

INVENTORY Replenishment

This week we hopefully will trash some myths regarding the virtues of the Toyota Production System (TPS) or Lean ... especially pillars such as 5S, Standard Work, TPM etc.

For me as an Operations Professional I always had the thought that the assembly of cars would be my ultimate challenge ... but I was significantly wrong they are easy to build while still being complex ... and at the base it is all about how you manage component replenishment. So let us share some lessons learned to see if it will invoke some thought starters and bridges of understanding to your business ...

In car assembly Line Speed is the ultimate god of replenishment. Once a decision has been made on how many vehicles will be built the line speed can be locked in. Line Speed will then dictate the amount of work effort to be expended within a pitch and sets the cadence of the plant which will include component replenishment ... easy!

In nearly every operation material conveyance is treated like the red-headed orphan step-child when it actually should be your primary focus to build your value creation process. This also means office applications also even if it is harder to visualize ...

First define what will be your replenishment methodology. Will it look like a cab service? In this instance replenishment is completed adhoc when you run out of something the operator will walk somewhere to replenish or use the "HEY" system signaling for a lift truck to replenish.

Consider creating Bus Routes within your operation. With a Bus Route you will be a prescribed route complete with designated stops and a designated frequency the bus will traverse the route ... simple !!!

I am hoping that you have opted for going the Bus Route strategy ... since then the balance of this newsletter will make sense ... if you did not ... see you next week.

Once you have designed your bus route and determined the frequency it will be traversed replenishment strategies now just become a factor calculated with time.

As a rule of thumb ... your stocking location (Point of Use) should contain twice the amount of inventory that would typically be consumed during the bus route frequency. So if your route runs hourly you would need to retain 2 hours of inventory.

As an aside, this also applies to supporting the Visual Operation. Where you want to be able to easily detect the normal from the Abnormal a waste container should only be able to hold the waste generated during a route frequency ... if the waste Container overflows your process is out of control ... so Forget about 5S standardization of waste containers when it come to having a common size throughout the facility.

Where Lean
Thoughts
can become
Reality

Now to replenish ...

Richard Kunst

President and CEO

Tel: 519 651 2341 E-mail: rkunst@kunstartofsolutions.com

Web: www.kunstartofsolutions.com

INVENTORY Replenishment

2-Bin - Replenishment which is often confused or used sinuously as a KanBan which it is not! 2-Bin strategy works well for low-cost components that are frequently consumed ... as the contents of a container are consumed operators commence using the next container. The empty container becomes a replenishment trigger which can be executed by your Bus Route driver. Indeed the size of your bins should be sized to be time sensitive to the cadence of your Bus Route.

KanBan ... simply stated is a Visual Authorization to instigate;

- Authorization for Replenishment
- Authorization for Consumption
- Authorization to Produce

KanBans are calculated using consumption through the Replenishment Traverse Time (Bus Route), factor in the replenishment time from your supplier or up-stream supplier plus a safety factor. Again use that 2-1 ratio at POU consumption point. KanBans are great for consistently consumed items and if calculated properly can absorb up to a 20% fluxuation change of demand.

Probability ... I love this methodology when POU real estate is at a premium. Let me explain using an automotive example. As a consumer you can select your vehicle to come with either a standard or sport suspension ... at the assembly line I know that our overall consumption ratio will be 70% standard and 30% sport. I just do not know the specific rate of consumption other than the overall consumption ratio. So I will build a probability cart that contains a max consumption level sized to my bus route traverse time. However, in this instance replenishing the probability cart during the route is not an option ... it will be replaced and back at the supermarket the empty holes will be replenished.

Sequencing ... is truly a Lot-for-Lot replenishment based on a signal being transmitted. For example when a VIN number is assigned to a vehicle body in the paint shop the VIN numbers are batched and then sent to a supplier who will build the designated component in reverse order and ship it in time for JIT consumption line-side. In essence last VIN number transmitted will be the first VIN number consumed ... the time bridge between the first and last VIN number transmitted allows for assembly, packing, shipping and unload of the item in sequence to when the vehicle presents itself at the designated installation pitch. But heaven forbid should something get out of sequence ... pandemonium ...

Feeder Cell Sequencing ...in many cases a sub-assembly is assembled and supplied to the main line through the use of a feeder cell. For example, the Instrument Panel ... simple but very complex ... decisions are required regarding color, covering MPH, KHM, AC or not, Digital Guages and the list goes on. In many cases an Instrument panel can have up to 1.6 million different options within a single configuration and only minutes to complete the final assembly. So a simple high-level checklist becomes the build plan for the assembly operators.

Did you notice the absence of discussing MRP or ERP systems for replenishments? These systems are powerful and necessary to help you plan demand and identify abnormalities but be very careful to use it as an execution methodology.

MRP/ERP systems typically require factors to be incorporated into the model to allow for scrap rates, move times and assumed demand ... all which may not reflect real life. So excellent planning tool but use visuals for execution.

So as you commence your Lean journey your footing and foundation of your journey needs to be defining your material replenishment strategy ... forget about all of the other methods until you define this..

Once defined the other methods will then make sense when and how to integrate and you will be able to calculate a solid ROI instead of making a blind expense.

Richard Kunst

President and CEO

Tel: 519 651 2341 E-mail: rkunst@kunstartofsolutions.com

Web: www.kunstartofsolutions.com