

# 5S- A WORK PLACE QUALITY MANAGEMENT SYSTEM

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## Abstract:

The following paper tries to explore in detail the concept of 5S management, its benefits and the framework required for implementation. 5S is a Japanese system predominantly for the improvement of work place management, it is rightly said that all the good things start from home. This holds true in the case of 5S also. Almost each of us follows it in our daily routine though at different levels. But since it is not implemented in a structured fashion it fails to impact either our thinking process or attract any attention.

The authors try to use simple and practical ways in this paper for deployment of 5S. Let us understand it in simple ways. The 5S of the Japanese system can be understood in common man's language as -

1. Segregate
2. Sort in order
3. Shine
4. Standardize
5. Sustain

The aim of this paper is to explain the 5S implementation methodology. On the basis of our own research it can be stated, that introducing the 5S rules bring great changes within company, for example: process enhancement by costs' reduction, increasing of effectiveness and efficiency in the processes, maintenance and improvement of the machines' efficiency, safety increasing and reduction of the industry pollution, proceedings according to decisions. The 5S method begins each programme of improvement in a company. This method can be used in all companies. Its result is the effective organization of the workplace.

Keywords: Quality management; Quality improvement; 5S

## 1.0 Introduction

5S is the name of a workplace organization method that uses a list of five Japanese words: seiri, seiton, seiso, seiketsu, and shitsuke. Any manufacturing facilities have opted to follow the path towards a “5S” workplace organizational and housekeeping methodology as part of continuous improvement or lean manufacturing processes.

5S is a structured program to achieve total organization, cleanliness and standardization in work place because a well-organized work place results in safer, more efficient and more productive operation. It boosts the morale of workers, promoting the sense of pride and ownership of responsibilities.

## 2.0 Literature Review

5S was first introduced in Japan and stands for five words starting with letter “S” and these stand for:

1. Seiri – meaning sorting – Tidiness- Putting things in order. This means sorting and organizing the items as critical, vital, frequently used items, useless, or items that are not need as of now. Unwanted items can be salvaged. Critical items should be kept for use nearby and items that are not be used in near future, should be stored in some place. For this step, the value of the item should be decided based on utility and not cost. As a result of this step, the search time is reduced.
2. Seiton-meaning setting/Straighten - Orderliness-Proper arrangement. Here the concept is “A Place for Everything and Everything in its place”. The items should be placed back after usage at the same place. To identify items easily, name plates and colored tags has to be used. Vertical racks can be used for this purpose, and heavy items occupy the bottom position in the racks.
3. Seiso- meaning Shining – Clean /Cleanliness. This involves cleaning the work place free of burrs, grease, oil, waste, scrap etc. No loosely hanging wires or oil leakage from machines. Here cleaning is in the form of inspection. When we are cleaning, we are inspecting simultaneously, if something is unnecessary we are discarding those things (under 1S) and if throughout cleaning we have seen that any item is not kept in correct place, we put them in its place (doing 2S). Hence whenever we are doing ‘3S’ means we are doing ‘1S’ and ‘2S’ simultaneously. In addition we check for the health of the machine, lubrication, electrical connections etc., Clean your work place completely so that there should not be any dust on the floor, walls, windows, desk, table, machinery etc. Cleaning should be done in Macro first and then in micro level or individual items.
4. Seiketsu – meaning Standardization – Purity – Perpetual Cleaning.
5. Shitsuke – Meaning – sustain –commitment to above four Ss. This means whatever system we are having or developed by us under ‘4S’ to be followed in

such a way so that, standard practices become a part of our life. This will benefit to keep high level of work place organization at all the time.

### 3.0 Approach and Methodology

As per Iwao Kabayashi who introduced this concept of 5S these simple steps leads to best working environment. 5S is the silent informer of a company's attitude to quality, work & people management. The easiest way to determine the attitude towards improvement activities is simply to walk around the plant and observe the house – keeping practice. It often tells us more about the company than any financial statement. One can judge the level of improvement activities from the way tools are stored, swath and chips from machines handled, work table organized, inspection points indicated, factory floor swept, machines cleaned, canteen and toilet condition etc. The practices reflect the management's general attitude towards work and employees.

We should understand the linkage between the level of Five S and the amount of defective products produced, the number of machine breakdown, inventory level and so on. Therefore Five S should be among the first steps management should take for improving the company's quality status. Five S are an important aspect of team - work. If we don't do Five S, we cannot do any other work efficiently. Five S starts with each individual practicing it. When we go to work we notice many things, which are not in order, but we overlook them and turn a blind eye to them. Unfortunately we do not realize that many of our problems will disappear if we pay attention to Five S. We should not think that Five S actions are for others to implement. Our action speaks louder than words. 5S is a system to reduce waste and optimize productivity through maintaining an orderly workplace and using visual cues to achieve more consistent operational results. 5S programs are usually implemented by small teams working together to get materials closer to operations, right at workers' fingertips and organized and labeled to facilitate operations with the smallest amount of wasted time and materials.

The 5S system is a good starting point for all improvement efforts aiming to drive out waste from the manufacturing process, and ultimately improve a company's bottom line by improving products and services, and lowering costs. 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 costs.

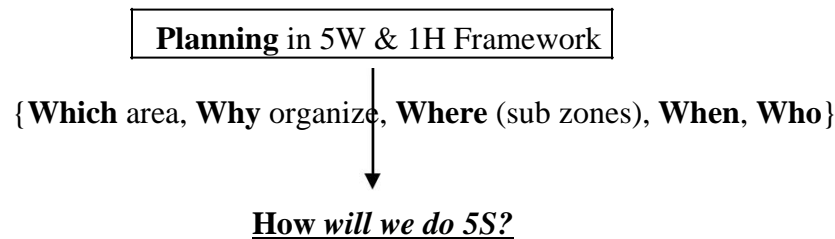
#### 3.1 Implementation Methodology

Implementing the 5S method means cleaning up and organizing the workplace in its existing configuration. It is typically the first lean method that organizations implement. This lean method encourages workers to improve their working conditions and helps them to learn to reduce waste, unplanned downtime, and in-process inventory. A typical 5S implementation would result in significant reductions in the square footage of space needed for existing operations. It also would result in the organization of tools and

materials into labeled and color coded storage locations, as well as “kits” that contain just what is needed to perform a task.

The 5S methodology is a simple and universal approach that works in companies all over the world. It is essentially a support to such other manufacturing improvements as just - in-time (JIT) production, cellular manufacturing, total quality management (TQM), or six sigma initiatives, and is also a great contributor to making the workplace a better place to spend time.

## METHODOLOGY FOR OFFICE 5S IMPLEMENTATION



- Steps:
- SEIRI** [Sort and discard unnecessary things]
- A) Examine all articles which is needed & which is not.
  - B) Useless articles should be separated from useful ones.
  - C) Categorize wanted items based on their frequency of usage.
  - D) Keep the regularly used items in a handy place where as keep the rarely used items in a distant place.
  - E) Get rid of unwanted items.
  - F) Do not place things in the way.
- Steps:
- SEITON** [Arranging of items for use so that our working is smooth.]
- A) The clear planning of passages indicating entry and exit is of prime importance.
  - B) Prepare storage areas for storing the items.
  - C) Decide the place for everything in a manner that the thing can be reached without any strain or extra effort.
  - D) Put a tag/sign/label for each location of an item/person.
  - E) A proper indication needs to be made for items that are needed for temporary use.
  - F) Color-coding should be used for quick identification. Proper indication is required for items that are out of stock, items in use and items that are lost and retrieved.
  - G) The caution boards, messages and instructions should be written and displayed in a manner that is easy for people to read and follow.

- H) It should be ensured that there is a regular and frequent inspection of the entire scheme of things.
- I) Arrange articles according to their shapes and weights in different sections of the cupboard.
- J) The passages are not to be obstructed and create problems for movement of material and people.

### **SEISO** [Cleaning all places]

Steps:

- A) Divide the work area into distinct zones for purpose of cleaning.
- B) It is not the workplace alone, but the whole surrounding should be kept clean and tidy.
- C) Allocate individual responsibility for each zone by clearly spelling out what needs to be done.
- D) Make everyone study the current cleaning situation objectively in order to clearly ascertain what needs to be cleaned and what should be the order of cleaning.
- E) Each zone in charge should provide training to his subordinates on the cleaning system.
- F) Make cleaning work a personal responsibility of the individuals by specifying it clearly. This also ensures elimination of work avoidance.
- G) If required, revise the way of cleaning and the tools used so that those hard to clean places will be easy to clean.
- H) Decide on the safety precautions etc. to keep the things the way we want it to be.
- I) Regular inspection should be done to evaluate the progress. The problems revealed should be analyzed and solved.

### **SEIKETSU** [Systemizing the above practices]

Steps:

- A) The first step is to systemize the practices of Seiri, Seiton, Seiso taking the opinion of the entire group.
- B) The standard practices that evolve out of the discussions are to be registered and circulated widely.
- C) Following should be clearly depicted in display charts:
  - a. Danger Alerts.
  - b. Indication of where things are to be kept.
  - c. Equipment designation / Instructions.
  - d. Caution and Standard Operating Procedures.
  - e. Preventive Maintenance Display.
  - f. Instructions.
- D) Display charts properly in order to help people avoid errors. The charts should be visible not only to the workers within the unit, but also to anyone passing through.

- E) Messages should be as clear as possible such that they can be seen from a distance.
- F) Prepare manual to standardize the visual management for proper follow up.
- G) Visual management is essential because everybody will know when there is a problem and would hence initiate proper actions.

### **SHITSUKE** [Strict adherence to the system – Discipline]

Steps:

- A) Pay attention to the minutest aspect of a process and ensure that the entire functional requirement for 5S becomes a habit with everyone.
- B) Make the training program simple and interesting.
- C) Clearly allocate jobs in a manner that ensures everyone is willing to work on its implementation.
- D) All types of instructions whether oral or written should be clear and there should be a continuous feedback on the understanding and compliance of these instructions.
- E) Prepare a checklist along with an action plan. Ensure proper monitoring of the action plan

## 4.0 Recommendations for 5S Implementation

Successful implementation of 5S requires lot of patience and attention to details. After understanding the implementation methodology, the organizations should carry a comprehensive campaign for building awareness on 5S Concepts along with formation of Zones and committee to oversee the progress.

Step by step implementation phase is explained below:

### **PHASE I – Awareness programme and planning:**

1. Top management exposure programme.
2. To integrate '5-S' in management objectives.
3. Formation of '5-S' steering committee. This committee will meet once in a month for periodic and regular review of implementation status. Committee will also discuss for future action plan.
4. Nomination of coordinating agency and Chief coordinator.
5. Identify trainers. Organize training programme on "Training for Trainers".
6. Start awareness by organizing exposure programme for all the employees at all levels.
7. Organize programs for families, students, contract labors and shopkeepers connected with the company.

8. Distribute hand bills, recording material etc., for your area.

### **PHASE II – Implementation plan:**

1. After awareness programme to Sr. Executives, they must implement '5-S' in their respective office/chamber. This should start from head of the plant.
2. Management should observe the status of a few important areas, before starting '5-S' in specific areas, viz. Toilets, Main Gate, Cycle/Scooter stand, Canteen, Hospital, Places of Drinking water, Notice Board, P&A department etc.
3. Divide the total area in zones. HOD will be the convener of zone.
4. HOD will further divide the zone into sub-zones. This may be in required numbers. For each sub zone, HOD will make someone responsible. They will be the council member for that zone.
5. Council members may be then divide the sub-zone into sub-sub-zones. Member of such sub-sub-zones will depend upon the number of employees working in that area as each and every person will be responsible for area assigned to them.
6. Group will visit to each corner of the area and adjust the action plan, suitable for the working place.
7. Participate in Goal setting. Follow through each step of '5-S'. Take pictures of all areas before the activities are applied. Participate in implementing. Take pictures after the activities are applied. Keep developing. Evaluate and set standards.

### **PHASE III – Surveillance:**

1. Each zone/sub-zone area-wise check list to be done.
2. Council Member along with few members of that area will evaluate the implementation of '5-S' in their area as per check list.
3. Once in a week, zone convener / HOD of the area will visit the total area to witness the implementation status.
4. Once in a month, the member of Steering Committee must visit the total area along with action plan of that area and check list.

### **PHASE IV – Follow-up action:**

1. To develop the competitiveness, steering committee should start evaluating the '5-S' implementation status on the basis of evaluation criteria to be decided by the committee. This should be done at least 4 times in a year. Marks to be displayed in their area.
2. Those getting 70% or more marks, may be given one '5-S' memento. This should be displayed along with Marks. This may be taken back if area is not able to maintain minimum 70% marks.
3. Develop motivational ways.

4. Conduct slogan, poster, poem, drama etc. based on '5-S'.
5. Propagate this concept in colonies, market, school etc., in and around the factory.
6. Telecast the better areas, home, shops etc. through cable TV for propagation of '5-S'.
7. Visit to such organization where '5-S' is implemented effectively.

## 5.0 Conclusion

In one line it can be defined as "Place for everything and everything in its place". Now recall your activities in your house. Morning when you get and go for freshen you find all the things needed like tooth brush, paste, soap etc. at a particular place. You need not to call any one for help nor waste any time to locate it. Subsequently your clothes, shoes, office bag etc. all are kept at their designated place and all of your works are done in a smooth way. Why it is so smooth because someone back in the home is taking care of these things, following an unwritten system day in and day out and making your life smooth. On the other hand most of us experience a different scene in our offices/work place. Most of our office accessories are not found in place and at the time of need we waste lot of time to identify them or go on accumulating new one. At work place also many of the required tools, spares etc are not found in time and our work place looks like a war place. Since we are experiencing it for many days it has become our way of life without noticing the impact/loss it is causing.

In the year 2013 when we started our journey to implement this system in our company we were looking to it as merely a house keeping tool but over the time when we have started implementing it in step by step systematic manner it proved us a very effective and valuable tool.

In the initial stages of implementation itself we could understand that primarily it requires the behavioral and attitudinal change in the people around to make it successful and accordingly we strategize to involve more and more people.

We have divided whole of our plant in four groups as per the business function. Each group was then divided in sub group based on functional requirement. Each sub group was then divided in Sub Sub group as per the shop floor activity. One owner was assigned to each of the sub sub group making a team of strong people to carry forward the concept.

## 5.1 Hurdles/Obstacles in implementation

When you start any new system particularly in industrial environment you face a resistance. It is general psychology of man to resist change. Same thing happened to us also. People initially thought that it will increase their work load or we will require extra person for this. Some have even asked what extra we will get for doing this. But out of



the lot you always find some enthusiastic people who want to learn and try new things. We need to identify such people in each group and make them the group owners.

To spread the message and involve more & more people we used certain tools like-

- ✚ Sign ages telling about what each S stands for
- ✚ Writing slogans on walls
- ✚ Distributing handouts
- ✚ Taking out rally in the plant premises Morning
- ✚ 5 S oath at prominent places/offices
- ✚ Rewarding /Appreciating people publically for their contribution
- ✚ Displaying zone wise score at prominent places to create a sense of ownership as well as competitiveness.

The implementation of 1S, 2 S and 3 S up to 75-80 % generally takes 3-4 months' time. Further improvement and success then lies in other 2 S through which we make standard practices and sustenance plan. Weekly audit by the shop floor people, monthly audit by the senior executives and 6 monthly audits by outside agency are some of the commonly used sustenance plans.

But key to the success lies in weekly audit through which you can involve more and more shop floor people and through the small- small observation/suggestion from these people regular improvement can be achieved.

When fully implemented, the 5S process increases morale, creates positive impressions on customers, and increase efficiency and organization. Not only will employees feel better about where they work, the effect on continuous improvement can lead to less waste, better quality and faster lead times. To get the greatest success, the nature and implication of each “S” need to be understood by each employee and should be regularly practiced.

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