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LEAN THOUGHTS

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Are you using the power of TAKT TIME ?

Takt time can be defined as the maximum time allowed to produce a product in order to meet demand. It is derived from the German word taktzeit which translates to clock cycle. There is a logic therefore to setting the pace of production flow to this takt time. Product flow is expected to fall within a pace that is less than or equal to the takt time. In a lean manufacturing environment, the pace time is set equal to the takt time.

Takt Time is defined as:

$$T = \frac{T_a}{T_d}$$

Where:

T_a = Net Available Time to Work eg. [minutes of work / day]

T_d = Total demand (Customer Demand) eg. [units produced / day]

T = TAKT Time eg. [minutes of work / unit produced]

Net available time is the amount of time available for work to be done. This excludes break times and any expected stoppage time (for example scheduled maintenance, Team Briefings etc).

As an example, if you have a total of 8 hours in a shift (gross time) less 30 minutes lunch, 30 minutes for breaks (2 x 15 mins), 10 minutes for a Team Brief and 10 minutes for basic Operator Maintenance checks, then;

Net Available Time to Work = (8 hours x 60 minutes) - 30 - 30 - 10 - 10 = 400 minutes.

If Customer Demand was, say, 400 units a day and you were running one shift, then your line would be required to spend a maximum of one minute to make a part in order to be able to keep up with Customer Demand.

In reality, people can never maintain 100% efficiency and there may also be stoppages for other reasons, so allowances will need to be made for these instances and thus you will set up your line to run at a proportionally faster rate to account for this.

Implementation

Takt time has direct implications concerning the allowable time for completing individual steps in a production process. This is the case for both steps that modify (form, assemble, finish...) the product and also the steps that observe and control (test, measure, adjust...) the process. Similarly steps which require a part or assembly of the product to have been put into an accurately fixtured position must be completed in less than the total takt time so that time is allowed for loading and unloading or positioning the part in addition to the time for actually performing the production step. The quicker that a measurement or test step can be completed, the less constraint is placed upon product motion between steps. For example, a measurement process that captures the entire information about a part at once will permit shorter total takt time and a higher pace of production flow. Elimination of the need to measure reduces this step best.

An implication of using takt time can be that work packages get reorganised. If worker one performs actions A_1 through A_5 and worker two performs actions A_6 through A_8 then a reduction in takt time may mean that there are now three work packages required to fit the new shorter/faster pace. They might be package 1 (A_1 to A_4), package 2 (A_5 to A_6) and package 3 (A_7 to A_8).

LEAN CONSORTIUM MEMBERS:

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Where “Lean Thoughts” Become Reality

So now we will have three people working to do the work that used to be achieved by two. This subdivision of work-packages rather than parallel working on unchanged packages of actions is a new idea to many. This way of working requires:

- a very flexible workforce, that is willing to accept changes in their routines and workplace
- requires a multi-skilled workforce, since now people may be asked to 'pick-up' actions currently performed by others
- flexible work-cells, since what is being done by two people today may need to accommodate three people tomorrow
- increases hand-offs, so these must have no significant overhead
- keeps the workflow simple and easy to manage, so whether the process will deliver is clear to all
- has been observed to speed up individual steps in production, because the new context of each action encourages innovation.

It will be obvious that this kind of capacity re-planning is not something that will be desirable every week. It is therefore important that the varying part of Takt time, the customer demand, should have been leveled before this kind of work re-planning is undertaken. That leveling is looked at elsewhere and that therefore this style of capacity modification should be undertaken to meet long term customer demand changes and not weekly forecasts.

TAKT Time is an Enterprise Opportunity

In many cases operations have not taken the power of using Takt time beyond the shop floor ... but there is a huge opportunity elsewhere within your operation including administrative applications.

So let us say that you have perfected the use of Takt Time management on the shop floor within your cells ... the natural extension is to use Takt time to established your timed internal delivery and take away routes. The next natural bridges to is link this with outbound shipments and slowly integrate your suppliers to support your Lean efforts.

Lean Procurement

The key to lean procurement is visibility. Suppliers must be able to "see" into their customers' operations and customers must be able to "see" into their suppliers' operations. Organizations should map the current value stream, and together create a future value stream in the procurement process. They should create a flow of information while establishing a pull of information and products.

Lean Warehousing

Lean warehousing means eliminating non-value added steps and waste in product storage processes. Typical warehousing functions are:

- Receiving
- Put-away/storing
- Replenishment
- Picking
- Packing
- Shipping

Warehousing waste can be found throughout the storage process including:

- Defective products which create returns
- Overproduction or over shipment of products
- Excess inventories which require additional space and reduce warehousing efficiency
- Excess motion and handling
- Inefficiencies and unnecessary processing steps
- Transportation steps and distances
- Waiting for parts, materials and information
- Information processes

Each step in the warehousing process should be examined critically to see where unnecessary, repetitive, and non-value-added activities might be so that they may be eliminated.

Lean Transportation

Lean concepts in transportation include:

- Core carrier programs
- Improved transportation administrative processes and automated functions
- Optimized mode selection and pooling orders
- Combined multi-stop truckloads
- Crossdocking
- Right sizing equipment
- Import/export transportation processes
- Inbound transportation and backhauls

The keys to accomplishing the concepts above include mapping the value stream, creating flow, reducing waste in processes, eliminating non-value-added activities and using pull processes.

Contact me if you need coaching or facilitation help in the areas such as but not limited to; 5S, Value Stream Mapping, Set-up Reduction, Problem Solving or Policy Deployment and Consortium Development



“A pessimist sees the difficulty in every opportunity; An optimist sees the opportunity in every difficulty.”

Sir Winston Churchill (1874-1965)

2008 Consortium Event Schedule



Tour Workshop Conference

January	February	March	April	May	June
<p>T</p> <p>Wednesday 16 <u>Eaton Electrical</u>, contact Joe Fisher, JoeRFisher@eaton.com</p>	<p>T</p> <p>Wednesday 13, <u>ACE Bakery</u>, contact Cindy Grolleman, cgrolleman@acebakery.com</p>	<p>T</p> <p>Wednesday 19, <u>Nestle Waters</u>, contact Mariela Castano mcastano@perriergroup.com</p>	<p>T</p> <p>Wednesday 16, <u>CTS Corp.</u>, contact Bob Garces, Bob.Garces@ac.ctscorp.com</p> <p>Consortium Shareshowcase</p> <p>Saturday 05 <u>Eaton Milton</u>. Contact Cindy Grolleman cgrolleman@acebakery.com or Joe Fisher JoeRFisher@eaton.com</p>	<p>T</p> <p>Wednesday 14, <u>Stackpole CSD</u>, contact Don Barber Don.Barber@stackpole.ca</p>	<p>T</p> <p>Wednesday 18, <u>Morrison LaMothe</u>, contact Tony Vita tvita@morrisonlamthe.com</p>
July	August	September	October	November	December
		<p>T</p> <p>Wednesday 24, <u>Kraft Foods</u>, contact Hanif Jivraj hjivraj@Kraft.com</p>	<p>T</p> <p>Wednesday 08, <u>CGL Manufacturing</u> contact Dave Deskur daved@cglmfg.com</p>	<p>T</p> <p>Wednesday 12, <u>Messier-Dowty</u>, contact Mike Smith Mike.Smith@Messier-dowty.on.ca</p>	<p>T</p> <p>Wednesday 10, <u>Orenda</u>, contact Brenda McIntosh brendamcintosh@orenda.com</p>