

## A Review Article of 6S Approach

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### ABSTRACT

In modern time, the manufacturing company's management needs the continuous development in the quality standards and management at the workplace with zero accidents. The continuous improvement in the quality standards and management improves the efficiency of plant. In modern time, the safety of manpower at the workstation is also main problem for the manufacturing companies. The 6S approach solves the all problems of manufacturing companies. The 6S is new concept used to improve the working conditions in the manufacturing companies. The implementation of 6S approach in any organization is good and effective for working conditions at workplace with full safety of manpower. The 6S approach implementation in any manufacturing unit results in better work environment, reduces the wastage of sources, get extreme output from available resources, upgradation in quality policies and safety. This approach is beneficial for the manufacturing industry in present time. The 6S approach always provides the backup plane for emergency conditions in the manufacturing industry. The main motive of this concept is to improve the work efficiency of manufacturing industry without any accident happen at workstation.

**Keywords:** 6S concept, 6S methodology, Total Quality Management, Improvement in quality, 6S methodology, Cost reduction, Safety, 6S approach.

### I. INTRODUCTION

The 6S approach is the generally used technique in the manufacturing industry to increase the work performance. The 6S concept is innovative form of 5S method that developed in the Japan. The 6S approach is used to reduce the rejection and utilize the all resources to get maximum output from them. The main objective of 6S approach is to reduce the industrial accidents at the workstations in the manufacturing industries (Kaushik & Kumar, 2017). The 6S approach has six phases that are implemented in the any company to get benefits.

The 6S approach is usually implemented with quality techniques like the lean Manufacturing, Just in time manufacturing, Kaizen etc. in the manufacturing industry. This approach is a tool for helping the analysis of working processes at the workstation. This approach reduces the time of working processes running at the workstation. This approach helps to reduce the time of the processes like material handling, tool changing etc. used at the workstation (Deepak Dhouchak, 2017). This approach makes a better control on all processes in the workstation.

The 6S concept phases are:

1. Sort
2. Set in order
3. Shine
4. Safety
5. Standardize
6. Sustain



**Figure 1 : Six Phases of 6S approach**

The figure 1 explains the working and order of the phases of 6S approach. The 6S approach is very simple and easy to understand and implement in any organization. This approach is more beneficial and ideal as compared to other approaches or methods for any organization.

#### Aims of 6S Approach:

1. To make better process control at workstation
2. Reduce production costs and production time
3. To create a Neat and Clean work environment
4. Reduce the chances of occurring any accidents at workstation
5. Maximize use of resources
6. Reduce the wastage of resources and raw material

## II. METHODS AND MATERIAL

### 6S Methodology

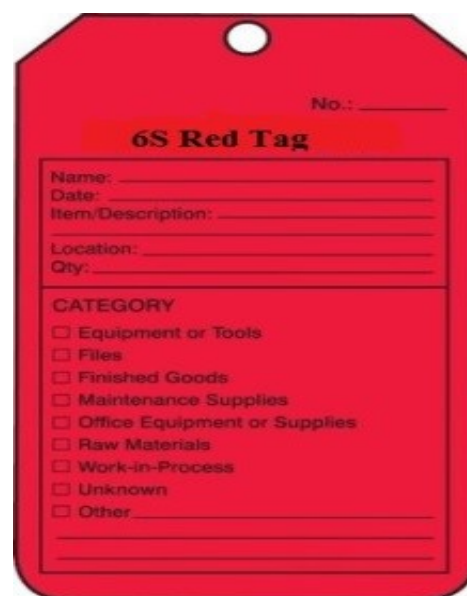
**Table 1:** Meaning of phases of 6S approach

Sr. No.	6S Word	Meaning
1.	SORT	Separate the all wanted and unwanted things and items at the workstation
2.	SET IN ORDER	Position everything at appropriate place in strategic order in the workstation
3.	SHINE	Clean everything like machines, tools, floor area etc. regular at the workstation
4.	STANDARDISE	Regular maintain the standards and policies at the workstation
5.	SAFETY	Fit all needed safety equipment at the workstation and regular check their conditions
6.	SUSTAIN	Regular implement the all above five phases at the workstation

The table 1 explains the meaning of 6S steps. The steps of 6S approach are very simple to understand for anyone.

### Sort

Sort is the first phase of 6S approach in which the materials and things are sort present at the workstation. The needed and unneeded things and materials are separated at the workstation by the sorting. The red tag is attached to the all unwanted things (Deepak Dhouchak, 2017). The all red tag holding things are removed from the workstation that results in more free space available at the workstation after sorting.



**Figure 2 :** Red Tag used in 6S concept

The figure 2 shoes a red tag that is attached with the unneeded things and material in the workstation. The red tag is attached to identify the unneeded items at the workstation. The red tag items are kept in red tag area at the workstation during the shorting process. After sorting the red tag items are removed from red tag area (Deepak Dhouchak & Naveen Khatak, 2017).

### Set in Order

Set in order is the second phase of 6S approach. In this phase, the all material, tools and machines are positioned in a strategic order in the workstation to access them accurately and quickly. This strategic order of machines, tools and material reduce the access time. The better material handling is achieved after this phase (Sharma &

Kadyan, 2016a). The all things are positioned at their appropriate place in the workstation in this phase.

The arrangement of resources strategic order at workstation helps to maximum use of resources and to get the maximum output from the resources. This step also decreases the wastage of resources at the workstation.

## Shine

Shine is the third phase of 6S approach. In this phase, the all machines and tools present in the workstation have to clean appropriately before and after their use. The floor area in the workstation must be cleaned before the start of working shift and after the end of working shift. The all machines and tools present in the workstation always are dust free and oil free. The clean and oil free floor area reduces the chances of happening any accident with the workers at the workstation (Mittal, Kaushik, & Khanduja, 2012). The regular cleaning of machines and tools increases the life of machines and tools used at the workstation. The regular cleaning of machines increases their work performance also.



**Figure 3:** Clean display of machine

The cleaning of machines, tools and floor area at the workstation is very important for smooth and efficient working. The figure 3 shows the cleaned display of CNC machine at the workstation.

## Standardize

Standardize is the fourth phase of 6S approach. In this phase, some principles and standards are implemented at

the workstation to monitor the regular implementation of above three phases at the workstation. Some standard sheets are given to the engineers and operators to maintain to monitor the daily progress and working of workstation (Sharma & Kadyan, 2015a). The standards should be always followed by the employees for efficient working.

Rotation Schedule						
	Sweeping		Garbage Removal		Machine & Tool Cleaning	
	Day Shift	Night Shift	Day Shift	Night Shift	Day Shift	Night Shift
MON	Done	Done	Done	Done	Done	Done
TUE	Done	Done	Done	Done	Done	Done
WED	Done	Done	Done	Done	Done	Done
THU	Done	Done	Done	Done	Done	Done
FRI	Done	Done	Done	Done	Done	Done
SAT	Done	Done	Done	Done	Done	Done

**Figure 4 :** Standard sheet

The engineers and supervisors have to regularly check the standard sheet at the workplace. The operators, supervisors and engineers have to fill the work details in the standard sheet after the completion of work or in the end of working shift (Sharma, 2012). This step makes the better understanding between the employees at the workstation.

## Safety

Safety is the fifth phase of 6S approach. In this phase, check the all safety parameter in the workstation. The safety rules are implemented in the workstation to reduce the chances of occurrence of any industrial accident at the workstation (Sharma, 2012). The all necessary safety devices and equipment are fitted in the workstation.

The wearing of all safety equipment is compulsory for all employees at the workstation. Always have an emergency plan to face the any accident at the workstation. Regular check the all safety devices and equipment used at the workstation (Deepak Dhouchak & Naveen Khatak, 2017). A safety officer is present at the workstation during working time. The figure 5 shoes the safety helmet and safety jacket for employees.



**Figure 5 : Safety Hamlet and Safety Jacket**

## Sustain

Sustain is the final phase of 6S approach. In this phase, the managers should have to check the regular implementation of all above five phases in the workstation. This is key phase of 6S approach. The managers should have to check the implementation of above 5 steps regularly at the workstation (Deepak Dhouchak, 2017).

## Advantages of 6S Approach

1. Provide better material handling at the workstation.
2. Create a Neat and Clean work environment for workers.
3. Reduce the searching time of tools.
4. Quick to access of all tools, equipment's and files at the workstation.
5. Increase production rate at the workstation.
6. Increase the quality of products and services.
7. Reduces the chances of accident happen at workstation.

## Applications of 6S Approach

- 6S approach can be used in the manufacturing industry as well as any other organization.

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