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Analysis Driving Factor Implementation 5S in Manufacture (Case in PT. XYZ)

Adelia Dwi Valentin¹, Rahman Soesilo²

¹ Universitas Muhammadiyah A.R Fachruddin, Tangerang, Indonesia, email. adeliavalentin94@gmail.com

² Universitas Muhammadiyah A.R Fachruddin, Tangerang, Indonesia, email. rahmansusilo537@gmail.com

Corresponding Author: adeliavalentin94@gmail.com¹

Abstract: This research aims to analyze the driving factors of implementation with 5S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke) in the Manufacturing industry. The method used in this research is a literature study from various sources of journals, books, and related publications. The results of the analysis can be identified five main factors that encourage the application of the 5S concept in the manufacturing industry are the first increase in production process efficiency. Second, there is an increase in employee discipline and work culture. Third, creating a safe and comfortable work environment. Fourth, increased productivity and competitiveness of the company due to efficiency and good work reputation. Fifth, there is a management commitment to continuous improvement with the support of resources and consistent evaluation. Effective implementation of the 5S concept is proven to benefit companies, especially manufacturers, by increasing efficiency, productivity, and a good work culture. These can be key factors that encourage the adoption of 5S in the manufacturing industry.

Keyword: 5S, Manufacturing Industry, Efficiency, & Productivity.

INTRODUCTION

The world of manufacturing industry consist of efficiency and productivity improvement is the main key to achieve competitive advantage. One concept that has proven effective in improving operational efficiency is the 5S concept (Seiri, Seiton, Seiton, Seiketsu, Shiketsu). The 5S concept is a series of activities aimed at creating and maintaining an organized, clean and orderly work environment.

The manufacturing industry engaged in ceramics has several departments, for this research more examine the glazing section or the process of giving color. In this area, items are often found that are not placed in the right place, dirty workplace conditions that hinder work. The reason is that there are some employees or operators who do not put the equipment in its place, put it carelessly, the absence of storing unused tools or materials in the storage area based on the function of the tools and materials also makes the equipment scattered (Dian Palupi Restuputri & Dika Wahyudin, 2019). Reduced productivity is caused by operators who will

use the tool must search first and take a long time. Then production will experience a decrease in speed which causes the target cannot be met. The human factor is an important variable for the successful implementation of lean manufacturing, limited knowledge and misunderstandings about the concept of lean manufacturing reduce the ability of organizations to achieve success (Made Iska Aprilia Wardhani & Tasnim Nikmatullah Realita, 2022). One of the factors inhibiting the company in improving work performance is the wastage of work areas and facilities at work stations that are not organized so that work stations become narrow, this can occur because standards have not been applied in structuring and maintaining work stations (Latifah Ahmad & Nita Kusumawati, 2020). external and internal factors that influence work effectiveness, internal factors include all factors that exist and are related to the organization itself, there is a group of people who carry out cooperative activities to achieve certain goals (Febriyanto et al., 2020). The cause, there are some of the operators who do not put the equipment in place, and put it carelessly, the absence of a place to store unused tools or materials in the storage area based on the function of the tools and materials also makes the equipment scattered (Dian Palupi Restuputri & Dika Wahyudin, 2019). Therefore, a neat, organized and functional method of storing equipment and materials in a warehouse is very necessary for a company. And also making workers accustomed to using the workplace as well as possible is very important to emphasize (Yulianty & Suseno, 2022).

METHOD

This research starts from collecting data - data with the process of observation, interviews, and documentation. Then the data is compared with existing literature. The data is selected based on the level of importance starting from the highest to the lowest. The results are then drawn conclusions and given a solution to the problem. The steps can be seen in Figure 1 below:

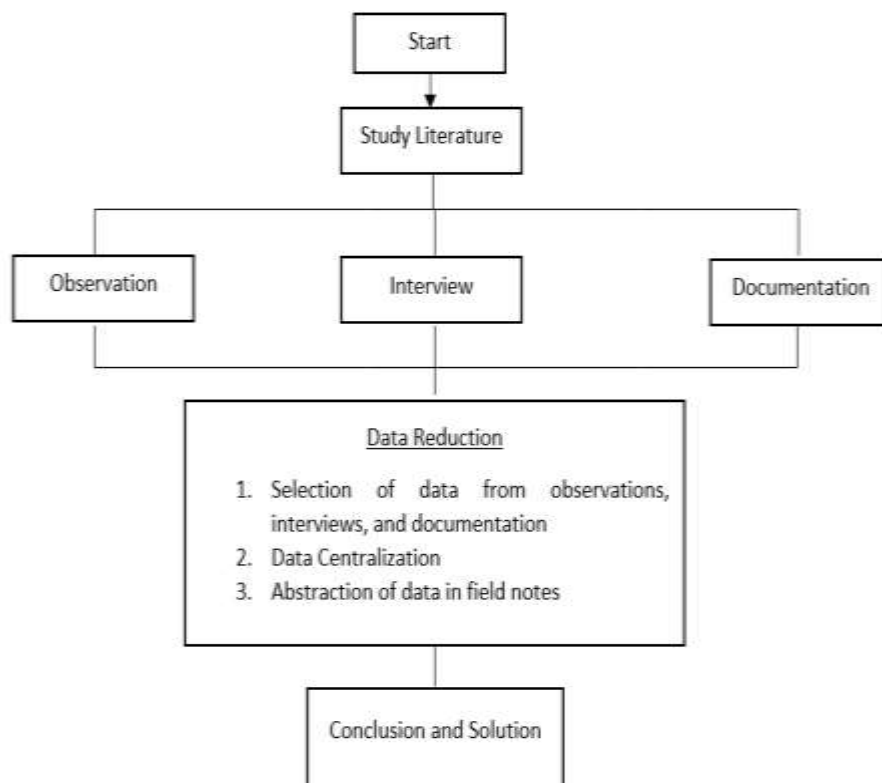


Figure 1. Research Methods

RESULTS AND DISCUSSION

In research, indicators are needed to examine objects and provide information, the objects studied are related to the 5S / 5R culture in the Glazing area can be seen in Table 1.

Table 1. 5S/5R Culture Indicators

No	Type of 5S	Object of Study/Indicator
1	Seiri / Summary	1. FIRE EXTINGUISHER 2. MgCl 3. STTP 4. YUMI 5. Plywood Board 6. Train Lorry 7. Glazing Drum 8. Brush 9. Drinking Bottle
2	Seiton / Neat	1. FIRE EXTINGUISHER 2. Boot 3. Brush 4. Drum 5. Report Book 6. Drinking bottle 7. Soap 8. Garbage can 9. Recycle products 10. Tooling 11. Pallet 12. Push lorry 13. Drinking Bottle 14. Stationery 15. Book report
3	Seiso / Clean	1. Conveyor 2. Brush 3. Sieve 4. Mixer tank 5. Color dipping machine 6. Batting 7. Linning machine 8. Floor 9. Water drain gutter 10. Yumi 11. Trash bin 12. Sponge
4	Seiketsu / Take care	1. Color dipping machine 2. Yumi 3. Filter 4. Lining Mechine 5. Lori Pallet
5	Shutsuke / Diligent	1. FIRE EXTINGUISHER 2. Mixer tank 3. Dyeing machine 4. Lining machine
Check amount		46

Indicator Calculation:

$$\frac{\text{Indicators in each culture}}{\text{Overall indicators}} \times 100\%$$

Seiri / Ringkas	$:\frac{9}{46} \times 100\%$	= 19.6%
Seiton / Rapi	$:\frac{15}{46} \times 100\%$	= 32.6%
Seiso / Resik	$:\frac{12}{46} \times 100\%$	= 26.1%
Seiketsu / Rawat	$:\frac{6}{46} \times 100\%$	= 13%
Shutsuke / Rajin	$:\frac{4}{46} \times 100\%$	= 8.7%

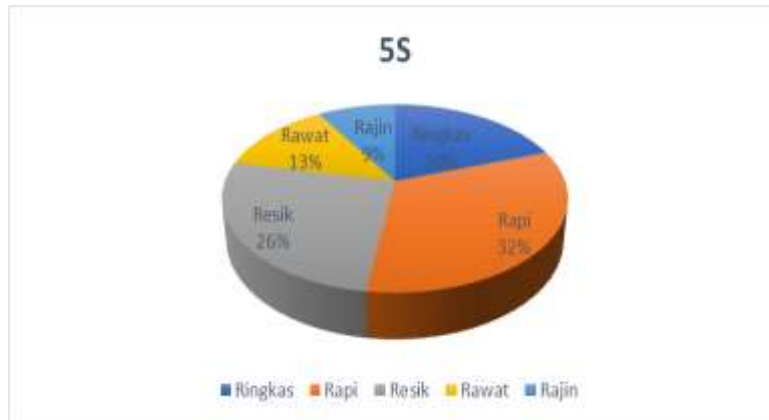


Figure 2. Percentage of 5S Indicator

The percentage of indicators in Figure 1 can be seen, Neat is the highest culture of abuse with a level of up to 325 and diligent culture is the lowest culture of abuse with a level of 9%. Diligence is the lowest because they feel they are too busy and have no sense of obligation to maintain cleanliness.

Then a Pareto diagram of the causes of 5S not running in the manufacturing industry was made:

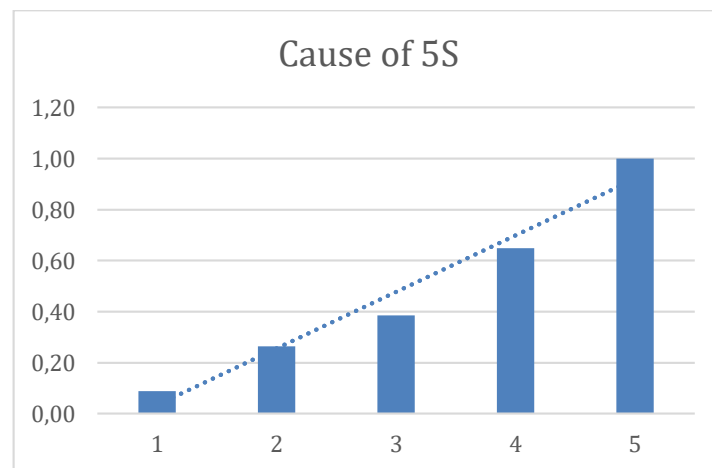


Figure 3. Parreto diagram of the causes of 5S not working

From the diagram above, there are 3 main causes of 5s not running in the manufacturing industry including: No place, no identity, lack of education, no discipline and no time. Seiton means arranging to put materials and goods in accordance with the place so that it is easier to find, reach out when needed. The implementation is to analyze goods, determine the right place, how to store goods and teach everyone to obey the rules in storage (Anggarini, 2020).

The highest factor is due to lack of time. This lack of time is because they are less able to manage time, there are only a few people and the work given by the boss is too much. So when at the end of the shift their condition is tired and in a hurry to go home, then cleaning is not done optimally. The most influential result obtained is the absence of time. The obstacles in implementing the 5S program include misperceptions, no time, habits, and human relations (Alim & others, 2022). Therefore, 5s cannot run properly, then an analysis is carried out using 5W +1H, and the results are obtained:

Table 2. Analysis 5W +1H

What	Why	Why	Why	How
Employees are not practicing 5S	Too many routine tasks to complete	No special time is provided to implement 5S	Not familiar with 5S	No time to allocate specifically, employees cannot do 5S in the workplace
Employees have no initiative to implement 5S	No reward for 5S program employees	Less of an example of practicing 5S	The department is less supportive of 5S implementation	Without encouragement, role modeling, and culture, there is no motivation for employees to implement 5S.
Employees do not understand the benefits and procedures of 5S	No training	Employees are not engaged by management to implement 5S effectively	Lack of coordination and communication in the glazing department	Lack of understanding, making it difficult for employees to implement 5S

From the data above, it can be seen that employees do not carry out 5S with what has been determined due to lack of understanding, causing a lack of sense of responsibility about cleanliness. Habit, where employees feel that they have implemented and have done it for a long time, and feel used to a dirty and untidy work environment (Alim & others, 2022). Socialization, counseling, training, habituation and evaluation as well as supervision are important instruments to encourage employees to apply high discipline. With a better working environment, the morale of the employee was also found to be high which directly contributed to their efficiency (Gupta, 2022). Synergy between the leadership and other parts of the company at various levels to commit to implementing the 5S is absolutely necessary so that the goal of achieving competitive advantage through continuous improvement can be realized (Made Iska Aprilia Wardhani & Tasnim Nikmatullah Realita, 2022). The main objective of this research is to implement and build the 5S concept with the aim of increasing productivity by maintaining cleanliness and always being disciplined in working.

The solution to the 5s problem is as follows:

- Evaluate the place for the process of moving goods to make it faster and easier.
- Make a list of tools and items
- Create a cleaning schedule
- Workers must understand and be able to apply 5R/5S for the progress of the company, expected to run in a disciplined manner
- Conduct briefings related to cleanliness so that workers understand about 5S
- The addition of displays aims to emphasize that the spot is very prone to occur if 5S is not applied.

The following are examples of several before and after images of implementing 5S.

a. Before



b. After



CONCLUSION

The conclusions obtained from this research are as follows.

1. Industrial companies apply the 5S culture in the company area, but the application does not run in a disciplined manner due to the lack of employee awareness about 5S.
2. The control measures for the 5S culture constraints carried out include:
 - a. Regular supervision in the application of the 5S culture
 - b. Induction about the 5S culture carried out by the 5S team
 - c. There is a schedule at the end of the shift related to cleaning which is a mutual cooperation activity.

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