

See the Waste

Get It Gone. Keep It Gone.

By John Compton, Professor Emeritus, Rochester Institute of Technology

WHAT'S HOT



Print production operations are plagued by many different wastes. Reruns and downtime are perhaps the most commonly identified wastes in companies looking to improve efficiencies. In reality, waste is all around us, in our plants, in our homes, and

everywhere in between. Have you ever had to wait at a doctor's office? Throw away food from your pantry that was kept past its expiration date? Move something in your garage to get to something else? All are examples of waste in our everyday lives.

At work, waste is defined as any activity that does not add value to the product or service being delivered from the perspective of the customer. In other words, the customer must be willing to pay for the activity. The identification and elimination of waste is a basic principle of Lean manufacturing.

Within every process there are two types of activities: those that add value and those that do not. Both consume time and money, but only the value-added activities bring in money. Those that add no value are waste and must be eliminated. Lean thinking helps us understand that every activity should be considered waste unless it meets an explicit customer requirement and cannot be performed more economically. In several studies of print production operations by this author, the amount of lead time (time between order entry and product delivery) consumed by value adding activities averaged 9%. In other words, 91% of the time was consumed by non-value adding activities. This is all waste!

There are seven commonly identified types of waste in Lean manufacturing. The acronym TIM WOOD can be used to help remember them: Transportation, Inventory, Motion, Waiting, Overproduction, Over-processing, and Defects.

Transportation

This waste occurs any time goods and materials are moved. Although the physical structure of the plant may require some form of transportation, simply moving things around the shop or office adds no real value to the product. The use of forklifts, hand trucks, and carts are common examples. Also, conveyor tracks are simply elaborate and space-consuming transportation waste creators. Customers do not see transportation activities as adding value to the product. It adds cost and time, not value.

Inventory

Inventory waste occurs when the supply of raw materials, work-in-process (WIP), and/or finished goods exceeds the immediate demand of the next operation downstream. It is often the result of over-production. Inventory costs you money. Every piece of product tied up in raw material, WIP, or finished goods has a cost and until it is actually sold, that cost is unrecovered. Additionally, inventory adds many other costs since it must be moved, stored, tracked, and protected from damage. Finally, inventory hides many other wastes in the system, such as scheduling shortcomings, reruns, equipment capability, and long makereadies, among others.

Motion

The waste of motion deals with the unnecessary motions of people—those movements of people or machines which are not as small or as easy to perform as possible. Examples include bending down to

The Magazine

2

PRINTING
INDUSTRIES
OF AMERICA
3.2017

retrieve objects, stretching or straining to perform a task, excessive travel between work stations, etc. None of this adds value from the customer's point of view. These are health and safety concerns as well.

Waiting

Any time workers are standing around waiting for material, information, assistance, people, instructions, etc., the waste of waiting is happening. Furthermore, whenever goods are not moving or being processed, the waste of waiting occurs.

Overproduction

This waste occurs when something is produced either before it is needed by the next process downstream or in a quantity resulting in WIP or finished goods inventory. This is often the result of batch sizes that are too large. Overproduction leads to excess inventory, and since inventory creates many other wastes, overproduction is often seen as the most costly waste.

Overprocessing

Overprocessing occurs when work is performed that the customer has not explicitly requested in the finished product—if a printed product is produced on a heavier stock than necessary to meet customer requirements, for example. This can be a challenging waste to uncover since there is a common desire to satisfy or even delight the customer.

Defects

Defects are what most people think of when you talk about waste. A defect is any work product that is less than acceptable to move the process downstream. Defects occur when a product has something wrong with it, such as incorrect color or physical defects like spots and tears. Defects cost much more than most people believe, since they lead to inspection, scrap, rework, reruns, and corrective actions.

The Eighth Waste: Brainpower (Skills)

While the previous wastes are the traditional wastes, we also need to understand and eliminate an eighth waste—the waste of employee skills and brainpower. This involves recognizing that a company's most important assets are its employees. Only making use of their physical capabilities without tapping into

their talent and brainpower leads to a great waste. Employees live inside the processes that contain the first seven wastes and are perfectly situated to work on continually improving. Not using their talents and skills means those wastes (and costs) will continue. The acronym becomes TIM WOODS when we add the S for skills and talent at the end.

Learning to See

Waste hides in plain sight. That's because we've lived so long in our existing systems without an understanding of the embedded waste that we don't even see it. We don't know what to look for or how to look for it let-alone eliminate it. Once everyone in the company learns about these wastes, the obvious next step is to practice looking for them. Once you start looking for them, you will find them everywhere—at work, at home, and places in between.

A useful method for learning to see the waste is a practice created by Taiichi Ohno, a key developer of the Toyota Production System. The practice is called “Stand in the Circle” and involves going into the plant, drawing a circle on the floor three feet in diameter, and asking an employee to stand in that circle for at least one hour. While there, the employee is asked to identify all of the waste he or she can see by observing work processes from that location. At the end of the observation period, the employee reports what wastes have been identified with suggestions on what could be done to minimize it. Use the link below to download a form designed to facilitate the activity. The more you practice this, the better you'll become at seeing the waste.

Waste is like gravity: it's constantly weighing us down. We must learn how to see it and minimize it or suffer the consequences of unnecessarily high costs and long lead times.

STAND IN THE CIRCLE

Download a form to assist your staff in seeing waste, removing it from your operation, and keeping it gone.

<http://prnt.in/standinthecircle>