

Lean Materials – The 7 Deadly Wastes

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Lean. We've all heard the term, and many have participated in lean transformation programs, often by way of kaizen events. So we know that Lean is all about eliminating waste, or muda, from business processes. Lean theory goes on to describe seven deadly wastes: overproduction, inventory, waiting, transportation, processing, motion and defects.

How do these 7 Deadly Wastes apply to materials management? Allow me to offer a few examples and thoughts:

- **Overproduction:** Producing more of a part or product than is needed for *immediate consumption* contributes to the “waste” of inventory. But perhaps more importantly, overproduction consumes capacity which could have been used to satisfy other, more immediate demands, and unnecessarily increases queue and wait times between jobs. This in turn increases planning lead times, further increasing pressure to carry extra inventory. Minimizing setup times and aggressively reducing lot sizes are keys to minimizing the waste of overproduction. (Stay tuned for an upcoming article for APICS Magazine, scheduled for early 2010, in which I discuss this topic in greater detail.)
- **Inventory:** In an ideal state, parts or product will be produced only when ordered by a customer (internal or external), just in time to meet the customer's need. Applying this concept along the length of a supply chain requires perfectly synchronized operations, not only within a manufacturing operation, but with suppliers, their suppliers, and with customers. The challenge for materials professionals is to minimize the waste of inventory by attacking the underlying causes of imperfect synchronization. Stabilizing demand, balancing lines to takt, reducing setup times and implementing kanban pull processes are some of the steps which can be taken to reduce inventory waste.
- **Waiting:** Waiting for parts to arrive against a PO, normally thought of as “lead time” is waste from a lean perspective. Likewise, waiting for in-house manufacturing jobs to complete (especially if overproduction is the norm) is waste. Time spent waiting for material handlers to deliver parts to an assembly line, or to prepare products for shipment to customers, all constitute waiting. Materials professionals can shine a spotlight on these wastes and lead the charge with cross-functional teams to minimize or eliminate them.
- **Transportation:** Examples of transportation waste inside a manufacturing operation include moving parts from receiving to the stock room, then from the stock room to fabrication, or sub-assembly, only to move them back to the stock room, eventually moving those parts to final assembly and ultimately to shipping for transport to the customer. None of this adds value to the customer, and is therefore, waste. Minimizing internal transportation by placing inventory close to point of use, and producing from raw

material to finished product in a single process are two possibilities. Extending this thinking across the supply chain can lead to even greater reductions in transportation waste.

- **Processing:** From a materials management perspective, processing includes unpacking, repacking, kitting, material handling, and other related activities. Streamline, or eliminate unpacking/repacking by ordering materials pre-packaged for optimal handling at the point of use. Avoid kitting and minimize materials handling by placing materials close to point of use. Videotaping current materials “processing”, and utilizing kaizen events to attack these wastes.
- **Motion:** Minimize unnecessary motion through the use of ergonomic storage designs, avoiding or eliminating bending, twisting, stretching, heavy lifting, and other awkward and potentially injurious movement.
- **Defects:** First, demand defect-free parts and materials from suppliers. Identify and address any material handling practices which may lead to defects such as damage from handling (bumping, dropping, crushing), expiration of shelf-life materials (apply FIFO processes), and misplaced or misidentified materials (creating defects upstream). Identify, record and pareto these defects to understand the key contributors, then address the underlying root causes.

By understanding the 7 wastes, and thinking through how they apply to materials management processes, materials managers can lead their organization’s contribution to their company’s lean transformation.

Whether you’re just beginning a Lean program, or are well along in your Lean journey, SCC Inventory Consulting is prepared to assist with education, 5S and Kaizen project support, and on-site consulting. Check out our website (www.SCCInventory.com), or contact us directly at (321) 269-3407 or email at Steve.Cimorelli@SCCInventory.com.