

October 15, 2005

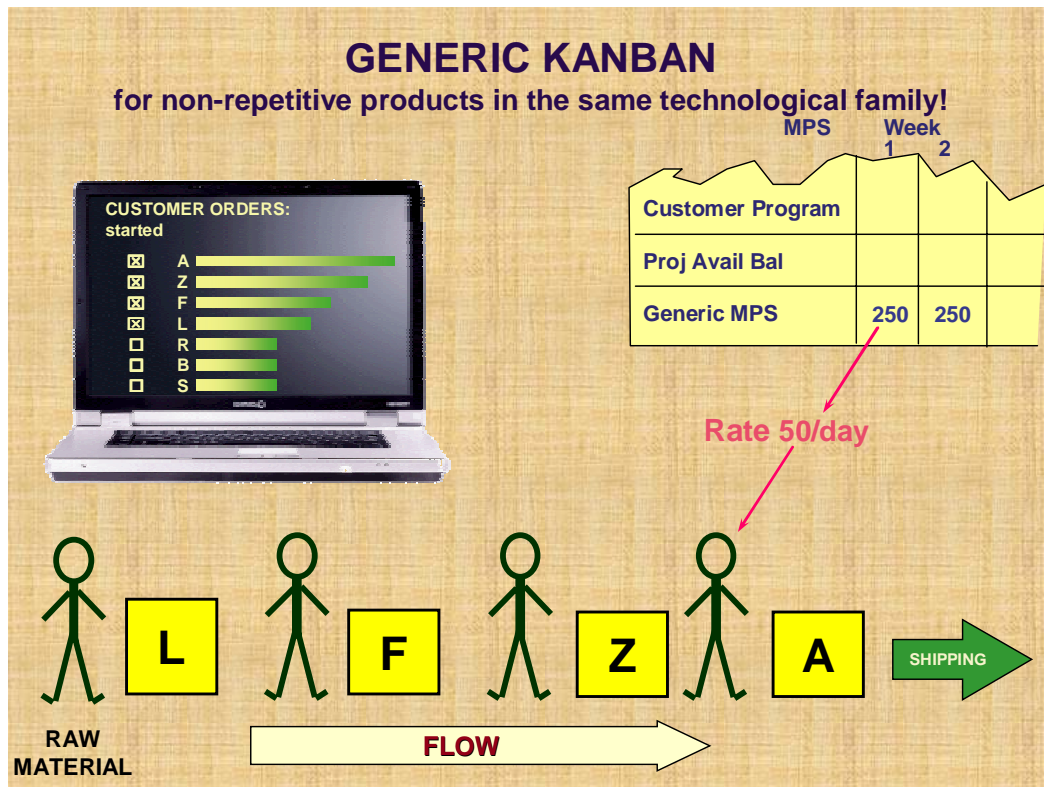
## PULLING A NON REPETITIVE FLOW

In my experience, something like 90% of Kanban applications are dead ends, because the repetitive items are already covered, and the remainder have non-repetitive demand. The famous Average Daily Demand for these items doesn't mean anything or comes out to 0.2 pieces per day or some other ridiculously low figure.

That's doesn't look good, because it appears as though the powerful technology of Lean can't be used for items with non-repetitive demand, which make up 80% of the items of the typical company!

In reality, there are two types of Kanban or signals to pull product flow, defined by Bill Sandras some ... 20 years ago!° The first: Brand-Name Kanban, wherein the signal (card, container, square...) specifies the item to deliver and/or produce: it's the same item that was just consumed by the customer or by the next stage in the process. It's classic Kanban, or the Kanban of the media, which will soon be featured in the new reality-TV program, "Celebrities on the Assembly Line".

The second is Generic Kanban, wherein the signal which comes back from upstream, indicates that a Kanban square is open, but does not indicate what item to deliver. Within the flow, it's easy: you deliver the next item in WIP in FIFO order. At breakpoints, notably at the beginning of the flow, you can't simply take the next one because there isn't a next one! So Generic Kanban requires external information, from the planning or Anticipation system, telling the operator what item to start.°°



Brand-Name Kanban is repetitive at the item level. Generic Kanban is repetitive at the family or flow level. You make another item of the same family, *but not necessarily the same item*.

The preceding generation of Acceleration technology, Just-in-Time, thought 'item'. The current generation, Lean, thinks 'flow'. A value stream map maps a *flow* of items belonging to the same technological family, not just one item (unless it's easier that way to make the value stream map, which then is applied to accelerate the flow of the entire family of items).

Lean *by its nature* handles items with non-repetitive demand. The creator of Lean, Taiichi Ohno, says it clearly in his book "The Toyota Production System", whose significant subtitle is "Beyond Large-Scale Production."<sup>°°°</sup>

Using Kanban is particularly essential to make operators the intellectual owners of their process, along with the people from support departments such as Quality and Industrial Engineering, and along with Top Management that finances it all. Kanban, whether Brand-Name or Generic, is anything but a fixed system. It's a human system full of defects, the main one being the Kanban itself, which represents inventory and WIP, which are waste!



« Making many models in small quantities cheaply, wasn't this something we could develop ?  
This became the principal objective of the Toyota Production System. »

--Taiichi Ohno of TOYOTA, father of Just-in-Time and Lean

However, this waste is visible to everybody, and the idea of Bill Sandras was to systematize continuous improvement, including for non-repetitive products. By taking away one Kanban at a time from the loop, we reduce gradually the inventory which is covering up problems. It doesn't make any difference whether the Kanban (the stock) is of one item or made up of a family of different items; "one-less-at-a-time" works in every case.

Also, the operators themselves become aware of the most urgent problem to be solved since they themselves reduce the Kanbans. Between internal customer and supplier, they see the first problem that emerges which is slowing product flow. From there to Total Quality, the path is short: educating operators in the techniques and tools of Quality, obtaining help from the support departments, and getting Top Management to open communication lines and authorize education.

Thus Lean offers a revolutionary approach to improve productivity: obtain the Voice of the Customer, map a major value stream, pull the flow with Kanban, resolve the non-Quality problems through small groups, and continuously improve, one-(Kanban)-less-at-a-time to tighten the flows.

Integrating Lean with a planning system which anticipates, under a Sales and Operating Plan which directs, to deliver customers repetitive items or non-repetitive items in short lead times... there's a formula for long-term prosperity.

<sup>°</sup> Sandras, William A., Jr. Just-in-Time: Making It Happen, John Wiley and Sons, New York, 1989, [www.productivitycenters.com](http://www.productivitycenters.com). The names of the two types of Kanban plus the phrase "one-less-at-a-time" are registered service marks of Bill Sandras.

<sup>°°</sup> See Newsletters No. 27, «Don't use the software: Shortage Hero is here!» and 18 «Throwing out the baby with the bath»

<sup>°°°</sup> Ohno, Taiichi, Toyota Production System, Productivity Press, 1988, version japonaise originale, Toyota seisan hoshiki, Diamond, Inc., Tokyo, 1978.