

RESEARCH REGARDING THE USE OF QUALITY TECHNIQUES AND INSTRUMENTS IN VIEW OF MAINTAINING AND IMPROVING QUALITY MANAGEMENT SYSTEMS

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Abstract: In Romanian industry there is still a lot of think to be done in the field of maintaining and improving quality management systems (QMS). It is imperative to design a strategy for relating with the employees as well as the managers of the organizations in this field, aimed to make them better and easier understand the concept of QMS. The present paper sets forth as a starting point for this strategy the use of quality techniques and instruments (QTI), especially the 5S technique which is a good premise for the maintenance and improvement of QMS. The 5S technique is a structured method for the maintenance and improvement of working organization and standardization.

Keywords: inspection, cleaning, progress, 5s technique

1. 5s Technique

The ISO 9000 set of standards proves helpful in the creation and implementation of a reliable quality management system, as it sets forth the fundamental principles requirements, glossary that make up the system as well as the guidelines for quality improvement. Mention should be made that these standards tell only “what to do” not “how to do” which shall be decided by each organization.

Customer requirements concerning the quality of products and services entail the use of high-performing numerical command machine-tools etc. as well as highly qualified personnel. Thus a quality management system is essential for industry organizations to understand, coordinate and correlate various processes necessary for accomplishing high quality products and services that gain a competition edge on the market. Furthermore, an adequately implemented, maintained and improved system shall unfailingly lead to efficiency and efficacy, thus to organizational progress.

The use of the 5S technique represents a step forward to the improvement of such a system. 5S stands for the initial letters of five Japanese words that define an effective organization of the working place and standardized working procedures. 5S is more than mere administration, it differentiates between a common and an outstanding

organization. The 5S technique represents a structured method for the improvement of work place organization and standardization. A well-organized work place can motivate all employees. 5S highlights security, output, efficiency and it also creates a feeling of propriety belonging.

The golden rule of the 5S technique is that the employee should be able to identify anything within his work place in less than 30 seconds and, respectively, in less than 5 minutes for anything that transgresses the boundaries of his work place, without any prior talk to a colleague, opening a book or computer searching.

5S is a method whose results can be noticed in a well organized and ordered work place, an environment providing “a place for anything is in its place, whenever you need something”. The work place shall be clean, ordered and safe, thus the employees become motivated and committed. This is a simple concept. However it requires long-standing commitment and hard work to attain it.

The “5S” technique requires the coordinated unfolding of the following five categories of activities:

Sorting: removing everything that is not necessary at the work place: waste material, semi-products, unnecessary tools and equipment, scraps or obsolete documents;



Figure 1: Activity 1 - Sorting

Setting in order: arranging the useful objects subsequent to the previous operation and preparing them to be used at any further moment;

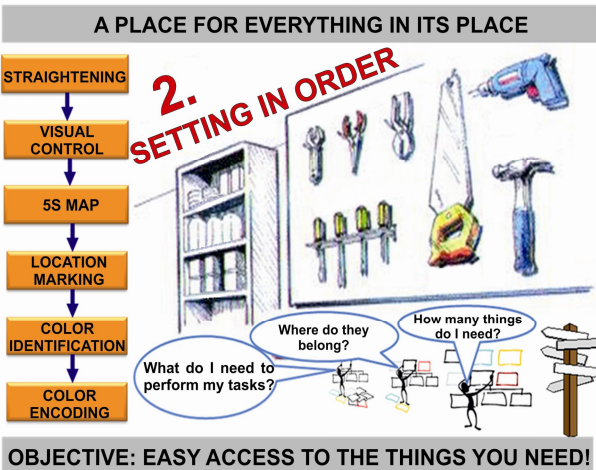


Figure 2: Activity 2 – Setting in order

Cleanliness: cleaning the entire work place including the objects within the working area



Figure 3: Activity 3 – Cleanliness

Standardizing: setting clear rules for maintaining a perfect hygiene and pleasant atmosphere at the work place;

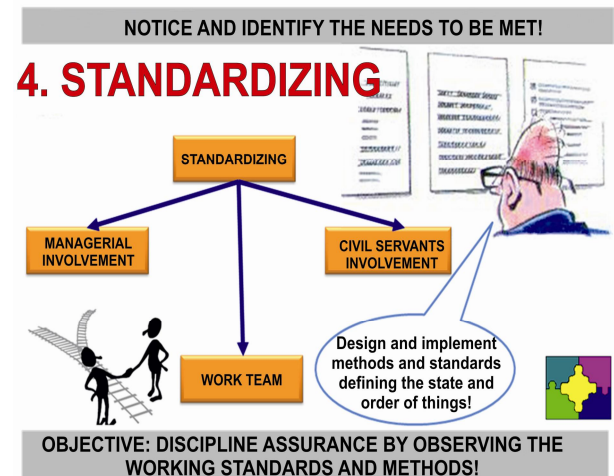


Figure 4: Activity 4 – Standardizing

Self-discipline: accurate observance of the established working procedures and assimilation by all employees of the proper method of performing previous operations of sorting, arranging, cleaning and standardizing and thus be able to apply them from their first working day;

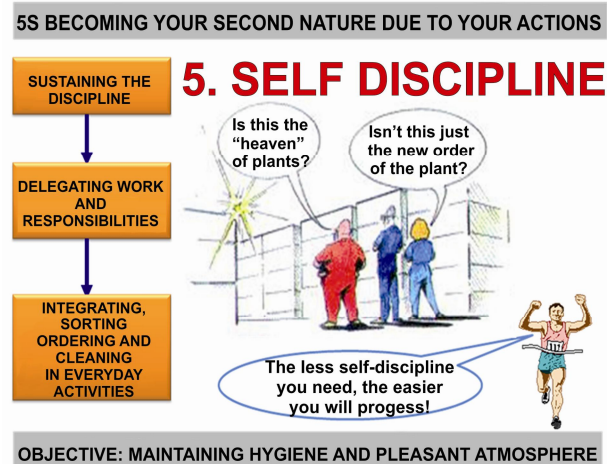


Figure 5: Activity 5 – Self-discipline

2. Steps to Successful Implementation of the 5S Technique

a. Everyone has to be involved.

It is essential to understand that the implementation of the 5S technique can only be achieved by a team. Everyone is accountable for the 5S implementation not only a few individuals, it is a process involving all individuals. Al

managers should take part in the decision-making process in view of a better functioning of the 5S.

b. Managerial approval

The 5S technique shall not be performed secretly or surreptitiously as overtime activity. Instead, the 5S technique has to be approved by the organization's administration. Monthly meetings may be organized where the company representatives and managers may suggest more topics.

c. The general manager has the final responsibility

The 5S technique shall be taken seriously and completely assumed only when the managers and general manager himself are responsible and fully committed. There is nothing worse for the 5S technique than the managers transferring responsibility of project implementation to the employees.

d. The 5S technique should be properly understood and assimilated

People should no longer ask questions such as: "Why do we have to stick red labels to objects?" or "Is the 5S implementation really necessary before any improvement?" Therefore 5S meeting shall be organized in order to explain the concept and answer the participant's questions.

e. The manager should inspect the work place

The manager should personally inspect work places and desks in order to clarify positive and negative aspects. The manager should point out elements subject to improvement and bring them up at 5S meetings.

f. Do not leave things half-done!

Once initiated, the 5S process has to be continued until completion. All participants to this process have to be involved. As soon as the principles have been established and atmosphere of discipline and order has to be maintained.

The implementation of 5S shall probably increase productivity, efficiency and thus an atmosphere of professionalism shall be maintained and encouraged. Developing employee attitudes and discipline is more important rather than the physical reorganization of the work place.

3. Stages in promoting the "5S"

3.1 Mandatory activities:

- setting up the work team;
- training the work team;

- identifying work areas subject to "5S" implementation;
- organizing the four stages of "5S";
- training all employees to observe the "5S";
- 5S auditing;

Internal audits are necessary for the improvement and regular reporting on the status of 5S implementation and maintenance

2.2 Stages in the 5S audit accomplishment

- selecting the work area;
 - setting up the work team - in view of implementing the "5S" method, the pilot project team members shall coopt individuals who perform their professional activity within the work area (i.e. foreman, adjuster, worker, etc.);
 - training the work team members;
 - assessment of the work area;
- i). accurate study of the area and collecting data in keeping with the "Quotation" column (table 1);

Table 1: Sample of audit form

5S INTERNAL AUDIT						
Area / study line	Date of audit				Auditor(s):	
	QUOTATIONS				Comments	Previous
	0	5	10	15		
1						
2						
n						
TOTAL						
TOTAL Audit						
QUOTATIONS:						
0 - area does not meet criterion				10 - 80% of the area meets the criterion		
5 - several instances found in the area				15 - 100% of the area meets the criterion		

- ii). each member of the work team shall assign a qualification (grade) for each assessment criterion in the audit form;
- iii). Summary of data collected from the quotation forms and establishing the average quotation level;
- iv) Identifying the objective (quotation level to be reached for the ongoing year), filling in the "5S indicator" graph during the brainstorming session and posting the results in the respective area (figure. 6);

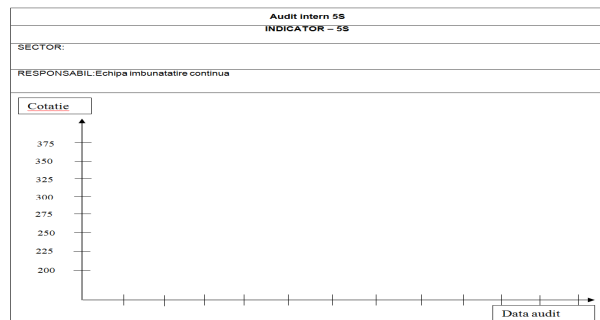


Figure 6: Sample form for filling in graph

v) Drawing up the improvement plan and thoroughly observing those criteria with poor grading (table 2);

Table 2: Sample for the action plan

5S internal audit				Approved:	
ACTION PLAN					
Area:				Date:	
No.	Location in the quotation form	Definition	Corrective action	Responsible	Deadline

- vi) Tracking the status of improvement plan by the steering team;
- vii) Resuming application of the method until reaching the established level;
- viii) Establishing a higher level;
- ix) Permanent application of the method.

3 Conclusions

Thorough and continuous implementation and application of the “5S” technique may enable you to design the following objectives:

- zero preparation time;
- zero loss;
- zero defects;
- zero delays;
- zero labour accidents;

Here are the advantages of “5S” application:

a. Diminishing costs by means of:

- store decreasing
- preventing object misplacement;
- Preventing oil/water/air/energy/material waste

b. Efficiency accomplished by means of:

- effective use of the area
- doing away with useless search and waste cleaning and inspecting critical points of the equipment

c. Maintenance of auxiliary equipment and capacity

d. Quality

e. Occupational health and safety accomplished by means of:

- removal of dangerous areas;
- improvement of work conditions
- doing away with the causes of labour accidents and occupational harm;
- Decreasing errors entailed by carelessness

f. Personnel motivation

However, let us not forget that it is imperative to:

- Standardize habits in view of obtaining better results;
- Communicate and train in order to attain quality;

- Communication is a two-way process
- Proceed in such a way that each individual should feel responsible and allow everyone to express opinions on personal responsibility, as well as to be able to respond whenever there is any anomaly related to one’s responsibilities. Implementation of the 5S technique shall lead to process improvement, creating a positive image to customers, and increasing organizational efficiency. It will also enable the employees to feel better and the organization thrive and become more competitive on the market.

The method can be used in different domains. For example we apply successfully 5S technique in the factory (figure 7 a, b)



Figure 7 a: Before to implement 5S into a productive sector



Figure 7 b: After implementation 5S into a productive sector

Then we apply 5S technique in the office (see figure 8 a, b).



Figure 8 a: Before to implement 5S in office

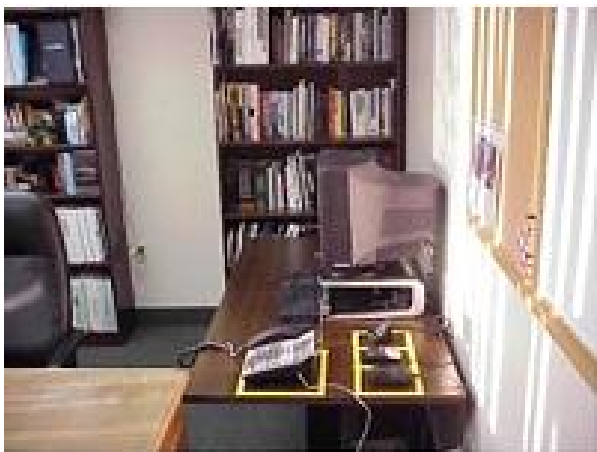


Figure 8 b: After implementation 5S in the office

5S technique could be implemented even on the drawer of the desk (figure 9 a and 9b),



Figure 9 a: Before to implement 5S in drawer



Figure 9 b: After implementation 5S in the drawer and on the computer's desktop (figure 10 a, b)



Figure 10 a: Before to implement 5S on desktop

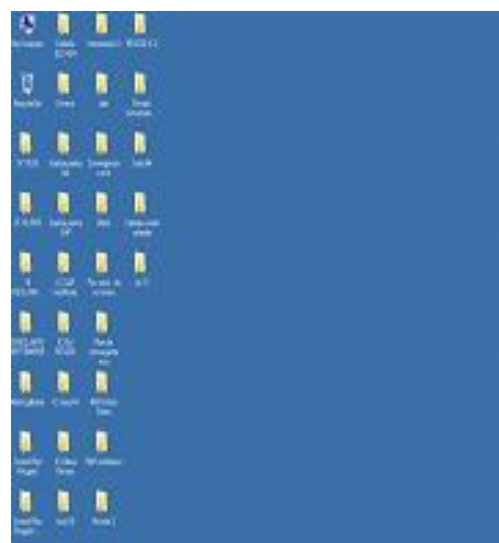


Figure 10 b: After implementation 5S on desktop

To conclude, implementation and maintenance of the 5S technique may lead to progress.

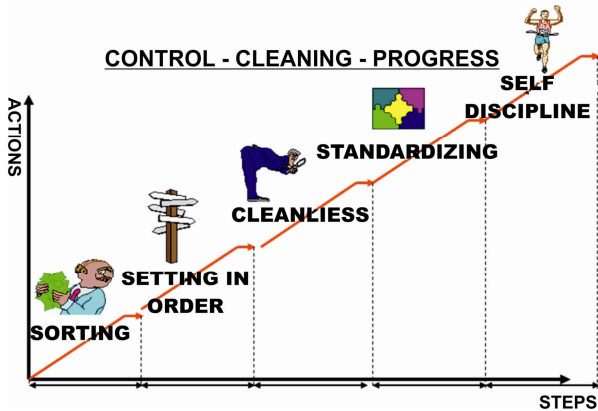


Figure 11: The 5 steps

Success may be attained not only by means of certain applicable standards, instead it is advisable to study a number of guidelines, brochures, codes, sciences, standards, and especially methods and practices successfully employed by others. The next step is to identify and select the optimum and useful elements for the particular businesses and organizations, which should be further promoted and implemented in an integrated manner as a management system which, in time, shall lead to outstanding quality and successful management and business.

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