Workplace Safety

White Paper: The Importance of the 6th "S"

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The Origins of 5S

While sometimes credited to shipbuilders in 16th century Venice, Japan is where "5S" was first heard of as one of the techniques that enabled what was then termed 'Just in Time Manufacturing'. The Massachusetts Institute of Technology's five-year study into the future of the automobile in the late 1980s identified that the term was inappropriate since the Japanese success was built upon far more than components arriving only at the time of requirement. John Krafcik, a researcher on the project, ascribed Lean to the collective techniques being used in Japanese automobile manufacturing; it reflected the focus on waste in all its forms that was central to the Japanese approach. Minimized inventory was only one aspect of performance levels in companies such as Toyota and only arose from progress in fields such as quality assurance and Andon boards to highlight problems for immediate action.

5S was developed by Hiroyuki Hirano within his overall approach to production systems. Many Western managers coming across the approach for the first time found the experience one of enlightenment. They had perhaps always known the role of housekeeping within optimized manufacturing performance and had always known the elements of best practice. However, Hirano provided a structure for improvement programs. He pointed out a series of identifiable steps, each building on its predecessor. Western managers, for example, had always recognized the need to decide upon locations for materials and tools and upon the flow of work through a work area; central to this (but perhaps implicit) is the principle that items not essential to the process should be removed – stored elsewhere or eliminated completely. By differentiating between Seiri and Seiton, Hirano made the distinction explicit. He taught his audience that any effort to consider layout and flow before the removal of the unnecessary items was likely to lead to a sub-optimal solution.

Equally the Seiso, or cleanliness, phase is a distinct element of the change program that can transform a process area. Hirano's view is that the definition of a cleaning methodology (Seiso) is a discrete activity, not to be confused with the organization of the workplace, and this helps to structure any improvement program. It must be recognized, however, that there is inevitably an overlap between Seiton and Seiso. Western managers understood that the opportunities for various cleanliness methodologies vary with the layout and storage mechanisms adopted. However, breaking down the improvement activity in this way clarifies that the requirements for the cleanliness regime must be understood as a factor in the design aspect of Seiton. As noted by John Bicheno, Toyota's adoption of the Hirano approach is '4S', with Seiton and Seiso combined – presumably for this very reason. The improvement team must avoid the trap of designing the work area and then considering the cleanliness or tidiness mechanism.

5S Today

5S methodology (or what Toyota called the Total Production System) uses a list of five Japanese words—Seiri (sort), Seiton (set in order), Seiso (shine), Seiketsu (standardize), and Shitsuke (sustain)—to describe how to organize a work space for efficiency, improved productivity, and quality by identifying and storing tools and materials used, emphasizing housekeeping to clear and maintain

the work space, and making these practices standard and sustainable.

Safety is implied in every step of the 5S method:

- Safety is improved and hazards reduced when you sort through a work space, removing what's unnecessary and improving accessibility and visual communications.
- Safety benefits from setting an orderly work flow and ensuring that work is not conducted in a haphazard manner or by taking shortcuts.
- Housekeeping, or putting a shine on things, is fundamental to safety—a basic tenet. You can't have a zero-accident culture or any type of 100 percent safety culture without an emphasis on an orderly, organized, clean work space and work flow. Housekeeping is a shared safety responsibility, ongoing and never-ending; it is a safe behavior that is an essential first step in developing a culture of safety.
- Standardizing work practices establishes conformity, which is critical to safety success. For work to be done safely, it must be done in compliance with a set of standards. OSHA regulations are all about establishing conformity in how safety is practiced.
- These five work practices—removing waste and unnecessary tools and materials, setting a clean and orderly work space and work flow, effective housekeeping, and compliance with work norms and rules—all must be sustainable. They are behaviors that must become routine, embedded habits. The 5S practices are also a mindset or attitude that is ingrained in employees as "the way things are done around here." This, by the way, is the definition of culture—acceptance and ownership of the way things are done.

The Ongoing Need for the 6th "S"

Over the last decade, American and Canadian companies have added 6S—safety. These organizations were not comfortable with the idea that safety is assumed to be, or implied to be, part of the way things are done. Safety needs to be called out, recognized and committed to as a separate step.

Let's face reality: Human nature is often at odds with safety. Few of us demand or obsess over a clean and tidy home or work space. How often do we take shortcuts, especially when the pressure is on to get a job done quickly? How many of us religiously obey speed limits when driving?

This reality of human behavior—often taking risks and believing "accidents won't happen to me"—is the reason for safety and health management systems, safety training, safety inspections, safety meetings, the use of personal protective equipment (PPE), safety rules, OSHA regulations, and the need to develop and sustain safety cultures.

Putting the focus on 6S as a specific organizational value and ongoing commitment has many benefits:

- ***Less stress on employees***;
- ***Less fatigue***; less wasted time and movements walking distances to get a ladder or a tool;
- ***Fewer tool and equipment breakdowns***; less need for repairs, less downtime, and reduced risk-taking;
- ***Improved ability to recognize hazards*** by reducing waste, clutter, and debris to improve visibility in the workplace;
- ***Increased employee involvement and engagement in safety***, as employees take ownership for shared responsibilities such as housekeeping, reporting hazards, inspections, observing co-worker behaviors and giving positive or corrective feedback, and generally watching out for the safety of their peers;
- ***Reduction of injuries and fatalities***, because good housekeeping reduces slips, trips, and falls. Securely stacked materials reduce the chance of being struck by a falling object. Exits are not blocked, fire extinguishers are accessible, and overall fire safety improves. "Struck-by" injuries are reduced by removing protruding nails and other obstacles. Ergonomic-related injuries such as

strains, sprains, and back injuries are lessened by having tools and materials easily accessible—without overreaching or using awkward body positions;
- ***Removal of dust accumulations*** that can ignite and cause serious injuries or fatalities (SIFs) by flash fires or combustible dust explosions;
- ***Reinforcement of the requirement to comply with OSHA standards***, specifically regarding housekeeping. OSHA references the practice in numerous standards, including the new walking-working surfaces (1910.22); flammable liquids (1910.106); explosives and blasting agents (1910.109); sanitation (1910.141); material handling (1910.176); and asbestos (1910.1001)

The Need for Messaging

6S is not a one-time program or safety idea. 6S represents a culture of safety, a vision for safety, an organizational-wide commitment to safety, so it needs promotion and marketing to sustain employee buy-in.

To reinforce this message, post 6S communication visuals throughout your facility in key high-traffic areas to serve as daily reminders.

To continue reading this white paper in its entirety, click here for a downloadable PDF.

