

5S/Lean: A Deep Dive

GOING BEYOND WHAT THE 5S'S MEAN



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Going beyond what the 5s's mean

In 2017, more than 50 years after its introduction in Japan as the Toyota production system, or “The Toyota Way,” you very likely know – and use – some of the tools of lean manufacturing and one of its essential elements, 5S processes:

- **Store-Board™** Shadow boards with full-sized shadows or cutouts outlined for everyday tools, equipment and materials often are a pegboard made of Masonite, plastic, brushed aluminum or stainless steel. The durable boards, wall-mounted or mobile, are placed near work stations and inform employees where to find the tools they need, where to return them, and what items are missing. No more wasting time looking around for the right hammer, wrench, drill or even shovels, mops and rakes. Boards are easily customized.
- **Identification labels** help create visual factories using dozens of sizes, shapes and color combinations to designate and differentiate pallet racks, aisles, totes and bins, tools, machinery, shelves, wires and piping, among other facility components.
- **Site-Boards™** and scoreboards are visual communication centers that inform workers about key performance indicators (KPIs) such as production and quality targets, schedules, plans, operational

progress or problems. Dry-erase laminates are used to frequently and quickly change and update metrics and messages.

Products such as these are manifestations of The Toyota Way principle number 7: “Use visual controls so no problem can be hidden.”

Growing popularity

Lean/5S tools and techniques have been widely adopted in the United States to give businesses a competitive advantage in tight times. Since the Great Recession of 2007-2009, the U.S. economy has sputtered and crawled back to what is still meager economic growth, at an annual rate of 1.6 percent in 2016, and 1.9 percent between October and December—the slowest pace since 2011, according to the Commerce Department. Most forecasts anticipate gross domestic product (GDP) growth in the modest range of 2-3 percent annually through 2020.

Thus, running streamlined and standardized operations, eliminating all forms of waste, cutting costs, and improving workplace safety, product quality, and customer satisfaction – all tenets of lean/5S – have become almost staples for business survival, growth and sustainability. The 2010 Compensation Data Manufacturing survey

found that 69.7 percent of manufacturing companies used lean practices. The most popular practice was 5S – sort, set, shine, standardize and sustain – used by 69.2 percent of manufacturers.

A 2013 study of Midwestern U.S. manufacturers by the University of Illinois at Springfield further revealed how almost universal some lean practices have become. Work standardization was reported by 97 percent of survey respondents. Using visual controls to detect problems was reported by 80 percent. Applying 5S criteria was practiced by 73 percent. Use of other lean practices included: reduce set up time (85 percent); cycle time reduction (81 percent); total quality management (88 percent); parts standardization (74 percent); improved production scheduling (80 percent); and performing value-add analysis to identify non-value activities (83 percent).

Beyond manufacturing

Global consultant McKinsey and Company has said that lean is one of the biggest management ideas of the past half-century, no less revolutionary than Henry Ford's original assembly line. And lean/5S practices have spread beyond manufacturing to almost any type of business.

- For example, it's reported that aircraft worth \$100 million or more routinely sit idle at gates, and turnaround times between flights vary by upward of 30 percent. Lean techniques cut hours to minutes with a new changeover system.
- For restaurants and food service operators, lean techniques improve food quality and customer service by trimming waste, labor costs and wait times, leading to increased customer loyalty.

- Healthcare, from physicians' offices to outpatient surgery clinics to hospitals and nursing homes, uses standardized shift handoffs, behavior-based checklists, disciplined hygiene practices, personal protective equipment (PPE) and cues to encourage patients to speak up about concerns or questions. The result: improved patient care and satisfaction, and reduced infections, medication errors and readmissions.
- In education, the visual factory has become the visual school. Shadow boards, store drawers, color-coded markings and classroom communication centers, often dry-erase white boards, enable even pre-school children who can't yet talk to practice 5S – sorting out toys, playthings and clothing at the end of class, putting supplies back where they belong, and cleaning up clutter and finding lost objects.
- Disney studied the behavior and attitudes of visitors in its theme parks and discovered that customers respond to different emotional cues at different times of the day. Disney park employees were trained accordingly. In morning hours, employees communicate in a more enthusiastic style, when families are fresh and eager to start their day at the park. By late afternoon, when fatigue and irritability creep in, employees switch to a more calming style of communication. This eliminates waste (employee behavior not desired by customers) and improves customer experience. And as anyone who has visited a Disney park knows, Disney employees – called "cast members" – excel at practicing 5S. High-volume crowd traffic flows day and night



unimpeded by trash or park equipment and guided by an array of signs, messages and visual cues comprehended by Disney's international customers.

Defining “going lean”

For lean/5S practices to have such universal applications, you need to understand the underlying principles that apply to the use of commonplace tools such as inventory-marking dots, color-coded racks and document holders, shadow boards, PPE dispensers, hazard warning signs, scoreboards, floor markings and various visual controls. “Going lean” is really about changing an organization's culture, “the way things are done around here.”

Lean is a business improvement methodology that, when planned and executed with care, patience and determination from senior leadership on down, promotes: 1) understanding cultural core values by all employees; 2) continuous improvement; 3) error-proofing; 4) standardization of work methods; 5) flexible production; 6) efficient inventory management; and 7) predictive, preventive (not just reactionary) maintenance.

And in terms of 5S specifically, it's critical not to think of it as a housekeeping program. 5S is not a list of rules given to janitors and cleaning crews. It's not about pushing brooms. 5S is a workplace culture, too. The Japanese call it a way of life, a daily practice requiring concentration, discipline, dedication and commitment. Long-ingrained work habits, shortcuts, improvisations, and risk-taking must undergo a “culture change.”

5S is not a program

5S should not be even considered a “program.” It is a never-ending, cyclical process. Programs are campaigns or initiatives with launches and landings, beginnings and endings. Often programs start with some sort of kickoff rally and end with an awards and recognition celebration. The final “S” in 5s is “sustain.” To embed 5S in an organization for the long term you need leadership will and modeling, employee input, sufficient resource allocation, and norms of behavior (sort it out, set it in order, shine and sweep, disciplined conformance to standard work methods, and sustaining activities – regular reviews, updated goals, plans, and continuous improvement strategies).

Message boards, storytelling boards, scoreboards, signs, banners and posters sustain interest and involvement in 5S. Shadow boards, position lines, tool drawers, containers, cabinets, holding areas, cleaning schedules, inspection schedules, audits and evaluations are necessary to reinforce behavioral norms.

If these tools and techniques are not deployed properly, 5S (and lean principles in general) run the risk of becoming another “flavor-of-the-month” program. Initial enthusiasm wanes, employee 5S “champions” become fatigued and disillusioned, management support disappears, discipline is lost, and employees feel scammed, set up and tricked. Eventually they pull back, and become apathetic or outright resistant.

Waste and losses

Lean/5S targets the seven deadly wastes, or “Muda,” in Japanese:

- *Overproduction*
- *Unnecessary transportation*
- *Excess inventory*
- *Defects*

- *Overprocessing*
- *Time wasted while waiting*
- *Wasted worker motions and movements; work-related ambiguity, confusion, hesitancy*

Lean is also a framework to attack the six big production losses – universal causes of waste in manufacturing:

- *Breakdowns*
- *Setups and adjustments*
- *Small stops*
- *Reduced speed*
- *Startup rejects*
- *Production rejects*

You can add a seventh major production loss – accidents. Whether they harm people or damage physical property (or both), accidents cost money, cause work stoppages and downtime, and often require repairs, replacements (for injured workers or damaged parts or equipment), restarts and adjustments.

Eliminating waste and lost time achieves the objective of lean/5s, which is to create more value for customers with fewer resources. And it creates a safer workplace.

“Respect for people”

All this cannot be accomplished without adhering to the lean mantra: “respect for people.” This is the philosophy at the heart of lean and 5S. Respect your customers and your workforce. Don't keep them waiting or idling. Make work easier for employees; improve service and products for customers. Running safe operations is certainly a form of respecting people.

But lean/5S goals cannot be accomplished without practicing another principle: “Gemba.” This is a Japanese philosophy that calls for getting out of your office, from behind your desk, and spending time with your people where they work, on the line, in the warehouse, at work cells and stations. You need to be where the real action occurs. “Gemba” promotes first-hand observation, conversations, feedback and problem-solving.

The visual factory

Visual controls, visual management, visual cues – the visual factory – bring 5S and lean techniques to life. We naturally react to visual stimuli – traffic lights; speed limits and signals of your real-time driving speed; and police, ambulance or fire-engine flashing lights. It's imperative to incorporate visuals to get lean, to “make things easier for everyone.”

The guiding principle of visual management is put succinctly: “Make things obvious.” The current status of your work system, working conditions, and operational performance must be visible and accessible to be quickly comprehended by your workforce. Visuals – universal symbols, color codes, floor markings, flashing alarms and tagged equipment and parts all direct accurate and efficient employee decision-making.

Further, visuals give clear signals that minimize confusion, ambiguity and errors. They leave no room for misunderstandings compared to verbal instruction and descriptions. What is spoken can be misinterpreted, misunderstood or not heard above environmental noise. Visual controls reduce inter-personal conflicts and friction that can arise in the workplace due to miscommunication.



Visual management – scoreboards and message centers – provides real-time information updates and status reports. It allows employees to understand their influence on the organization and how the organization is performing – trends in safety, quality, productivity, delivery, cost, errors. It is non-verbal information management.

Visual communication is also practical. Visual aids give workers more sense of control, self-efficacy, and ownership. Signs, labels, shadow boards, document holders, floor direction and holding area markers show where things belong – where to find them and where to return them. They can illustrate how to set up and operate equipment, assemble or test parts, and when to replenish.

‘What’s it in for me?’

Visual products answer the age-old “what’s in it for me?” attitude of workers. This attitude can disrupt lean/5S practices, which have been described as “a completely different worldview of how to compete in business.” What’s in this worldview for the workforce? Signs point to a work environment where people are safe from harm, order and cleanliness are the norm, obstacles are taken seriously and opinions count. A work atmosphere is created that gives employees the ability and confidence to do the work themselves (no one else can). This is the realization of lean’s “respect for people” core value.

Competitive advantages

Realizing the potential of lean/5S provides competitive advantages that go beyond waste reduction, cost reduction and customer value-add. Meeting KPIs; knowing who inspected an item, when and where; tracking tool use and ownership; and raising the visibility of schedules and goals promotes accountability. Understanding the flow of production – specific holding areas, floor marking directions, arrows, signs, inventory color coding, use of shadow boards and

tool drawers – increases worker engagement and productivity. Far-reaching lean/5S tentacles influence:

- *Strong, positive cultural values and beliefs*
- *Attitudes and behaviors*
- *Safety*
- *Problem-solving*
- *Appropriate resourcing*
- *Smart goals*
- *Transparency*
- *Motivation*
- *Quality*
- *Communication*
- *Awareness – situational awareness*
- *Flexibility*
- *Ownership*
- *Pride, morale, trust, openness*

These advantages go beyond the practical application of common lean/5S products: signs, labels, tags, posters and banners, scrolling messages and scoreboards. Don’t take these tools for granted. Take them for all they are worth. Create a culture that benefits your business, your customers and your employees.

Accuform is prepared to help with your 5S/Lean Program. For more information, visit www.Accuform.com or call 1-800-237-1001.

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