

The 7 Deadly Wastes

The Elements of Work

Any work or activity we do can be classified into one of the three categories:

1. Value-Added Work
2. Non Value-Added Work
3. Waste or Muda

Traditionally, many organizations attempt to reduce the lead-time or performance of their value stream by removing waste from their value-added processes. And while this isn't necessarily a bad thing, there is far more opportunity in attacking waste or muda.



Value-Added

For something to be referred to as value-added three things must exist:

1. The customer must be willing to pay for it
2. The “thing” must change in form, fit, or function
3. The work must be done right the first time

If any of these three items are missing the step, or process, is not value-added.

The 7 Deadly Wastes

In order to be able to attack and eliminate waste we must be able to identify it. So, let's discuss what we refer to as the 7 deadly wastes.

1. The first waste is **defects**, which is simply work that is less than the level the customer – both internal and external – has requested. Some examples of defects are rework, scrap, missing parts, wrong parts, and yield loss at startup. As a point of reference, the waste of defects is also sometimes referred to as the waste of correction.
2. Next we come to **inventory** which is any material or work on hand other than what's needed right now to satisfy customer demand. Some examples of inventory waste are excess raw materials, work in process, finished goods, supplies, and spare parts. In an upcoming module we'll spend more time exploring the different types of inventory we might have on hand such as cycle stock, buffer stock, and safety stock.

3. Next, we experience the waste of **processing**, sometimes called over processing, when something's designed in such a way that uses more resources, such as space, energy, or people, than is truly required... sort of like using a sledgehammer to smash a peanut. The waste of processing is definitely the hardest to understand and learn to see since the most common root causes are a lack of understanding of customer needs. Some examples of processing waste are machines that are slower or faster than needed, equipment that uses more energy than needed, redundant work such as copying information, drilling a hole instead of punching it, and cleaning something multiple times.
4. Anytime there's idle time created because materials, machines, inspection or information are not ready for people we have the waste of **waiting**. This waste is usually less visible than the others because it's often replaced by overproduction or busy work. So, in fact, when waiting becomes visible, it's important to keep people from working just to 'keep busy' since this busy work often does more harm than good. Some examples of waiting are people waiting for materials, an accountant waiting for information to close the monthly books, warehouse employees waiting on a forklift, or a nurse waiting on important supplies to arrive.
5. Any movement of people that doesn't add value to the product creates the waste of **motion**. By nature, most motion is in fact wasted. Consequently, by closely studying motion and the time it takes to do a task, it's often possible to improve manual operation times by 30% to 50%. In addition, eliminating motion waste is a key part of reducing changeover times. Some examples of motion are walking, reaching, searching, lifting, choosing, arranging, and turning.
6. The next waste, which is often confused with the waste of motion, is **transportation**, which is the movement of materials that adds no value to the product. Another way of saying it is transportation is the movement of material using carts, trucks, forklifts, or simply your arms and legs. It should also be said that while moving product on a conveyor is not as bad as moving material from one disconnected process to another it's still conveyance, a type of transportation waste since conveyors are inflexible and require space and energy. Some examples of transportation waste are moving finished goods to storage, moving work in process to the next step, moving between functional areas, moving parts to the line, and moving items to Quality Assurance.
7. Finally, but more certainly not least, we come to what lean practitioners commonly refer to as the mother of all wastes – **overproduction** – which occurs when we make more products than the customer needs right now. The reason we say overproduction is the mother of all wastes is because it often leads to all the other wastes in one form or another. For example, overproduction multiplies the other wastes such as inventory and covers up problems such as waiting or variability in demand, and it makes it harder to understand our true capacity. Some examples of overproduction are making extra parts to cover for scrap, forecast production, economic order quantity lot sizes, piece rate production, and production done simply to maximize utilization or absorption.