

Kanban the Toyota Way

An Inventory Buffering System to Eliminate Inventory

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KANBAN THE TOYOTA WAY: AN
INVENTORY BUFFERING
SYSTEM TO ELIMINATE
INVENTORY

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Contents

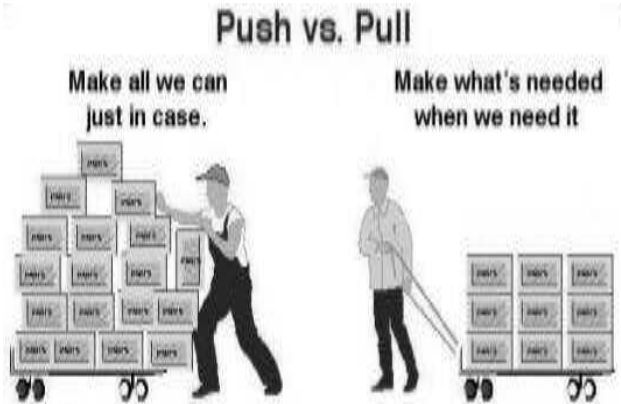
Introduction	5
Pull Concept VS Push.....	7
Pull and Flow	11
Pull and Teamwork	14
What is Kanban and how it works?	17
Kanban in healthcare industry	22
Getting the system to work	25
Flow, Pull, and Eliminate Waste	31
Appendix. I.....	33
Takt Time	34
Appendix. II	40
Cycle Time.....	41
Takt Time Guidelines	48
Appendix. III.....	54
One-piece Flow.....	55
Appendix. V.....	64
Heijunka	65
References.....	71
About the Author.....	76

Introduction

For decades, production has relied on the old principal mass production invented by Henry Ford where parts are being produced in batches and pushed to the market hoping for a customer to buy. Things are based on forecasting and sales were too optimistic. This system disconnects the factory from the customer. The factory is producing only to a forecast. The production at the supplying (assembly) process also called customer process is being regulated by a schedule.

Pull is one of the lean principle. The production at the customer process is being regulated by the customer's process withdrawals from the supplying process's store, rather than by a schedule. A pull system begins with the customer, then backs up through production where the user goes to get-or pull-parts from supplier operations in just the amount needed, only when needed. This continue all the way back to raw material suppliers so that every segment

of the business, from grower or miner to consumer, is tied together like links of a chain.



This may sound easy but hard to implement. Toyota made this only after establishing a production cell or one-piece flow, and after the whole operation is working to takt.

Mistakenly, many companies inversely apply lean by trying to introduce a pull system in an environment where batches are being produced and no one-piece flow process at time.

Pull Concept VS Push

Pull concept present the lean thinking (invented by Toyota), while push present the mass productivity thinking (invented by Henry Ford). One of the most debate issues is the use of mass production technique. The approach involves making as many parts as possible using the maximum available resources and all available machines. It doesn't take into consideration the customer demand rate or the sales forecasting.

Furthermore, if you are making 500 parts, and there were a problem with the production process, a quality failure can occur with all of those parts. Problems are hidden with the mass productivity approach; it will be also so difficult to discover where the error is coming from. So the root causes will remain hidden.

If a supplier process is producing with mass productivity and building too much work in process WIP inventory, the

downstream process will find all what it needs even if the supplier process has been went down suddenly. The downtime is hidden, and is not important; no one will consider preventing it in the future unless it has an obvious affection on the production process. Also if the operator at the supplier process is spending time getting tools or parts, the downstream process is still receiving the parts it needs to make.

Mass productivity creates the inventory problems, hides many wastes behind it, and effect the delivery time to customers. If you are assembling one piece of product in 3 minutes, waiting for 10 pieces to be assembled will take 30 minutes. The cycle time of one piece became 30 minutes although the add value time is only 3 minutes.