

Lean Fact Sheet No. 1 Taichi Ohno's 7 Wastes

The removal of waste is the keystone of lean manufacturing and lean thinking. Taichi Ohno of Toyota identified what are called the seven wastes or seven mudas.

1. Waste from overproduction
Which leads to excess inventory, paperwork, handling, storage, space, interest charges, machinery, defects, people and overhead. It is often difficult to see this waste as everyone seems busy.
2. Waste of time in waiting
People may be waiting for parts or instructions. Mostly they are waiting for one another, which often happens because they have non-aligned objectives.
3. Transportation waste
Poor layouts lead to things being moved multiple times. If things are not well placed, they can be hard to find. It can aggravate alignment of processes.
4. Processing waste
Additional effort may be required in an inefficient process.
5. Inventory waste WIP
Excess buffer stocks a whole host of sins, which will be uncovered by gradually lowering inventory (doing it all at once will cause total breakdown!).
6. Waste of motion
This includes movement of people, from simple actions when in one place to geographic movement. Having everything to hand as it is needed reduces motion muda.
7. Waste from product defects
Defects cause rework, waste resources and upset a synchronized set of processes.

Other commonly recognised wastes are:

- a. Unrecognized people. Is there someone who at home is rebuilding a 72 Corvette or chair of their community group whose skills are not being used at work.
- b. Resources. How much electricity, gas and water does your company use?
- c. Material. Not only environmentally good but reduces overall material cost.
- d. Lost customers. "It cost 5 times more effort to recruit a new customer than to retain one"

Fact

Taichi Ohno is regarded as one of the fathers of Lean Manufacturing. He worked at Toyota and had to deal with scarce materials and power shortages, so it made no sense to make goods before they were needed.

Try a Muda walk around work

Waste walk / Muda walk		
Area:		
Waste	Observation	Recommendation
Over production	batch of 20 made when customer has only ordered 10	Implement a quick change over (QCO) / set up reduction exercise for the press machine.
Waiting	Process B is always waiting for process A to catch up with it.	Can we transfer work from A to B or train operator B to help operator A? (Line balancing)
Transportation	Our widgets travel 200 meters in being processed in a room only 25 meters long	Draw a spaghetti diagram of widgets movement and then re-layout the work benches.
Processing	Parts are cleaned at stages 5 and 8	What is happening at stages 6&7 that the parts need cleaning again?
Inventory	2 weeks stock of half made widgets are always kept in stock	Investigate the reasons we need to keep this stock. What are the "Just in Case" reasons
Motion	At the start of shift John always has to go to stores to get the 35mm spanner to start the machine	Issue a 35mm spanner or make a change to the machine so no tool is needed.
Defects	All defects have a double cost, that of lost material and processing and 2 nd that of lost value the defect product would have had for the company.	Measure the process not the part. Measure the trend of a machine and adjust before it is out of tolerance.

TOYOTA defines Waste as: *"anything other than the minimum amount of equipment, materials, parts, and working time absolutely essential to production."*

Quick Tip

Don't try and identify all the wastes at once, start by picking one or two and build from there. Motion and Transport are good ones to start with, being the 2 wastes people are most familiar with.