

5-S for Printers

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Printers constantly deal with wasted time and materials. All production and activities time falls under two categories: value-added and non-value-added. Value-added activities change the form, fit, and/or function of information and materials in the process of becoming final printed product for sale to the customer. The customer pays for the value-added tasks and activities. Non-value-added tasks and activities do not change the form, fit, or function of parts, materials, or anything—they just consume resources through excessive movement of people, machines, and product. Customers do not pay for non-value-added tasks and activities so they become what's referred to as "The Hidden Factory of Waste." The non-value-added waste factors include:

1. Waste from overproduction
2. Process waste
3. Waste of work-in-progress and finished product inventory
4. Waste of motion
5. Waste from product defects
6. Waste from waiting
7. Waste from transporting
8. Waste of people

The hidden factory of waste is where people are moving far more than product is moving.

When waste is focused on, there is one issue that is continually spoken of throughout plants—the fact that there are many newer people who have a lesser degree of experience. Although everyone works hard, waste, downtime, and process inefficiencies occur. The lack of understanding process capabilities, poor communications, activities improperly done, inefficient techniques, and mistakes all result in longer production workflow and people moving far more than the product. The typical response to people lacking experience is, they need more training. Although training may very well be needed—people must know what to do and how to do it—the answer lies within the processes themselves.

It must be determined if everything needed to do the job meets people's needs, including information, tools, equipment, and materials, which must:

- Be correct
- Function properly
- Be easily accessible

And it needs to be that way all the time. Process controls and error-proofing methods must be in place and followed. The best practices and techniques need to be continually developed, accepted, implemented, and shared.

The process work environment must be production- and operator-friendly. People typically prefer clean, neat, and very visual process work areas, and that everyone consistently follow and adhere to clear, concise procedures and work instructions. People want to achieve clean well organized work areas. They just don't know how or where to begin. Other industries, however, have embraced a way to achieve the environment people need, from job planning/scheduling, throughout all manufacturing processes, and culminating when the finished product is shipped to the customer. It's know as the 5-S Process.

The 5-S Process, or simply "5-S," is a structured systematic focus on eliminating waste, achieving total organizational cleanliness, and activity standardization throughout a printer's work processes. A clean and well-organized workplace results in safer and more productive processes. 5-S process environments typically boost people's morale, promote a sense of pride in their process, and heighten ownership of their responsibilities.

In English, the 5-S's typically stand for: Sort, Straighten, Shine, Standardize, and Sustain.

Sort

The first "S" of the "5-S" process is Sort. Sort is the act of examining a process area and getting rid of all unwanted, unnecessary, and unrelated items, tools, and materials. Sort says people must remove everything not needed or necessary to perform frequent tasks and ensure everything left is necessary to performing daily required

tasks and activities. The number of necessary items must be kept to an absolute minimum. Because of Sort, simplification of tasks, more effective use of space, and careful procurement of items normally follows.

Sort through all items on or in the process and remove all unnecessary items. Sort initially begins by removing and red-tagging everything from a process that is not nailed down and placing them on skids in a “Sort Red Tag” location. Then people must determine what stays and what goes. The key: “When in doubt, get it out.” Just get them out of there. Keeping many unnecessary things around indicates a just-in-case mindset exists. Sort also dispatches management to eliminate all the reasons for just-in-case. Sort requires a truly objective assessment of each process in the operation.

Prepare red tags then identify and attach to items that must be removed. Remove red-tagged items to a pre-historic burial ground.

Disposition of red-tagged items:

- Never-used and junk—throw away
- Used once a year—place in long storage
- Used less than once a month—store in the warehouse
- Used weekly—store in process area
- Used daily—stage at work area

Experience has shown time and again that when everything is removed and analyzed, less than 25% of the removed items are returned to the process for use.

Sort attempts to bring organization to a processes area, gain more space, and reduce wasted motion. It is one of the most important steps of the 5-S process and must be completed first.

Straighten

The next “S” is Straighten and make orderly and is about process efficiency. Straighten consists of putting all the necessary items in specifically assigned and visually identified places for ease of accessibility and the ability to quickly return them to the same place. “A Place for Everything and Everything in Its Place.” With quick access to items, process workflow becomes efficient and more productive. The correct place, position, or holder for everything must be chosen carefully in relation to how and where the work will be performed and who will use them. Every single item must be allocated its own place for safekeeping, and each location must be visibly labeled for easy identification.

Straighten and make it obvious where things belong and go. To determine waste in an area, begin by creating a map of the processes layout. Draw current activities workflow that people normally use to perform process setups and production activities. Identify all wasted movement in the process area and reorganize equipment, tooling, and materials. The goal is to minimize people moving and get product

moving. For Straighten, the “30 Second Rule” applies. People must be able to access anything they need for makeready tasks and preventive maintenance activities in less than thirty seconds.

Straighten and reorganize the process area to become simple and very visible. Make locations very visible by:

- Labeling locations for virtually everything
- Installing/painting lines and outlines to identify floor locations for everything from waste bins to pre-makeready sites
- Limiting lines for height, width, minimum, and maximum through a processes area
- Including arrows showing flow and direction
- Creating a brighter process work area by adding more lighting and painting walls and ceiling white or very light colors

Group tools on boards and items together in central locations:

- With labels and shadows of items
- Identify with color-coding
- Establish Kanban (signal) moving materials and work-in-progress distribution by “pulling” instead of “pushing”

Visual identification labels do two things; one, they identify what goes where, and two, they identify what doesn’t go there, preventing areas and locations from becoming cluttered catch-alls.

Use visual signs and boards with large text for easy reference at process locations to display process quality, performance output, and operational procedures. Visual boards should show:

- Quality requirements and performance metrics
- Production schedules, standard operating procedures, and operators’ duties and responsibilities
- Material’s location, type, and quantity

Shine

The third “S” in 5-S, Shine, directs that everyone is a custodian. Shine consists of cleaning up the process equipment and area, giving it a shine. Cleaning must be done by everyone from operators to managers, etc. Every process and area in the facility should shine, and cleaning responsibilities should be part of standard operating procedures. Everyone should see the facility through the eyes of a visitor—always thinking “Are the processes clean enough to impress customers?”

Shine and clean process equipment and area. Whenever equipment is in production mode or down, wipe and clean it and the area.

- Clean everything, inside and out, then keep it that way
- Inspect through cleaning. Look for abnormal wear and conditions. Identify and report components that may be operating out of specification
- Prevent dirt and contamination from reoccurring

Keep it clean results in:

- Improved safety
- Fewer breakdowns
- Improved product quality
- A more satisfying work environment

Implementing cleaning, orderliness, and organization without establishing 5-S standards will typically lose momentum and effectiveness with time.

Standardize

The fourth step of 5-S is Standardize. It consists of defining the doctrine by which all people will maintain orderly and clean processes. People need to play a major role in the development of the standards. Their feedback helps define the best way to balance employee 5-S activities with production concerns. Keep employees informed by making the standards visible. Cleaning and organization standards based on 5-S need to be clearly displayed around the workplace and with individual pieces of equipment using signs, labels, and posters.

People need to practice Standardize by starting with their own personal tidiness in their work areas (offices, production areas, warehouse, etc.). Visual management is an important ingredient of Standardize. Color-coding of the processes' surroundings are used for easier visual identification of anomalies in processes. Areas containing many black-on-white signs may be outfitted with a white-on-green sign where cleaning or organization instructions are necessary. People need training to detect abnormalities and to correct them immediately. Standardize everything possible:

- Establish guidelines for the team 5-S conditions—teams become knowledgeable with 5-S
- Make the standards and 5-S guidelines visual—posted at process locations
- Maintain and monitor those conditions weekly—weekly 5-S quick checks at process locations

Sustain

The last step of 5-S, Sustain, truly means “discipline.”

To Sustain is to commit to maintain cleanliness and orderliness in all process areas and to practice the first four “S’s” as a way of daily life in the facility. This is by far the most difficult of the 5-S’s to implement and achieve. We all tend to resist change, and even the most well-structured 5-S plan will fail if not constantly reinforced. Fortunately, there are effective methods of sustaining positive growth

Begin by asking relevant questions: Are 5-S goals measurable? Such a goal may be to “pass inspections five months in a row.” It is important to find visible ways to measure the progress, perhaps by printing posters or signs as important quotas are met. Typically, employees benefit by easy access to label and sign-making systems.

Finally, find ways must be found to emphasize the positive results. Make sure no one forgets the significance of the goals. Sustaining newly-changed behavior isn’t easy. As associates grow into the 5-S system, they will find it energizing and fulfilling. Go the extra mile to make sure the facility is prepared to continually observe 5-S standards. 5-S is very visible, and progress must be tracked by keeping three questions in mind:

1. What goals will be achieved by starting a 5-S program?
2. How will progress be measured?
3. What tools and resources are available to help measure this progress and sustain growth?

The emphasis of Sustain is preventing the return of old bad habits and the constant practice of new good ones. Once the first four “S’s” are achieved, Sustain is when all associates observe cleanliness and orderliness at all times without having to be reminded by others.

Sustain the momentum. Determine the methods your team will use to maintain and adhere to 5-S standards:

- 5-S and Visual management concepts training
- 5-S communication boards located throughout the value stream and at each process.
- Visual display of before and after photos
- Visual display of standards and procedures
- Weekly five-minute 5-S assessments
- Monthly or quarterly 5-S audits

5-S Success will depend on implementation throughout the entire facility. All employees must become involved and participate. 5-S transformation becomes established routines. 5-S implementation beginning in one process will typically cause people working in other processes to ask, “When are we going to do that?”

Tip: begin implementing 5-S at the end of the production flow, such as shipping and finishing. Working 5-S upstream can help reveal process constraints and bottlenecks that require immediate attention. Also, since 5-S establishes clean and organized work and process areas, it is a prerequisite to Total Production Maintenance and Quick Changeover initiatives.

The Fundamental Foundations of 5-S

1. Customer Visit Conditions: Processes must be in conditions as if customers are going to visit and inspect at any time

2. Place for Everything and Everything in Its Place: Anyone can find items and return them to their proper location

Establishing a focused 5-S environment and providing people with what is needed to get the job done will result in the production flow experiencing less waste, faster production throughput, opportunity for increased sales, and lower operating costs.

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