

Implementation of 5S Principles in a Micro Manufacturing Firm: A case study

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Abstract: This paper deals with the implementation of 5S principles in a manufacturing company in Bengaluru. The implementation of 5S principles is essential before the implementation of key Quality and Production improvement strategies like Total Quality Management, Predictive Maintenance, Just In time etc. The paper clearly highlights the importance of 5S principles and gives a clear picture of the tectonic change the implementation brought in working environment of the company leading to improvement in productivity and quality

Keywords: 5S principles, Employee satisfaction, Productivity Improvement.

1. Introduction

The 5S Principles, a lean management technique, is very effective in identifying and eliminating waste and increasing efficiency. It originated from Japanese words which are (Seiri), 整頓 (Seiton), 清掃 (Seiso), 清潔 (Seiketsu), 躰 (Shitsuke), and have been translated into English roughly as 'Sort', 'Set in Order', 'Shine', 'Standardize', and 'Sustain'. It was essentially a part of the Toyota Production System, which the Japanese take pride off that aims to increase the value of products or services for customers. This is often accomplished by finding and eliminating waste from production processes. The basic idea of 5S principles is to ensure that the work place is kept organized, sparkle and clean so that it reduces any delay in production, ensures the work place is accident free and completely hygienic boosting the moral of the employees.

2. Literature Survey

Several articles have been published over a period of time pertaining to the use of 5S principles especially in the small to medium enterprises. The current literature survey refers to three literature review papers published across two decades.

S. Shaikh et. al [1] have presented a detailed literature review of the implementation of 5S principles in various Industrial Organizations. The authors review published articles

on 5S principles over two decades. The authors have

compared the Western and the Japanese understanding of 5S principles and its effects. The authors indicate that 5S aims to embed the values of organization, neatness, cleaning, standardization and discipline into the workplace. The authors conclude that by implementing 5S the management could improve the quality, productivity and efficiency of industrial organization; it also has positive effect on overall performance.

Bharambe et. al[2] have given a detailed review of how different industries have implemented 5S and increased the productivity of their work. The authors reveal the crucial problems in 5S, starting from maintenance techniques, layouts of 5S and the relationship of 5S with the barriers and success factors in 5S implementation. The authors conclude that 5S helps to enhance the work productivity along with time efficiency in less time. The authors indicate that 5S leads to minimization of the cost and the standard of the company enhances and reduces accidents leading to increased safety.

3. Methodology

The methodology used in the current study is similar to the standard procedure used in the implementation of 5S principles. This is indicated in the figure below

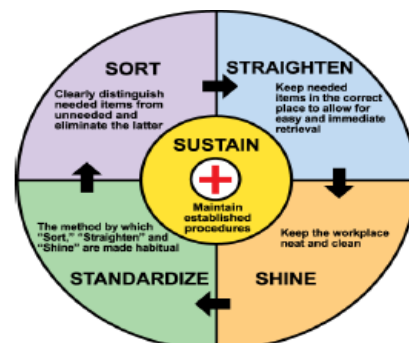


Fig. 1. 5S Process

As indicated in the above figure the key steps in the 5S process include

- 1) Sort: Removing from the area items that are not needed for production or operation.
- 2) Set-In-Order: Arranging daily usage required items so that they are easy to use and labeling them for easy to find.
- 3) Shine: Clean work areas improve and keep unneeded materials out of the work area.
- 4) Standardize: Everybody performs all operations with defined process and methods
- 5) Sustain: All employees should understand working process and methods, in other way it can be stated as every employees should aware of where things go, what to do, and when to do it.

In the current case study, the implementation is based on the following steps

- 1) Preparing the floor area layout
- 2) Marking zone layout
- 3) Red tag format
- 4) Sorting activities using Red tag
- 5) Cleaning workspace
- 6) Set in order after red tag
- 7) Machine marking zone implementation with yellow line
- 8) 5S Audit Checklist
- 9) Continuous Implementation plan
- 10) 5S award request to Consultant

The implementation process was done with the total involvement of the top level management and significant contribution from the employees from the organization.

4. Results



Fig. 2. Canteen Area before implementation of the process



Fig. 3. Canteen Area after implementation of the process

The canteen facility existed at the common exit area. The Daily food was provided by a contract person. This facility was not comfortable to the employee especially in the limited space available.

Fig.3 indicates the canteen facility area and it clearly indicates the better seating arrangement and sufficient space was made available for cooking and serving. Further employees for cooking and serving were provided which ensured better hygienic food and hence had positive effect on the moral of the employees.



Fig. 2. Improved parking facility



Fig. 2. Improved dispatch area

Some other improvements due to the implementation of 5S principles include improvement in the packaging area, continuous and important monitoring of housekeeping

activities resulted in hygiene and the health of the employees. It also ensured improved employee attendance and hence the productivity of the employees.

5. Conclusion

The 5S implementation leads to the improvement of organization in many ways which includes

- 1) Better usage of working area
- 2) Structured Operations in terms of Machine and Men.
- 3) Rise in the of Employees in terms of the need for cleanliness and Hygiene
- 4) Better Employee interactions with co workers and management.

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