



Lean Business System Review

- ***Push vs Pull***
- ***Value Stream Mapping***
- ***Lean tools***
- ***Results***

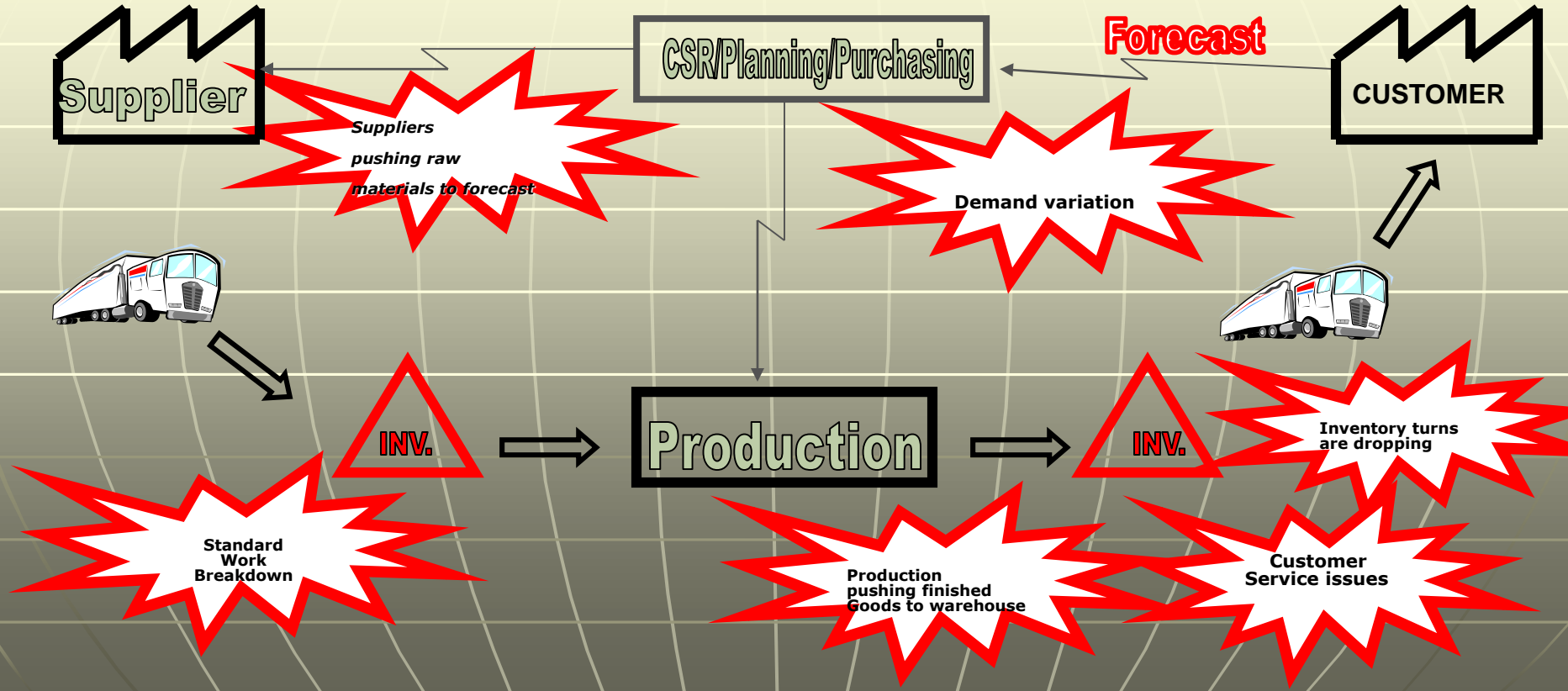


Initial State

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



Initial State





Our Lean Foundation

Takt Time

Pull

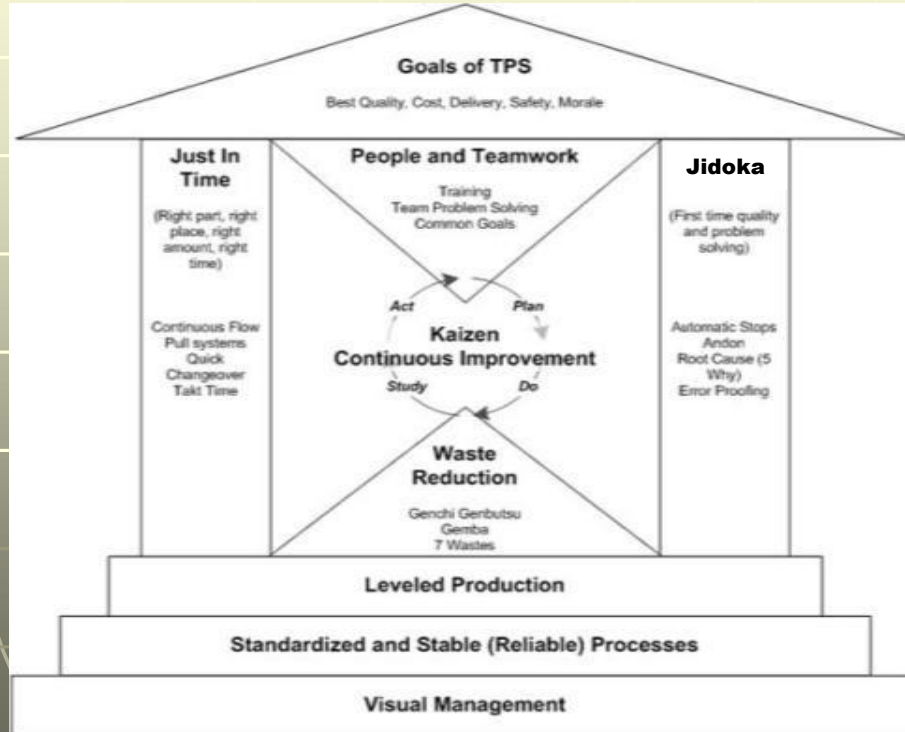
Flow

KAI + ZEN

*change
or modify*

improve

改善



TYPES OF WASTE

Waiting,
Overproduction,
Rework,
Motion,
Process,
Inventory and
Transportation

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



Ideal State

- **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.”



Mon



Tue



Wed



Thu



Fri



Customer's Pattern

How **much** will they buy ?

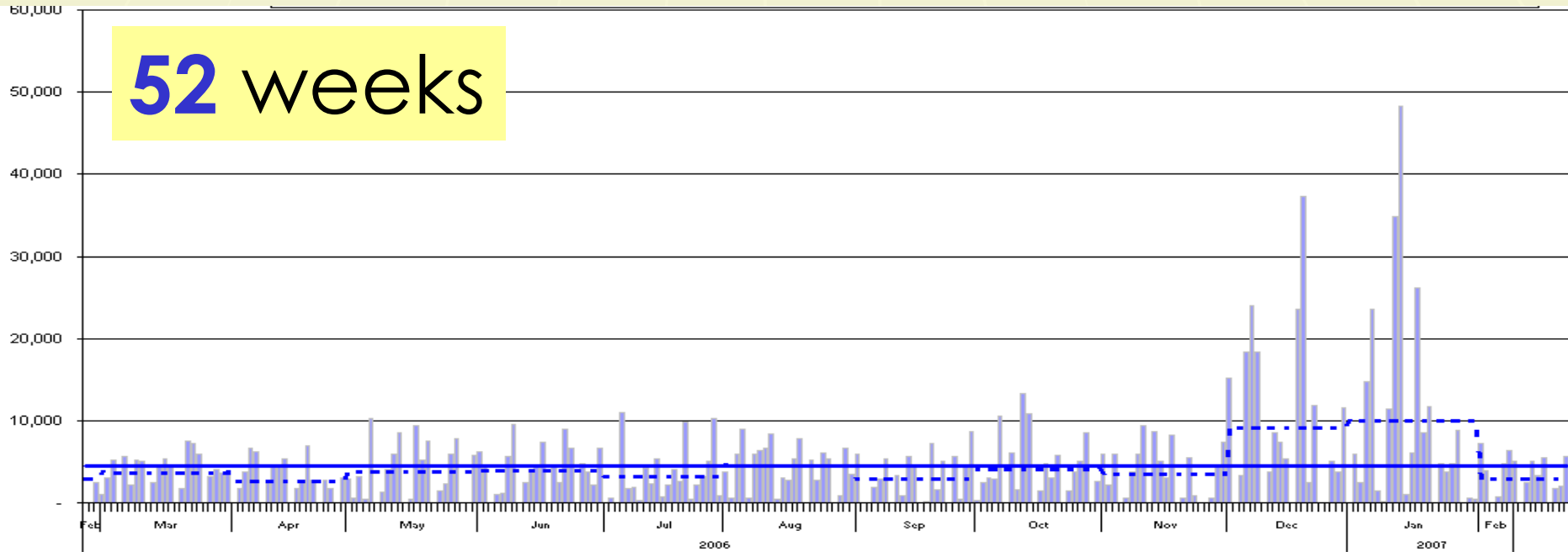
How **frequent** ?

Same **rate** all year ?

**History is more reliable than trying to
Forecast !**



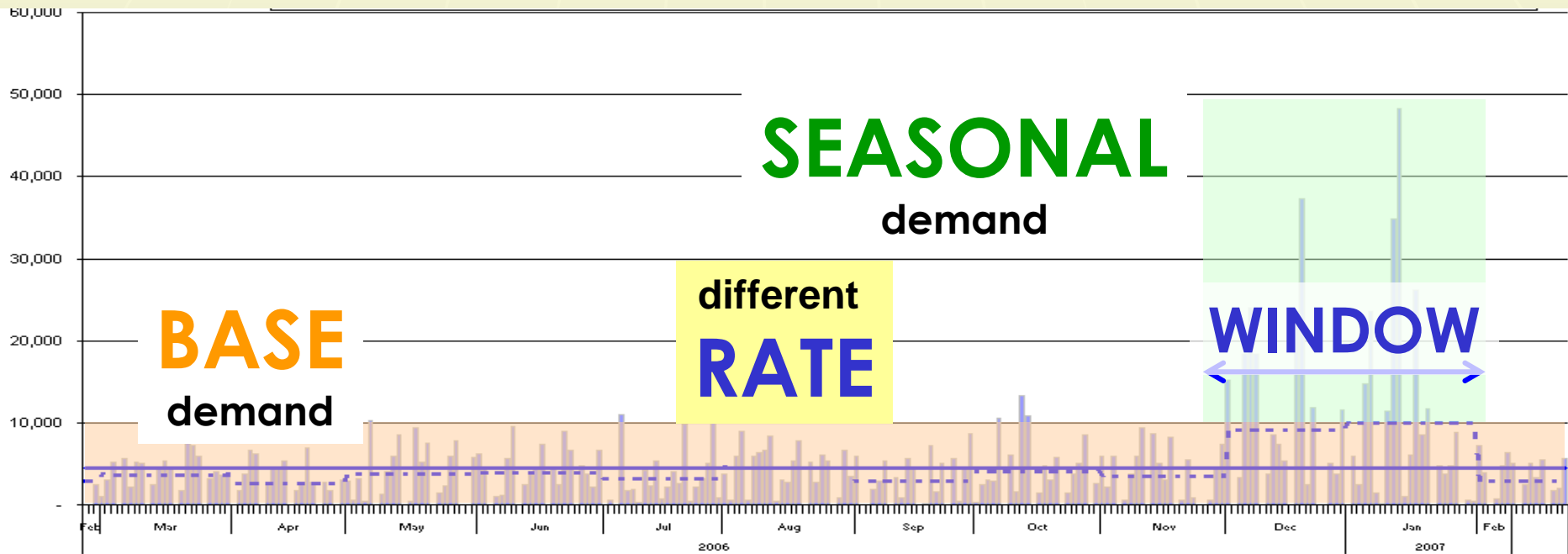
Customer's Pattern



SPIKE chart



Customer's Pattern



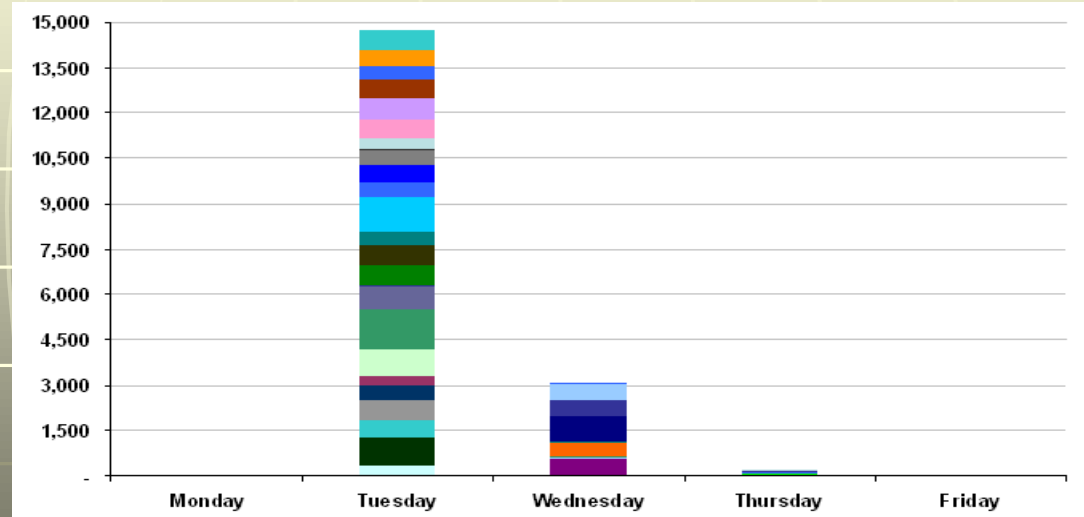
SPIKE chart



Understanding ...

DEMAND

**Takt Time
Patterns**



Customer's ordering patterns



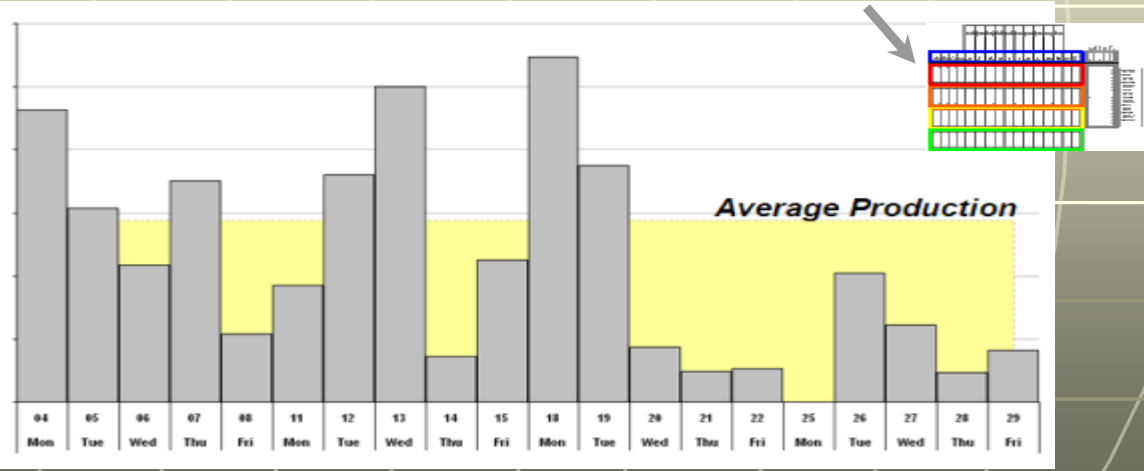
Understanding ...

DEMAND

**Takt Time
Patterns**

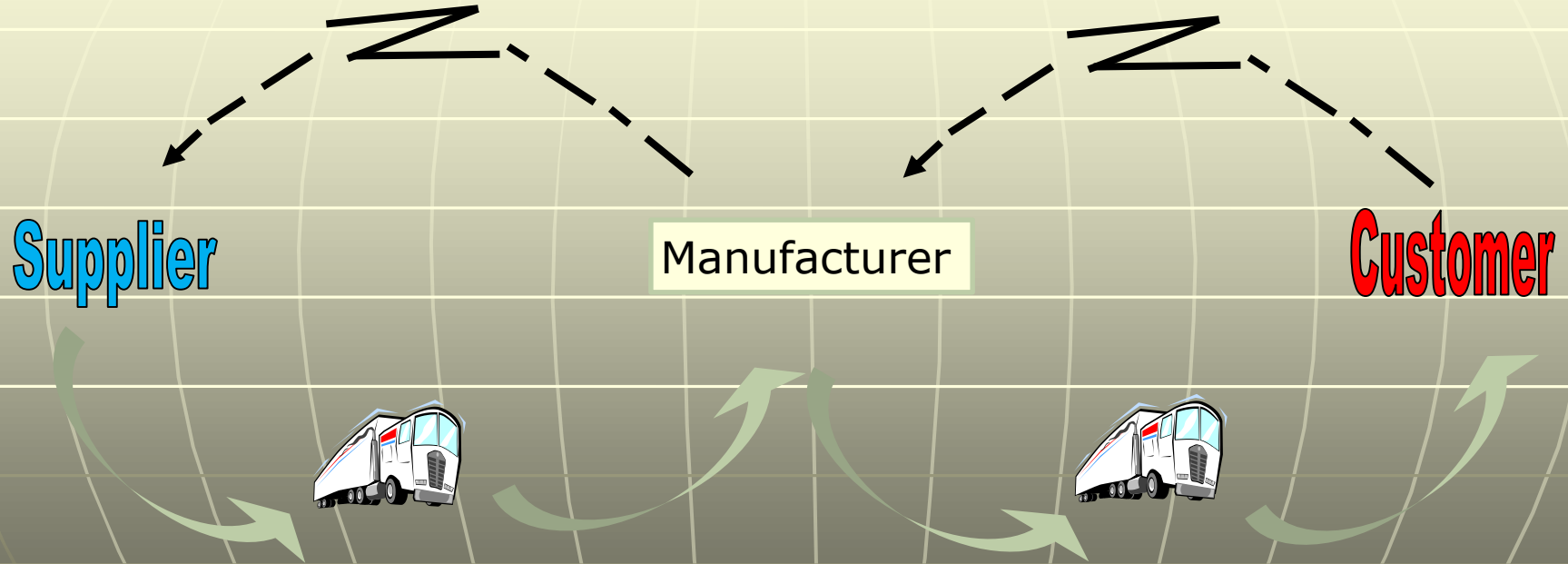
at the WORK CELL:

Daily
Drop



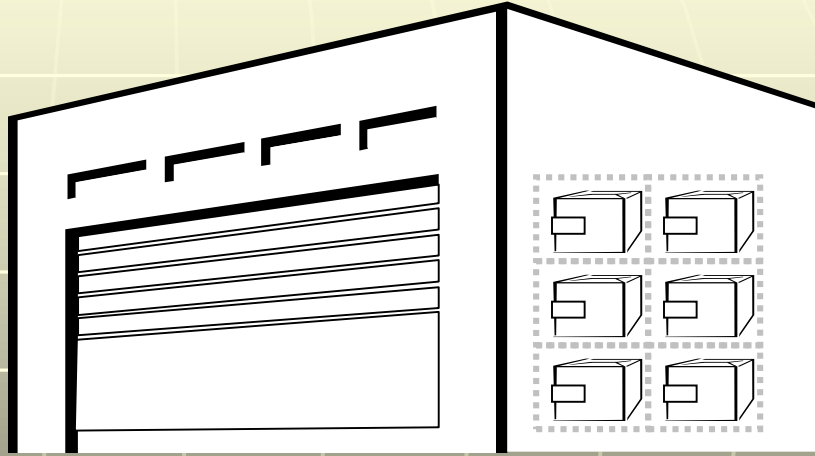
ordering pattern for ALL Customers

Information, Material, and Process flow

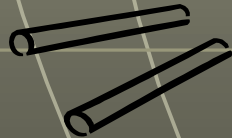


we need
to know...

- 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

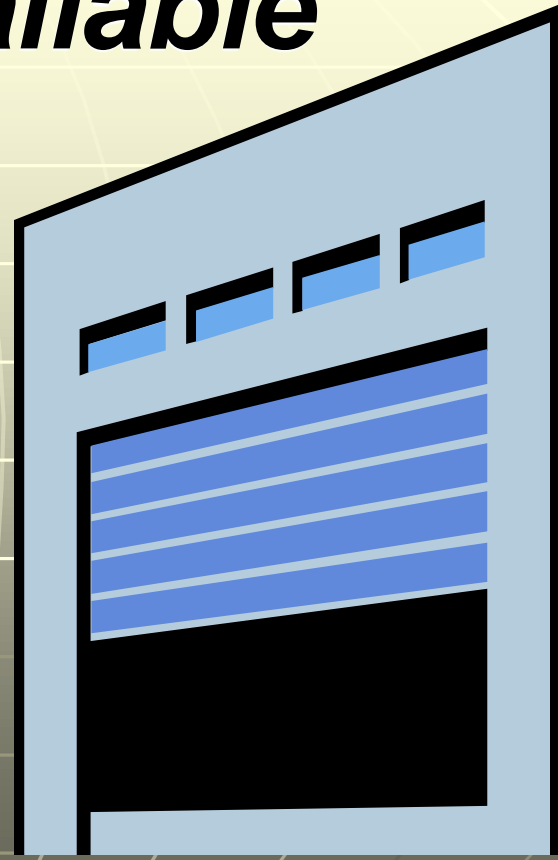
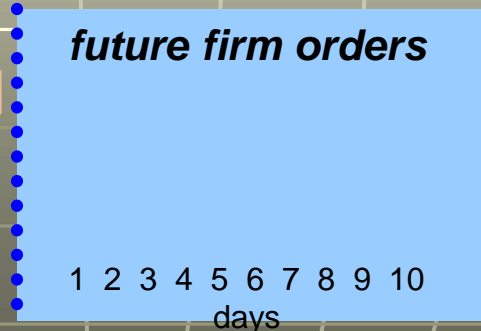


42 cartons

Available Stock



42 cartons
33 cartons





VISUAL PULL





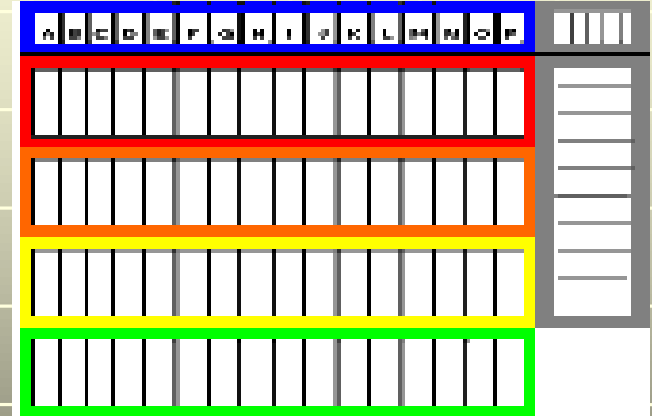
Visual Customer Portal

Date 3/5/2015

PORTAL SUMMARY

! Sku	ATI Sku	Total Kanbans	Available Kanbans	Open Kanbans	In Transit Kanbans	Heijunka Kanbans	Today's Kanbans	Heijunka Status
800002220	95-7000B-SM	240	86	154	42	112	1	Yellow
800002230	95-7002C-SM	165	89	76	31	45	5	Yellow
800002231	95-7003D-SM	268	113	155	56	99	5	Yellow
BC23220	95-735G-SM	200	97	103	38	66	9	Yellow
DC22	95-737F-SM	145	116	29	0	29	1	Green
S420-6	95-028T-SM	535	350	185	29	156	13	Yellow
S410-6	95-029R-SM	80	39	41	17	24	2	Yellow
S430	95-026Y-SM	265	113	152	0	152	5	Orange
60088	95-7043A-SM	40	17	23	11	12	1	Yellow
60089	95-7044A-SM	60	39	21	1	21	1	Yellow
60090	95-7045A-SM	48	28	20	0	20	2	Yellow
S60166	95-7046A-SM	80	46	34	0	34	2	Yellow
36108	95-7013A-SM	150	53	97	0	97	0	Orange
5080233	95-0734H-SM	100	75	25	0	25	2	Green
NT21-6	95-7014B-SM	222	117	105	19	86	2	Yellow

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Customer visibility of Heijunka device



The Four Loops

Component Pull System

- Receiving
- Kanban card
- Replenishing a supermarket
- FIFO
- Performance visuals

Component Kitting

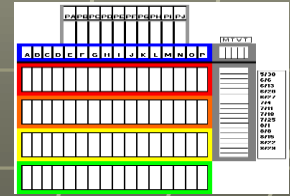
- A Kanban Card
- Two Hours worth of Kanban Cards
- Kitting to the order
- Withdrawal from supermarket
- Delivery to work center
- Performance visuals

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

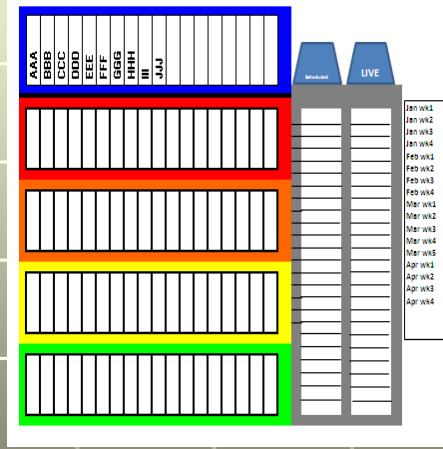


18

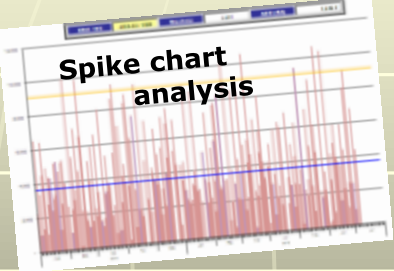


LEAD TIME

HEIJUNKA



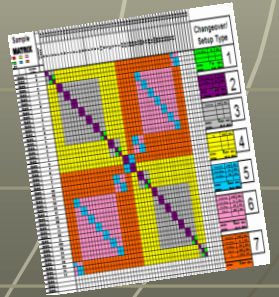
SMED



Quarterly Reviews with Customers and Suppliers

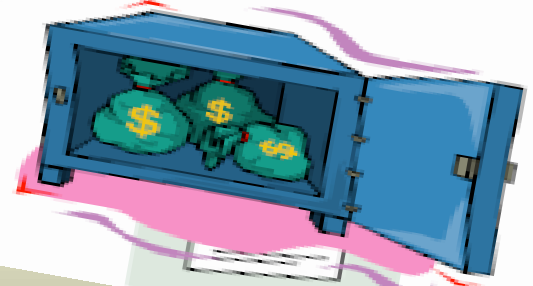


Supermarkets





Results



Inventory Turns from 8 to 19 !

Liberated Capital in excess of \$5,000,000 !

Freed up over 100,000 sf of real estate !

Shortened lead time from 6-8 weeks to 10 days !

Increased Customer service to 99% !

Developed Strategic Partnerships throughout entire Supply Chain !