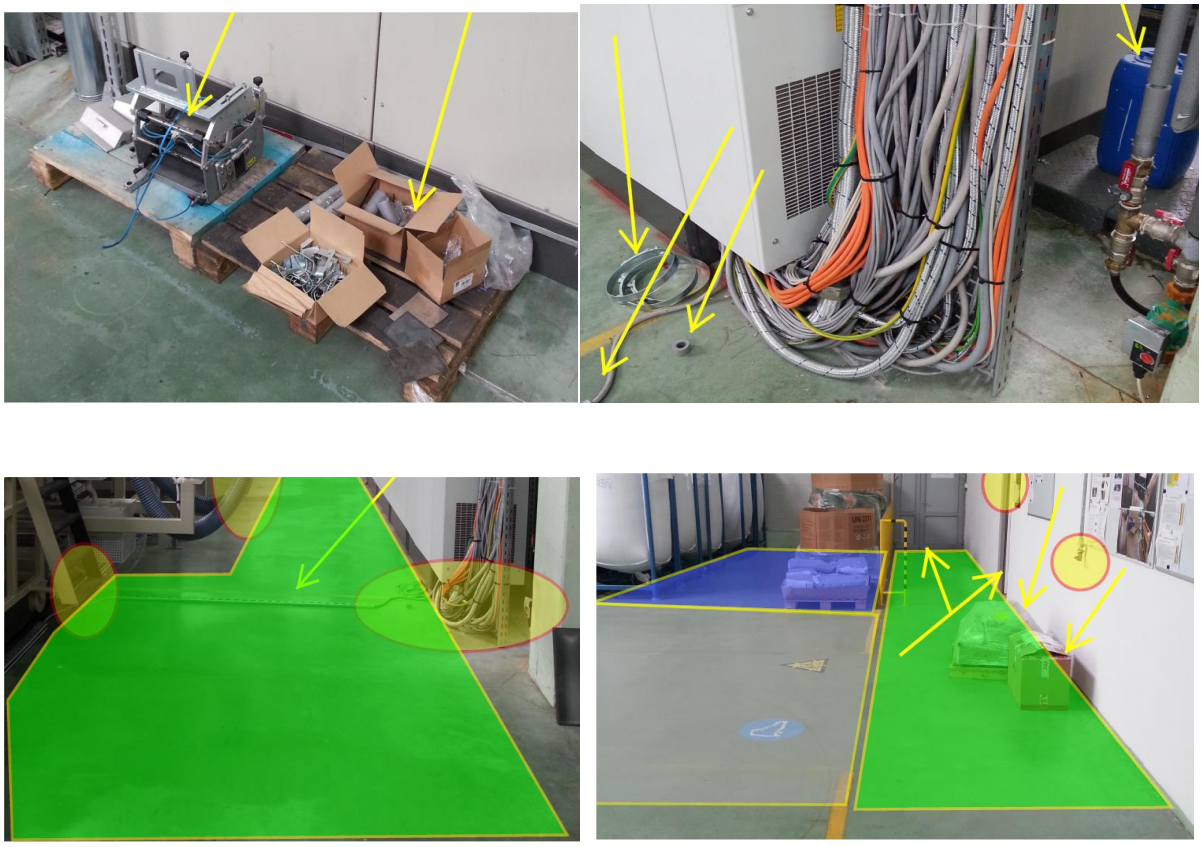

Fig. 3 *Examples of the above-mentioned processes*

All displayed pictures are intended only to show the essence of the process, analysis and modification. During the analysis, we prepared approximately one hundred photos. Necessary changes and modifications were done on the basis of photo documentation. Pictures in the curent paper illustrate this solution. Unfortunately, the scope of this article does not allow for inserting additional, more detailed documentation. The method provided by us seems to be highly effective, because long explanations, meetings and fruitless debates were avoided by preparing a clear and bright photo-based documentation analysis. The photographs could also help to document a well-organized, clean and safe workplace. Below (Figure 4), we show some typical examples.

Fig. 4 *Exapmles of clean and safe workplaces*

D. Selection and Assessment Pilot Project; determining and carrying out tasks

The Company had a new extrusion line installed in 2016. We selected this new line as a basis for the pilot project. The working environment was the cleanest here and we could document the status enabling to introduce appropriate solutions. Figures above illustrate that the process was successful and satisfying results served as a good example for the other lines.

E. Inspection

We intended to reinforce the working final solutions by complex control and to find any missed or not completed solutions which were not in accordance with the planned changes. We were looking for the reasons why the proposed solutions were not implemented and, of course, the discrepancy initiated corrective procedures. During the auditing process, we found only a few small differences, which were noticed in a short correction proposal. Approved solutions were implemented in the rest of the workplaces and on the older production lines as well.

F. Involvement of Office Jobs in the Process

After extensive consultations and summarizing the working experience, we started the implementation process within the field of administrative jobs. The fastest and the best results were achieved in the Customer Services (CS) Department by using exemplary solutions.

After analyzing the situation in stock, we came to the conclusion within the storage processes that not only the production halls, but also free warehouses and covered warehouses should be organized on the 5S system base.

The implementation process of 5S system in the stock was generally covered by photographic documentation which allowed us to successfully finish it in a relatively short time.

G. Audit

The representatives of the parent company completed a complex review of our implemented system. Participants expressed their satisfaction because of our effectiveness in managing the process for building a sustainable system and implementing it in a relatively short period of time. The further steps were defined during the consultation with the management.

H. Next Steps

As the next most important task, (not exactly 5S, but belonging to the topic of quality management) we decided to review the existing quality management system, and make suggestions for improving it as soon as possible. After this, we could start to implement the 6.S – safety management and the 7.S – environment protection systems. The algorithm for solving the above problems will follow the 5S experience performed within the implementation process.

To improve the auditing processes, we decided to use Google Forms. Graphical evaluation of the auditing process is performed now in real time; some examples of the results are presented in Figure 5.

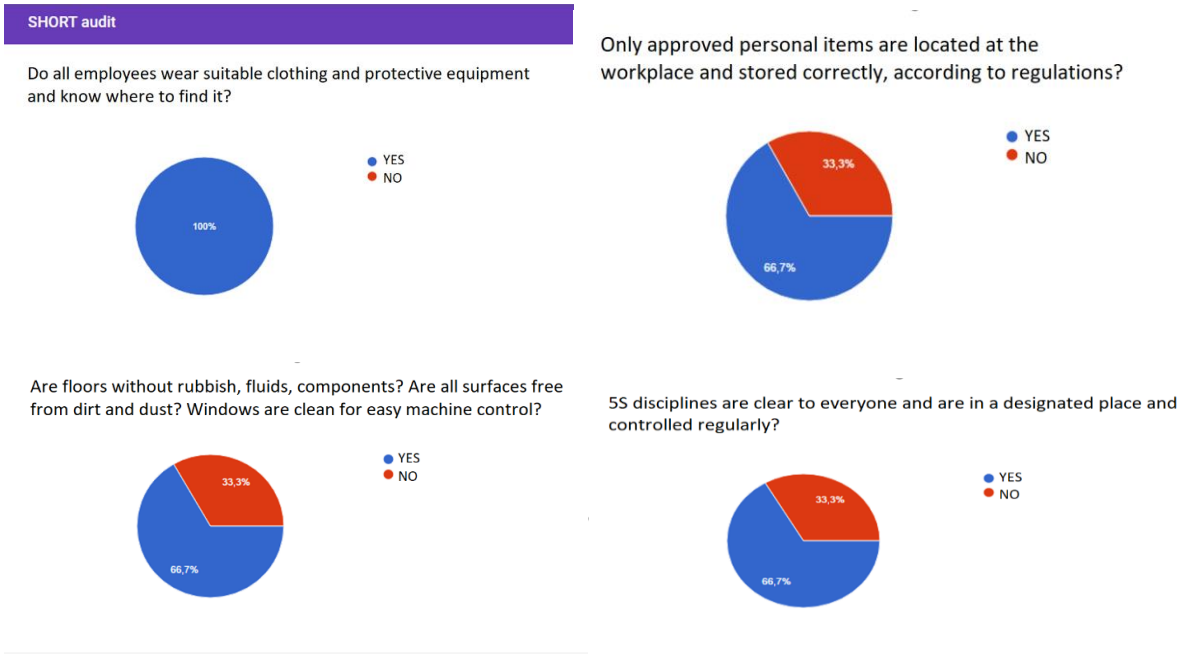

Fig. 5 *Graphical evaluation of the auditing process*

SUMMARY

This is a continuous process which does not stop. Owing to the nature of activities which require constant, continuous monitoring and supervision according to our experience, this process can be organized in a sustainable natural way. The most important factor for solving tasks was to change the staff's thinking, which was achieved by well-timed and carefully constructed lectures using a series of personal examples and implementation of the system by

emphasizing the people-centeredness - not just on statements level, but also during the implementation.

5S methodology has expanded from manufacturing and is now being applied to a wide variety of industries including health care, education, and government. Visual management and 5S can be particularly beneficial in health care because a frantic search for supplies to treat an in-trouble patient (a chronic problem in health care) can have dire consequences. Although the origins of the 5S methodology are in manufacturing, it can also be applied to knowledge economy work, with information, software, or media in the place of physical product. (Graban 2012, CEITON 2017)

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