
Implementation of 5S for the Small Business Workshop and Machine Shop: Community Service in RTG Custom Project Workshop

Kushendarsyah Saptaji¹, Ignatius Budi Hadisujoto², Djati Wibowo³, Ifat⁴, Indra Pertama Putra⁵, Filscha Nurprihatin⁶, Muchamad Oktaviandri⁷, Sultansyah Reza Abdillah⁸, Raditya Edra Raja Handika⁹, Jarvis Eros Lanaggalih¹⁰, Miguel Silvano Hermawan Wong¹¹

^{1-5,8-10}Department of Mechanical Engineering, Faculty of Engineering and Technology, Sampoerna University

^{6,11}Department of Industrial Engineering, Faculty of Engineering and Technology, Sampoerna University

⁷Department of Mechanical Engineering, Faculty of Engineering, Universitas Pembangunan Nasional Veteran Jakarta

¹E-mail: Kushendarsyah.saptaji@sampoernauniversity.ac.id

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Abstract: *As Indonesia continues to lead motorcycle sales in the ASEAN region, the need for well-structured and efficient workshops becomes increasingly critical. However, many small businesses still struggle with inadequate organization and risk management. This is also faced by the RTG costume workshop, a motorcycle workshop located in Cibinong district, Bogor regency, West Java Province. The less conducive work environment such as mix of motorcycles components and equipment is one of the obstacles for RTG workshops to be more productive. Therefore, a community service activity to implement 5S principles with the aim of creating a comfortable, safe working environment and increasing productivity was conducted. By implementing the 5S principles—Sort (Sisih), Set in Order (Susun), Shine (Sapu), Standardize (Standar), and Sustain (Sinambung)—the workshop experienced reduced disorder, improved workflow, enhanced cleanliness, and well-defined procedures. It is expected that RTC costume workshop can continuously maintain the 5S behaviour in order to improve their efficiency and increase their income.*

Introduction

In many ASEAN countries, two-wheelers (2Ws) are the dominant mode of transportation (Le & Yang, 2022). This category includes mopeds, underbones, scooters, and motorcycles, which differ in frame design, engine size, and transmission (Motorcycles Data,

2021). However, for simplicity, all 2Ws will be referred to as motorcycles in this paper. Motorcycles serve as a convenient alternative in urban areas and a primary mode of transport in rural or less urbanized regions where public transit is limited (Cox & Mutel, 2018), (Oloo, 2018), (Andreasen & Møller-Jensen, 2017). Their affordability and adaptability make them particularly popular, especially in densely populated cities (Hagen, Pardo, & Valente, 2016). Thanks to their compact size, motorcyclists can navigate congested streets with ease (Marquet & Miralles-Guasch, 2016). Additionally, many riders favor motorcycles for their fuel efficiency and lower operational costs (Oliveira, Oliveira, Caliari, Mello, & Maia, 2021), (Irawan, Putri, Belgiawan, & Dwitasari, 2017).

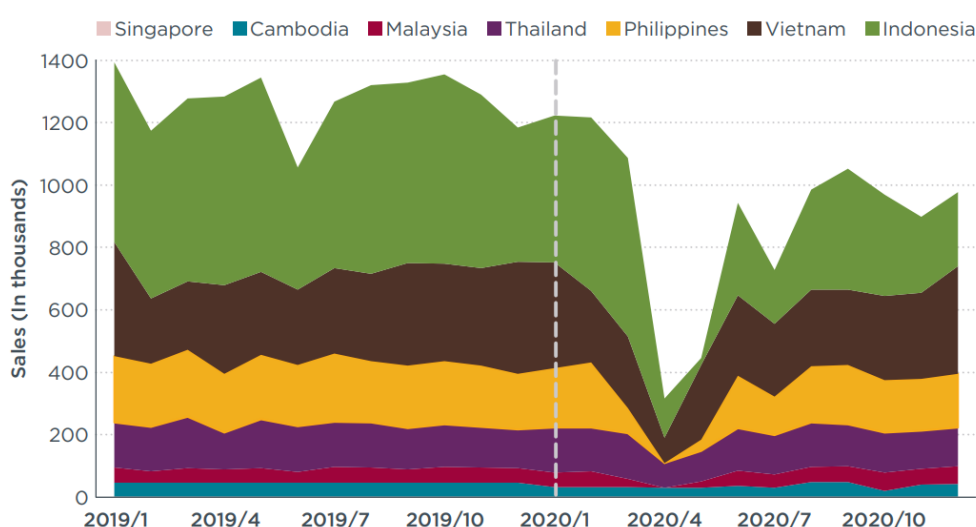


Figure 1. Monthly sales of 2&3Ws in the ASEAN Seven countries in 2019 and 2020 (Le & Yang, 2022)

According to Figure 1, Indonesia led motorcycle sales in ASEAN, maintaining a monthly volume of 1,000–1,300k units in 2019. However, sales saw a sharp decline in early 2020 due to the impact of COVID-19, followed by a steady recovery by late 2020 (Le & Yang, 2022). The rising demand for motorcycles has also driven the expansion of workshops for motorcycle service, which continue to rely heavily on manual labor (Khairunnisa, 2018). Effective risk management—encompassing risk identification and hazard assessment—is essential for minimizing workplace accidents and occupational diseases (Landquist, Hassellöv, Rosén, Lindgren, & Dahllöf, 2013). While large companies emphasize occupational health, safety, and risk analysis, small businesses, such as motorcycle workshops, often neglect these critical aspects (Ardani, Santoso, & Rumita, 2014). Additionally, workplace organization is vital for enhancing efficiency, reducing waste, and ensuring safety, all of which contribute to overall profitability (Liker, 2004). One widely adopted approach is 5S acronyms for *Seiri* (sort), *Seiton* (set in order), *Seiso* (shine), *Seiketsu* (standardize), *Shitsuke* (sustain). The 5S is a Japanese methodology for maintaining an organized, efficient, and clean workspace.

Originally developed for manufacturing, 5S is now applied across various industries, including banking, education, and healthcare (Osada, 1991).

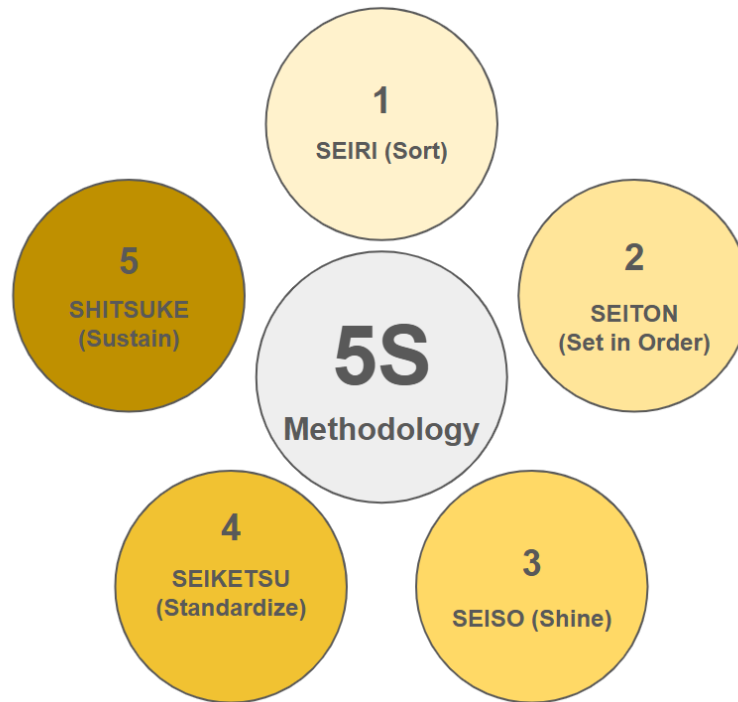


Figure 2. Illustration of the concept of 5S

The 5S methodology structures workplace organization through five sequential steps: Sort, Set in Order, Shine, Standardize, and Sustain, ensuring a clean, ergonomic, and safe environment (Figure 2). Sort eliminates unnecessary items, Set in Order arranges essential tools for efficiency, Shine emphasizes cleanliness, Standardize establishes organizational norms, and Sustain reinforces ongoing maintenance and improvement of these standards (Gupta, 2022). In Indonesia, this concept is adapted as Sisih, Susun, Sapu, Standar, and Sinambung (Jasman, 2021). According to (Reiny et al., 2022), the implementation of 5S work culture is needed in terms of increasing productivity, the better the production process, the better the results of the business.



Figure 3. Front view of RTG Custom Workshop

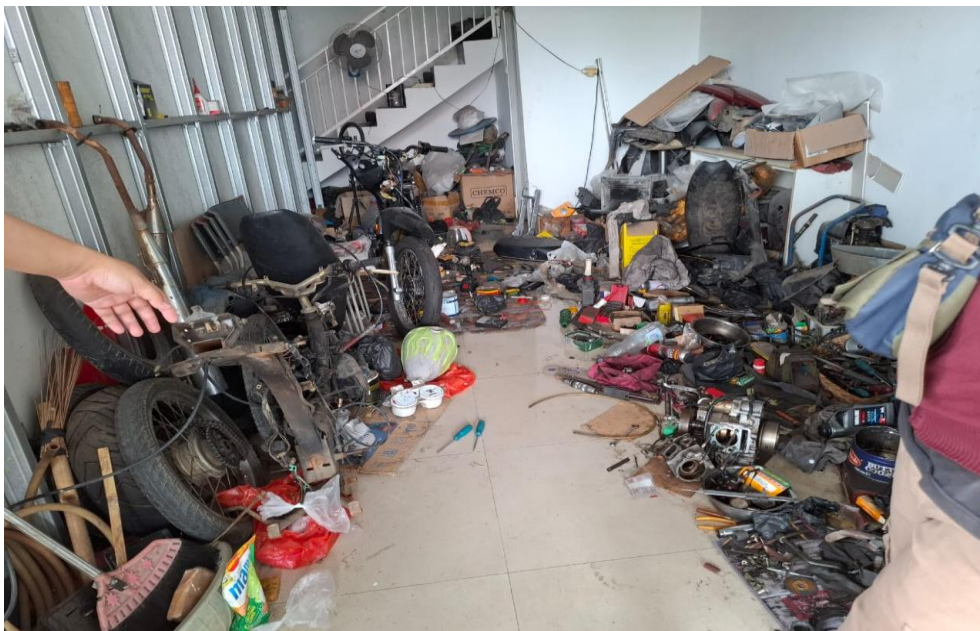


Figure 4. The situation inside the workshop before the implementation of the 5S concept

This article presents a community service project implemented in RTG Custom Project Workshop located in Cibinong district, Bogor regency, West Java Province. The workshop is located in the suburb around the housing area. Figure 3 shows the front view of the workshop.

The RTG Costume workshop has been established since 2018 and focuses on motorcycle vehicle modification with a turnover of around 25 millions rupiah per year. During the visit and survey to the workshop location, we found the initial condition of the workshop which was still mixed of equipment items, motorcycle spareparts with motorcycles to be repaired (Figure 4). The workshop owners agreed to collaborate in the implementation of the 5S concept. The initiative seeks to enhance operational efficiency while providing a scalable model for similar workshops. It is hoped that the implementation of the 5S concept can improve a neat, efficient, safe work environment and increase the income.

The community activities have shown can help small and medium-sized enterprises (SMEs) such as the small motorcycle workshop and traditional snack (kue akar kelapa) (Dyota et al., 2023). These provide mutual benefits for both university and SMEs. This program aligns with the Tridarma University philosophy, which encourages lecturers and students to actively engage in solving real-world challenges. It also reflects Sampoerna University's vision of preparing future leaders who are socially aware and equipped to address community issues through hands-on involvement. This initiative utilizes Sampoerna University's resource, expert lecturers and staffs, and students to promote knowledge growth and strengthen community ties at both the local and national levels.

Method

This community service activity was conducted in a structured way to ensure its effectiveness. It started with a survey and workshop selection, followed by consultations to validate the needs of the community. We have collaborated with a motorcycle modification workshop, that is RTG Costum workshop located on Jalan Pekapuran, Pabuaran, Cibinong District, Bogor Regency, West Java Province. The activity was initiated and conducted by four lecturers, two laboratory staffs and 5 students from department of Mechanical and Engineering and department of Industrial Engineering, Faculty of Engineering, Sampoerna University.

The obstacle experienced by RTG workshop owners due to the minimum socialization about the 5S principle in the UMKM industry causing the workshop condition less well organized. The unorganized condition of the work area resulted in a poor work process (Nugraha, Desrianty, & Irianti, 2015). Therefore, we invited workshop owners to participate in socialization and work together to implement the 5S concept in their workshops. The stages of the 5S implementation procedure applied at the RTG Costum workshop are shown in Figure 5.

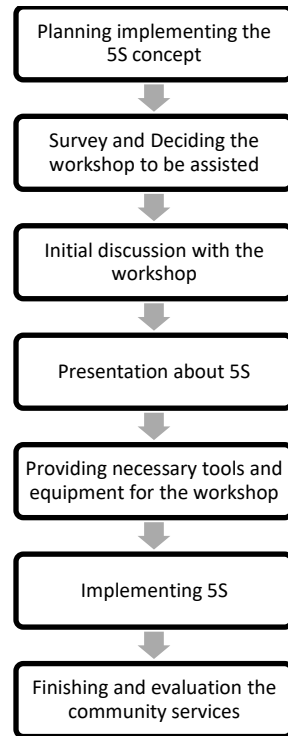


Figure 5. Workflow Socialization and Implementing 5S Concept

The 5S activities were explain in detail below.

1. Sort (Sisih) – Identifying and Removing Unnecessary Items



Figure 6. Process of Sorting

As illustrated in Figure 6, the team evaluated the workshop and eliminated old, broken, or infrequently utilized items, thereby creating a more spacious, organized, and navigable workspace.

2. Set in Order (Susun) – Organizing Tools and Equipment for Efficiency



Figure 7. Process of Set in Order

The tools were systematically organized to ensure convenient access, with labels, shadow boards, and color-coded storage systems facilitating order and minimizing search time (see Figure 7).

3. Shine (Sapu) – Cleaning and Maintaining the Workspace



Figure 8. Process of Shine

The entire workshop was meticulously cleaned, encompassing workbenches, floors, and customer areas. Shown in Figure 8, a systematic cleaning process was

implemented, and staff members were prompted to adhere to daily cleaning routines to ensure the maintenance of a clean and professional workspace.

4. Standardize (Standar) – Establishing Clear Guidelines and Procedures



Figure 9. Process of Standardize

A set of explicit procedures was formulated to ensure organizational efficiency and maintain optimal levels of cleanliness. As shown in Figure 9, these procedures were disseminated through the use of informational posters and charts to serve as a reference for personnel. Furthermore, the implementation of staff training sessions was performed to produce a uniform application of the 5S principles, thereby contributing to the enhancement of operational efficiency.

5. Sustain (Sinambung) – Encouraging Long-Term Commitment



Figure 10. Process of Sustain

In Figure 10, staff members were encouraged to assume responsibility for the 5S system. To this end, regular reviews and follow-ups were implemented to reinforce the practices. A monitoring system was developed to track adherence, ensuring the long-term sustainability of the improvements.

Result

The implementation of the 5S methodology significantly improved workshop operations, enhancing productivity, safety, and customer satisfaction. Initial resistance to change was mitigated through comprehensive training and staff engagement, ensuring long-term adoption.

1. Sort (Sisih) Impact:



Figure 11. Sorted Items to be Discarded as Impact of Sort

The elimination of unnecessary items resulted in the creation of a more spacious and efficient work area, thereby reducing potential distractions and eliminating potential safety hazards. Figure 11 shows the sorted items after First step which is Sort (Sisih).

2. Set in Order (Susun) Impact:

The implementation of a systematic organization of tools and equipment has been demonstrated to enhance workflow efficiency.



Figure 12. Tools Storage as Impact of Set in Order

This organization facilitates the efficient location of tools by employees, thereby reducing downtime and unnecessary actions of looking for the tools in daily operations. Figure 12 shows one of the locations where tools storage is set in order (susun).

3. Shine (Sapu) Impact:

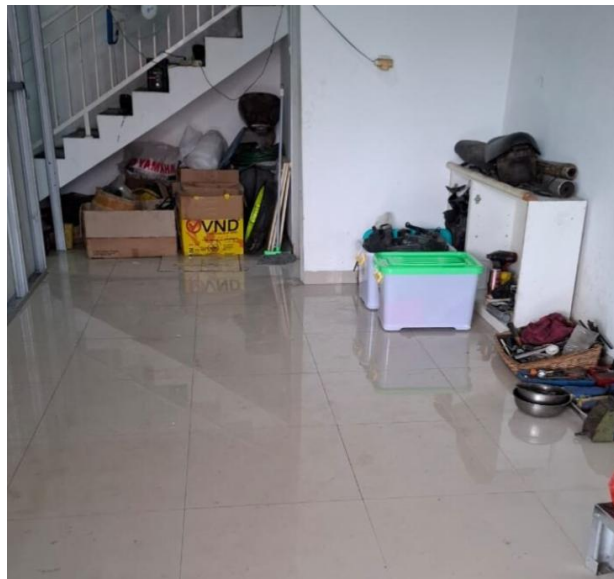


Figure 13. Clean Workspace as Result of Shine

The implementation of a cleaner and more hygienic workshop environment has been demonstrated to improve a corresponding enhancement in the perception of professionalism among customers, as evidenced by their increased awareness of enhanced hygiene standards. Figure 13 shows the workspace conditions after shine (sapu).

4. Standardize (Standar) Impact:

The implementation of explicit organizational standards and cleaning schedules has guaranteed uniformity. In this step, staff members adapted to systematic processes, resulting in sustained operational efficiency.

5. Sustain (Sinambung) Impact:

Staff engagement and commitment to maintaining the new standards exhibited an increase. The participatory approach increase a sense of responsibility, ensuring lasting adherence to the 5S principles.

Discussion

The project demonstrates the impact of implementing 5S method in enhancing cleanliness, efficiency and workflow in small motorcycle workshops. In order to evaluate the activity, a satisfactory survey was conducted after this community service activity finished. The survey covers the socialization process and the implementation of the 5S principle in the workshop. Table 1 shows the response from the owner of the workshop. In Table 1 the workshop owner answered using a scale (1-4), with 1 means very dissatisfied, 2 means dissatisfied, 3 means satisfied and 4 means very satisfied.

Table 1. Satisfaction Survey Of Socialization Activities For The Implementation Of The 5S Concept

No.	Satisfaction Question	Scale (1-4)
1	How satisfied are you with the presentation of the 5S concept delivered by the team from Sampoerna University?	4
2	In your opinion, is the material delivered really in accordance with the conditions and needs of your workshop?	4
3	Do you agree that the socialization of the application of the 5S concept helps you in your business activities?	4
4	Do you want to start trying to implement the 5S concept in your workshop after socialization?	4

5	Do you feel that the 5S concept has a positive impact on your workshop operations?	4
6	Do you feel the need for guidance or assistance in implementing 5S?	4
7	Overall, are you satisfied with this 5S socialization activity?	4

From the results of the satisfaction survey from the workshop owner, we received positive feedback, the workshop owner was very satisfied with the socialization activities and the implementation of 5S conducted in the RTG workshop. The workshop owner also suggested to have similar activity to be implemented to many other SMEs especially around Sampoerna University and also SMEs that have received socialization so that they continue to receive sustainable guidance. These results prove that the application of 5S has a positive impact on the work culture of a business or industry, this is supported by research conducted by (Deshpande, Damle, Patel, & Kholamkar, 2015) that the need for the implementation of 5S in a company arises due to irregular workstations, uncomfortable work environments and inefficiency in the management of the company. After the implementation of 5S in an organization or company is proven to improve work ethic, the continuous implementation can drastically change the company from working conditions to job satisfaction.

Active staff participation was crucial in overcoming initial resistance, particularly regarding discarding rarely used items, which was addressed through communication and hands-on demonstrations. The implementation of 5S resulted in notable improvements in task efficiency and customer satisfaction, thereby demonstrating its adaptability for small businesses. By using minor adjustments, this framework can be expanded to other workshops in Indonesia, supported by government and NGO-led training programs and financial assistance.

Conclusion

The socialization and application of the 5S concept at the RTG Costum Pabuaran Bogor workshop has been successfully implemented. Through this community service activity, we have proposed and conducted the implementation of 5S for a workshop, especially motorcycle workshop in Bogor area. By explaining and discussing about 5S, the workshop people realized the importance of the 5S in the workplace. The workshop that agreed as a partner has implemented the 5S in their workplace and they are satisfied with the results. In addition, they committed to continuously implementing 5S in their workplace in the future.

This initiative aligns with Sampoerna University's commitment to community development, engagement and serves as a scalable model for small businesses. With adequate government and NGO support, the 5S framework can enhance efficiency, competitiveness, and working conditions in Indonesia's expanding motorcycle industry. Based on the results of the satisfaction survey on the implementation of the 5S concept received positive feedback, the workshop owner was very satisfied with the 5S socialization program. We hope that workshop owners can apply the 5S principle continuously so that the working atmosphere becomes comfortable, safe and ultimately can increase productivity value.

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