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5S: A Statistical Methodology and Indian Tradition

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Abstract : Modern management in the company is not only the quality management system based on the ISO series standards, but pursuit to the continuous improvement, so 5S is the philosophy of the Total Quality Management as discussed by J. Michalska and D. Szewieczek[5]. The 5S is the methodology of creation and maintaining well organized, clean, high effective and high quality workplace. After implementation, it results in effective organization of the workplace, reduction of work's environment, elimination of losses connected with failures and breaks, improvement of the quality and safety of work. 5S methodology was introduced by Taiichi Ohno and Eiji Toyoda[1] with Japanese industrial engineers in 1950. However, there is an affirmation that any standard/rules or philosophy is being developed through inspiration from any tradition. In this paper, it is tried to associate 5S methodology with Indian tradition through some examples.

Keywords - Keywords: 5S, Indian Tradition, Statistical Evaluation, Workplace Management

I. INTRODUCTION

During the Second World War, emphasis was given on production and maintenance of equipments, weapons and other supportive materials used in the war. After the completion of World War II, most of the production and maintenance units of almost all countries have diverted their focus from manufacturing weapons etc. used in war to production of household items, lavish items to improve standard of living. Due to this industrial boom, a competitive environment was created worldwide. In order to survive cut through competition one has to aim on the quality, quantity, productivity and price of the product.

Among all the countries, Mainly Japan focused on offering the best quality product at the affordable price in international market. For uniformity in production among the various industries they devised certain standards, rules, philosophy etc. This led them to become pioneer in manufacturing good quality products. However, it is believed that any standard/rules or philosophy fabricated, already have association/connection with some tradition. Here, the tradition is defined as per the Oxford dictionary, viz., a long established custom or belief that has been passed on from one generation to another.

In this paper, association between one of the basic statistical workplace management concept, first introduced by Japan viz. 5S Methodology with the Indian Tradition is discussed. In Section 2, Overview of 5S methodology is given. Section 3 is all about the association between 5S methodology and Indian Tradition followed by conclusion in Section 4.

II. OVERVIEW OF 5S METHODOLOGY

First step to implement any programme of improvement at work place is the 5S method. It is the potential tool for doing Statistical analysis of various processes running on the workplace. Previously, 5S was known as the Toyota Production System. This was developed by Taiichi Ohno and Eiji Toyoda with Japanese industrial engineers in 1950. Since it was introduced by Japan, the name 5S is the acronym of five Japanese words viz. (1) Seiri (sort), (2) Seiton (set in order), (3)Seiso (shine), (4)Seiketsu (standardize) and (5)Shitsuke (sustain). These five words are taken up as five different Phases for Implementation of the methodology. Figure-1 Shows the Hierarchy of the Phases while implementing the methodology.

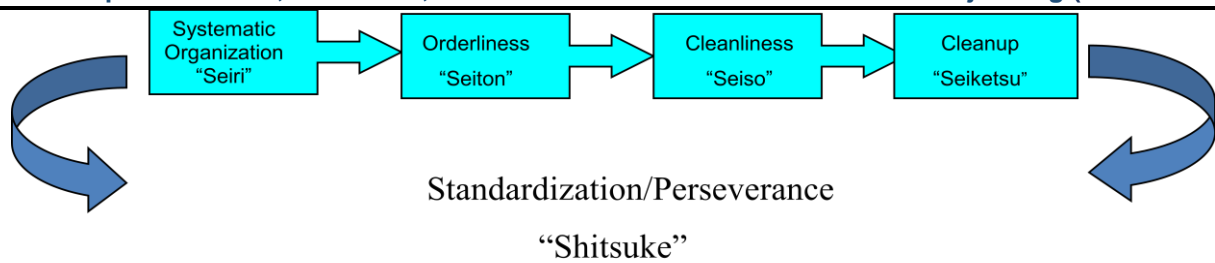


Figure 1: Hierarchy of the Five Phases

There are many references/literatures available which includes the discussion of 5S methodology. Some of the references are Taiichi Ohno[1], H. Lal[2], L. Suganthi, A. Samuel[3], Subburaj Ramasamy[4], J. Michalska, D. Szewieczek[5], Ganesh R., Balasaraswathy K.[10] and URL's [6] to [9] of different websites are used to introduce and associate the 5S methodology in this article. The Five Phases of the methodology are defined as follows.

1. Seiri:Clear up (sorting and disposing of the unwanted items).

This mainly focuses on eliminating the waste or unwanted things. Else the waste mess up with the needed things and will make the work more complicated and reduce the efficiency and productivity of work.

2. Seiton:Organizing (based on function and frequency of use).

Arrange the things such that these can be identified easily and avoids confusion which may lead to stress to the process owner. Seiton says “A place for everything and everything in its place”.

3. Seiso: Cleaning (periodical maintenance in terms of cleaning and polishing).

This focuses on maintaining the things in a dust free condition. The ‘third S’ makes people to care about the things.

4. Seiketsu:Standardizing (labelling and making identification easier).

This makes sure that the above ‘3S’ are maintained and are followed. The ‘fourth S’ gives a systematic approach to handle the above ‘3S’.

5. Shitsuke:Discipline (training for continuous implementation).

This Makes a habit of keeping things in an orderly and neatly way. This comes by giving proper training and by every individual’s commitment.

By Implementing 5S methodology, one can get so many advantages like improving process by reducing cost, running the process smoothly with minimum inventory, effective utilization of the working space, preventing loss of tools, improvement in worker’s safety, minimization of time consumed for finding required tools, increasing effectiveness and efficiency of the process, increasing efficiency of the machinery, maintenance of the devices used, maintaining cleanliness of the workplace, quick identification of the potential sources of damages, Elimination of the hazards activities which may cause serious accidents, reduction of the pollution, preparation of SOP, motivating workers, minimizing the consequences due to inattention, Improving internal communication processes, Enhancing the relations between workers and many more.

III. ASSOCIATION OF 5S AND INDIAN TRADITION

In this section, association between 5S methodology and Indian tradition is discussed phase wise. In each phase, initially we discuss what should be done to implement the phase and later on we try to associate it with traditional practices in India with few examples.

1. Seiri (sorting, organization of the workplace, elimination of unnecessary materials).

To implement this phase, sorting through all the tools, materials, etc., in the workplace and keeping only necessary items. Unwanted things are discarded or stored elsewhere. It results in safe and less messy to interfere with productive work.

Activities related to implementation of this phase were already being carried out in Indian tradition viz.

- Sorting during farming like weeding (grass and plants).
- In animal husbandry, periodically sorting is done to find out unfit animal which may be sell off or kept aside.
- Sorting during purchasing of fruits, vegetables etc.
- Sorting during cleaning any grains to discard unwanted bugs and waste.
- Before cleaning utensils sort the utensils from food waste and discard the food waste.
- Periodically sorting of equipment used by farmers, blacksmith, goldsmith etc. and discard unused or broken
- Sorting the list of invitees for marriage function or any gathering.

2. Seiton (set in order, place for everything).

In order to implement this phase, Tools, materials, object or equipment, must be properly and logically arranged for its efficient access. It is said that “There must be a place for everything, and everything must be in its place”.

Few examples of activities carried out in Indian tradition related to implementation of this phase are

- Utensils arranged in kitchen as per their requirement and essentiality.
- Arrangement of animals like cow, buffalo, goats etc. in their shelters.
- Sitting arrangement for eating foods at homes.

- Arrangement of fruits, vegetables or items in small carts or shops.
- Clothes arranged in its dedicated storage area.
- Tools used by blacksmith, goldsmith, shoemaker are arranged so can be used efficiently.
- Performing the rituals in predefined order in any religious function.

3. Seiso (shine, cleaning, removing of wastes, dust etc.).

During implementation of this phase, workplace should be completely and meticulously cleaned. After the work, each items/objects are to be cleaned and restored at its appropriate or predefined place.

In Indian tradition this phase has special emphasis, let see its examples

- Cleaning the kitchen area after preparing food.
- Brooming and mopping the entire home everyday
- Cleaning utensils after cooking and eating.
- Ploughing done at the end of the harvesting process in order to remove residues of previous crops and bringing them in depth such that they unable to restrict the growth of next crop.
- Craftsmen like sculptor, blacksmith, goldsmith, shoemaker etc. thoroughly cleans their working area and put their tools at predefined place.
- Cleaning of animals like cow, buffalo, goats etc and their shelters before milking them.

4. Seiketsu (standardize, constant place for things, constant rules of organization, storage and keeping cleanness).

While implementing this phase, one has to define rules or standard procedures to maintain consistency in performing activities. These rules or standards should be very communicative, clear and easy to understand for all members involved in process. All persons doing the same job should be able to work in any work station with the same equipments that are in the same location in every work station. Moreover, all members should know exactly what their responsibilities are for maintaining the first three phases.

Following examples from Indian tradition shows implementation of this phase

- Every family has its own standardized cooking method.
- Timing and methods of milking of milch animals is predefined for each animal.
- Method of performing rituals is predefined according to their religion.
- Every craftsman follows their predefined working method.
- Farmer follows the distinctive farming methodology learned from their elders.
- Schedule and method of worshipping followed in households are predefined.

5. Shitsuke (sustain, automatic realization of above-mentioned rules).

It is challenge to maintain the changes done in the workplace after implementation of above four phases. Implementation of this phase is focused on to not let gradual changes back to the previous condition of the workplace and thinking for the better ways of performing the same process. Moreover, when the situation arises like improvement suggested by member involved in implementation, a new technique, new equipment found which makes process easier or gives better result in minimum time and recourses utilized, new output requirement etc., one has to review and make necessary changes in above four phases.

Some examples from Indian tradition regarding implementation of this phase are as discussed below

- Farmers change their farming strategy according to sudden changes in weather.
- Changes in Cooking methodology as per evolution in cooking technology
- Grooming style upgrades according to life style changes.
- Modification in the traditional recipes as per changes in working environment.
- Changes in Traditional business strategies as per the changes in government law and emerging technology.
- After deep cleaning in houses, periodically cleaning is also done to maintain it.
- Checking fruits, vegetables or grain at regular interval to prevent rotten or bugs.
- Periodical checking of grocery for their available quantity.
- Reviewing for provisional consumption of money/Budget at regular interval in families.

IV. CONCLUSION

5S is effective tool which enables Statistical evaluation of different processes running on the workplace. It was developed by Taiichi Ohno [1] and Eiji Toyoda with Japanese industrial engineers in 1950. It is simply a method to improve work place. The 5S needs more of acquaintance, dedication and perseverance to keep the work place in a systematic way. It is not only meant for companies and offices but also may be followed by individuals who want to be effective manager. Even though, this methodology is published from 1950, its implementation is already being practiced without logical knowledge of the methodology in Indian tradition before that era. An attempt has been made to associate 5S methodology with the practices followed in Indian tradition through few examples in this paper.

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