

NEED OF 7S IN SERVICE OPERATION ENVIRONMENT AS COMPARED TO 5S AND 6S

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Abstract. *Manufacturing companies distinguish themselves by their operational efficiency and the quality of their products. The 5S and 6S methodologies are commonly used in service operations to enhance efficiency and productivity. Although there are some similarities between these approaches and the 7S technique, there are also notable differences. The 7S technique can be applied in service operations to improve efficiency and productivity by focusing on the spirit element. This study analyzes the significance of the spirit element in the 7S technique and assesses the effectiveness of 5S, 6S, and 7S in service operations. Furthermore, it aims to identify the necessity of the 7S approach in organizations where 5S and 6S are already being used efficiently. The research employs a quantitative methodology and the results indicate that 60% to 79% of the respondents believe that spirit is a crucial aspect of the 7S technique and has positive outcomes. Encouraging a positive spirit can enhance teamwork, motivate and engage employees, and instill a sense of ownership among them. The 7S technique emphasizes an organization's shared values and culture, which can create a positive work environment, encourage employee engagement, improve communication, to lead to better performance.*

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Introduction

Companies in the manufacturing sector continue to differentiate themselves through superior business practices and high-quality offerings (Ely & Thomas, 1996). The Toyota Production System (TPS) inspired Chiarini's Lean Approach methodology, a management system. In its broadest sense, Lean is a set of methods and resources for identifying and eliminating waste in a given operation (Benkarim & Imbeau, 2021). The Japanese Lean 5s methodology (sort, set in order, shine, standardize, and sustain) is the basis for the more general 6s lean methodology (sort, set in order, shine, standardize, and sustain, enhanced by safety) (Rahman et al., 2010). In keeping with the Lean 6s methodology, this

investigation will include the seventh S, Spirit or Support. By analyzing the workplace "as is," these methodologies help businesses remove road blocks in their operations raise the bar for quality, and increase output" (The Faculty of Engineering and the Built Environment a Lean 7S Methodology Framework to Improve Efficiency of Organizational Performance At A, 2017).

The 5s and 6s methodologies are both widely used in service operation environments to improve efficiency and productivity. While there are some similarities between these methodologies and the 7s technique, there are also some key differences.

The 5s methodology focuses on organizing and maintaining a clean workspace, while the 6s methodology adds safety as an additional focus area. The 5s methodology has five steps (sort, set in order, shine, standardize, and sustain), the 6s methodology has six steps (add safety to the five steps of 5s) (Jiménez et al., 2019). 7S technique has seven steps (including simplification and prioritization of tasks) and expands on this by adding a focus on simplification and prioritization of tasks. The 7s technique places a greater emphasis on task prioritization than the 5s or 6s methodologies. By breaking tasks down into seven-second intervals, the 7s technique encourages individuals to prioritize tasks based on their importance and urgency (Joshi, 2015). All three methodologies emphasize the importance of continuous improvement. However, the 7s technique takes this a step further by encouraging individuals to sustain the process they have developed and seek support from colleagues or supervisors if they need it (Randhawa & Ahuja, 2017).

The 5s and 6s methodologies focus on organizing and maintaining a clean and safe workspace, the 7s technique emphasizes simplification and prioritization of tasks. (Carrera et al., 2021) Additionally, all three methodologies emphasize the importance of continuous improvement, but the 7s technique encourages individuals to sustain the process they have developed and seek support from colleagues or supervisors (Sukdeo et al., 2020).

The 7s technique can be applied in service operation environments to improve efficiency and productivity. The first step is to sort through all the tasks and prioritize them based on their importance and urgency, identify the tasks that need to be done immediately and those that can be deferred (Titu et al., 2010). Once you have sorted the tasks, simplify them by breaking them down into lesser, more adjustable tasks; this will help you avoid feeling overwhelmed and make it easier to complete them (Mahlaha et al., 2020). Make sure that your workspace is clean and organized; this will help you focus on the task at hand and avoid distractions. Develop a standard process for completing tasks; this will help you streamline your workflow and ensure that you are completing tasks efficiently. Make a commitment to sustaining the process you have developed. Consistently following the process will help you maintain your focus and productivity. Carrera et al. (2021) ensure that you are working in a safe environment. Identify any potential

hazards and take steps to mitigate them (Neal & Griffin, 2000). Seek support and spirit from colleagues or supervisors if you need help completing a task. Don't be afraid to ask for assistance if you need it (Arora, 2009).

All three methodologies share similar goals and principles, the 7s methodology places a greater emphasis on collaboration and teamwork. It acknowledges that service operations are often complex and require the support of others to be completed successfully, while the 5s and 6s methodologies focus on organizing the workspace and standardizing processes and the 7s methodology emphasizes collaboration and seeking spirit from colleagues or supervisors to achieve efficiency and productivity in service operation environments (Carrera et al., 2021). The main objective of this study is to identify the effectiveness of 5S, 6S, and 7S in service operation environment, evaluate the importance of spirit element in 7S technique, identify the need of 7S in organization where 5S, 6S are also use as efficient method, and study how 7S technique can be useful in reducing working faults.

Literature Review

In recent decades, the global marketplace has grown highly competitive, forcing businesses to accept the challenge of ongoing improvement to maintain consumer happiness and organizational competitiveness (Shah & Ward, 2007). Organizations are under tremendous pressure to maintain organizational growth and consistently improve the quality of their goods and services to strengthen their position and reputation in the market (Carmeli & Tishler, 2005)

Lean manufacturing has gained recognition as a critical principle for supporting an organization in overcoming unexpected competition in the industrial environment while using limited resources. Lean is a method for systematically identifying and eradicating waste connected with manufacturing systems and services by delivering continuous goods or services at the customer's pull, aiming for organizational sustainability (Shah & Ward, 2007).

The 5S and 6S methodology includes developing a workplace culture of order and cleanliness. This includes clearing the workspace of anything optional, organizing the tools and supplies, and maintaining a clean floor. Hence, when these two strategies are used, there is a strong likelihood that waste, such as product and inventory errors, could be eliminated (Jiménez et al., 2019).

The 5S technique is built on five pillars. The 5S method begins with sorting, in which the company must keep what is necessary and remove unnecessary items from the workplace. These things can be thrown away or recycled. Managers must know what to keep and what to discard in order to apply the first step (Ghodrati & Zulkifli, 2012). Setting things in their proper places will enhance workflow and simplify locating equipment and supplies. This step's goals are to organize the

work and promote the use of visual aids to cut down on time spent looking for things (Agrahari et al., 2015).

The next step is to tidy and clean up the workspace once all the unnecessary stuff has been eliminated and everything has been organized. This stage entails cleaning up any traces of workplace contamination, dirt, and waste (Bharambe et al., 2020). Many businesses hire cleaning services to clean their floors and equipment regularly. This makes it easier to do preventative maintenance on essential pieces of equipment and spot things that could be dangerous quickly (Of et al., 2017) The company cannot identify deviations or variances without standard operating procedures (SOPs). At this step, the organization must develop uniform rules, processes, and procedures to support a program for continuous improvement at work. Maintaining an efficient culture of cleanliness in the workplace requires periodic monitoring of performance to identify abnormalities. This would aid in implementing processes that ensure that progress made are sustained (Michalska & Szewieczek, 2007).

5S is an outdated organization system that helps to establish a workplace by making it neat and clean. 6S philosophy has become one of the entire work cultures, thinking processes, and everyday modes of operation from management to the manufacturing floor (Osakue & Smith, 2014). Safety is currently the most prevalent problem in any business because it increases the risk of numerous serious incidents (Dhouchak & Naveen, 2017). These days, the 6S technology has been used by organizations; improve the employee's safety in the workplace. 6S could be seen as a tool for effective safety management, which includes preventing risks, injuries, and even deaths (Khokhar, 2019).

Employee participation is essential at this stage. So, teams are asked to meet often to talk about 7S issues, especially those that affect their immediate work environment. Putting "spirit" as the seventh phase of the approach shows support for the human side of the business since executives know how crucial organizational culture is and how important it is to treat workers respectfully (Arora, 2009). Organizations often use 7S to boost worker morale and productivity and make the workplace a better place to work together. It creates a culture of team spirit (Mahlaha et al., 2020).

For most businesses, improving productivity, performance, and efficiency is an ongoing process (Collyer & Warren, 2009). Manufacturing businesses had widely implemented 5S procedures, which had helped boost performance and efficiency while decreasing chances of accidents. The 6S approach built on the ideas of 5S to ensure that workplaces were safe and healthy for workers. With the addition of "spirit," the seventh step of the 7S technique, upper management and workers work together to foster a culture of cooperation and continual development (Joshi, 2015).

Methodology

The research used quantitative analysis to investigate why the 7S methodology is more important in organization and why we need 7S as compare to 5S, 6S methodologies.

We collect data for our research through questionnaire. A questionnaire survey can be a useful tool for collecting data on these different elements and understanding how they interrelate within an organization. A questionnaire survey can provide a standardized approach to collecting data, which makes it easier to compare responses across different individuals or groups. Looking at the whole group rather than just the individuals' answers might help reveal trends and patterns that would otherwise go unnoticed. Because questionnaire surveys may be given to huge groups of individuals simultaneously, much information can be gathered quickly.

We contacted individuals from various organizations through WhatsApp and Facebook to complete the form. We sent out questionnaires to 103 respondents, mostly middle management at different companies in the services sector. However, 100 out of the 103 respondents responded to the questionnaires, resulting in a response rate of 97.1% with only 2.9% missing. We entered the survey data into SPSS sheets and filled in any missing values in the replies by taking the mean. We focused on middle management to make sure they could easily understand the scope and goal of the questionnaire, which was in line with the original goal of the study.

Age of respondents

The study included respondents between the ages of 18 and 50 years old. Among those aged 18-25, the response rate was the highest at 71.8%. Respondents in the age groups of 25-35, 35-45, and 46 years or older provided response rates of 22.3%, 1%, and 1.9%, respectively. The age group of 36-45 provided the lowest response rate of 1%.

Table 1 *Statistics regarding Age of the Respondents*

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	18-25	74	71.8	74.0	74.0
	26-35	23	22.3	23.0	97.0
	36-45	1	1.0	1.0	98.0
	46 and above	2	1.9	2.0	100.0
	Total	100	97.1	100.0	
Missing		3	2.9		
	Total	103	100.0		

In the study the ration between male and female remained 73:27. The data was entered into the SPSS and one way ANOVA analysis was made.

Results:

Table 2 Descriptive Analysis of the Responses

	N	Mean	Std. Deviation	Std. Error	Lower Bound	Upper Bound	Minm	Mxm
5S	15	1.67	0.976	0.252	1.126	2.207	1	4
6S	22	1.68	0.945	0.202	1.263	2.101	1	4
7S	63	1.90	1.088	0.137	1.631	2.179	1	4
Total	100	1.82	1.038	0.104	1.614	2.026	1	4

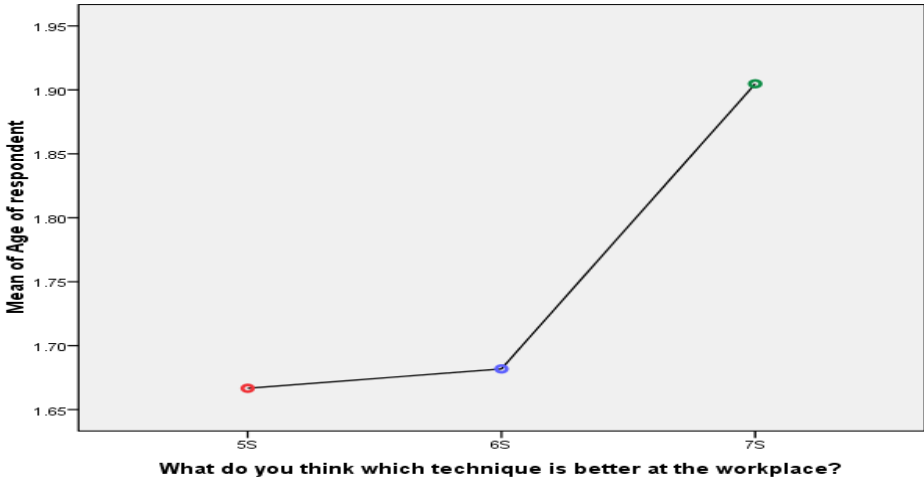


Figure 1 Response on Better Technique with Age Factor of Respondents

The 7S technique is a well-known approach and an updated version of the 5S and 6S techniques. Among the participants, nearly 60% believed that the 7S technique is better suited for the workplace. Conversely, 23% and 17% of participants thought that the 5S and 6S techniques were better suited for the workplace, respectively. Compared to the 5S and 6S models, the 7S model provides a more comprehensive and holistic approach to organizational effectiveness. The 5S model focuses mainly on workplace organization and cleanliness, while the 6S model adds safety as an additional element. The 7S model, on the other hand, takes into account a wider range of factors that can impact organizational success, including strategy, structure, and culture. By considering all seven elements, organizations can develop a more complete understanding of their strengths and weaknesses and identify areas for improvement. The 7S model can be especially helpful for organizations undergoing significant change or trying to align their operations with a new strategic vision.

Table 3 Descriptive Analysis of Spirit Element and Effectiveness of Method

	N	Mean	Std. Devtn	Std. Error	Lower Bound	Upper Bound	Min m	Mx m	
Element of spirit	18-25	22	7.955	1.290	0.275	7.383	8.527	6	10
	26-35	26	8.192	1.767	0.347	7.479	8.906	6	12
	36-45	13	8.923	1.754	0.487	7.863	9.983	6	12
	46 & Above	39	8.128	1.780	0.285	7.551	8.705	6	12
	Total	100	8.210	1.678	0.168	7.877	8.543	6	12
Effectiveness of method	18-25	22	4.500	1.711	0.365	3.741	5.259	3	9
	26-35	26	4.615	1.835	0.360	3.874	5.356	3	9
	36-45	13	5.231	2.242	0.622	3.876	6.586	3	9
	46 & Above	39	4.487	1.587	0.254	3.973	5.002	3	7
	Total	100	4.620	1.763	0.176	4.270	4.970	3	9

Table 4 ANOVA analysis

		Sum of Squares	df	Mean Square	F	Sig.
Element of spirit	Between Groups	8.315	3	2.772	0.984	0.404
	Within Groups	270.275	96	2.815		
	Total	278.590	99			
Effectiveness of method	Between Groups	5.855	3	1.952	0.621	0.603
	Within Groups	301.705	96	3.143		
	Total	307.560	99			

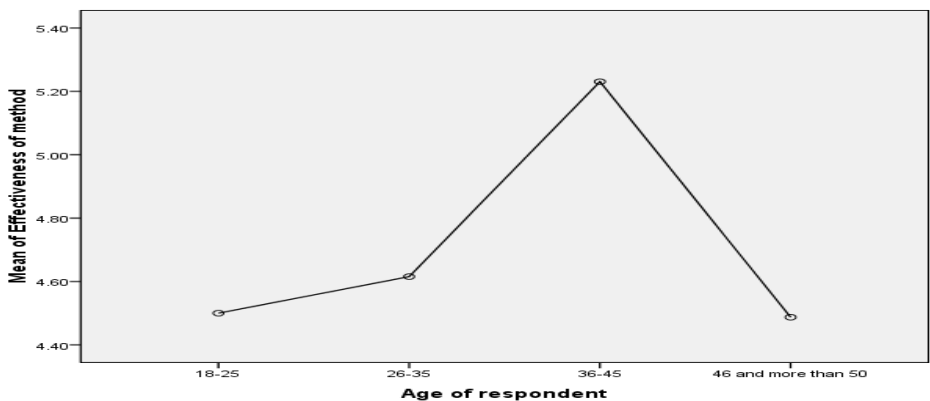


Figure 2: Mean of Effectiveness of Method

The graph depicts that the effectiveness of lean techniques varies with age. People in the age groups of 18-20 and 26-35 do not consider these methods to be more effective, possibly due to concerns regarding their job experience. As age increases, employees tend to require more encouragement and support to maintain their morale. Consequently, workers aged between 36-45 believe that lean techniques are more effective.

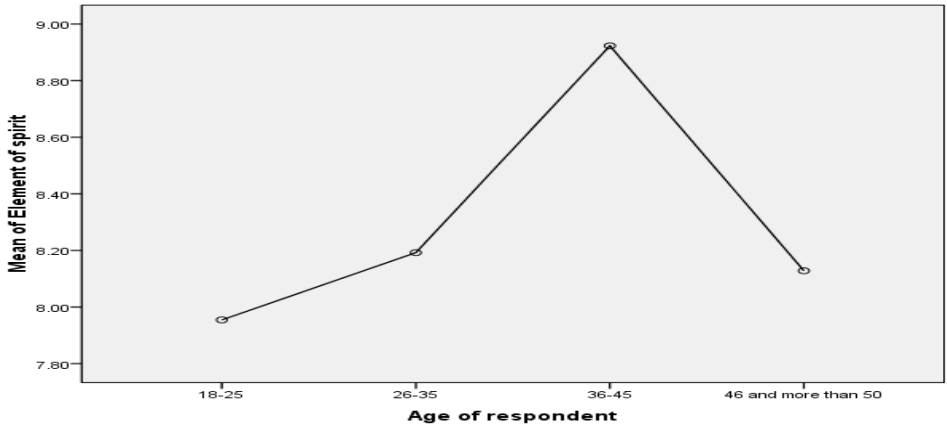


Figure 3 Mean of Element of Spirit

This graph illustrates how the level of spirit in workers varies with age. Individuals between the ages of 18 and 20 generally possess a high level of spirit by themselves, emotional stability, and require less supervision from upper management on spirit level. However, as age increases, workers tend to require more encouragement and support in order to maintain a high level of spirit. Senior workers between the ages of 36- 45 often have a lower level of intrinsic motivation and therefore require a greater focus on improving their level of spirit in the workplace. Management must provide an environment where employees feel valued and respected, especially as they grow older and undergo physical and mental deterioration. Accordingly, these findings demonstrate the significance of spirit within the 7S method. The morale of an organization may have a major impact on how well the 7S system is adopted and used. An optimistic outlook may help bring people together, boost morale, and inculcate pride in one's job. A well-organized workplace benefits from strong team members who can communicate and work together effectively. As a result, the organizations output, quality of output, and overall performance may all improve.

Discussion

The 7S approach is a valuable tool for reducing waste and cultivating a quality culture in the workplace. It is a direct and practical method that requires minimal additional resources and can yield significant benefits with a small investment of

time and effort. However, implementing 7S is just the beginning, and it is essential to continuously monitor and control all 7S activities to ensure their ongoing effectiveness. Regular questionnaire surveys can help achieve this, as poor responses indicate a decline in workplace organization. From the publications previously read, it is clear that one of the lean methodology tools significantly impacts organizations' performance when effectively implemented. By understanding the results of Lean 5s and 6s, the new Lean 7S Methodology can positively affect the organization's performance.

The benefits of implementing 7S are numerous. The workplace becomes cleaner, safer, and more organized, resulting in improved floor space utilization and smoother workflow. By reducing non-value-added activities and minimizing errors, defect-free products can be produced, leading to improved morale, employee satisfaction, productivity, and overall quality of products and services.

Conclusion

Compared to the 5S and 6S methods, the 7S method is much more critical in the service operating environment. Our study has shown that most participants believe the 7S approach is better suited for the workplace, with spirit being a crucial element of its success. The 7S technique emphasizes an organization's shared values and culture, which can create a positive work environment, encourage employee engagement, improve communication, and, in the end, lead to better performance. The 7S method or other workplace organizing strategies on their own are insufficient. To ensure that all 7S activities are being continuously monitored and controlled, regular questionnaire surveys should be carried out. Poor replies from respondents may indicate that workplace organization has declined.

Based on these findings, it is recommended that service organizations consider implementing the 7S technique in their operations. This method encourages a culture of continually improving, leading to happier customers and more money. Furthermore, organizations should prioritize the development of shared values and cultures to ensure the successful implementation of the 7S technique.

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