Assembly Planner – Plan For Every Part Electronic Kanban and Kitting

Case Study

Summary:

A global ag/construction equipment manufacturer implemented Proplanner's solution for PFEP and logistics execution at multiple four wheel drive tractor plants. These were advanced plants that had existing kanban and kitting systems.

The results highlight the power of using an integrated system that was designed to meet the needs of everyone in the supply chain. The manufacturer is now deploying this system globally to all 30+ remaining plants.

Kanban and Kitting Results

98% Reduction – Part Shortages

84% Reduction – Line Side Inventory

66% Reduction – Delivery Cycle Time

51% Reduction – Hot Calls

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Overview - <u>P</u>lan <u>F</u>or <u>E</u>very <u>P</u>art - Logistics Database:

Proplanner's Materials Handling Database (PFEP) is the master repository for all of a plant's internal logistics and materials handling information. The database stores, manages and analyzes all part logistics information from the trailer in the receiving dock to the assembly line and other points of use. The system even connects to off-site suppliers.

The associated eKanban functionality tracks and manages the pull of empty containers and the replenishment of full containers within a manual Kanban system.

The eKitting system generates pick-lists for parts required from supermarkets to meet specific needs of a unit (or workstation) on the assembly line.

While the material handling industry continues to make significant improvements, many major manufactures continue to operate outdated part replenishment systems. For example, it is common to find warehouse personnel building kits for assembly lines using printed pick lists. Similarly, kanban cards turn up missing shortly after they were created.

This setup creates waste within the supply chain. It is challenging to extract real time information for making production decisions and no platform exists to base improvement efforts upon.

Proplanner's PFEP system is a significant improvement over manual logistics systems because of the integration between Engineering Change Management which connects the BOM, activity-based consumption of parts, and the ability to have the right part, at the right station, at the right time.

A question that needs to be answered before making another investment in process improvement is why prior change efforts failed to stick. At Proplanner, we believe that great organizations are able to use change as a competitive advantage. Change is something that can and should be managed. Design, manufacturing, purchasing, and logistics engineers need an integrated tool to manage this change. The PFEP system, used within Assembly Planner, ensures that all parties involved with delivering a change in the supply chain have the information necessary to execute it successfully.

A recent implementation of PFEP at large vehicle manufacturing facilities represents a good example of how investing in PFEP can drive improvement throughout the entire supply chain.

Background:

At a major four wheel drive tractor manufacturer, kitting for the assembly line was accomplished by supplying a warehouse technician with a printed pick list generated from ERP and sending him down aisles to track down parts. Kanban cards were generated manually, with replacement cards being reprinted daily.

The inability to supply the right parts at the right time to the assembly line was a known issue at this facility. It was widely recognized by each person in the local supply chain, from the logistics engineer responsible for defining the part plan to the technician installing the part, that a significant amount of waste was present during day to day operations.

Transportation, waiting, and overproduction were the most typical wastes. Hot calls occurred frequently, in an attempt to limit the amount of line downtime due to part shortages. All of this waste was a part of the typical daily firefighting routine. When engineering design changes went live, additional issues occurred as the team tried to phase parts in and out.

Solution:

The vehicle manufacturer worked with Proplanner to implement Assembly Planner's PFEP module with eKanban and eKitting. This system takes advantage of the unique fact that Assembly Planner is aware of the line balance and associated part consumption on the line. Coupled with the product build list from ERP, Assembly Planner's PFEP module is able to coordinate kitting operations electronically in the factory.

eKanban is even more simple to implement. Using a controlled environment to define source and delivery locations, a part plan can be developed and implemented quickly. The system automatically generates kanban cards and provides reports that suggest the appropriate quantity of cards to maintain in the system. This can reduce the amount of inventory in the plant.

More importantly, because new eBOMs were imported into Assembly Planner and processed as Engineering Change Orders, the vehicle manufacturer was assured that not only were their process plans and work instructions 100% matched to their PDM and ERP systems, but their logistics system was updated simultaneously. This is the single most important point for why Assembly Planner is able to drive cost out of process planning and execution.
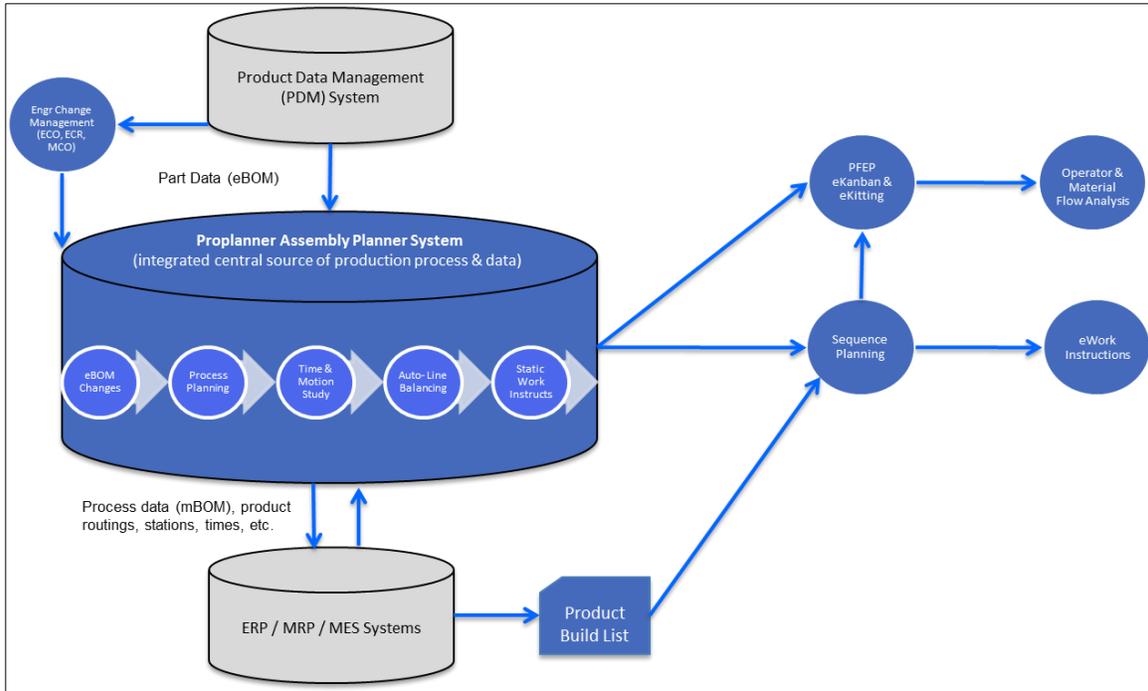
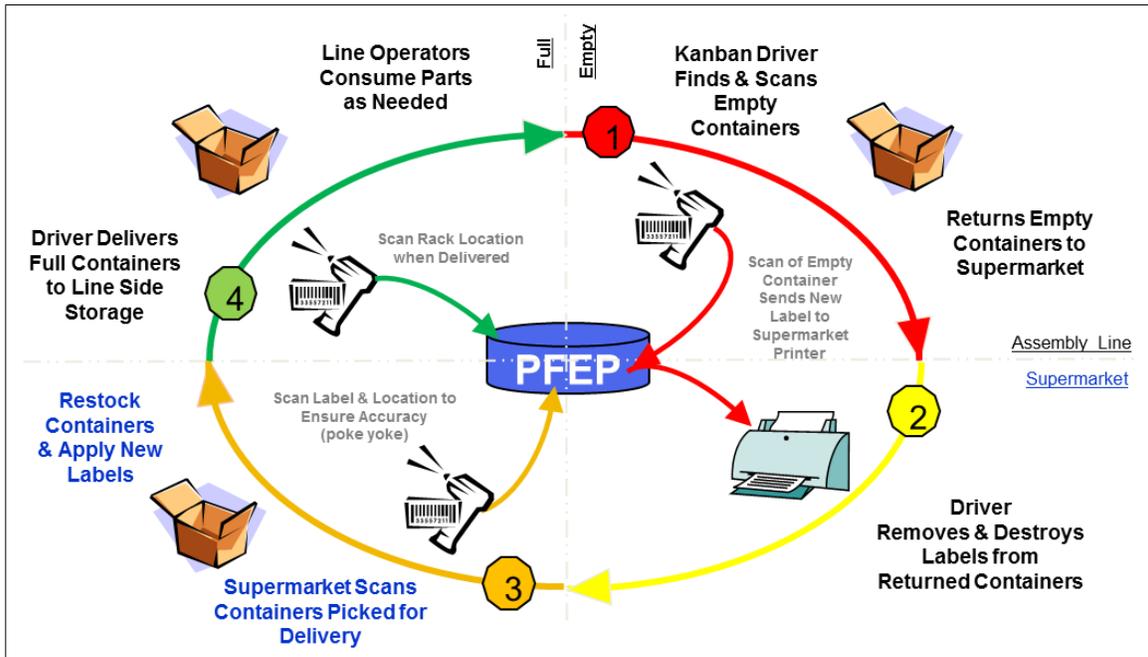Figure 1: Overview of Assembly Planners's Process Planning Workflow

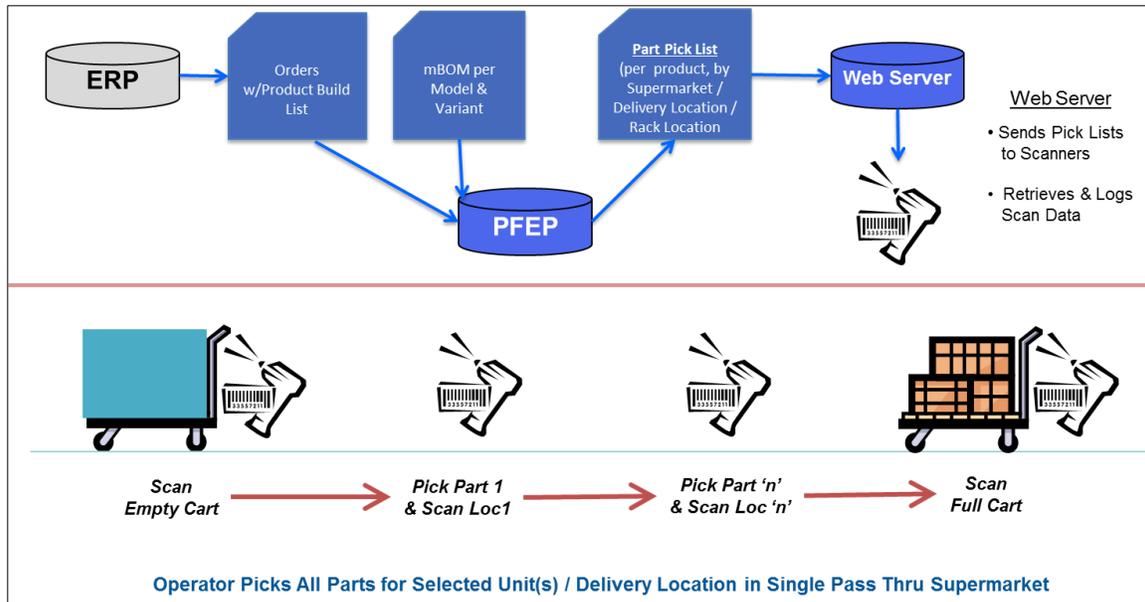Figure 2: eKanban workflow between the Assembly Line and Supermarket

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Figure 3: Top - PFEP backend for issuing pick lists to warehouse operators; Bottom - eKitting workflow for warehouse operators

Results:

All logistics metrics showed drastic improvement immediately after launching the new system. These results have prompted the manufacturer to continue deploying this system globally to their remaining 30+ plants.

Kanban and Kitting Results

⬇ **98% Reduction – Part Shortages**

⬇ **84% Reduction – Line Side Inventory**

⬇ **66% Reduction – Delivery Cycle Time**

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The eKanban and eKitting systems eliminate waiting time associated with traditional kanban cards and kitting systems. The replenishment and pick list signals are immediately sent to the supermarkets.

All of the logistics information is available through the real-time status dashboard, which improves visibility and communication in the system. Production supervisors, warehouse pickers, assembly operators, and logistics engineers each have access to the information they need to keep the operation running as designed.

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