

## IMPACT OF 5S PRODUCTIVITY AND QUALITY IN MANUFACTURING ORGANIZATION

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**Introduction.** In the area of occupational safety and health and also in the area of risk management, 5S technique takes important role. Form of clarity, orderliness, standardized procedures and self-discipline reduces accidents at work and prevents failures in production and non-production processes. These failures can be avoided by using the method FMEA, is a step-by-step approach for identifying all possible failures in a design, a manufacturing or assembly process, or a product or service [1].

5S is not only useful for improving the working environment but also they raise process and product quality standards, reduce and optimize lead time, and also, of course, reduce operating cost and enhance process performance [2–7].

**Literature review.** The 5S methodology arose following the Second World War as part of the quality movement in Japan. However, the term was formalized by Takashi Osada in 1980 [8, 9].

The 5S methodology comes from five Japanese words: Seiri, Seiton, Seiro, Seiketsu and Shitsuke [10].

The 5S is a name abbreviations five Japanese words which is hidden principle involved [11, 12]:

- *Seiri (Tidiness)* – separate things which is necessary for the performance, form unnecessary and maintaining the necessary things for a suitable job,
- *Seiton (Orderliness)* – systematization solving orderliness. The principle is to decide how to quickly things need to be obtained and how to quickly they can be postponed again,
- *Seiro (Cleanliness)* – observance of cleanliness in the workplace and in your mind as well as in your surroundings. These are the habits that should also adopt and reflect in the organization. Cleanliness should keep everyone starting management ending cleaner.
- *Seiketsu (Standardization)* – this principle speaks of continual and repeated maintenance organization in orderliness and cleanliness,
- *Shitsuke (Discipline)* – this principle speaks of cultivating a sense of order and the organization.

**Material and methods.** The reasons for the introduction 5S:

- visualizes and reduces waste (unnecessary movement of workers, waiting for parts and materials, excess inventory etc),

- improves material flow visualization, for example introducing of visualization in storage,
- improves quality and safety, purified visualized workplaces is safer,
- improves corporate culture and attitudes of the people involved workers form their judgment than by command,
- improves environment of workplace.

#### Summary of 5S [4, 5, 13]

Japanese	English	Japanese meaning	English meaning	Typical example
<b>Seiri</b>	Structure	To clearly se-parate necessary things from unnecessary ones and abandon the later	Organization	Discarding any material that is not of use (cardboard, boxes, etc.)
<b>Seiton</b>	Systematize	To neatly arrange and identify things for ease of use	Neatness	Keeping shelves and filing cabinets tidy and organized
<b>Seiso</b>	Sanitize	To always clean up: to maintain tidiness and cleanliness	Cleaning	Establishing specific individual responsibility for corrective and preventive cleanliness
<b>Seiketsu</b>	Standardize	To constantly maintain the three Ss mentioned above (seiri, seiton, seiso). Includes the individual well-being and physical cleanliness of each person	Standardization	Setting standards and maintenance plans for the above three Ss. Also as a plan or program for physical well-being (exercise, etc.)
<b>Shitsuke</b>	Self-discipline	To have workers make a habit of always conforming to rules	Discipline	Executing the standards set in a disciplined fashion on a day-to-day basis

Example	What needs to be cleaned	How to Clean	Tools	How often	Accountability	Time
	Machine surface	swob	clout	during changes	operator	
	Around the machine	sweep, wash	broom	daily	operator	5 min.
	The space under the machine	pick up the pieces, wipe oil	handmade, cloth	daily	operator	5 min.
	Oil pan	suck oil	vacuum cleaner	1x a week	operator	10 min.

Examples of buildings.

**Conclusion.** 5S method is a key human capital that affects all levels of the organization. The aim is to maintain an orderly, organized by workplace, as well as compliance with legislation and standards for continuous improvement. It is 5S essential for improving productivity and quality.

5S method further progress, is often used in safety – and environment 6S–7S.

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**Д. Фолдесьова, М. Коренко, В. Крочко, Т. Щур. Вплив 5S продуктивності на якість та організацію виробництва.**

Метод 5S є інструментом управління якістю, який забезпечує це через організацію. 5S – це система по скороченню відходів і оптимізації продуктивності через збереження сумісності упорядкованого робочого місця за допомогою візуальних підказок, щоб домогтися більш результативної послідовності операцій. Результатом цієї роботи стало застосування методу 5S як комплексу заходів щодо поліпшення якості у виробничій організації.

**Ключові слова:** метод 5S, оптимальні умови, поліпшення процесу.

**D. Földešiová, M. Korenko, V. Kročko, I Taras Shchur. Impact of 5s productivity and quality in manufacturing organization.**

5S method is a quality management tool that this goal provides in the organization. 5S is a system to reduce waste and optimize productivity through maintaining an orderly workplace and using visual cues to achieve more consistent operational results. The result of this work was the application of the method 5S as a set of measures to improve the quality in the manufacturing organization. The method was applied in an organization that supplies the European automotive industry screws and molding produced by cold forming.

**Keywords:** 5S method, optimal conditions, process improvement.

**Д. Фолдесьова, М. Коренко, В. Крочко, Т. Щур. Влияние 5S производительности на качество и организацию производства.**

Метод 5S является инструментом управления качеством, который обеспечивает эту цель в организации. 5S система является сокращением отходов и оптимизации производительности через упорядоченности рабочего места с помощью визуальных подсказок, чтобы добиться более последовательных операций. Результатом этой работы стало применение метода 5S как комплекса мер по улучшению качества в производственной организации.

**Ключевые слова:** метод 5S, оптимальные условия, улучшение процесса.