

Introduction to 5s principles business essay



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“ To delve into the history of 5S principles in quality assurance, it is essential to begin with Venetian (Venice), 16th century ship builders. The Venetian Arsenal, as it would be called, during Elizabethan times was a paragon of excellence in manufacturing and quality assurance. The enclosed Arsenal had thousands of ship building employees and followed a modern assembly line approach while ensuring the quality inspections were met for the royal navy. Different pieces were assembled into a galley and many other pieces that were manufactured in workshops, ready to be assembled into a whole ship. History has captured that a 1574 visit from King Henry III of France, prompted the shipbuilders to build an entire galley within two hours, upon which King Henry attended a banquet in the Arsenal’s Great Hall. Though the ships performance is a matter of conjecture, but it did demonstrated to the world the great efficiency of the Venetian shipbuilding operations and their organizational skill in manufacturing”. [25]

“ The post-World War II Japan, is the place where Toyota’s founder, Sakichi Toyoda, his son Kiichiro, and chief engineer Taiichi Ohno developed Toyota’s Total Production System, or TPS, a philosophy that still provides the foundations for manufacturing and logistics at the Japanese auto facility”. [25]

“ On a visit to the U. S. the three Japanese master minds studied the assembly line at Ford auto plant, while acknowledging the extensiveness and enormity of the manufacturing machines, they were quite also dismayed by the waste and lost opportunity in the assembly line. Even though it was an assembly line, there was a lot of waiting on parts so as to get to other processes, and also the pile up on the completed work. The routine

overproduction was justified by a push market system and this also led to routine layoffs and rehires on labor. Toyoda, who also happened to visit a supermarket was quite impressed with their system of reordering and restocking as the items were purchased. This methodology is the basis for the modern “ just in time” or JIT inventory. To achieve this methodology at Toyota, Toyoda reduced the inventory to what they would need for a short period of time and place reorder on materials when the need be arisen at a later period of time. This is the real starting point for the history of 5S. The real goal of 5S is to give a feeling of ownership of the process to each of the employee” [25].

Philosophy of 5S

Modern management in Toyota is not only the quality management system based on the ISO series 9000: 2000 standards, but pursuit to the continuous improvement, so this is the philosophy of the Total Quality Management, a revolution on modern quality control [1]. In the process of implementation of the Total Quality Management on the operations of the assembly plant more and more popular is becoming the idea of what is called as 5S. [2] The 5S methodology is the tool for helping the analysis of processes running on the assembly plant. The 5S is the science behind the creation and maintaining well organized, clean, high effective and high quality workplace. It results in a highly effective organization of the workplace, great reduction on work environment, an elimination of losses connected with failures and breaks, improvement of the quality and safety of work.[3-5]

The philosophy of the 5S has its roots in Japan, as described in the history of 5S. The 5S’s as they originated in history of 5S principles are as follows, with <https://assignbuster.com/introduction-to-5s-principles-business-essay/>

the Japanese word first, followed by the American translation of the word, Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize), Shitsuke (sustain).

Phase one is Seiri (sorting, organization of the workplace, elimination of unnecessary materials) refers to the practice of sorting through all the tools, materials, etc., in the work area and keeping only essential items. This means going through all the tools and materials in the plant work areas and only keeping the items that are essential. All other tools and items are stored or discarded. This leads to fewer hazards and less clutter to interfere with productive work. The Americanized version of this is “ Sorting.” [2, 6-9]

Phase two is Seiton, a process that focuses on efficiency. The goal is to arrange tools, equipment, and parts so that they encourage work flow. Tools and equipment should be placed where they will be used, and the process should take place in an order that has maximum efficiency. This concept wasn't easy to translate into an English term beginning with the letter S, but attempts have produced “ straighten,” “ set in order,” and “ sort.” The concept that's important is that tools and activities should be ordered so as to maximize the flow of work. [2, 6-9]

Phase three is Seiso. This is simply the need to keep the workplace clean and neat. When every shift ends, the work area is cleaned, and everything goes back in place. This process lets everyone know what goes where, and lets them have confidence that everything is where it needs to be. Maintaining cleanliness is part of the daily work task, not just something that gets tackled

when the workplace becomes too messy. The American version of Seiso is “Sweeping” or “Shining.”[2, 6-9]

Phase four is Seiketsu. This simply means that work practices operate consistently and in a standardized manner. Each worker knows what responsibilities he or she has in keeping the first three S’s. The American word is “Standardizing.”[2, 6-9]

Phase five is Shitsuke, which refers to maintaining high standards and reviewing those standards. It is a way to maintain focus on this system of operating and not allowing people or processes to slip back into old habits. Any suggested improvements should be considered in light of the first four S’s. The Americanization is “Sustain.” [2, 6-9]

Table 1. 5S Definitions

Japanese term English Equivalent

Japanese Term

English Equivalent

Meaning in Japanese Context

Seiri

Tidiness

Throwaway all rubbish and unrelated materials in the workplace.

Seiton

Orderliness

Set everything in proper place for quick retrieval and storage.

Seiso

Cleanliness

Clean the workplace; everyone should be a janitor.

Seiketsu

Standardization

Standardize the way of maintaining

Cleanliness.

Shitsuke

Discipline

Practice ‘ Five S’ daily – make it a way of life; this also means ‘ commitment’.

Source: “ The 5 ‘ S’ Process: Seiri, Seiton, Seiso, Seiketsu, Shitsuke,” Page 1 of 2,

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Retrieved from: <http://www.siliconfareast.com/5S2.htm>

Overview of 5S

In countries around the world, 5S is seen and are being used as a central lean manufacturing tool. Also, 5S has become a widely used tool in healthcare, government, and financial services [10].

Though there may be no single study that indicates 5S is the basic tool of running lean, yet 5S is a very good method to help a company to reduce

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their wastes and also to enhance their profits. The 5S concept comes from Japan. The main motto of the 5S is to make the work place orderly to improve efficiency and provide a safer environment while reducing the products defects rate. Since the implementation of Japanese manufacturing, these techniques have proven to work well. Japanese goods have become synonymous with the top rank products of the world (Bureau of Employment and Vocational Training, [BVET 2005]). During the mid-1950s, Japanese manufacturing companies were forced due to lack of resources, to develop a method which to make every scrap used while wasting nothing [11].

Breyfogle [12] describes that there were four activities in the Japanese system. These activities, each beginning with the letter S, were Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize). Finally, another activity is added, named Shitsuke (sustain), thus came to be the 5S.

Based on five Japanese words that begin with ' S', the 5S focuses on effective work place organization and standardized work procedures. 5S classifies the work environment, reduces waste and non-value activity while improving quality, efficiency, and safety. These processes can increase morale, create positive impressions on customers, and increase efficiency and organization. 5S makes employees feel better about their work environment. This improvement leads to less waste, better quality and reduced lead times. Any of these benefits will make a company more profitable and competitive in the market place [13]. Before a company implements the 5S, they should know what 5S are and why 5S. A lot of companies feel that they should do 5S first in order to go lean. Some proven reasons for this 5S is clear, easy and gets people's attention. Yet, there is no

rule to ask where to start. Begin 5S implementation when there is a reasonable point within a company. Let employees understand what the purpose is and how to follow it (Figure 1). Do not use 5S just because everyone else is doing it; 5S is not a trend towards fashion [14]. When a company wants to implement 5S, just like anything new for the company, a leader should describe what 5S is and how it will be utilized.

Employees can understand, what the management is talking about in their 5S meetings but not deep enough to comprehend what and how it is going to change their work process [15]. They should be taught all steps before taking the first step to 5S transformation. Figure 1 displays the steps of 5S. People must execute all the steps in 5S and give attention to the details in one area before considering the next area [15].

Figure 1. 5S

Source: “ 5S in the office,” by Beyond Lean (BL), retrieved from:

<http://beyondlean.wordpress.com/?s=5s>

People do not need to have a high education to run 5S. Any position of the employees in the organization can certainly do it. Anyone in the company should understand and practice 5S [13]. So why 5S? A lot of studies show many benefits once the company runs 5S such as creating organized workplaces [13], promoting the clean work environments [15], improving safety (Prabwo, N. D.), and increased product quality and productivity [16]. 5S should be considered an everyday continuous improvement activity for individuals and small groups [12].

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However, some companies think that they are too busy to rearrange the workplace because it will take too much time cleaning and to keep the workplace neat. On the other hand, it means they do not want to keep the work environment clean and neat [17]. Running 5S can be divided into three sections which are create a structured process for the project, make a clean environment, and create a clear method of management for the project [18].

If companies do 5S in the right way, it will help the company to have a smooth operation, hence, all the employees will be happy to remain with the new process in order to have a better environment [19].

The following are summaries of some important benefits from implementing a 5S process:

- Orderliness (seiri and seiton) – by using the simple way to maximize the company's efficiency and reduce defects.
- Cleanliness (seiso and seiketsu) – once they have better environment, they can improve the healthier life, safety and transparency, and
- Discipline (shitsuke) – enhance the quality control of work life and work criteria due to training and education improve the level of morale.

The first step of 5S implementation is sort (Seiri). The purpose of sort is to classify the items which you need from those that are not needed. The aim for Sort is: keep everything required and eliminate everything else [16].

Gather all of the people who work in the area where you are going to do the first step. Ask them to remove everything from the area that is not necessary

[14]. Skaggs [13] describes that in the first step, all items in a workplace are sorted based on needs and not wants. For sorting, first, divide all tools or materials into specific areas: cannot be used, unlikely to be used, and tools or materials that can be used [17]. Hirano [17] also divides the tools or materials into categories: rarely used items, occasionally used items, and frequently used items.

In sort, criteria results should be obviously seen:

1. What items needed and not needed.
2. Red- tag targets, frequency, and responsibilities and
3. Disposal procedure [11].

Once you throw things away that you don't need, the place becomes larger, and you can save money and space rather than pay for more construction [10]. What if there is some issue about items that will possibly be needed in the future? [10] also describes that there is a buffer zone, which is called a 5S sort area, that can be set up anywhere in the department. Not everyone in the organization can notice what items should be exactly kept and what else should throwaway, so keep all unsure items for a week in order to make sure it is waste. This prevents people thinking the items might be used someday. The supervisor can interrupt if arguments occur. Unsure items can be kept in the special area in the center of the inventory location.

The differences between the things that you need and do not need is a key part of sort. Step one, sort, is to help the organization to be just-in-time (JIT) as the purpose of, " what is needed, only in the amounts needed, and only

when it is needed," [17]. However, sort does not mean that you put everything you do not need away, neither does it mean that you ease all items that you need into orderly positions [20]. Skaggs [13] also describes that sort creates the working place in which space, time, money, energy, and other resources can be controlled and used effectively.

Many studies show the first step of 5S should determine what things that are needed and what is not, as well as how to decide if the item is needed or not. Consider if the item is not for supporting the main process, then it should be kept outside the direct working place [21].

The items can be set into three different categories: (1) low usage, (2) medium usage, and (3) high usage. The items that are defined as low usage can be kept at a far off work area. The medium usage items can be set it in a place nearby. For the high usage items, they should be kept closest to the main working place [22]. Set in order. In this step, all items had already passed the sort step and are ready to go further. The purpose of this step is to see where every item is located in the right place [23].

Paulsen [20] describes that to run this step, first consider three questions:

- What do I need to do my job?
- Where should I located this item?
- How many of this item do I need?

In order to save more time, BEVT (2005) shows that set in order is to help everyone in the organization immediately know where the stuff is, so that

they can grab it right away, and when they return everything needs to be in the same place as they were before they took them. The purpose of this step is to let anyone who needs the tool can get it right away. Set everything in order and keep everything in a condition which allows it to be used right away. “ This step consists of putting everything in an assigned place so that it can be accessed or retrieved quickly, as well as returned in that same place quickly,” (Siliconfareast. com, N. D.).

“ All tools and equipment should be cleaned. Part of the purpose of the shine step is to expose problems. Trash may be obscuring worn or frayed wiring. Oil buildup on a machine may indicate a leak or crack in it that needs to be repaired or replaced,” [21]. Paint the floor and all items to make them look like in new condition, and apply a fresh coat of paint. This step can make your organization look like a brand new business [14]. Skaggs [13] explains that cleaning must be done not just after working, but on a regular schedule to remove dirt and dust from the workplace. Cleaning is not just about making everything look good. It is a way to notice problems early and to keep work areas and equipment in good operating condition even more to extend the duration for all [11]. Baker [15] describes that in the standardized step, everything should be clearly identified and labeled. The purpose of this step is to keep the first three Ss, sort, set in order, and shine as the standard all the time and let all personnel keeps the same way whenever they perform their daily. Standardization is about keeping the first three steps up to speed and running 5S will come into effect [15]. Breyfogle [12] describes that, “ working manners, tools and identification markings are standard and recognizable throughout the factory. 5S methods are applied consistently in

a uniform and disciplined manner”. This step is the way to keep the first three Ss, and make it as a standard method. Standardization also brings three S’s into regular work duties (U. S Environmental Protection Agency, N. D.).

This is the final step in the entire 5S system, but also is the hardest step for 5S. “ The Sustain step is the most difficult because it requires continued diligence [20]. The checklist helps everyone in the organization to maintain and continue all actions with first four S’s to improve work [12]. This final step does not mean just to keep the first four S’s again and again but also means to keep up the increase of the improvements. The most important thing is to make a system which can distribute data for the company and this can help the company to make informed decisions [24]. Dolcemascolo [23] explains that if 5S implementation failed, it was because the company never completed 5S implementation. On the other hand, if the organization implements 5S completely, a 5S program will have longevity. Figure 2 is a sample of sustain step for helping the company to check each step by listing the details.

Figure 2. 5S sustain checklist

Source: “ 5S-Lean Audit Checklist-Manufacturing”, retrieved from [http://www.lean.org/FuseTalkiForum/Attachments/5S%20Audit%20Form\(draft\)-12-10-09-rev4nL%20\(2\).xls](http://www.lean.org/FuseTalkiForum/Attachments/5S%20Audit%20Form(draft)-12-10-09-rev4nL%20(2).xls)