

# IMPLEMENTING 5S PROGRAM IN MANUFACTURING FACILITIES

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## ABSTRACT

5S is a system to reduce waste and optimize productivity through maintaining an orderly workplace and using visual cues to achieve more consistent operation result. The term refers to five steps- sort, set in order, shine standardize and sustain- that are also sometimes known as the pillars of a visual workplace. 5S programs are usually implemented by small teams working together to get material closer to operation, right at worker fingertips and organized and labelled to facilitate operations with the smallest amount of wasted time and material. The 5S system is a good starting point for all improvement effort aiming to drive out waste form the manufacturing process, and ultimately improve a company's bottom line by improving products and services, and lowering cost. Many companies are seeking to making operations more efficient, and the concept is especially attractive to older manufacturing facilities looking to improve the bottom line by reducing their cost.

**Keywords:** - Productivity, manufacturing facilities.

## INTRODUCTION

5S is the name of a work place organization method that uses a list of five Japanese word: seiri, seiton, seiso, seiketsu, and shitsuke. Transliterated into Roman Script, they all start with the letter "S". The list describes how to organize a work space for efficiency and effectiveness by identifying and storing the items used, maintaining the area and items, and sustaining the new order. The decision-making process usually comes from a dialogue about standardization, which builds understanding among employees of how they should do the work. In some quarters, 5S has become 6S, the sixth element being safety.

Other than a specific stand-alone methodology, 5S is frequently viewed as an element of a broader construct known as visual control, visual workplace, or visual factory. Under those (and similar) terminologies, Western companies were applying underlying concepts of 5S before publication, in English, of the formal 5S methodology. For example, a workplace-organization photo from Tennant Company (a Minneapolis-based manufacturer) quite similar to the one accompanying this article appeared in a manufacturing-management book in 1986.

5S was developed in Japan and was identified as one of the techniques that enabled Just in Time manufacturing. Two major frameworks for understanding and applying 5S to business environments have arisen, one proposed by Osada, the other by Hirano. Hirano provided a structure to improve programs with a series of identifiable steps, each building on its predecessor. As noted by John Bicheno, Toyota's adoption of the Hirano approach was '4S', with Seiton and Seiso combined.

Some 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. A precursor development to the Japanese system of management was outlined by Alexey Gastev's development and the Central Institute of Labour (CIT) in Moscow.

## WHAT IS 5S?

There are five 5S phases: They can be translated from the Japanese as "sort", "set in order", "shine", "standardize", and "sustain". Other translations are possible.

### Sort

- Make work easier by eliminating obstacles.
- Reduce chances of being disturbed with unnecessary items.
- Evaluate necessary items with regard to cost or other factors.
- Remove all parts or tools that are not in use.
- Segregate unwanted material from the workplace.
- Define Red-Tag area to place unnecessary items that cannot immediately be disposed of. Dispose of these items when possible.
- Need fully skilled supervisor for checking on a regular basis.
- Waste removal.
- Make clear all working floor except using material.
- Sort bad and good things.
- Sort all items as per their parts.

### Set in order

- Arrange all necessary items so that they can be easily selected for use.
- Prevent loss and waste of time by arranging work station in such a way that all tooling / equipment is in close proximity.
- Make it easy to find and pick up necessary items.
- Ensure first-in-first-out FIFO basis.
- Make workflow smooth and easy.
- All of the above work should be done on a regular basis.
- Place components according to their uses, with the frequently used components being nearest to the work place.

### Shine

- Clean your workplace on daily basis completely or set cleaning frequency time to time
- Use cleaning as inspection.
- Prevent machinery and equipment deterioration.
- Keep workplace safe and easy to work.
- Keep workplace clean and pleasing to work in.
- When in place, anyone not familiar to the environment must be able to detect any problems within 50 feet in 5 sec.

### Standardize

- Standardize the best practices in the work area.
- Maintain high standards in workplace organization at all times.
- Everything in its right place.
- Every process has a standard.
- Standardize color coding of usable items
- People know the process of that specific job

## Sustain

- Not harmful to anyone.
- Also translates as "do without being told".
- Perform regular audits.
- Training and discipline.
- Training is goal-oriented process. Its resulting feedback is necessary monthly.
- Self-discipline
- To maintain proper order
- Ensure all defined standards are being implemented and heard.
- Follow the process, but also be open to improvement

## Objectives of the Study

There are many practices in the world to improve the quality of products/services and performance of organizations, but generally companies looking for the best practice to implement and utilize for achieving their organizational goals and objectives easier, sooner and with less expenses. Available techniques are different from each other in terms of their specific characteristics, factors and ways that consider for reaching their purpose. This study aims to investigate the impact of 5S practices on performance of industrial organizations. Accordingly, the main objective of the research is to measure and compare of the organization's performance before and after implementing 5S practice. So the objectives of this research are:

- To determine factors and characteristics of industrial organizations' performance.
- To identify effectiveness of 5S implementation on the organization performance.

## PROBLEM STATEMENT

The following problems occurred before implementation of '5S' in the organization:

1. Improper utilization of storage space for raw material, bins and finished products.
2. Wastage of time in searching the raw material due to non-permanent location for storage of raw material.
3. Low productivity due to the time wastage in searching for tools, materials due to improper workplace management.
4. Presence of unwanted materials at the workplace which affects the moral of the worker while working.
5. Useful storage space being acquired by the unwanted materials.
6. More time and cost required for the inventory process of unwanted stored materials in raw material stores.
7. No well-defined space for storing the unwanted or rejected material.
8. Unequal participation of officers and workers in workplace management due to non standardization.

## Methodology

The following methods can be adopted for implementing 5S activity.

1. Creating awareness among the employees is the important thing will the executing the plan. For that regular training programs should be done.
2. Creating an executable plan for horizontal deployment of the 5S program is most important thing.
3. As the organization consist of various departments it was difficult and impossible to imply directly the "5S" technique in the organization. Hence the organization was simplified into various zones consisting of specific departments along with it, the zone leaders and sub-zone leaders were also appointed.
4. Providing the required thing for the implementation of 5S activity is also important.
5. Make the guide lines for implementation of 1S (Sort), 2S (Set in order), 3S (shine), 4S (Standardization).

6. Regular Audits should be conducted by the higher authorities of the organization for the effective results of the program.

### Conclusion

The present paper demonstrates the implementation of 5S a lean manufacturing techniques in an organization. Lean manufacturing is one of the options to reduce waste and improve operational efficiency of the organization. The efficient implementation of 5S technique leads to improve in productivity of the manufacturing plant. It promotes neatness in storage of raw material and finished products. The 5S implementation leads to the improvement of the case company organization in many ways for instance. (1) Better usage of working area, (2) Work environment improvement (3) Prevention of tools losing. (4) Reduction in accidents. (5) Reduction in accidents. (6) Reduction in pollution. (7) Discipline in the employee. (8) Increasing of awareness and moral of employee.

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