

Black Belt report

Lean Certified Line Cygne Center Eindhoven the Netherlands

Mentee: Johan Smit

Mentor: Mohammed Saleem

This ppt. in addition to

1. Word document 'BB report word Lean Certified Line Johan Smit 25nov2013.doc'
2. Lean score list 'Eindhoven Lean Certified line ENG NL oct2013.xlsx'

November 2013



imagination at work

GE Healthcare
Global Supply Chain

Lean Certified Line 



Lean Certified Line – Eindhoven

Inpak en Verzending

Leadership Team:

Jos Mathôt : Operation Plant Manager

Suze Albers : Packaging Team Leader

Toon van de Laar: Manufacturing Manager

Johan Smit : Lean Leader



Project summary

The last stage in manufacturing of Iodine product is 'pack and dispatch'. With help of systematic DMAIC we identified that we can structurally improve the performance of this department. Problems experienced and defined:

- material supply not optimal, disturbances as consequence;
- mistakes , radio active dose hotspot, labour intensive repeatable work @ 'ZPAL area';
- communication problem within and among the team;
- cycle times and standards not known to all.

To improve productivity, reduce dose, stimulate shop floor engagement we defined an improvement program. We measured and analysed before and after on 35 score elements of 'Lean Certified Line' , defined projects and encouraged employee suggestions.

By designing and implementing lean tools and techniques as well as implementing a jidoka solution we improved realized following results, sustained:

- (1) significant reduction # of errors and disturbances, EHS radio active dose;
- (2) 1 fte saving realised;
- (3) reduce manufacturing costs;
- (4) shop floor engagement, an example line for other production departments;
- (5) 'Lean Certified Line' reward 07nov2013.



imagination at work

Before/After Lean Certified Line

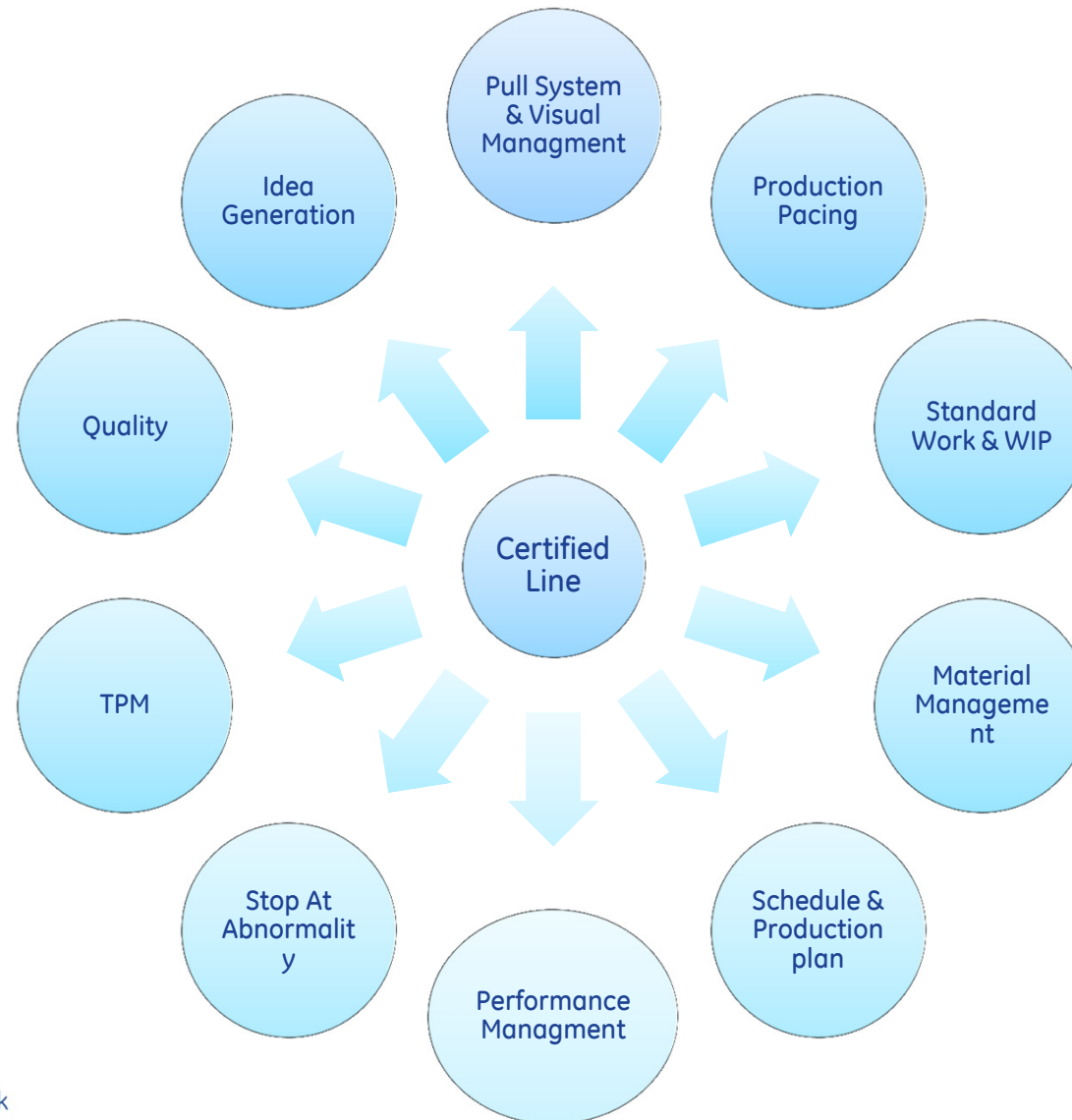
Operation	Problem	Action Taken	Results
Jodium Pack and Dispatch production line The Netherlands Eindhoven	# mistakes high, 4 – 5 /day EHS radio activity dose, hot spot Labor intensive work cell 'ZPAL' Team(members) not informed Elaborative material ordering and supply procedure	Jidoca solution implemented KANBAN introduction Andon information system installed Daily meeting introduced Visualisations on shop floor Application of 'Lean Certified Line' criteria, AWO.	> 1 fte saved 30 % lower RA dose Team Engagement 80 % less mistakes Lean Certified Line nov2013 Example for other departments
Before		After	
<ul style="list-style-type: none"> - Manual Radio Activity TI, weight and SAP scanning recordings manual. Labor intensive, three people needed. - Material supply not optimal, disturbances as consequence on daily basis; - 4 – 5 mistakes per day in 'ZPAL' area - Radio active dose hotspot, EHS recordings - Communication problem within and among the teams about production status - Cycle times and standards not known to all.. - Polls, enquetes, surveys and GEOS Team clearly indicate that 'engagement' should improve. 		<ul style="list-style-type: none"> - Radio Activity TI, weight and SAP scanning recordings automated, from 3 to 1 operator. - Material supply optimized, no disturbances - from 5 mistakes per day to 2 mistakes per week. - Radio active dose reduction 30 %. - All informed within and between teams about production status. - Cycle times and standards known to all.. - Daily accountability process in place, all team members involved. - Lean certified Line 07nov2013. Example for other departments 	

Define

Project 'Lean Certified Line Inpak en Verzending'

Project: Inpak en Verzending Lean Certified	Sponsor: Jos Mathot	Project leader: Johan Smit	Projectteam: Pack and dispatch team, TS, Manufact. Manager.	Start date: sep2012
Problem: - score 120 is quite high but not meeting criteria LCL 150, - material supply not optimal, disturbances as consequence; - mistakes , radio active dose hotspot, labor intensive repeatable work @ 'ZPAL area'; - communication problem within and among the team; - cycle times and standards not known to all. Project definition: Lean improvements to meet criteria ' Lean Certified Line' and achieve productivity business results.			Stake holders: Pack and Dispatch team EHS QA Manufacturing manager Technische Service Project leader Sponsor, site leader Jos Mathot Freight dept.	
Goal: realize productivity business result, lower dose, example department, show case for lean working, meet criteria LCL by Q42013, pleasant working area.			In scope : - Receipt of vials to be packed into handling units in storage cabinets sorted to destinations. - Lean tools and settings. - Jidoka project ZPAL	Out scope - expedition - I production lab
Costs Design and make visualisations Organisation and implementation of cascaded daily meetings Kanban intro ZPAL project			Business benefits Efficient and pleasant area to work, employee engagement 1 fte saving Lean certified Line, example for other departments. Lower RA dose Less disturbances and errors	
Mile stones: Define Start project: 11 september 2012. Measure: dose and productivity Q2 2012, LCL score Q3 2012 Analyse: Q3 2012 – Q4 2012. Improve Q4 2012 – Q3 2013 Control Q4 2013 and further.				

Criteria Lean Certified Line



Customers 'Lean Certified Line

Customers and Critical to Quality	LCL Score	Example dept. And show case	Pleasant working environment	Low EHS RA dose	Productivity	Material supply OK	Mistake and error reduction
Manufacturing manager	M	H	H	H	M	H	H
Production teamleader	L	L	H	H	L	H	H
Finance	L	L	L	H	H	M	L
Site leader	H	H	M	H	H	M	M
Lean leader	H	H	H	H	H	H	H
EHS	L	L	H	H	L	L	L

ARMI

Approval of team decisions: team leader, manufacturing manger.

Resources : appliciation and production specialists, team members.

Members of team team,, lean leader, manufacturing manger

Interested party EHS, CoE, Finance.

GRIP, on scale 0-5

Goal not easy to explain to all: 3. On detail level 2.

Roles: 3

Processes: 2

Interpersonal: 3.

Certified Line 'Inpak & Verzending' Pack and Dispatch' Iodine products

Iodine Key products

DaTSCAN

AdreView

SteriPET



Site Strategy

- Vision - "Maintain order fulfillment > 99%, while meeting operational excellence criteria."
- Breakthroughs objectives pack and dispatch
 - meet criteria 'lean certified line'
 - employee engagement
 - team efficiency

Key data Pack & Dispatch

- Volume per year : 100.000 pcs
- 11 team members
- 500 m² production floor
- Takt Time = 33 sec.
- # of Products = 6

Lean Pack & Dispatch

- Make to order, just in time
- No WIP & FP, Continuous flow
- Production cycle time ,6.1 h.
- 7 shipment deadlines over the day
- Highly regulatory pharmaceutical GMP, nuclear, transport requirements.

Measure

Measurements

- 1.Score card LCL, in excel file
- 2.EHS dose, dose registration system, monitoring system
- 3.Fte productivity monitor, analyses made in areas detailed level
- 4.Remarks and feedback GEOS, polls, enquetes...
- 5.# mistakes and errors per day, both informal and IR.

Analyze

Certified Line Approach was Taken by...

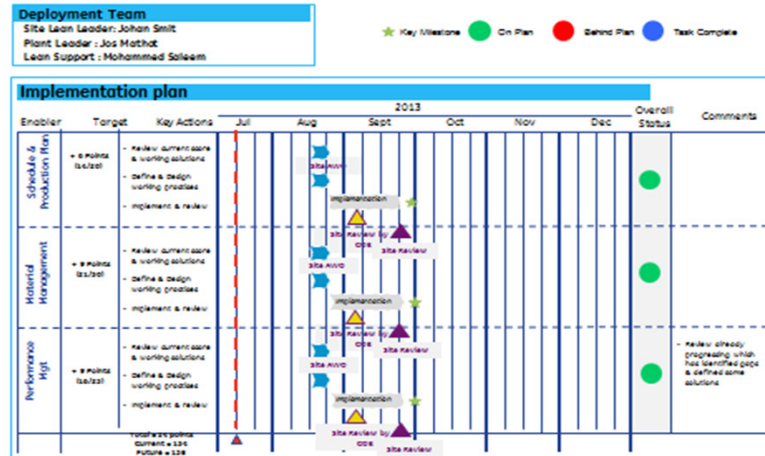
A Identify Top few to close the gap

Current Certified Line Status for Inpak

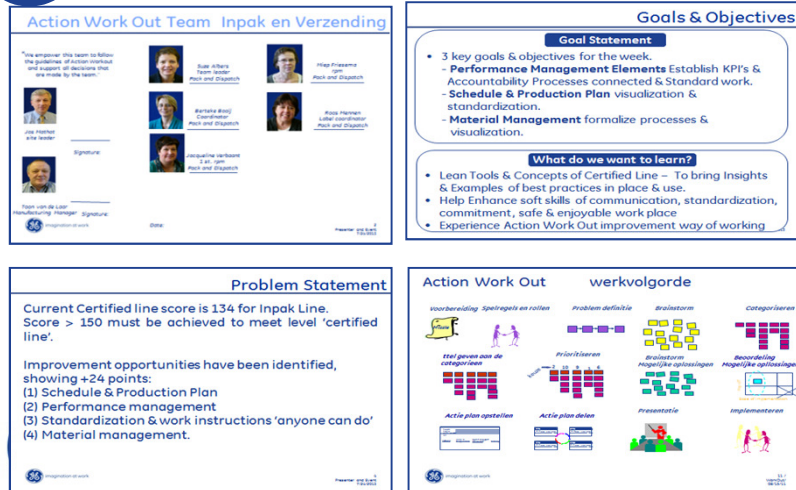


C Developing an Execution plan

Eindhoven Certified Line Transformation Plan



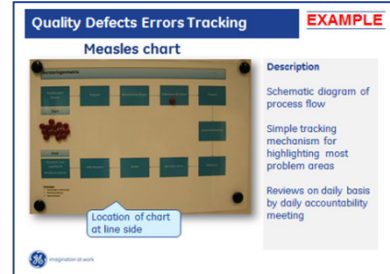
B Planning of No. of AWO's



D Implementing solutions



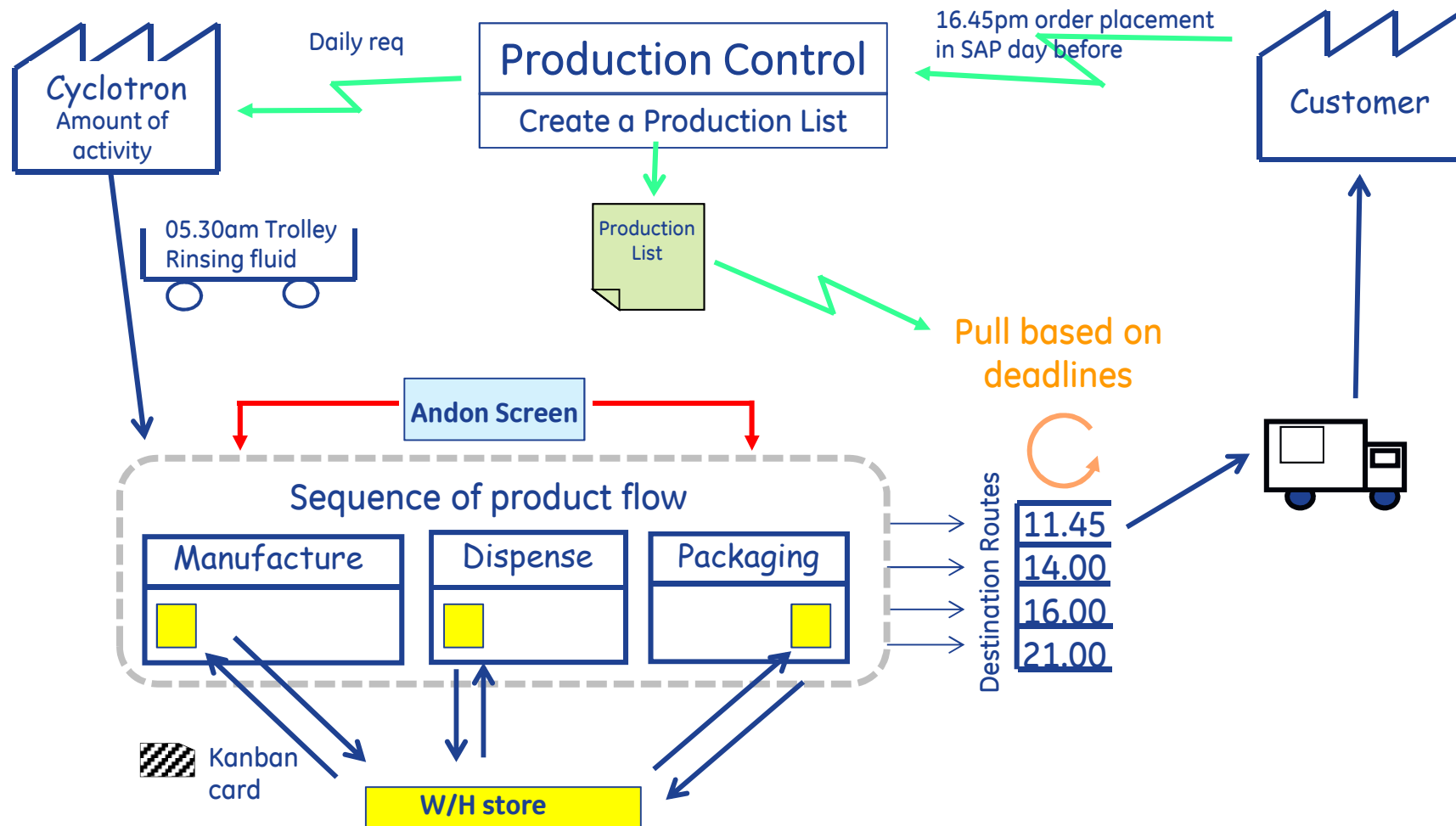
- * Jidoka solution
- * Kanban system



- * Andon info. screen
- * Visualisations

Daily Pull System based on JIT Principle

EXAMPLE



Before/After improvement Jodium lab.

Operation	Problem	Action Taken	Results
Jodium Production Cygne Center The Netherlands Eindhoven	Too less or too much material in production lab, order status unknown Elaborative material ordering system once a week, 'shopping list' Typos by wrong copying the numbers	VSM this part of the process Apply Kanban principles on top X materials, use bar code Pilot Kanban multidisciplinary team Improve after pilot with warehouse dept.	No typos (use of barcodes) Right, smaller quantities more than once a week delivered Order status is known

Before	After																																																																																																																			
<div><p>SAP bestellingen</p><p>Materiaal behoefte signaal 'kanban'</p><p>Voorraad rek Jodium</p><p>Logboekvel Aanvullingen Jodiumproductie</p><p>Datum:</p><table><tr><th colspan="7">123I - lab Ruimte 11</th></tr><tr><th>kasnr.</th><th>artikel</th><th>sap nr</th><th>code</th><th>min. aantal</th><th>artikel</th><th>Aanvullen</th></tr><tr><td>1b</td><td>Azijnzuur 0,1% 1ml</td><td>1155822</td><td>amp015</td><td>40 stuks</td><td></td><td></td></tr><tr><td></td><td>NaOH 0,05N 10ml</td><td>1155815</td><td>amp002</td><td>30 stuks</td><td></td><td></td></tr><tr><td>1c</td><td>handschoen maat 7,5</td><td>1155967</td><td>han005</td><td>1 pak</td><td></td><td></td></tr><tr><td></td><td>handschoen maat 8</td><td>1155968</td><td>han006</td><td>1 pak</td><td></td><td></td></tr><tr><td>1d</td><td>laf handschoen</td><td>1155966</td><td>han04</td><td>2 paar</td><td></td><td></td></tr><tr><td></td><td>slangenpompslang</td><td>1155867</td><td>sps010</td><td>2 stuks</td><td></td><td></td></tr><tr><td>1e</td><td>water voor inj. (10ml)</td><td>1156121</td><td>wat001</td><td>4 trays</td><td></td><td></td></tr><tr><td></td><td>ethanol 100% 1 liter</td><td>1155813</td><td>alc986</td><td>1 fles</td><td></td><td></td></tr><tr><td></td><td>Bond Elut SAX-kolom</td><td>1159923</td><td>koli01</td><td>1 box</td><td></td><td></td></tr><tr><td>2d</td><td>teflonjes</td><td>1156100</td><td>tel001</td><td>1 tray</td><td></td><td></td></tr><tr><td>2e</td><td>Bijzonderheden</td><td></td><td></td><td></td><td></td><td></td></tr></table></div>	123I - lab Ruimte 11							kasnr.	artikel	sap nr	code	min. aantal	artikel	Aanvullen	1b	Azijnzuur 0,1% 1ml	1155822	amp015	40 stuks				NaOH 0,05N 10ml	1155815	amp002	30 stuks			1c	handschoen maat 7,5	1155967	han005	1 pak				handschoen maat 8	1155968	han006	1 pak			1d	laf handschoen	1155966	han04	2 paar				slangenpompslang	1155867	sps010	2 stuks			1e	water voor inj. (10ml)	1156121	wat001	4 trays				ethanol 100% 1 liter	1155813	alc986	1 fles				Bond Elut SAX-kolom	1159923	koli01	1 box			2d	teflonjes	1156100	tel001	1 tray			2e	Bijzonderheden						<div><p>Kanban kaart Jodiumlab # 1/1</p><table><tr><th colspan="2">Precursor DaTSCAN</th></tr><tr><td>Materiaalnummer: </td><td>Productie Lokatie: DV26</td></tr><tr><td>Min. voorraad: 120 PC Max. voorraad: 2 BATCHES</td><td>Bestel hoeveelheid: 1 BATCH Eenheid per verpakking: 1 BATCH</td></tr><tr><th colspan="2">MIGO / LT01 Informatie :</th></tr><tr><td> Cost Center :</td><td>Recipient : </td></tr><tr><td colspan="2">Bijzonderheden : <input type="checkbox"/> Materiaal staat in de Q status <input type="checkbox"/> Materiaal is niet aanwezig op het magazijn <input type="checkbox"/> Anders :</td></tr></table></div> <div><p>Kanban kaart Jodiumlab # 1</p><table><tr><th colspan="2">Petrischalen</th></tr><tr><td>MIGO / LT01 info :</td><td>Voorraad info</td></tr><tr><td>Materiaalnummer: </td><td>Productie Lokatie: VOORRAADR</td></tr><tr><td>Cost Center : </td><td>Bestel hoeveelheid: 200 PC Eenheid verpakking: 100 PC</td></tr><tr><td>Recipient : </td><td>Min. voorraad: 150 PC Max. voorraad: 350 PC</td></tr><tr><td colspan="2">Bijzonderheden : <input type="checkbox"/> Materiaal staat in de Q status <input type="checkbox"/> Materiaal is niet aanwezig op het magazijn</td></tr></table></div>	Precursor DaTSCAN		Materiaalnummer: 	Productie Lokatie: DV26	Min. voorraad: 120 PC Max. voorraad: 2 BATCHES	Bestel hoeveelheid: 1 BATCH Eenheid per verpakking: 1 BATCH	MIGO / LT01 Informatie :		 Cost Center :	Recipient : 	Bijzonderheden : <input type="checkbox"/> Materiaal staat in de Q status <input type="checkbox"/> Materiaal is niet aanwezig op het magazijn <input type="checkbox"/> Anders :		Petrischalen		MIGO / LT01 info :	Voorraad info	Materiaalnummer: 	Productie Lokatie: VOORRAADR	Cost Center : 	Bestel hoeveelheid: 200 PC Eenheid verpakking: 100 PC	Recipient : 	Min. voorraad: 150 PC Max. voorraad: 350 PC	Bijzonderheden : <input type="checkbox"/> Materiaal staat in de Q status <input type="checkbox"/> Materiaal is niet aanwezig op het magazijn	
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Kanban instruction card in document system

Approved

EIND_IK-DIV-IKA-JO
Version: 1.0

For Internal Use
Page: 2 of 6

1. Bestellen en opruimen magazijn artikelen m.b.v. Kanban kaartje

Wat is het?

Het Kanban-systeem is een simpel en effectief systeem om het bevoorradingsproces te sturen.

Waarom?

Voordelen van de kanban kaartjes zijn :

- Zichtbaarheid van artikelen in bestelling : kaartje ontbreekt.
- Als een product niet leverbaar is, wordt dit door het magazijn via een kopie van het kanban kaartje gecommuniceerd.
- Geen overschrijf of tikfouten, want de barcode wordt gescand.
- Er is een vaste bestelhoeveelheid. Dus er hoeft niet meer te worden nagedacht over aantallen.

Voor wie?

Voor alle teamleden jodiumlab.

Hoe?

Het kanban kaartje wordt geplaatst bij het materiaal. Om te bestellen wordt het kaartje ingeleverd bij het magazijn. Bij levering van het materiaal wordt het kaartje weer teruggeplaatst.

Notification from Linssen Bart

Task Received

Please finish this task by applying an electronic signature to confirm that you have read and understood the attached document

Document Name	Version	Title
EIND_IK-DIV-IKA-JO	1.0	Instructiekaarten Jodiumlab

[Link To MyDoc](#) | [Link To Document](#) | [MyDoc Inbox](#)

ZPAL SAP Jidoka solution

SCOPE:

1. Pack and Dispatch area dose hot spot ZPAL area
2. - ZPAL multiple scanning
- gravity weigh
- TI radio activity measurement
3. Jidoka solution. Stop at abnormality and automation with human touch. Island of automation: 'middleware' sw. solution SAP center of excellence. 'Home made' by our Technical Service dept.

Business Case Data:

- EHS Dose reduction 30%
- Savings: 1 – 1.5 fte
- Cycle time reduction
- Less errors

Project IT Costs:

\$k	2013
Plan	77.9
Projected	54.3
Actuals	53.6

Before



Manual:

- sap scanning
- weigh measurement
- Radio activity measurement

After



Three functionalities in one Automated station:

- sap scanning
- weigh measurement
- Radio activity measurement



GE imagination at work

Lessons learned

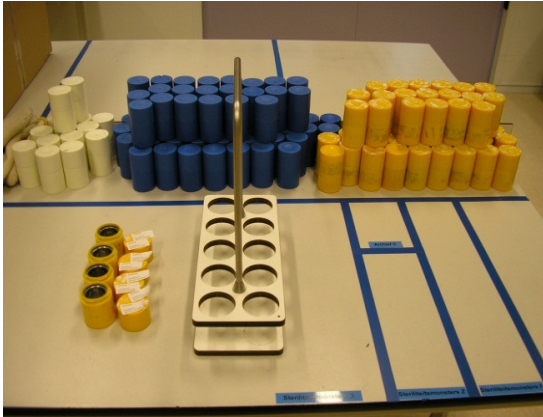
1. The deliverables on a smaller GxP relevant project are just as numerous and mandated as the larger ones. When possible, run similar projects concurrently
2. It is possible to run an ICT SAP project within budget.
 - specialist support is indispensable
 - clear specification what you want, in/out scope
3. Team work IT, Tech. Service, manufacturing.

Put into service Q2 2013

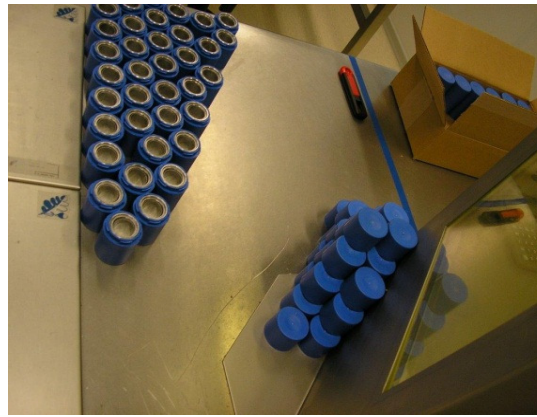
Improve

Workplace Organisation

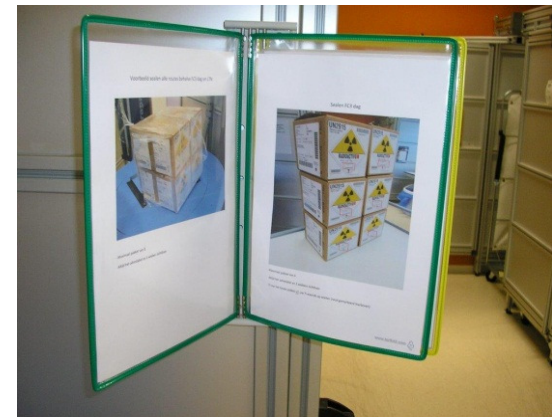
EXAMPLE



Sample Segmentation



Work Station



Visual Cards



Documentation by
Destination Route



Floor Storage

Description

Visual Management to drive set standards across Inpak Packaging line.

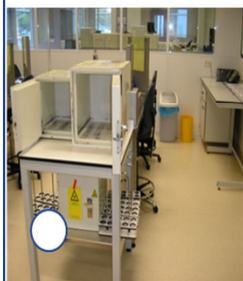
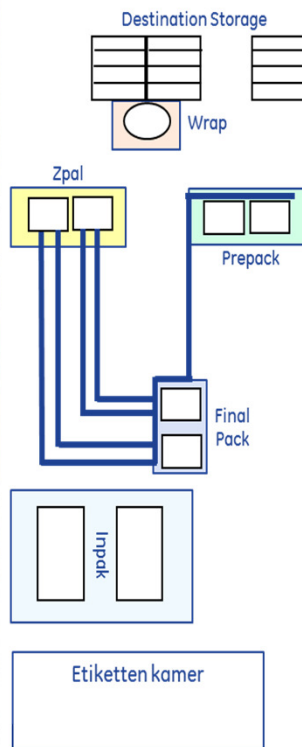
5S Audit, 'einde van de dag'

EXAMPLE

5S Audit, 'einde van de dag'



Proces overzicht



Einde van de dag 5S checks

- ☐ werkstation is opgeruimd en georganiseerd 5S
- ☐ Materialen en papieren liggen op de juiste plek
- ☐ Afwijkingen van de standaard opgemerkt en ingebracht in dagelijkse meeting
- ☐ Kasten en kluisen leeg

Opmerkingen

.....

.....

.....

.....

.....

Uitgevoerd door :

Naam:

Datum:.....

Description

5S audit check for end of work day.

Key Points

- Visual Standards displayed
- Conducted by Team Member at end of day, with simple tick or cross in each white circle
- Reviewed the following morning in the daily meeting

V in cirkel wanneer ok

Production Pacing

EXAMPLE

Abnormalities are recorded

Deadline performance matrix

Datum	Deadlines					Issues					
	11:45	14:00	16:30	21:30	22:30	RNP	1123	Cleanroom	Etikettenkamer	QC	I&V
21/ okt	11.37	13.45	17.00				G3 afgkaven				17.00 uur 10M G5
22/ okt	12.10										IT32M Vertraagd

Takt Time related to deadline commitments

Description

Operating team pacing of work is conducted through customer deadlines

Includes

- Simple performance tracking matrix per day against deadlines
- Issues captured across value stream & Dept related are captured on line side performance board.

Standard Work Charts for operations

EXAMPLE

Standaard werkwijze – werkstation: inpakken

1	Standard processtap	2	Medewerker 2	3	Kwaliteitscontrole	4	Leegroute
---	---------------------	---	--------------	---	--------------------	---	-----------

Werkvolgorde

1. Doos met loodpotten ophalen
2. Deksel / pot scheiden
3. Papieren verzamelen
4. Loodrekje uit de kluis halen
5. Etiketteren en inpakken
 - a. Meetwaarde opschrijven
6. Meten en in het rek plaatsen voor verzending
 - a. Controlestrook controleren en plakken op het protocol

Procestijd: 30 min per batch

Medewerkers: 2

Standaard omvang werkzaamheden: ~10 - 50



Standaard werkwijze – werkstation: pakbonnen sorteren

1	Standard processtap	2	Kwaliteitscontrole	3	Leegroute
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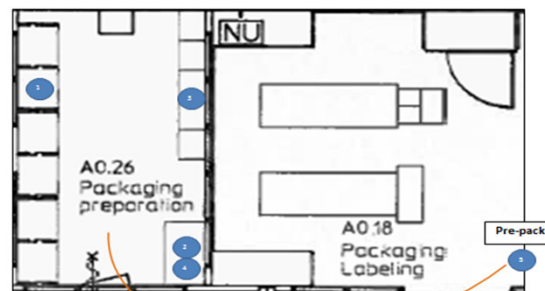
Werkvolgorde

1. Pakbonnen printen via SAP
2. Pakbonnen sorteren per batch
3. Bijsluiters toevoegen
4. Bijbehorend protocol schrijven en toevoegen aan de enveloppe
5. Enveloppe overdragen aan de pre-packer

Procestijd: 2 uur

Medewerkers: 1

Standaard omvang werkzaamheden: ~350 - 650



Description

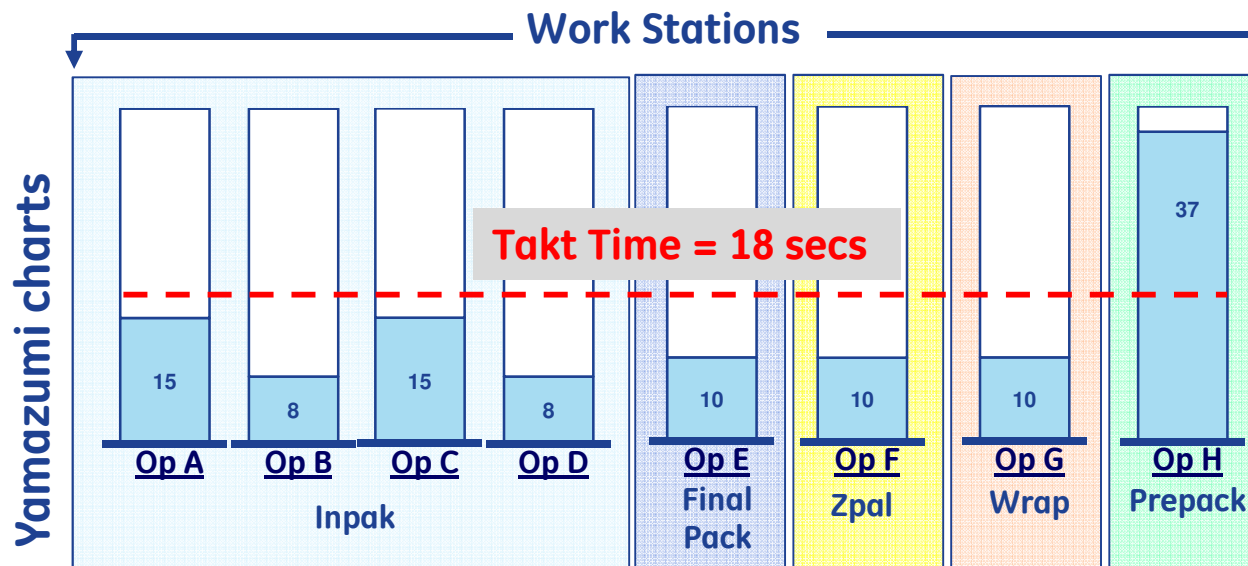
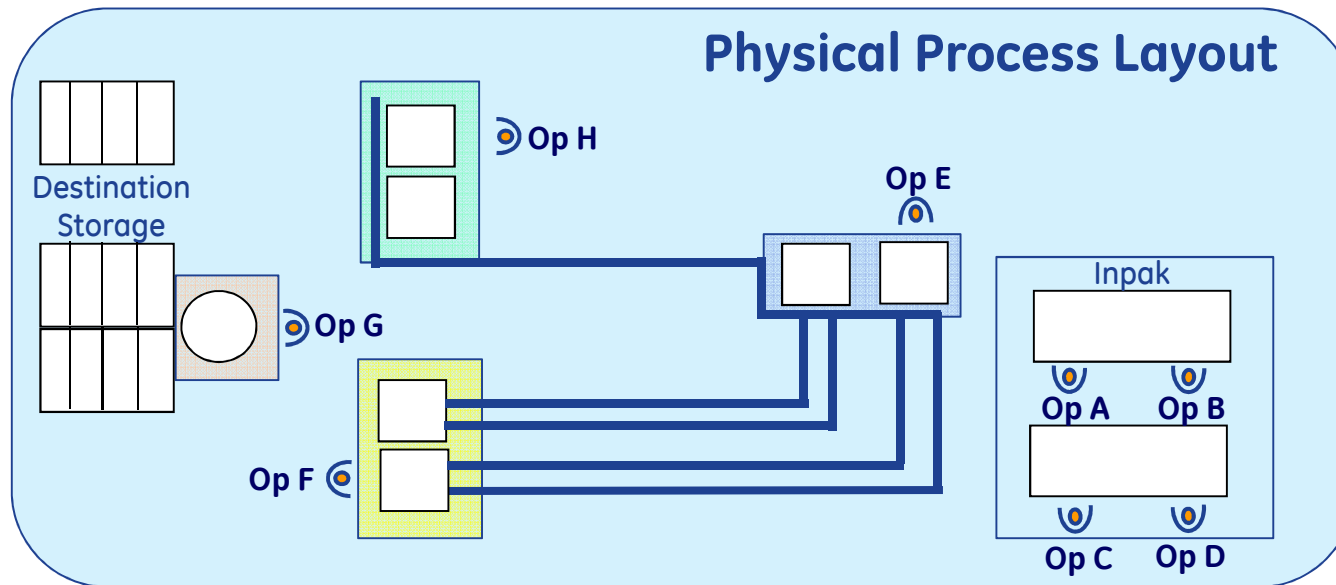
Standard work charts for each key operations

Includes

- Work cycle time
- Key operational activities in sequence
- Highlighting any EHS or Quality standards
- Number of Operators required

Standard Work Line Balancing

EXAMPLE



Description

Operator Loading evaluated & assessed against Takt Time.

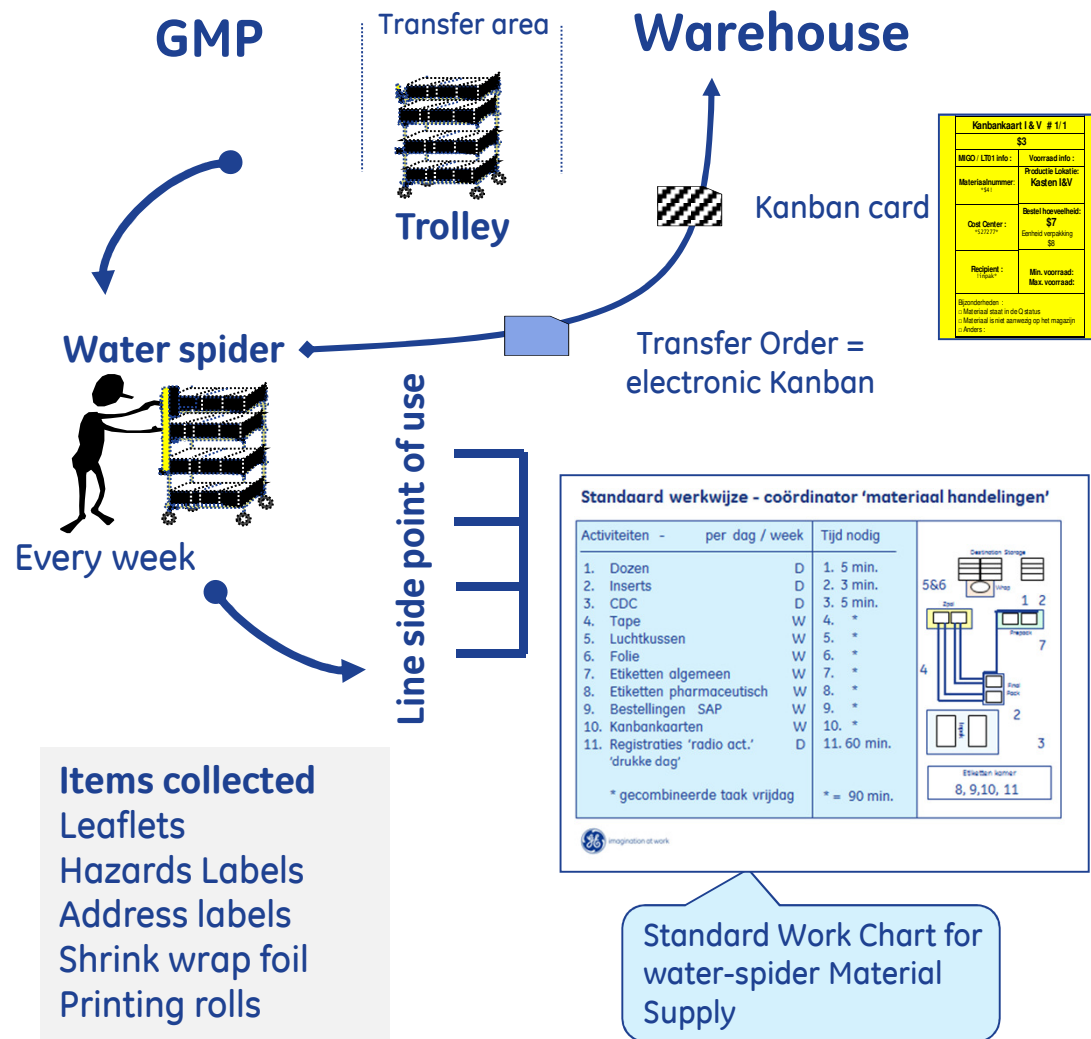
Key Points

- All Operator Loading shows under takt except for Prepack. This extra capacity is driven by job rotations
- Prepack Takt time is 37 secs as calculation is based on one work station, In addition to this task with build a buffer prior to final pack as in order to meet line Takt.
- Analyses based on peak periods from 08.00am to 14.00pm

Material Movement Flow

EXAMPLE

Mover (water spider)



Description

- Water spider role conducted by Team Member
- Pick ups are based on Weekly consumptions
- Warehouse place items as kit for water spider.
- Order requests are done via Kanban card & Leaflets via SAP
- Pick up is on Thursday & delivery time takes 1.5hrs.

Material Movement on Kanban Concept

EXAMPLE

Item: Carton Boxes



Fixed Qty = 825.

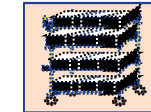
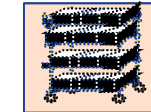
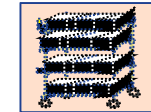


Kanban card

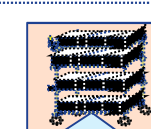
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S3	
MIGO / LTO info:	Voorraad info:
Materiële nummer:	Productie Lokatie:
	Kasten I & V
Cost Center:	Bestel hoeveelheid:
1317227	\$7
	Eenheid verpakking:
	80
Receptie:	Min. voorraad:
1317227	Max. voorraad:
Opmerkingen:	
- Materiaal staat in de Opslag	
- Materiaal is niet aanwezig op het magazijn	
- Anders:	

Transfer Orders
3x per wk

Warehouse



All Prepared
every Friday



One pallet stored in Lock area,
available to pack team during
outside of warehouse hrs.

Description

- Use of electronic kanban on SAP (TO) for material movement
- Fixed quantities & Delivery amounts.

Schedule Production Planning for value stream

EXAMPLE

2 mths
advancing
planning

A1J1 VM 6:30 NM 12:00																				
A 12:00																				
A1vul VM 7:00, Do 7:30																				
NM 12:00 A 12:00																				
A1vul 8:30 Tab 7:30/18v																				
8:00																				
A1vul 8:30 Tab 7:30/18v																				
8:00																				
A1vul 9:00 Tab 7:30/18v																				
8:00																				
Lab spoel+D3 5:00																				
Lab Indik 5:30 / 13:30																				
Lab Lead 5:30/13:30																				
Lab Dats. 6:00, Ma, Di. 13:00, Wo, 12:00																				
Lab Dats. 6:00, Ma, Di. 13:00, Wo, 12:00																				
Lab Dats.																				
6:00, Ma, Di. 13:00, Wo, 12:00																				
Lab MIBG 6:00																				
A1vul/DatSCAN 12:30																				
A1vul/DatSCAN 12:30																				
Lab Jodide 6:30																				
Lab 7: 7:00																				
Lab 8: 7:00																				
Lab 9: 7:00																				
Lab 10: 7:00																				
Lab 11: 7:00																				
Lab 12: 7:00																				
Lab 13: 7:00																				
Lab 14: 7:00																				
Inpak Etiket 1: 7:30																				
Inpak Etiket 2: 7:30																				
Inpak 3: 8:00, twee medew. 18:30, een 18:45																				
Inpak 4: 8:00, twee medew. 18:30, een 18:45																				
Inpak 5: 8:00, twee medew. 18:30, een 18:45																				
Inpak 6: 8:00																				

MvD	JB	ME	DBL	AIW	KT	GF	IvdB	YN	BBo	BH	CvMk	II	II	AvdM	JVe	RM	VvD	IA	RdL	II				
MvD	JB					RvdV									SA	RM	VvD	IA	RdL	II				
FG	MdD				RvdV	RvdV	DBe	AK		RSt	JZ							DvB	QK					
RvdV	ME	DBe	JZ		GL	KT	BBo	IvdB	JB		MvD	Kab	AIW	MR	II	II	AvdM	RM	JVe	VvD	IA	RdL	II	
RvdV	ME					JvB											RM	JVe	VvD	IA	RdL	TBU		
LS	FG					JvB	JvB	AK	YN	PP		RSt	DBI				AvdM	QK	DvB					
KT	TBU	IA	LS		JZ	JB	BBo	MdD	MvD		AK	DBI	YN	CdK	DBe	II		DvB	SA	JVe	VvD	RdL	II	FG
KT					RdL		ME			IvdB								SA	JVe	VvD	YN	II	FG	
TBU						ME	ME	IvdB										AvdM						
KT	DBI	LS	IvdB		RSt	JB	JvB	MdD	DBe		MM	ME	RvdV	II			SA	RM	VvD	IA	RdL	FG		
						JvB												II	VvD	II	RdL	TBU		

Overall
Planning for
Site

Detail coverage by
personnel to
consider holidays,
absences etc.

Flexibility to move personnel
from one Dept to another ! E.g.
clean room to packaging.

Daily Packaging Schedule

EXAMPLE

Assignment of tasks for each team member on a daily basis

Planning									
	Berteke	Miep	Roos	Jacqueline	Tonny	Relinde	Ivonne	Viola	Lenien
Etikettenkamer									
Inpakker									
Verzender									
Cleanroom									

Etikettenkamer

- Labels maken
- Bijsluiters
- Review

Inpakker

- Etiketteren
- Final pack
- Steriliteitscontrole
- Aanvullen (loodpotjes, inserts, doosjes plakken, e.d.)

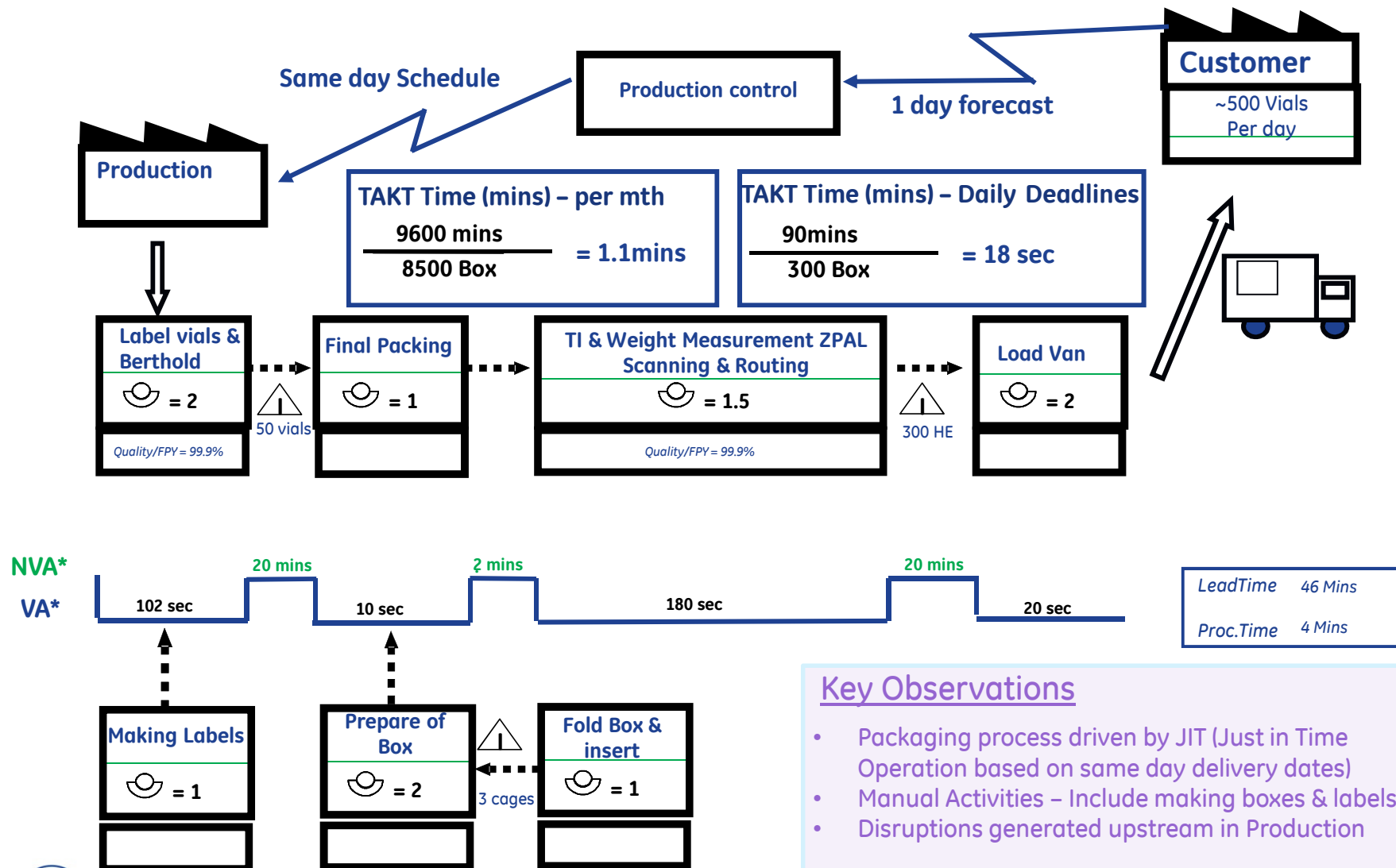
Verzender

- Pre-packen
- Sealen
- Op route zetten
- VAN Manifest

Published & discussed on the daily accountability meeting

Inpak Value Stream – Current State

EXAMPLE

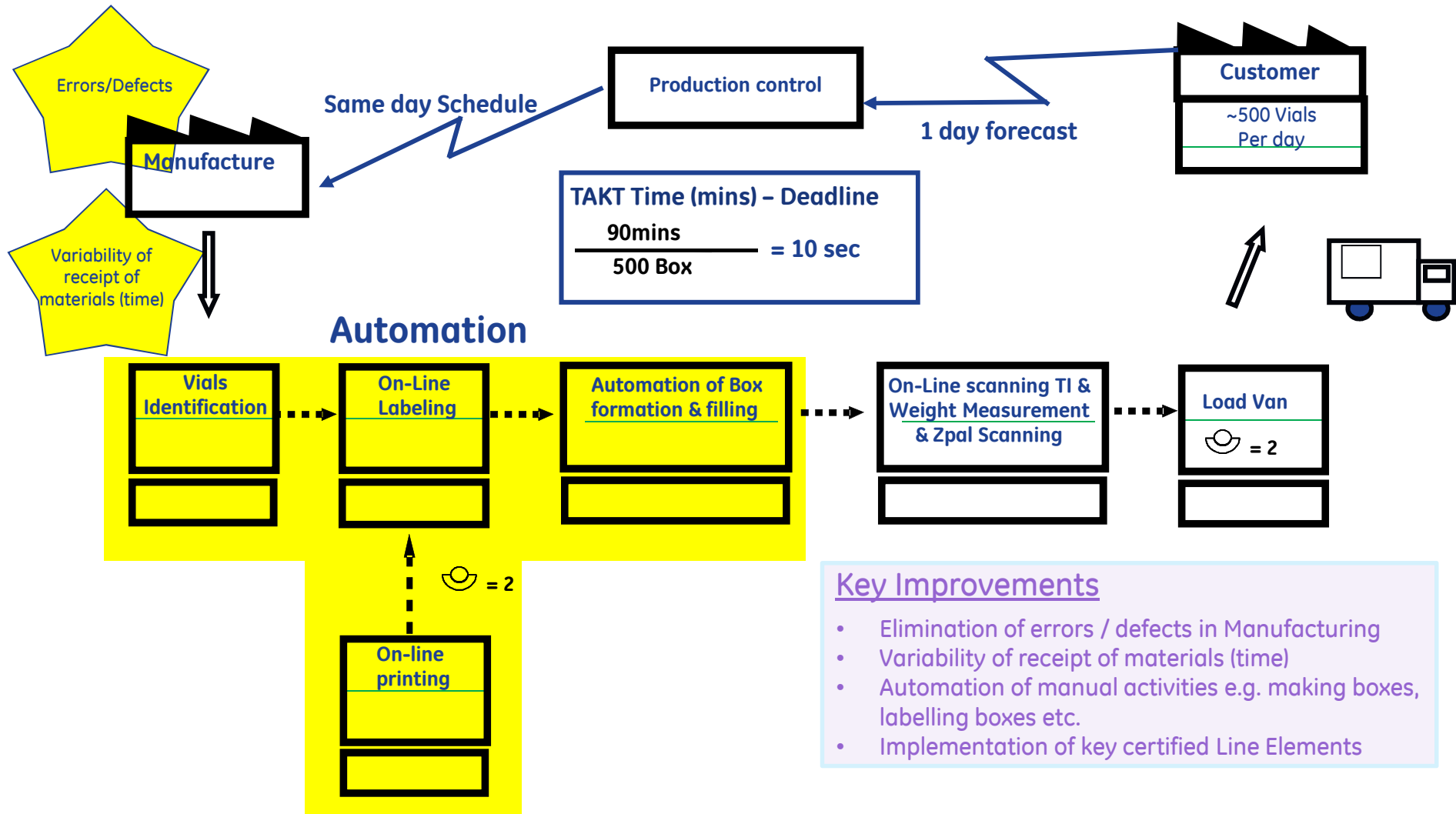


Key Observations

- Packaging process driven by JIT (Just in Time Operation based on same day delivery dates)
- Manual Activities – Include making boxes & labels.
- Disruptions generated upstream in Production

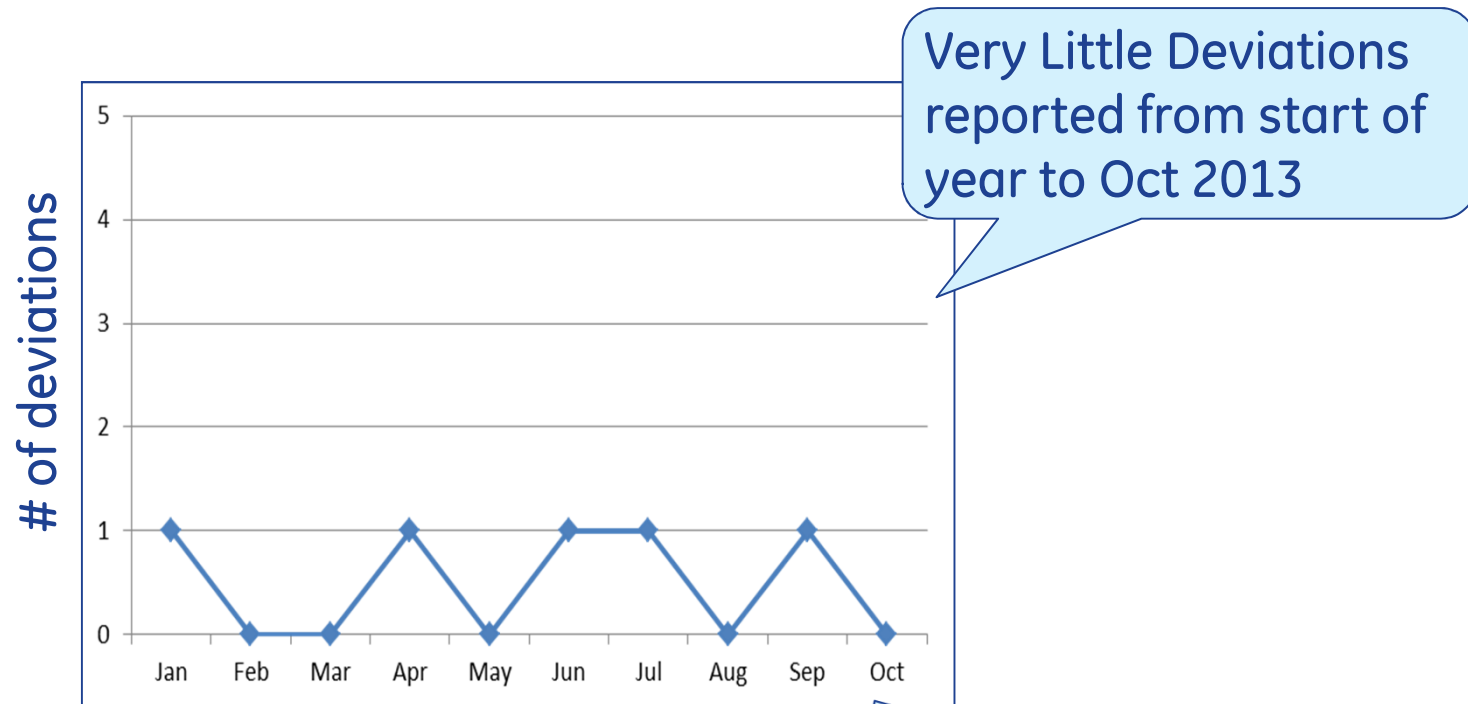
Inpak Value Stream – Future State

EXAMPLE



Overall Inpak Line performance (# deviations reported Internally & Externally)

EXAMPLE



Deviations Breakdown shows 3 internal 2 external (these may be related to transport issues)

Data Source: 2013 Track wise. All Deviations include: Customer related, Equipment breakdown, Material issues etc.

Inpak Team Capability Training Matrix

EXAMPLE

At least 2 people
competent in all
operation

Trainingmatrix						
	F01 Productie etiketten	F02 Inpakker assistent	F03 Inpakker	F04 Autoclaaf werkzaamheden	H03 Verzender 1123 producten	
Suze						
Berteke						
Miep						
Jacqueline						
Roos						
Tonny						
Relinde						
Ivonne						
Viola						
Lenton						
Legenda	Geen training	In training	Gekwalificeerd	Trainer		

Competency
Levels

Description

A Visual Standard
displayed on-line

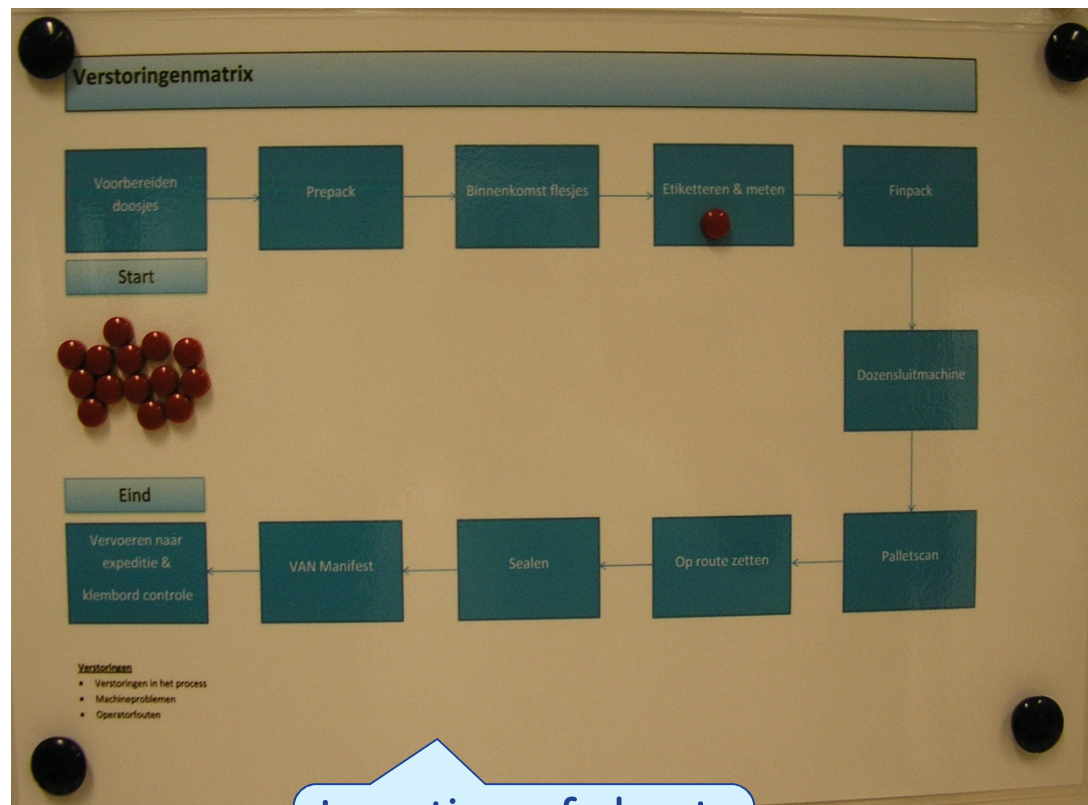
Easily usable as it is
wipable & updated
every set interval

A simple mechanism
to capture teams
capability

Quality Defects Errors Tracking

EXAMPLE

Measles chart



Location of chart
at line side

Description

Schematic diagram of
process flow

Simple tracking
mechanism for
highlighting most
problem areas

Reviews on daily basis
by daily accountability
meeting

Stop Abnormalities in Value Stream...

EXAMPLE

[illegible]

Andon screen



Andon screen Locations

Description

- Andon Screens provide real time transparency of batch progression for each Dept.
- Brings information to who should act.
- Appointed Communicator personnel who coordinates & Initiates actions when process stops or disturbance.
- Visual Control highlights Batch status
 - Green (Good)
 - Red (Stoppage/Disruption)

Total Productive Maintenance

EXAMPLE

1	ID PR	Ouder ID	Site	Kwaliteits Systeem	Titel	Status PR	Aangewezen afdeling	Categorie	Classificatie
2	130347		Oygne Centre	Approved Equipment Recon	Schoonmaak binnenkant kasten Inpak en Verzenden	Actief	RPP-Prepackaging	GxP kritisch	Schoonmaak
3	130886	154367	Oygne Centre	Approved Equipment Recon	Stralingsmonitor & sonde	Actief	RPP-Prepackaging	GxP & EHS kritisch	Meetapparatuur
4	130892		Oygne Centre	Approved Equipment Recon	Gewicht: massastuk 500 g	Actief	RPP-Packaging	Overige	Overige
5	130902	135154	Oygne Centre	Approved Equipment Recon	Weegschaal voor TI-meting	Out of Service	RPP-Packaging	GxP & EHS kritisch	Instrument
6	130904	135154	Oygne Centre	Approved Equipment Recon	Weegschaal voor TI-meting	In Storage	RPP-Packaging	GxP & EHS kritisch	Instrument
7	131014	154367	Oygne Centre	Approved Equipment Recon	Stralingsmonitor & sonde	Actief	RPP-Packaging	GxP & EHS kritisch	Meetapparatuur
8	154367		Oygne Centre	Approved Equipment Recon	Stralingsmonitoren & sonden	Actief	RPP-Packaging	GxP & EHS kritisch	Meetapparatuur
9	195343	195377	Oygne Centre	Approved Equipment Recon	transport trolley	Actief	RPP-Packaging	EHS kritisch	Transport
10	201795	197187	Oygne Centre	Approved Equipment Recon	TI meter	Actief	RPP-Packaging	GxP & EHS kritisch	Meetapparatuur
11	201864	135154	Oygne Centre	Approved Equipment Recon	Weegschaal	Actief	RPP-Packaging	EHS kritisch	Meetapparatuur
12	201869	135154	Oygne Centre	Approved Equipment Recon	Weegschaal	Actief	RPP-Packaging	EHS kritisch	Meetapparatuur
13	203322		Oygne Centre	Approved Equipment Recon	Airspeed smart Airbags machine	Actief	RPP-Packaging	Overige	Overige
14	205838		Oygne Centre	Approved Equipment Recon	Foliewikkelaar	Actief	TS-General	EHS kritisch	Overige
15	218429		Oygne Centre	Draft Equipment Record	Foliewrapper	In afwachting van DER goedkeuring afdelingsho	RPP-Packaging	Overige	Overige
16	218430		Oygne Centre	Approved Equipment Recon	Tape apparaat	Actief	RPP-Packaging	Overige	Overige
17	218431		Oygne Centre	Approved Equipment Recon	Tape apparaat	Actief	RPP-Packaging	Overige	Overige
18	222275		Oygne Centre	Draft Equipment Record	Automatische TI & Gewicht meeting	Geopend	TS-General	GxP kritisch	Geautomatiseerde Systemen
19	235629	194976	Oygne Centre	Draft Equipment Record	Mobiele Airco unit	In afwachting van DER goedkeuring afdelingsho	TS-General	EHS kritisch	Electra

List of Critical Equipment

Packaging Dispatch Key PM activities carried out every 3 mths in Track wise software.

Daily cross functional meeting allows technician to understand priorities for day/week.

Klembord	Lettertype	Uitlijning	Getal	Stijlen	Cellen	Bewerken									
B148	Back-up comp. AT&G-ZPAL														
A	B	C	D	E	F	G	H	I	J	K	L	M	N		
1															
2	Kast 1														
3															
4	Onderdeel van	Omschrijving	Nodig	Aanwezig	TWN nummer	QOL	Kg	Sch	Bestelnr	Leverancier	Contact persoon	Act	Prijs	Prijddat	Opmerkingen
121	I&V	Motor en reductor Inpak en verzending			1		5	4		Eriks	Ruud Louvet		250		
122	I&V	As en bolende rol			1		5	4							
123	I&V	Kogel lager tbv bolende rol			1		5	4		Eriks					
140	Inpak en Verzending	Back-up comp. AT&G-ZPAL		1	1				T127	HP	H.Peele C.cox				
151															
152															

List of Critical Spares

Limited number of critical spares present as all workstations are design for dual operation

Example of Poke Yoke

EXAMPLE



SAP Trans.

CDC

Carton Box

Description:

Bar code scanning of Box, Leaflet & Product to ensure correct configuration – Error proof 100% made to order.

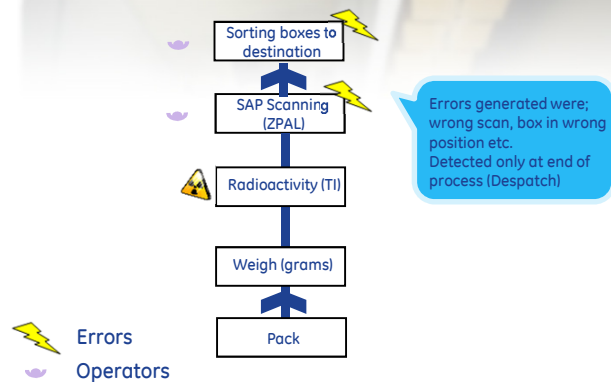
System will highlight by error message & will not allow to proceed.

Example of Jidoka Automate , Detect abnormal conditions and stop when out spec

EXAMPLE

Before

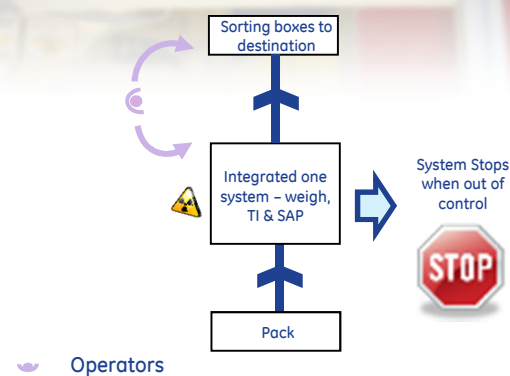
2 FTE's



Manual Process for handling, recording data & Measuring. Labour intensive & radioactivity dose.

After

1 FTE's

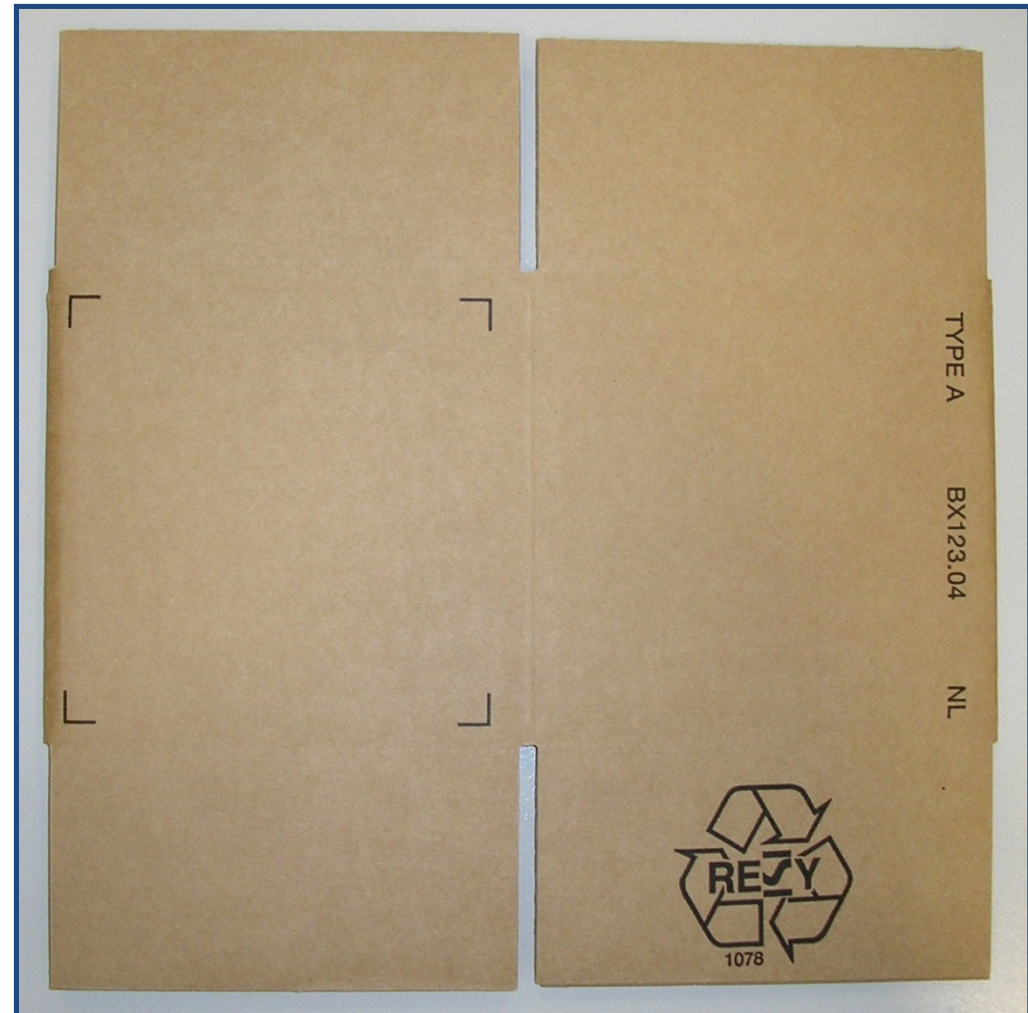


Automated SAP scanning, TI radio activity and gravity measurement for less Dose, less errors, less labor

Automation

Voorraad I123-doosjes

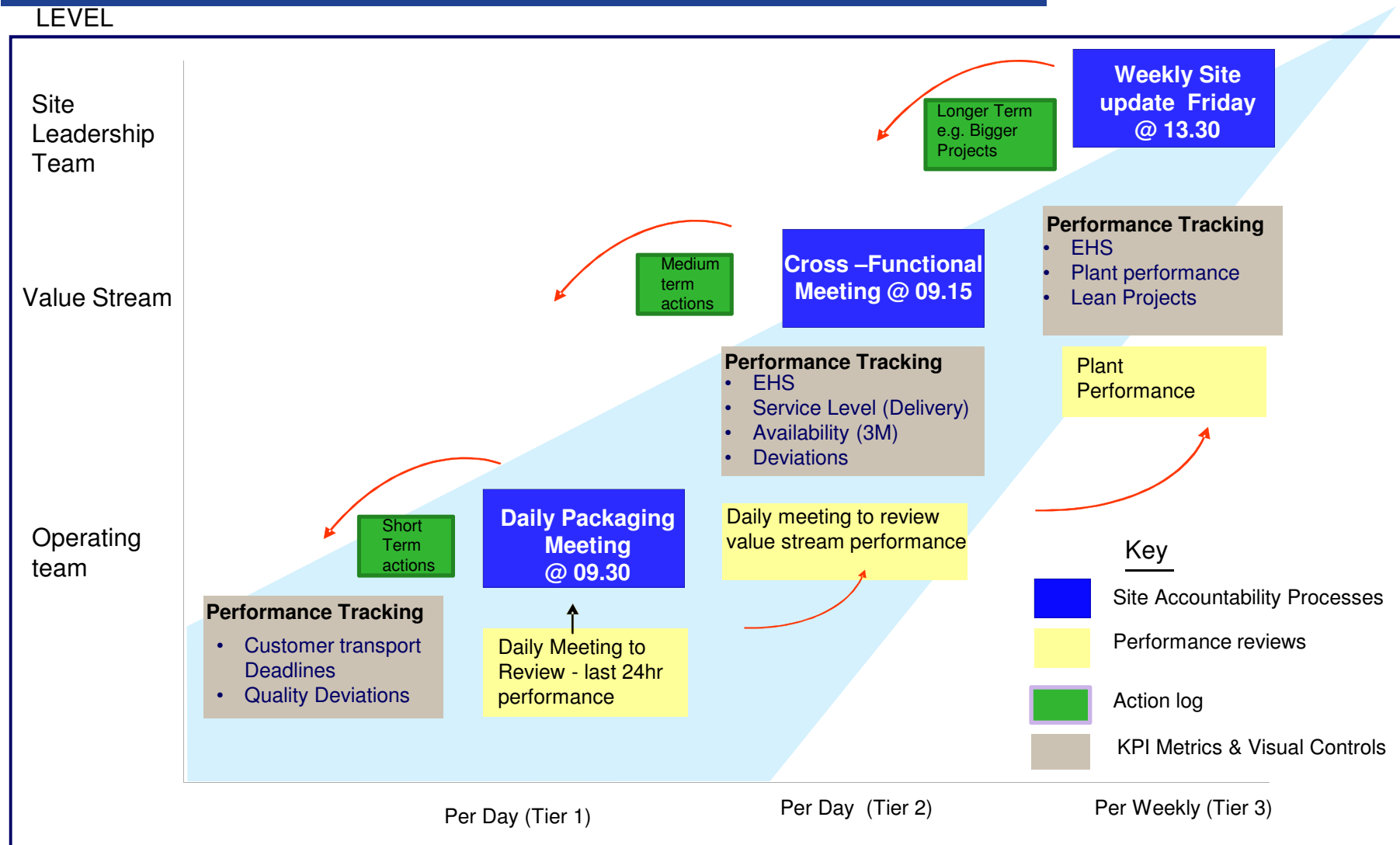
- Controleer voor het vouwen en plakken van de doosjes of de tekst overeen komt met het voorbeeld.
- Als de laatste kar met doosjes hier geplaatst wordt geef dit dan door aan de dagverantwoordelijke van I&V. Er wordt dan een nieuwe kar besteld.



Control

Performance Management Structure

EXAMPLE



imagination at work

Overall Eindhoven Performance Accountability Processes

Performance Management Structure

EXAMPLE

Training Capability
Matrix

Agenda for Daily
Meeting

Defect Tracking



Realise
Idea's by
Team

Performance Tracking
based on Deadline
Commitments

Resource Status

Description

Typical Line side
performance &
accountability process
present for Inpak en
verzending.

Line Side Performance Board

Realization Scheme

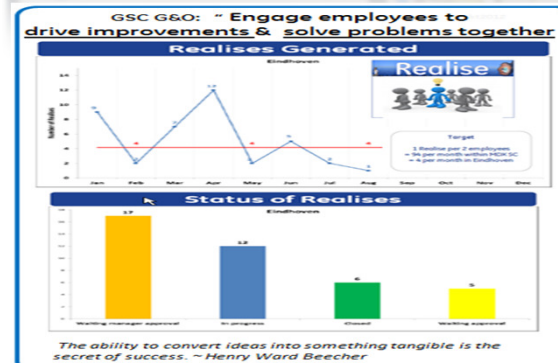
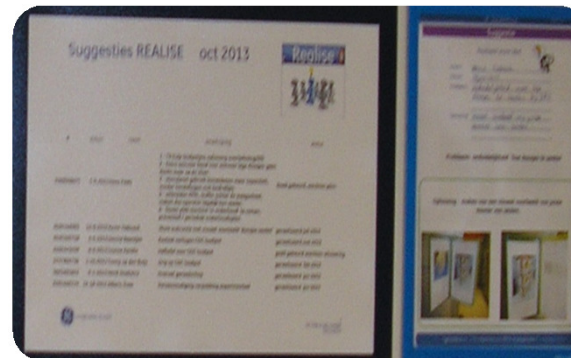
EXAMPLE

REALISE suggestion scheme



Process Location
around Site

Examples of ideas from
Packaging Team displayed &
discussed in the daily meeting



Tracking of reporting of ideas
generated to completion

Description

Visual Outline of
Process in Local
Language

Highlights of ideas &
rewards for individuals
& Team.

Process driven by
Realisation Board

Example of Idea Generation to completion for Inpak

EXAMPLE

Idee	Suggestie
<p>Henk Hoeksta diende een idee in om het overladen van de loodpotjes naar de loodkar te vereenvoudigen en te verlichten.</p>	<p>Realiseer jouw idee</p>
<p>Situatie voor</p> <p>Het probleem: 1 x per week worden in het magazijn drie pallets met grote dozen met loodpotjes in ontvangst genomen. Deze moeten worden overgeladen op een loodkar, waarbij het erg onhandig is dat de doosjes niet makkelijk op te pakken zijn. Het kost veel tijd en is een flinke belasting voor je rug.</p>	<p>Naam: <u>Kevin Tiebosch</u> Datum: <u>13 jun 2013</u> Probleem: <u>onduidelijkheid over hoe doosjes te sealen bij I&V</u> Oplossing: <u>visueel voorbeeld van juiste manier van sealen</u></p>
<p>Situatie na</p> <p>Het resultaat, een constructie op de elektrische palletstapelaar die de doos op de kar schuift, is tot stand gekomen in samenwerking met magazijn en technical services. Het levert veel tijdswinst op en de kans op geen rugklachten is aanzienlijk verkleind.</p>	<p>Probleem: onduidelijkheid 'hoe doosjes te sealen'</p> <p>Oplossing : maken van een visueel voorbeeld van juiste manier van sealen.</p>
	
<p>"Great ideas originate in the muscles" Thomas Alva Edison</p>	<p>"genialiteit is : 1 % inspiratie en 99 % transpiratie !" ~Thomas A Edison</p>

Lean Certification 07nov2013



Back up slides

Lean Certified Line – Eindhoven

Inpak en Verzending

November 2013



Why was it important ?

- Increase productivity
- Stimulate shop floor engagement in improvements
- Model line for the site, other lines to follow this best practice...
- EHS, reduce radio activity dose

How was it achieved ?

- The packaging team conducted a number of AWO's and a jidoka project.
- Focused on the top few to close the gap on certified line
- Education & understanding of Lean certified elements.

Implementation solutions

Workplace Organisation

EXAMPLE



Documentation by Destination Route

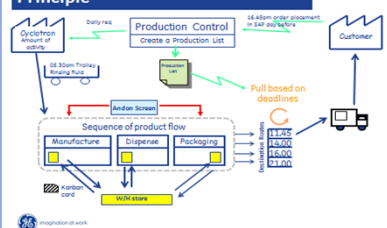
Floor Storage

Description

Visual Management to drive set standards across Inpak Packaging line.

Daily Pull System based on JIT Principle

EXAMPLE



Example of Poke Yoke

EXAMPLE



Description:

Bar code scanning of Box, Leaflet & Product to ensure correct configuration - Error proof 100% made to order. System will highlight by error message & will not allow to proceed.

Example of Idea Generation to completion for Inpak

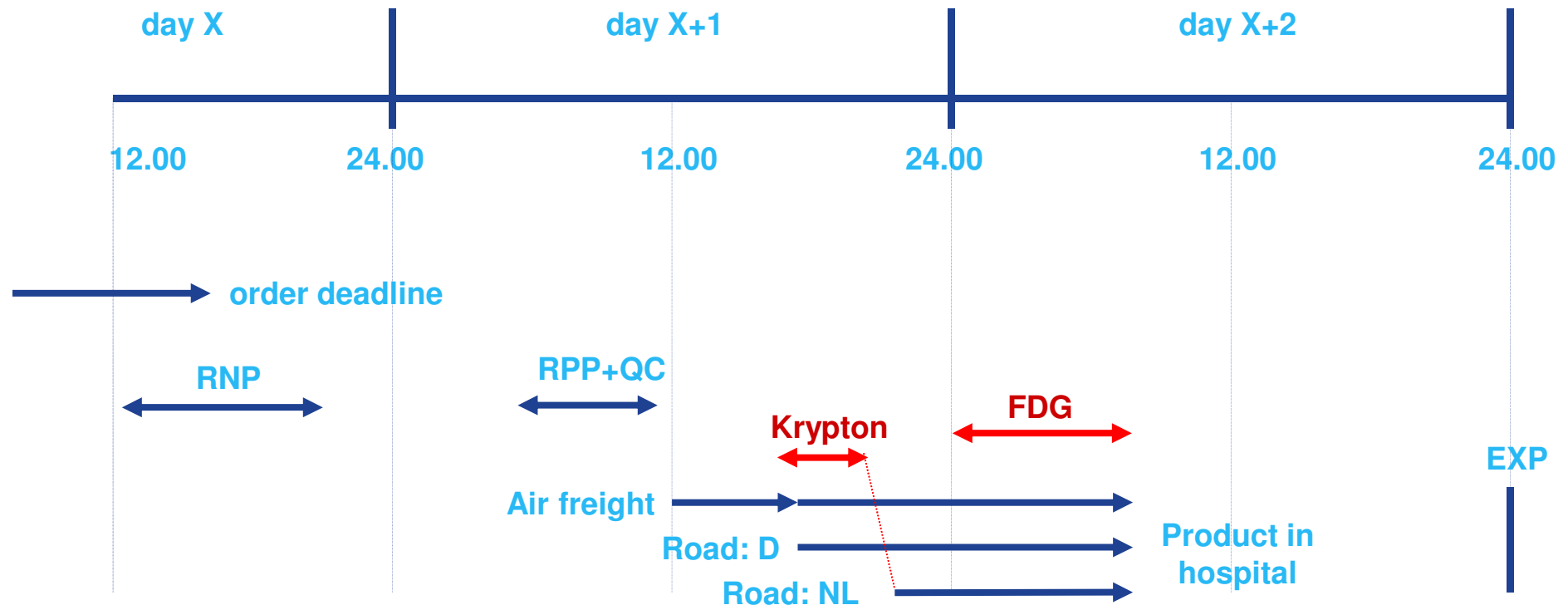
EXAMPLE



What impact has it made ?

- Transparency & visibility of operating standards
- Right First Time has increased > 50 %
- Radio Active dose reduction 30 %
- 1 FTE reduction.

Cycle times and schedules fixed by transport deadlines, half-lifetime, EHS constraints.



^{123}I	5 days/week
^{81}Rb	5 days/week
^{18}F	5 days/week

^{123}I	7 deadlines/day
^{81}Rb	1 deadline/day
^{18}F	2 deadlines/day

Typology Henri Minzberg 'Machine Bureaucracy'

Coordination mechanism:

- Standardization of work.

Design parameters:

- formalize behavior;
- decentralization;
- span of control.

Contention factors:

- rational, reliable & consistent;
- change processes slow;
- resistance to changes;
- horizontal functioning teams.

Features machine bureaucracy

Stable environment, mature organization, strongly standardized, formalized, centralized decision making.

Top management priority: 'fine tuning' efficiency. Low entrepreneurship.

Performance organisation: enables efficient and low cost manufacturing.

Benefits and challenges

- + reliable
- + stability
- + potentially low cost and efficient manufacturing
- Slow change processes
- Motivation workers
- Strong bureaucracy

Operation excellence criteria

Minzberg

- Efficient coordination
- Take into account key factors: standardization.
- Optimize span of control
- Leave space to employees to organize their work
- Balance robust en flexible
- Design for standards not exceptions