

Seeing the Hidden Plant: Hunting for Waste!

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What is waste? Printers typically keep thinking of waste in terms of raw materials, primarily paper. However, waste goes way beyond raw materials. Actually waste is the cost of time and materials that consume resources but don't add any value to the final product or result in a product that is unacceptable to the customer.

There are noted industry personalities who write about quick fixes and pricey technology for improving process performance. Some talk about Lean manufacturing and 5S, although they really don't know what it is. Nevertheless, their observations seem to come from a high-level macro viewpoint. If printers really want to win the war on waste, they have to personally go to where the waste is. From the perspective of the Shingo Model and Operational Excellence this is known as *Gemba*, the real place or where the action is. The key here is knowing what waste is and where to look for it.

When a printing facility is scheduled for operations there are only two activities happening—they are either value-added or non-value-added.

Value-Added (VA): The Printer's Known Factory

Value-added activities are process actions that actually add value by converting the shape, fit, and function of information, materials, and components into finished products and/or services. Value-added activities are—from the customer's perspective—products and services they specify and pay for.

Examples of a printers value-added process actions include: output the proofs, output the plates, print ink on substrate, cut printed substrate, fold and cut printed pieces, collate/stitch/trim of the folded printed pieces, package the finished product for delivery, and package/ship the finished product for delivery.

All other actions are non-value-added.

Non-Value-Added (NVA) Waste: The Printer's Hidden Factory

Non-value-added process actions consume resources but don't add actual value or convert materials and items into a final product. Non-value-added actions can be numerous and take up large amounts of time. Non-value-added activities and waste fall under a series of categories known as "The Ten Deadly Wastes in the Printers Hidden Factory."

- **Ignorance of the Current State:** Lack of knowing and understanding the true current state of the company's equipment and processes, in terms of their conditions, capabilities, performance, quality, and operation methods.
- **Process Instability:** Failure to keep equipment and processes at an essential state of capabilities and reliability due to lack of effective critical care and process controls.
- **Defective Product:** Waste from product defects includes employee time spent, materials, and equipment utilized inspecting, sorting, identifying, handling, and segregating defective product.
- **Overproduction:** Producing more, faster, and/or earlier than the next process or customer can handle or needs. Symptoms include pulling jobs in the middle of runs, overtime that customers don't pay for, large amounts of floor space clogged with work-in-process (WIP), process bottlenecks, and warehouses filled with job overruns.
- **Waiting:** Processes waiting for other processes and people to complete activities. Holdups are due to a variety of reasons: slower setups/changeovers, incomplete job information, waiting for materials, looking for tools and components, equipment that is down, management decisions, and "the schedule."

- **Non-utilized People:** Includes not utilizing people's abilities, experience, input, creativity, and teamwork. Waste of people is caused by antiquated thinking, departmental silos, resistance to change, and little or no training and education.
- **Transporting:** Time and extra equipment is utilized to valet information, tooling, materials, supplies, and work-in-process around the plant. *Distance is the enemy!*
- **Inventory:** The dollar cost and space taken up by excessive raw materials, too much work-in-process, and a warehouse full of finished goods waiting to be delivered to customers.
- **Motion Waste:** Includes the time wasted searching for and retrieving tooling and materials, getting around equipment and processes, making numerous equipment adjustments, and frequent quick-fix quality activities due to unacceptable materials. Other causes for excess motion are adjustments due to broken and poorly functioning tools, ineffective color management, abnormal equipment conditions, and lack of teamwork and process organization.
- **Extra-Processing:** Extra time spent on jobs processing due to fixing errors and mistakes, quick-fixing quality-related problems, redundant actions and activities required due to poor job planning, inadequate materials, and mechanical problems from substandard equipment conditions.

Finding the Hidden Waste

Once one finally understands and accepts what waste really is, then you have to go look for it. To find these hidden wastes one must personally go to the processes and investigate what is actually happening. When hunting for waste, printers need to look at everything objectively from a process perspective, not a personal or individual standpoint. In other words, waste is the result of process issues and include such things as poor training, no quality-at-the-source philosophy, lack of standards, inadequate maintenance, absence of continuous improvement, and existence of departmental silos.

Examples of issues and problems found in printing operations include people seeking answers to incorrect and unclear job information, waiting for proofs and plates, downtime from equipment failures, taking proofs and plates to production, moving materials and work-in-process around, making numerous setup and makeready adjustments to equipment, numerous equipment stoppages, quality quick-fixes to continue running jobs, pulling jobs off equipment

before completion, inspecting jobs for quality problems, and re-running jobs, just to name a few. Your mission now is to objectively search and find waste, then immediately eliminate, simplify, reduce, and integrate it. *Lets go!*

The first thing printers need to do is to review their system and process metrics, then compare and benchmark them to other printers and industry targets. For the operational system examine and compare throughput speed (time to go from receiving raw materials to delivering jobs), raw material inventory costs, day-to-day operations expenses, and customer satisfaction. When assessing process performance one must analyze and compare downtime, setup/changeover times, cycle time (production per hour), planned waste, and unplanned spoilage for the individual equipment and processes. These metrics will help give insight to where chronic process bottlenecks occur and system constraints reside.

Next go out into the facility and personally observe activities, measure quality and time to perform tasks, and interview people to find out what is actually happening. When interviewing people keep in mind people don't complain about what they want, they complain about what they need to do their job effectively. Any issues, problems, occurrences, and frequencies reported by people must be confirmed. Remember, since waste is the enemy of every business it is usually hidden; so you will have to hunt for it. During the search, one must take notes and record everything examined and seen. To find waste you cannot accept the "that's the way things are!" mindset.



These notes will become the basis for developing a battle plan for combating non-value-added activities and waste.

Where the Waste Is Hidden

Warehouse, Receiving, and Shipping. The best place to begin your hunt for waste is where the jobs are shipped out. Then you can move upstream. Find out the extent and cost of the paper inventory. Inspect the warehouse for cleanliness and organization, as well as the age and conditions of paper skids and rolls. Is there any reject stock sitting around? Are there any final inspections of jobs taking place? If so, why? How many jobs are waiting to be shipped? How long does it take to prepare a job to be shipped? Observe the time it takes to unload and load trucks. Do standard safety and operating procedures exist, and are they posted in the work area?

Post Printing. Pay attention to the speed at which equipment is running. Do stoppages occur during production runs, and how frequent are they? Review maintenance checklists and records. Is there any sorting or inspections of jobs from previous processes taking place? Are tools and equipment components easily accessible? What are reasons people and equipment are waiting? Are people moving around looking busy? Find out the reasons and extent people are moving and walking around. Examine the amount of work-in-process that exists. Are any processes bottlenecked? If so, what are the primary causes? Investigate various equipment conditions and their reliability. Study the conditions and organization of process work areas. Are tools and items visually identified and easy to find? Do standard safety and operating procedures exist and are they visually posted in the work area? Can people show and describe how they perform their jobs? Study the condition and quality of work-in-process loads that have arrived from the printing department. Do the loads have numerous tags identifying quality issues? Are WIP loads together or scattered around? Observe the magnitude of job spoilage being thrown away.

Printing. How close are register, fit, and color accuracy of first pulls for job makereadies? Observe press makereadies, especially times and teamwork. Check maintenance checklists and records. Is maintenance actually being done? Are presses running at manufacturer designed speeds? Do stoppages occur during production runs, and how frequent are they? Are tools and equipment components easily accessible? Do standard safety and operating procedures exist, and are they visually posted in the work area? Watch for the extent and reasons people are moving and walking around. Are jobs running at target ink densities? Is color management calibration working? Do jobs match reasonably close to the approved proofs? Check and

measure ink densities of printed loads on the floor. Check auxiliary equipment operations and performance like blanket and cylinder washers, roller washers, scanning spectrodensitometers, and anti-marking devices. Investigate the conditions and organization of process work areas. Can people show and describe how they do their jobs? Examine print for quality problems such as dry-ups, hickeys, image slur or doubling, and color variation.

Preprinting. Check maintenance of output devices and processors. Check cycle time to produce plates. Compare plate output device capabilities to actual number of plates output daily. Do plates check with targets and plate readers? Review plate remake records. What is the plate remake percentage rate? Investigate the most frequent causes for plate remakes? Check preflighting of files. Find the most frequent type of file mistakes. Investigate the conditions and organization of process work areas. Do standard safety and operating procedures exist, and are they visually posted in the work area? Can people show and describe how they do their jobs? Are color management calibration curves being used or even working at all?

Preproduction. This is where it all starts. Check out job quote turnaround time. For estimating are equipment capabilities specifications up to date? Find out what the proof approval turnaround time is for various customers. Do people planning jobs understand what the various production processes actually do? Take a look at the amount of planned paper waste built into jobs. Is information clear and accurate in job tickets? Remember the old saying “trash-in-trash-out”?

A Sense of Urgency

There must be a sense of urgency when hunting for waste, because it's eating up time and money. Once waste is found it must be eliminated. The company's survival depends on it. A battle plan must be developed to win the war on waste. However, unless management personally goes to where waste is occurring it will remain hidden. The next step will be reaching for operational excellence by applying Lean thinking and applications. So what are you waiting for? You're burning daylight!

Please read about Ken Rizzo and his many contributions to Printing Industries of America on page 3.