Lean Enterprise Academy

LEA e-letter – 13 February2007

Little and Often

Dear Lean Community Member

I still encounter a degree of confusion about one of the key mental models that gets in the way of lean thinking. Making products in batches and accumulating a full load before dispatching a truck are fundamental to mass production thinking. It also intuitively fits with our distant memory of harvesting crops and storing them to last through the winter. But you can find it everywhere, from seeing and treating patients in batches to flying as many passengers as possible in ever larger aircraft.

We have through the years seen regular accusations that smaller deliveries just-in-time make producers more vulnerable to disruptions in supply. We have also seen the assertion that little and often is worse for the environment, with many half-empty smaller trucks replacing fewer fully-loaded larger trucks. Unfortunately life is not as simple as this and to really understand what is going on you need to look at real facts in real situations, not at simulation models. It is also necessary to shift our focus beyond our own activities in order to look at the supply chain as a whole.

One flaw in this argument is the experience that focusing on asset utilisation and keeping equipment as busy as possible does not actually achieve the desired result! Otherwise why would we typically find equipment in a mass production system only producing good products 30% of the time? And why is it that by focusing on improving capability, availability and flexibility lean producers can regularly increase this to 85% and above?

Exactly the same applies to truck utilisation. A few years ago, when supermarkets waited for suppliers to deliver full truck loads to them, truck utilisation was no more than 50%. Now that most supermarkets are picking up products from their suppliers more frequently, truck utilisation is also much higher.

There is a common myth that congestion in Toyota City is because they send lots of little trucks to their suppliers to pick up parts very frequently. In fact Toyota works with fewer direct suppliers, each of whom supplies five times more part numbers than western suppliers. It sends the largest trucks allowed on Japanese roads on regular milk rounds to these suppliers, arriving back at the assembly plant completely full. The congestion comes from trying to produce so many cars in one town. Indeed the congestion would be much worse if truck utilisation was as poor as in most mass production systems.

This kind of thinking also overlooks the costs incurred elsewhere in the supply chain from making and shipping in big batches. It is often

associated with a belief that demand is chaotic and unpredictable, rather than self-inflicted volatility from the way our planning systems work. Forecast driven batch production inevitably leads to continuous short term plan changes to respond to spikes and shortages despite warehouses full of stock and to overtime and expedited shipments. The costs of all this is in someone else's budget or in overheads, but they are not in the plan.

This is however the tip of the iceberg, when you factor in lost sales, discounted or obsolete stock, rework, inspection and the extra capacity and stocks to meet demand spikes and supply failures. The ideal supply chain is one in which lead times are as short as possible, production is driven by actual demand and production is capable of making every product as frequently as possible in line with demand.

But how can you justify more frequent deliveries from your suppliers? Probably only when you learn how to level your production and make every product frequently. Then you will begin to see the savings through your supply chain. It might then make sense to cooperate with other firms to pull products from your suppliers on more frequent and predictable shared deliveries.

On the other hand as on-line shopping grows regular deliveries to homes will replace the most environmentally damaging trip of all – consumers driving to pick up products from the store.

Lean thinking is not about zero inventories or the smallest trucks. It is about developing a common steady rhythm across the supply chain in line with demand, guarded from supply disruptions and real fluctuations in demand by just the right amount of standard inventories, possibly held off-line. Little and often is right thinking despite being counterintuitive.

Yours sincerely

Daniel T Jones
Chairman, Lean Enterprise Academy