

ANALYSIS OF THE APPLICATION OF THE 5S CONCEPT AMONG MANUFACTURING ORGANISATIONS IN KERALA

Dr. Mathew Joseph¹Ms Anney Chacko²MrMoncyKuriakose³

ABSTRACT

This paper investigates and clarifies the ways in which 5S has been understood and implemented by manufacturing organisations in Kerala. An outcome of this undertaking is to address current deficiencies in the literature concerning the applicability of 5S when transferred from one country to another. This research also highlights the distinction between '5S as a philosophy or way' and '5S as a technique or tool' by comparing the major frameworks provided by Osada (1989, 1991) and Hirano (1995, 1996) This empirical study gives a vivid picture of the current practice of 5S and helps in understanding their implementation experience, empirical relationships, and ongoing challenges associated with the 5S practice. The study reveals that the 5S practice has positively impacted the organizational culture.

INTRODUCTION

Competitive strategy is about being different; it means delivering a unique mix of values. Some of the major competitive dimensions that form the competitive position of an organization are: cost, quality, customization, delivery speed, and delivery reliability. To stay competitive, organisations deal with these dimensions on a daily basis in offering a mix of products and services. Among the quality tools used to achieve competitive advantage, the 5S methodologies play an important role facilitating the introduction and development of other improvement philosophies.

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1. Associate Professor, BIMS,SB College, Changanassery. mathewjoseph12@gmail.com
 2. Assistant Professor, BIMS,SBCollege,Changanassery. anney75@yahoo.co.in,
 3. Student, BIMS, SBCollege, Changanassery, moncyk@gmail.com.

OBJECTIVES OF THE STUDY

- To study the functioning of organizations which has implemented the 5S practice
- To analyse whether the organizations consider the 5S practice as a part of strategic planning.
- To examine the impact of 5S implementation in the organizations' culture
- To evaluate whether the organization has received benefits such as quality improvement through 5 S practice
- To identify whether the organization has designed a formal procedure to track, measure, and evaluate the 5S implementation.

SIGNIFICANCE OF 5S

Typically the 5S will cover the following areas such as *Efficiency*, improved due to the removal of clutter and the highly organized ergonomic workspace that is created through the application of 5S. *Delays reduced* due to more visible workspace organization, missing tools and components immediately obvious. Problems are immediately obvious as they will tend to manifest as things being placed where they do not belong, thus driving people to fix them quicker. *Setups reduced* due to ergonomic layout and organization of tools and equipment in a clearly labeled and highly visible manner. *Morale improved* due to the employee involvement in improving their own workspace to their own benefit making their work easier and less stressful.

Quality improved due to standardized ways of working and basic maintenance of tools and machines. The correct tools and equipment being in place means that the right tools are used for the job, plus the ergonomic workplace reduces opportunities for handling damage and the like. *Safety improvements* due to the removal of clutter that creates hazards, “a place for everything and everything in its place”, and an ergonomic layout that prevents stressful “dangerous” movements such as removing heavy objects from high or low locations.

CONCEPTUAL FRAMEWORK

The 5S practice is broadly used by manufacturing and service industries. Osada (1991) developed the original concept of the 5S practice; he considered that this is valuable practice for everyday life, 5S engages improvement activities in any environment, including homes, schools

and workplaces. The name of the practice arises from five Japanese words that constitute the implementation phases. Seiri, seiton, seiso, seiketsu, and shitsuke are the original words and have been referred to as the five keys to a total quality environment.

Sorting (*Seiri*) Refers to the practice of sorting through all the tools, materials, etc., in the work area and keeping only essential items. Everything else is stored or discarded. This leads to fewer hazards and less clutter to interfere with productive work.

Setting in order (*Seiton*) focuses on the need for an orderly workplace. Tools, equipment, and materials must be systematically arranged for the easiest and most efficient access. There must be a place for everything, and everything must be in its place.

Cleanliness (*Seiso*) indicates the need to keep the workplace clean as well as neat. Cleaning in Japanese companies is a daily activity. At the end of each shift, the work area is cleaned up and everything is restored to its place.

Standardizing (*Seiketsu*) Work practices should be consistent and standardized. All work stations for a particular job should be identical. All employees doing the same job should be able to work in any station with the same tools that are in the same location in every station.

Sustaining discipline (*Shitsuke*) it refers to maintaining standards and keeping the facility in safe and efficient order day after day, year after year.

According to Osada , 5S is a fundamental part of Japanese culture and society. For both individuals and organisations, 5S engages improvement activities in any environment, including homes, schools, communities and workplaces, regardless of size or type. The implementation of 5S can uncover hidden problems that may otherwise remain unnoticed. The benefits of implementing 5S are summarized as follows.

- Cleanliness – to maximize effectiveness, contribute to a healthier life and reduce crime (due to enhanced transparency);
- Orderliness – to maximize efficiency and effectiveness, reduce people’s workload, reduce human errors (due to simplifying processes); and
- Discipline – to increase the level of morality and ethics and to increase minimum standards through training and education.

In the workplace, 5S is used ‘to organize the workplace, to keep it neat, to clean, and to maintain standardized conditions, and to maintain the discipline that is needed to do a good job’. The practice of 5S increases ‘transparency’ in an organization ensuring a good first impression of the

workplace by visitors, particularly potential new customers. The successful implementation of 5S increases not only efficiency, such as in productivity and the level of quality per cost, but also organizational effectiveness through 'the synergetic (or cooperative) effect', which is often utilized in team sports. This means that the contribution of individual talent and effort by each team member often exceeds the performance level of any single standout player.

RESEARCH METHODOLOGY

This is an empirical research which conducted in selected manufacturing organizations in Kerala. The population of the study was the medium and large scale manufacturing organisations in the state of Kerala. A survey method was adopted to collect the data. Questionnaire consisted of a total of 25 questions, with 8 questions aimed to gather general information and 17 questions related to the 5S practice. A total of 5 factors were extracted and studied from the 5S related questions. The questionnaire was answered through a personal interview with either the quality manager or general manager and a few employees. The survey was planned to be done in 25 well established business organisations in Kerala. Although, the target of this research was a group of 25 manufacturing organisations, response for survey was received from a total of twenty.

Method of Data Collection:

Primary source:-

Primary data during the course of the project study was collected through survey method. Questionnaire was made to collect data from the respondent

Secondary source:-

Secondary data was collected from (i) technical & trade journals (ii) reference book, magazine & news paper (iii) articles from net

ANALYSIS AND INTERPRETATION

The study was done in 20 organisations from the manufacturing sectors and all the manufacturing firms declared, they have a quality department. Only 12 out of 20 (60%) organisations stated that they perform all their managerial and operational activities with quality

and continuous improvement standards, six out of 20 (30%) perform just the important and relevant, and two out of 20 (10%) perform some of their activities under these criteria.

- The organisations that have implemented the 5S practice have a quality department. The survey reveals 20 out of 20 (100%) organizations having quality departments. Organisations have a tendency to incorporate 5S in their everyday activities.
- Among the organisations surveyed, all of them perceive top management commitment to 5S and include 5S in its strategic planning. Top management commitment is very important because executives participate in quality improvement efforts and make long-term strategies and goals for quality improvement.
- In the organisations all firms have designed a formal procedure to evaluate the 5S implementation. Organisations with 5S practice have designed formal procedures to track, measure, and evaluate the 5S implementation through check list, meetings and Audits.
- As per the survey it was found out that 100% of organisations with 5S practices did have a positive effect in labor culture, improvement in production process and improved integration between different area.
- Organisations with 5S practice have positive impact on the organizational culture. Further, the success and failure of 5S depends upon an organization's culture, communications and employee attitudes. 16 out of 20 (80%) considers the practice has positively impacted the organizational culture including quick response, customer-driven quality, six sigma, continuous improvement, and employee participation.
- As per the survey it was found out that 100% of organisations with 5S practices have the benefit of Quality productivity and work environment improvement, cost reduction, reliability in production, improve employee morale etc.
- It was found out that the main challenges after 5S practice implementation is enhancement of labour culture. 60 % of respondents consider enhancement of labour culture as the primary challenge and other challenges include Guarantee activities performance under the 5s, keep top management commitment, customer service, keep the 5s practice as basis for quality, making easier to achieve top management goal etc.

- Almost all the firms consider the 5s practice as the basis for implementation other quality programs such as ISO, TPM, TQM, quality tools etc.

SUGGESTIONS

It was found that greater commitment from the top management is needed in the creation of an organizational culture, and to include 5S practice in the strategic planning of the organization. Secondly, further training is needed to enhance the perception of the 5S practice and to adopt it as a lifestyle rather than a management tool. Finally, efforts should be performed to: track, measure and evaluate the 5S implementation; design communication channels and enhance two-way communication; and to take advantage of the 5S practice and implement advanced quality and continuous improvement philosophies. All the participants of the survey opined the leading role of the 5S practice to support other quality and improvements methods. An interesting result is that both employee empowerment and continuous improvement were drawn from the survey as supported by the 5S practice, but none of the surveyed organisations has reached in operational level.

LIMITATION

- The study was only done in manufacturing firms
- For the data collection we approached only the medium and large size firms
- The survey area was limited to Kerala
- lack of response by the target organisations.

CONCLUSION

The 5S practice is both a philosophy and a set of guiding principles that lead to a continuously improving organization. The 5S implementation is not an easy task. The surveyed organisations identified various success implementation factors such as : investment in 5S training for top management and workforce; top management commitment to the 5S practice; the 5S practice included in the organizational strategic planning; the organization focus on how to keep the 5S

practice going; the organization measures the positive impact of the 5S implementation in the organizational culture; the 5S practice is used as the basis for advanced quality and continuous improvement philosophies; and the organization measures the benefits from 5S implementation such as quality improvement. The surveyed organisations showed diverse opportunities to enhance the 5S implementation which includes: personnel commitment with the 5S practice; the design of official communication channels to know personnel suggestions to improve their jobs; quality and continuous improvement orientation of all activities and operations; the design of processes to track, measure, and evaluate the 5S implementation; and how to keep the 5S practice ongoing while implementing advanced quality programmes systems. It is obviously indicated that obtaining commitment from top management and workforce could help to face the 5S implementation challenges better.

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