

IMPROVING DELIVERY THROUGH KANBAN PRODUCTION CONTROL (WITH BEST PRACTISE EXAMPLE)



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Kanban is a form of communication for managing and ensuring Just-In-Time (JIT) production. Addition of Kanban Production Control will not only enable a company to deliver to its customer's on time but also would improve delivery from suppliers. Two most common and successful methods that are used to improve delivery consist of:

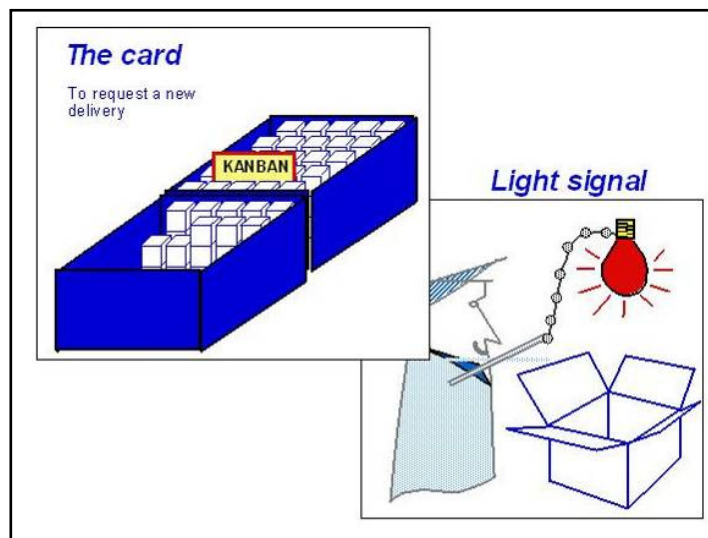
PROCESS CONNECTION

- The methodology of internally connecting a process using Kanban and subsequently determining and eliminating the constraint in order to increase throughput.

SUPPLIER/CUSTOMER CONNECTION

- The methodology of connecting the suppliers and customers via a pull system to minimise lead-time and increase flexibility.

Kanban refers to a card or sheet (or sometimes light signal) that is used to authorise production or movement of an item. This can be shown as below:



When Kanban has been fully implemented in a company, it must operate according the following three rules:

- All production and movement of parts and material takes place only as required by the downstream operation i.e. all manufacturing and procurement are ultimately driven by the requirements of final process step before delivery.
- Only Kanban signals will be used to authorise production or movement. Kanban must have various format and content as appropriate for their usage; for example, a Kanban for a supplier is different than a Kanban for an internal machining operation. Again a Kanban for customer demand is different from supplier or machine.

- ❑ The quantity authorised per individual Kanban is minimal. The number of circulating or available Kanban for an item is determined by the demand rate for the item and the time required producing or acquiring more. This number generally is established and remained unchanged unless demand or other circumstances are altered dramatically. In this way inventory is kept under control while production is forced to keep pace with shipment volume.

It is suggested that Kanban would eliminate the use of large inventories and inevitable supply directly to its customers. To do this, a company would need to establish a pull system that will enable order of raw material and finished goods delivery synchronised. Recent research has shown that more appropriate view of JIT logistics role is that it should increase deliveries of purchased components to the point of use and ultimately eliminate warehousing activities. This is only possible through the application of Kanban triggering the movement of material to orchestrate the production process.

Below is a formula that a company can adopt for Kanban sizing, which may be used for Kanban bins or locations to have enough parts to feed the demand while the empty containers or locations are being refilled.

$$\text{Daily Kanban Size} = \frac{(D \times Q)R}{H \times P}$$

D=Demand for final product/day

Q=Quantity of each part in final product

R=Replenishment time to replenish the parts (hours)

H=work hours available for Kanban replenishment

P=Package size or quantity from supplier.

Due to large number of suppliers, a company will also need to 'leverage' existing number of suppliers and carry out Supplier-Customer Connection. The method of supplier connection is as below:

- ➔ Study the current supplier list and look for suppliers that can deliver multiple products
- ➔ Negotiate with vendors smallest possible lot size and frequent deliveries
- ➔ Determine the maximum quantity to be stored for each item based on daily requirements, lead-time, vendor location, cost, size of item and lot size.
- ➔ Organise the supermarket into fixed locations by part numbers or product family
- ➔ Organise the supermarket for rapid and easy material movement
- ➔ Materials to be located on racks for easy replenishment by suppliers
- ➔ Prepare Supplier Kanban Status Board and Kanban Re-order cards as required.

Best Practise Example:

Sub-Assembly Greasing Application – Lot Size Reduced by 83% and Inventory Size Reduced by 58% by application of Kanban Cards.

