

Literature Review On Implementation of 5S In Industrial And Business Organizations

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Abstract: In the process of implementation of the Total Quality Management (TQM) in the organizational level, 5S will become the first step. It is a Japanese concept for increasing quality of products and productivity. 5S is a quality technique used by organizations comes from five Japanese words: Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize), and Shitsuke (sustain). This system helps to organize a work space for efficiency and decrease wasting and for optimizing quality and productivity. It uses visual evidences to obtain more firm results effectiveness. This study aims to review previous vast literature about benefits of 5S implementation and its efficiency in organizations. 5S can support the objectives of organization to achieve continuous improvement in performance and productivity and to improve safety.

Keywords—5S, implementation, constraints, organization, quality.

I. INTRODUCTION

The progress of industrialization, development of new techniques has led to the development of large industrial organization with multi plant and multilevel operations. Today the business has to face many challenges due to increase in product complexity, size of operation and stiff competition at national and international levels. Strict enforcement of quality control measures through sound quality management can help the company to withstand the fierce competition in national and international market. World class manufactures place an emphasis on total quality management (TQM) implementation. Japan's automobile industry started several decades behind the USA but in 1980 it took over the USA and become the biggest in the world using this philosophy. Industrial organizations have lots of potential to increase their export in electrical and electronics. This philosophy has provided its successes worldwide and also Indian industries taking the same route.

5S is the foundation to implement TQM philosophy and 5S is the primary driver for the successes of TQM in any organization. The 5S is a participative program and is an effective approach to improving the work environment and total quality. It becomes a base for continuous improvement. 5S is a technique originated from Japan and it was first developed by Hiroyuki Hirano. The original concept of 5S has both social and philosophical roots (Kobayashi 2005), most of the practices in Japan are often denoted by doing and Jyutsu such as Kendo (philosophical), Kenjyutsv (technique) which are intended to train the body and the mind through discipline. The adoption of 5S is well suited to application within production firms as it provides platform that, with little effort, allows the organization to satisfy various international standards with minimum costs. There is strong evidence that 5S is applicable and beneficial for service industries, and that this sector in earlier stages of 5S towards development and implementation but progressing towards levels in manufacturing field.

5S is a method used for setup and keeps the quality of working environment in an organization. An organization can organize and manage companies which require less space, human effort, time, quality and capital make products with fewer faults and make a workplace well ordered, disciplined and clean. 5 'S' is a system to reduce wastage and optimize quality and productivity via monitoring an organized and well maintained environment and use visual evidences for obtaining results .5S is basically a workplace management methodology for improving working environment, human capabilities and there by productivity.

The Indian organizations are aware about the need for improving quality, however, systematic approaches are not in place and efforts for implementation are not yielding sufficient results. The analysis has also shown many areas for improvement, to be globally competitive which requires serious efforts to remove weaknesses, particularly in high rejections, cost cutting drive and monitoring quality in cost of quality term.5S is a system to reduce wastage and optimize quality and productivity via monitoring an organized and well maintained environment. Regarding the importance of 5 S implementation in today's organizations, this study aims to review previous studies about the benefits of 5 S implementation and its efficiency in organizations.

II. 5 S Methodology:

The 5 S is a participative programme and is an effective approach to improving the work environment and total quality. It becomes a base for continuous improvement in the organizations. Over the last century, the Japanese have formalised the technique and name it as the 5S practise. The 5S is a methodology of creating and maintaining well organised clean, highly effective and high quality workplace. Its result is the effective organisation of the workplace, improvement of the work environment, elimination of losses connected with failure and brakes and improvement of quality and safety of work. The 5 S name stands for five Japanese words, i.e. Seiri, Seiton, Seiso, Seiketsu and Shitsuke (Osada, 1991; Ho, 1998). The 5S methodology is a simple and universal approach that works with companies all over the world. It is essential to such other

manufacturing improvements such as just in time (JIT) production, cellular manufacturing, total quality management (TQM), Six Sigma initiatives and is also a great contributor to make the workplace a better place to work.

5S Meanings:

Seiri (sorting, organisation of the workplace, elimination of unnecessary materials) In this, all materials, tools are sorted and only essential items are kept in work area. Everything else is either sorted or discarded. This helps for less clutter at workplace and productive work is produced in a better way.

Seiton (Set in order, place for everything) “A place for everything and everything in its place.” It is to make the arrangement of necessary items in good order so that they can be easily picked. Tools, materials, equipment must be well arranged for easy and efficient access; There must be a place for everything and everything at its place.

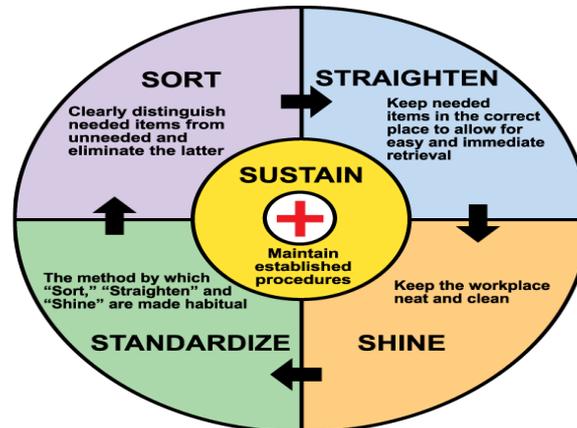


Fig. 1 5S Methodology

Seiso (Shine, cleanliness):

Seiso means cleanliness which should be the concern of everybody in the organization. Cleaning should be done by everyone in the organization, right from top management to the bottom. Cleaning is not for the sake of cleaning, but cleaning should be done with purpose.

Seiketsu (Standardisation, constant place, constant rules):

Seiketsu means maintenance of 1 ‘S’, 2 ‘S’ and 3 ‘S’ which has been so painstakingly done. Regular 5 ‘S’ audits should be done and scores against each ‘S’ should be displayed. Display through photographs should be encouraged. The emphasis here is on visual management and 5 ‘S’ standardization.

Shitsuke (Sustain, maintenance of all S):

Shitsuke means instilling the ability to do things the way they are supposed to be done. Following 5 ‘S’ should be part of the self-discipline. Continuous training and 5 ‘audit should be used to replace bad habits with good ones. This process helps people to become disciplined.

“A place for everything and everything at its place” is the mantra of 5S process. Storage and workspace systems allow improved organisation and maximum use of cubic space for the highest density storage. The result is an improved manufacturing process and lower overall cost of produced goods.

III. Process Implementation:

The basic pillars of 5 S are sorting (Seiri), set in order (Seiton), shine (Seiso), standardize (Seiketsu), and sustain (Shitsuke). It reshapes how you think about a workplace and provides a foundation for quality improvement. The initial stage in 5S is deciding what is essential in the work environment and what is not. The second stage is put the things where they provide the best support for the functions. The third stage is inspected, repairing and cleaning things to find and remove the root causes of damage and dirt. The fourth stage is team working and the members must have consensus on normal and new way of work. The fifth stage is personal discipline to follow the standards and to perform the personal characteristics, cleanliness and neatness of the organization. Implementing 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 help them to learn to reduce waste, unplanned downtime and in process inventory. A typical 5S implementation would result in significant reduction in the square footage of space needed for existing operations. It also would result in organization of tools and materials into labeled and color coded storage locations.

Industrial facilities throughout the world are transferring to lean and other popularly used efficiency, improving techniques by implementing 5S. For yielding great results of the implementation of lean, the implementation of 5S is laying a solid foundation.

Stage I: 5 S is comprised of five easy steps. Each step plays an important role to help facilities to be implemented successfully, once each step has been implemented, 5S should function indefinitely. To achieve this level of sustained success, managers and workers must embrace the system; they do so by integrating 5S methods and techniques into their daily work routines. Before moving forward on any facility reorganization it is required to seek the consent of all potentially affected managers, involving affected managers greatly helps to facilitate transition to 5S and may even provide new and effective ideas for implementation.

Stage II: Implementation of 5S begins with a creation of an internal committee of 5S lean leaders. This group is assigned to actively manage and support the system from the sort through sustained. Depending on a facility size a team may be small as a single individual or include a broad cross section of managers and workers with diverse facility roles. Once the team has been organized they can move forward by developing a formal 5S plan. All facility employees are encouraged to actively participate in 5S. This requires proper training and education so employees understand how implementation improves the workplace.

The 5S methodology is typically implemented using a three step process, which include establishing a cross functional team (including employees that work in associated areas) touring all areas associated with the manufacturing process under review and brainstorming on ways to improve organization to reduce waste, when attempting to reduce changeover time radically there is clearly no room of 30 minutes of searching wastage. The value stream process can be used in the 5S process to analyze the material, process and information flow. The information is used to develop a current state map which sets out things have been done in the past, the team then analyses the current state map to identify opportunities for workplace organization and housekeeping improvements. The key is to observe the non-value added processes to create an environment to promote value added work through waste elimination.

The goal of VSM is for the team to walk the process, and identify what operations really need verses what they receive. Implementing the 5S rules should begin from trainings of production workers in the range of 5S elements and advantages from their usages. It is important that every participant must understand the methodology of realization of 5S elements. It is very important that these rules apart from usage for production processes also refer to use in warehouse, office positions and others.

IV. FLOW CHART

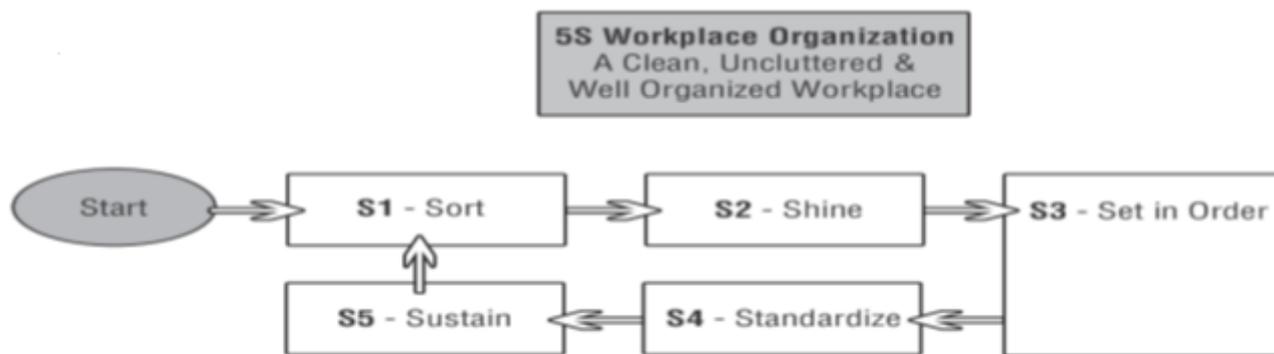


Fig.2 5S Methodology (Flow Chart)

1S –Sorting: On the basis of answer to above questions it is possible to assess the workplace in terms of 1S rule. For permanent use of 1S rule red labels are used. Red label is given to things which are not in further use or useless at workplace.

2S-Set in order: This S is basically important from point of view of visualization of workplace. To implement 2S rule one should first segregate the things and mark the places of their storage. To estimate 2S rules one should serve following control questions.

- Is location of main passage and places of storing are clearly marked.
- Are tools are segregated on their regular uses.
- Are all transporting pallets are located at correct height?

Has the floor is having any irregularity, cracks or any other difficulty for operator movement? Places of storage should be marked for quick identification, color line can be used, signs or tool boards are used.

3S –Shine: This refers to cleaning of workplace to eliminate sources of disorder. During cleaning the cleanliness of workplace, machines, floor, lines, source of light and operation is checked.

The first step in implementing 3S rules is renovation of workplace. Cleaning is executed by operator of the workplace. Following control questions are asked in implementing 3S rule.

- Are the dusts, metal residues, oil, strains found around the machine on the floor?
- Is machine clean?
- Are pipelines being clean?
- Are pipe outlets are free from dirt.

Are sources of light being clean?

4S- Standardize: Standards should be worked out and implemented in the workplace. Management should pass the instructions in order to set the workplace in order. All the instructions should be clear and easily understood. These standards can be implemented not only in operational process but in administrative process.

5S- Sustain: Implementing the idea of 5S requires self-discipline with following all rules of cleaning and sorting associated. It leads to increase communication among employees and improvement in human relations. Regular execution of routine inspection is required to use 5S rules. The control team should check the 5S once in a month in association with check list and radar graph of 5S.

V. LITERATURE REVIEW:

Vipulkumar C Patel et. al, (2014). This paper explains the methods and techniques of 5S use to increase the efficiency of all the processes in the company. It is revealed that introduction of 5S rules bring great changes in company, i.e. process improvement by cost reduction increase of effectiveness and efficiency in the processes, maintenance and improvement of machines efficiency, safety, security, quality and reduction of industry pollution. ^[1]

Harsha Lingareddy et. al, (2013). This review paper gives some vast literature on the implementation of 5S in industry. It involves the study and change in the workplace of a manufacturing industry past implementation of 5S. By utilizing this system, it is found that time of manufacturing is minimized and area of workplace is increased by reducing area occupied by wastage and unnecessary items. Paper shows that 5S checklist adopted brings great changes like increasing efficiency in production, quality and safety is increased. ^[2]

Arash Ghodrati et. al, (2012). The aim of this paper is to review previous studies about benefits of 5S implementation and its efficiency in organization. Findings of paper shows that 5S key of successes is proper training. 5S implementation is not positive without proper training and employees are not capable to actively standardize the 5S. 5S can support the objectives of organization to achieve continuous improvement in performance and productivity. ^[3]

Arash Ghodrati et. al, (2013). This paper aims to determine performance factors and characteristics in industrial organizations and identifying the effectiveness of 5S implementation on organizational performance. Surveying method is used and data collection is done by distributing questionnaire among 5 target organization which have implemented 5S technique. The result from this paper shows that 5S is an effective tool for improvement of organization performance, regardless of organization type, size its production or its service. ^[4]

Vinod Kumar Khanna (2009). The purpose of this paper is to assess the status of TQM, quality tools and 5S in Indian organization and to study their relationship among three categories of organization i.e. large, medium and small. The paper reveals that 5S performance has a direct bearing on performance of TQM journey. The study has been able to identify that organizations with high 5S index tend to use high no of quality tools and hence high TQM index. ^[5]

J. Michalska et. al, (2007). In this paper it was introduced the way of implementing the 5S methodology in the company. In this paper own research has been analyzed and implemented the 5S rules in production process. On the basis of research, it can be stated that introducing 5S rules bring great changes in company for example process improvement by costs reduction, increasing of effectiveness and efficiency in the processes. This paper indicates that it is very essential to give training to workers about 5S rules and to maintain continuous improvement. ^[6]

N Khamis et. al, (2009). The paper explores the practical use of 5S checklist for environment, housekeeping and health, as well as safety improvement purposes at two manufacturing organization. The main objectives of this study are to assess the implementation of 5S and development of 5S activity checklist in manufacturing companies. The study is conducted using a systematic approach with specific software in order to get most accurate results. The study reveals that 5S implementation effectiveness depends on top management commitment and involvement of all staff at all levels of company. The outcome of paper shows that at both companies 5S practice is seen as an effective technique that can increase housekeeping, environmental performance, health and standers in an integrated way ^[7].

Mohd Nizam Ab Rahman et. al, (2010). In this paper study is done in order to assess the implementation of 5S precise in two manufacturing companies. The study started with understanding the background of the companies, recognizing the divisions to be assessed in the company and came out with complete 5S checklist for each division for auditing processes. From study of two companies it is found that 5S precise is seen as an effective technique that can improve housekeeping, environmental performance, health and safety standers in their workplace, however effort and participation from top management is key factor that determines success of 5S practice. ^[8]

Ho.SKM. (1999). This paper explains the Japanese practice of 5S methodology. Seiri, Seiton, Seiso, Seiketsu and Shinseki. 5S seen as first step towards TQM within the western world. This paper explains highlight and benefits of all 5S practice constituents. ^[9]

Ho. SKM. (2012). This is the best paper 2010 by the TQM journal. By this paper author has chance to test out a model in no. of firms in Malaysia through SIRIM green 5S model. Through this paper basically pioneers in developing a practical G5S validated model for global sustainability and competitiveness. ^[10]

Stephen J. Warwood, et. al, (1988). This paper presents the findings of a survey on the use of Japanese practice of 5-S for workplace organization in U.K. The methodology used is questionnaire; follow up with a series of semi- structured interviews and findings with the literature. So according to papers 5S is having great scope in the non-manufacturing environment. ^[11]

S.B Khedkar et. al, (2012). This research is about study of implementation of 5s in plastic industry. By following 5s methodology there is significant improvements to safety, productivity, efficiency and housekeeping. By using this methods stronger work ethics are developed. ^[12]

Derya Sevim korkut et. al, (2009). This study aims to ensure order and discipline in the companies and ensuring the supervision of both simple and even smallest detail has been revived in full details. For this study workplace selected is assembly area. As per this study it is revealed that proper training to personnel is required. ^[13]

R.A. Pasale et. al, (2013). This paper gives information of results of 5S implementation in the industry with the use of 5S it is found that searching time reduces and productivity increases. ^[14]

P.M. Rajasra et. al, (2013). This paper deals with information of results of 5S methodology in small scale industry. It is revealed that from the study undertaken that 5S offers good potential for required improvement. Production efficiency shows considerable increase in efficiency. ^[15]

Vipulkumar Patel et. al, (2014). The objective of paper is to reduce the process waste, smooth the process flow and maintain proper quality control. It is shown from the result obtained that storage facility is increased, and certain process waste are reduced, to make workplace efficient. ^[16]

A. Khandelwal et. al, (2014). This paper presents a case study on implementation of 5S methodology. In this paper analysis of time and energy expenditure of two subjects is carried out before and after the implementation. The study indicate that the time consumed and energy expenditure was drastically reduced after the implementation of this methodology which in turn has a positive effect on productivity. ^[17]

S.P. Deshpande et. al, (2015). The paper represents an application of 5S methodology in one of the MNC which is leading manufacturer of luggage bags in the world. The study in this paper revealed that the effective implementation of 5S in the organization by various staff and workman’s strengthening the work ethics between them resulting in the motivation towards teamwork. There is a drastic change in organization, right from working condition to employee working satisfaction. ^[18]

Raid A.Al. Aomar (2011). This paper represents an application of 5S lean technology to a production facility. 5S lean technology is used to achieve project objectives. Due to implementation of 5S techniques there are drastic changes are shown in plant. Tangible changes on the plant floor along with improved worker morale and increased productivity are seen after implementation. ^[19]

Van Patten et. al, (2006). 5‘S’ is a useful method for founding an organization and spread out a design that can improve communication and help employees to develop their characteristics to decrease downtime, lead time, inventory, defect, injury and associated costs ^[20].

Ab Rahman, M. N. et. al, (2010). Result of the study indicates that 5S technique is an effective way to improve health and safety standards, environmental performance and housekeeping ^[21].

Osada, T. (1991). 5S is a method for development of companies, change and training. Hirano in 1995 regards 5S as an industrial practice that distinguishes an organization from the others ^[22].

Gapp, et. al, (2008) According to the Japanese organizations 5S have two components, a high level of management and organizational system with complexity meaning and it translates to perfect performance and the other one is management provision tools position ^[23].

Table 1 Summary of Research Contribution

Sr. No.	Authors	Title, Publication year	Major findings
01	Khanna V. K.	5 ‘S’ and TQM status in Indian organizations, The TQM Journal, Vol.21, Iss: 5 pp. 486-501 /2009.	5‘S’ performance has direct bearing on performance of TQM journey.
02	Michalska J. and Szewieczek D.	The 5 ‘S’ methodology as a tool for improving the organization, AMME journal Vol. 24, Iss 2 / 2007.	Introducing 5 ‘S’ rules bring the great changes in company.
03	Ho S. K. M.	Japanese 5 ‘S’- where TQM begins, The TQM Magazine, Vol.11, Iss 5, pp.11-20./1999	5 ‘S’ is foundation for TQM implementation

04	Nizam M. and Rahman A.B.	Implementation of 5 'S' practices in the manufacturing companies, American journal of applied sciences, iss: 7(8) pp. 1182-1189 / 2010.	5 'S' practice is seen as a effective technique that can improve overall performance of company.
05	R. Suresh Permil Kumar, C. Sudhahar, John F. Dickson, V. Senthil, S. R. Devadasan	Performance analysis of 5S using quality circle financial accounting system,2007	Study revealed the compatibility of employing QCFAS for financially accounting 5 S teams.
06	Harsha Lingoreddy, G. Sahityareddy, K. Gogdeshwar	5S as a tool & strategy for improving the workplace,2013	Implementations of 5 S bring great changes in company.
07	S. B. Khedkar, R. D. Thakre, Y. V. Mahantane, Ravi Gondane	study of Implementing 5S technique in plastic moulding,2012	Research effort may show significant improvement to safety, productivity, efficiency and productivity.
08	Rod Gapp, Ron Fisher, Kaoru Kabpyashi	Implementing 5S within a Japanese context: an integrate management system,2008	Four key areas for 5S are management, activity, training and improvement.
09	Derya Sevion, Nevzat Cakicier, E. SedaErdinler	5S activities & its application in sample industry,2009	5 S is an approach that can be easily applied in all organizations.
10	R. A. Pasale, Prof. J. S. Bagi	5S strategy for productivity improvement: A case study,2013	5S can result in considerable improvement in environmental performance.

VI. CONSTRAINTS IN 5 S IMPLEMENTATION:

The following are the constraints in 5S implementation.

1. Poor communication between employees: Improved communication and a greater shop floor involvement in the implementation of 5S is the most important means of removing barriers between the top management and the employees. Besides that it is feel that management structure should be flattened and empowerment given to the employees in order to make decision quickly for certain cases. [9]
2. Continuous assessment: Continuous assessment is one of the key drivers to change the culture of organization. This assessment should be focused on the progress and improvement based on input from the study. [7]
3. Benchmarking with other companies: The organization should institute a system of benchmarking with other companies which are successful and make reference on regular basis with the member of quality team which will provide assistance to the companies. [16]
4. Involvement of all employees: For successful implementation of 5S involvement of all employees from all departments in the 5S implementation program is necessary.
5. Improper training of 5S: For effective implementation and to get significant results of 5S, it is very necessary to train all employees in the organization.
6. Resistance to change: This is one of the major barrier in organization for implementation of new technique or implement in system. [3].

VII. ADVANTAGES OF 5 'S' IMPLEMENTATION AND ITS MEASURMENT:

5S produces measurable benefits; one of the surest ways to identify these benefits is to establish and to track specific metrics. For example, measure the time required to locate items in workplace before 5 S and then measure the time required after the workplace has been improved. Longer term benefits can also be measured by monitoring the amount of workplace injuries after 5S has been implemented. Workplace injuries are decreased and also training cost is decreased. It is easier and faster to train employees in work area that is orderly and well worked.

Another way to measure 5S benefits in the workplace is to take pictures. Pictures are very effective at visually highlighting the improved appearance and order in the workplace.

The advantages of implementing 5S rules:

The successful implementation and execution of 5S principles in organization results several advantages from implementing 5S rules (1, 2, 6)

1S:

- Process improvement by reduction in cost.
- Better usage of working area.
- Stock confinement.
- Proper arrangement of material and tools,

2S:

- Productivity increases.
- Process enhancement.
- Reduction in searching time of items.
- Increment in safety effectiveness.

3S:

- Neatness and cleanliness of working area.
- Reduction in machines mechanical cost.
- Reduction in accident costs
- Maintenance of clean and neat layout.

4S:

- The level of standards of industry is increased.
- Reduction of work hazards
- Injuries to workers are reduced.

5S:

- Workers participation in design and maintenance of work area.
- Employee absentees are reduced.
- Progress of internal communication
- Continuous assessment of processes.

Apart from these advantages the successful implementation and execution of the 5S principles in various organizations results in several advantages as mentioned below.

1. 5S concept is very simple and easily understood by everyone because this only requires knowledge of the conventional discipline and high commitment. This practice can be implemented at all levels.
2. 5S will foster teamwork, discipline and will increase the sense of responsibility and compassion for company.
3. 5S will create clean, productive work environments and secure the delivery system towards a world-class.
4. On-going commitment from management and involvement are the cornerstone of all citizens for the successful implementation of 5S practices.
5. 5S is an on-going need to maintain excellent service delivery performance.
6. Assessment of Internal Audit will normally move the organization to continually repair the quality and effectiveness of services delivered to customers. Activities are planned and on-going audit to help people to be prepared to face the real 5S audits by the MPC to obtain and maintain certification of 5S.

VIII. Critical Success Factors:

From this study, it is found that there are several factors influence the implementation of 5S Activity. Several approaches to stabilize the 5S Practice at workplace can be initiated and implemented in accordance by stages that consist of:

- **Top management participation** – Improved communication and a greater shop floor involvement in the implementation of 5S is the most important factor of removing barriers between the top management and the employees. Besides that, it is felt that the management structure should be flattened and empowerment given to the employees in order to make decisions quickly for certain cases.
- **Background Information on Company Business:** There are four areas to look into when discussing the company and these are: the type of business conducted the size and condition of the company, the strategic partners and background of the staff.
- **Raising Awareness:** Practice all these methods to deliver this activity.
- **Seminar, workshop and talk:** Inviting experts, academicians, members and others from manufacturing industries is one of the approaches towards the optimum practice of the 5S.
- **Promotions:** Presenting this activity in form of banners and posters, brochures and organizing competitions among the different sectors in the industry each month is one of the best ways to promote this activity.
- **Educational Visits and Benchmarking:** Useful information from successful organizations is a useful method to get effective results. It is good if the industry visited has a similar type of business.
- **Competitions, Conventions and Dialogue:** The 5S group that has conducted the 5S Activity is sent to participate in competitions, conventions and 5S dialogues. The objective is to raise interest and awareness amongst the staff.
- **Auditing:** Each department will be assessed on the level of the implementation of the 5S.
- **Training:** There are two ways in providing the training and these are internal and external training. From representatives we found out that at both companies, they agreed with providing the training internally through four methods; from other experienced individuals; having commitment in the project; job sharing & task rotation and; guidance individually in the programme. While, for the external training it can be done through sending the employees to 5S Activity seminars or workshops conducted by recognized bodies. Through this method, the staff involved will become the resource person in the manufacturing industry. Therefore, it can be advantageous to the organization for this activity.

IX. CONCLUSION:

In all the organizations 5S practice can be easily used, its recognition and simplicity are the optimum side of 5S. The review of all literature papers clearly indicate that 5S practice is seen as an effective technique that can improve housekeeping, environmental performance, health and safety standers in an organization. 5S rule can bring great changes in company, i.e. process improvements by cost reduction and increase in overall efficiency. ^[1, 2, 6]

5S improves productivity and improvement in overall employee performance ^[3,4,7]. 5S performance has a direct bearing on TQM; it is found that high 5S index tends to use high no. of quality tools and high TQM index. ^[5]. after implementation of 5S the time consumed and energy expenditure was drastically reduced which in turn has a positive impact on productivity ^[17]. The most important barrier to implementation of 5S effectively is poor communication. It can cause wastage of resources, time and money and lowering morale among employees. ^[3] There must be an applicable way for using 5S as an improved tool for communication system. The surveys indicate that there are difficulties in the effective 5S implementation. Another significant barrier is the space between managerial level and shop floor employees and the poor training and awareness of 5S. since some critical decisions about 5S activities, including time and budget performance must approve and support by management, therefore more cooperation is recommended during implementation period ^[13].

It is concluded that 5S key of success is training. 5S implementation is not possible without proper training and employees are not capable to actively standardize the 5S ^[14]. The organization should pay attention to this fact that resistance to change is one issue which will be occurring during 5S implementation. Therefore, it is believed that continuous training is the key, applying to change the organization culture, and assessment should focus on improvement and progress regarding all input from the organization until the complete establishment of 5S system. It is obvious that the target of 5S application is vast and diverse and when effectively implemented, the business improvement can be surprising. However, the total benefits of 5S cannot be imagined in industries and business, until the barriers associated, fully understood, addressed and removed.

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