Lean Business System Review

- Push vs Pull
- Value Stream Mapping
- Lean tools
- Results
Initial State

- *Push* system based on forecast.
- High (wrong) inventory levels.
- Low inventory turns.
- Constrained capital.
- Customer Service issues.
- Excess space required.
Initial State

Suppliers pushing raw materials to forecast

Production pushing finished goods to warehouse

Inventory turns are dropping

Customer Service issues

Standard Work Breakdown

Demand variation

Forecast

CUSTOMER
Our Lean Foundation

Takt Time
Pull
Flow

KAI + ZEN
change or modify

6S – Sort, Straighten, Scrub, Standardize, Sustain and Safety

TYPES OF WASTE
Waiting,
Overproduction,
Motion,
Process,
Inventory and Transportation
• **Pull** system based on true Customer demand.
• Lower (correct) inventory levels.
• Increased inventory turns.
• Liberated capital.
• 99% Customer Service.
• Space reduction.
“All forecasts are wrong, it’s just a matter of how wrong.”
Customer’s Pattern

How much will they buy?

How frequent?

Same rate all year?

History is more reliable than trying to Forecast!
Customer's Pattern

52 weeks

SPIKE chart
Customer’s Pattern

SEASONAL demand

BASE demand

different RATE

WINDOW

SPIKE chart
Understanding ...

Demand

Takt Time Patterns

Customer’s ordering patterns
Understanding ...

DEMAND

Takt Time Patterns

at the WORK CELL:

ordering pattern for ALL Customers
Information, Material, and Process flow

Supplier → Manufacturer → Customer

Supplier → Manufacturer

Manufacturer → Customer

Supplier → Manufacturer → Customer
we need to know...

- on hand or available?
- when to signal?
- from who?
- lead time?
- pattern?
- ordering size?
- how much?

Pull system
stock on hand or available

Stock on Hand

42 cartons

Available Stock

42 cartons
33 cartons

future firm orders

1 2 3 4 5 6 7 8 9 10 days
VISUAL PULL
Visual Customer Portal

Customer visibility of Heijunka device
Ideal State

Supply

Demand Analyst

Heijunka device to Level Load production.

Kanban signal from actual customer sales (pull/consumption)

Seasonal / Promo

Production.

FIFO

Finished goods go directly to Customer DC

Customer

Supermarkets for raw materials replenished on a pull system

Production manufacturing to Customer demand
The Four Loops

Component Pull System
• Receiving
• Kanban card
• Replenishing a supermarket
• FIFO
• Performance visuals

Component Kitting
• A Kanban Card
• Two Hours worth of Kanban Cards
• Kitting to the order
• Withdrawal from supermarket
• Delivery to work cells
• Performance visuals

Heijunka Device
• Sections
  - FGSM : Stock
  - DS : Direct Ship
  - BUILD : Seasonal / New Product launch
• Time bound production scheduling board
• Performance visuals

Finish Goods Pull System
• FGSM
  - Time bound signals (daily, shift, hourly)
• Staging Lanes
• Direct Ship
• Signal : Kanban Card
• Performance Visuals
Inventory Turns from 8 to 19!
Liberated Capital in excess of $5,000,000!
Freed up over 100,000 sf or real estate!
Shortened lead time from 6-8 weeks to 10 days!
Increased Customer service to 99%!
Developed Strategic Partnerships throughout entire Supply Chain!