



# Caterpillar Production System (CPS) deployment in Lummen

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**THE WORLD IS OURS**  
TO PRESERVE • TO EXPLORE • TO DEVELOP





**It is always possible to improve !**



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# How to continuously improve,



# globally,



# involving all units of a large organization ?



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# ENTERPRISE STRATEGY

RENEWING OUR STRENGTHS...  
...SHAPING OUR FUTURE

VISION  
2020

Best Team



## Global Leader

- Quality
- PINS
- Aftermarket Parts

We U

PRODUCTS & SERVICES

DEALER SUPPORT

COSTS

### OUR VALUES IN ACTION

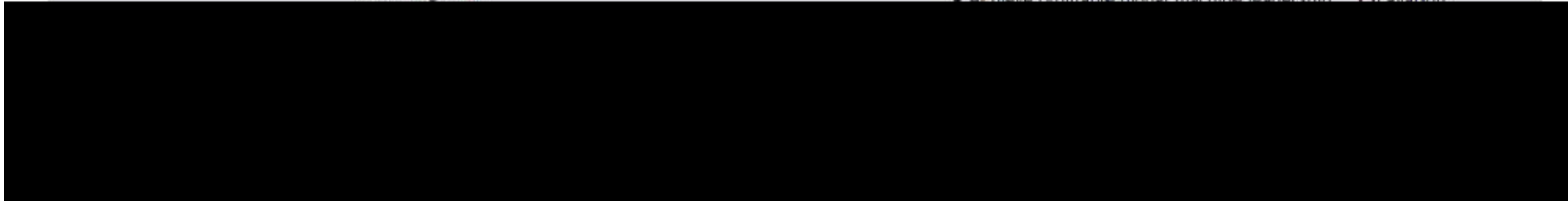
INTEGRITY • EXCELLENCE • TEAMWORK • COMMITMENT

CUSTOMERS



- Execute the Business Model... accelerate aftermarket parts and services growth

- Win in China... grow to leadership in India, ASEAN and CIS
- Achieve profitable global machine leadership... Excavation



**MAKING SUSTAINABLE  
PROGRESS POSSIBLE**

**CATERPILLAR®**  
TODAY'S WORK. TOMORROW'S WORLD.™

# 3 sub-systems and 15 guiding principles



# Caterpillar Production System: what is it about ?



## Eliminating waste !

 <b>Unused Creativity / Capability</b> Lost opportunities due to poor safety and a disengaged workforce	 <b>Defects</b> Production of rework of out-of-specification parts	 <b>Inventory</b> Excess raw material, work-in-process or finished goods	 <b>Over Production</b> Excess supply beyond the requirements of the next process
 <b>Waiting</b> Lost time due to poor product flow — shortages, bottlenecks, down machines	 <b>Excess Motion</b> Wasted movement made while working	 <b>Transportation</b> Excess movement of work-in-process	 <b>Over Processing</b> Work that adds no value to the customer or business



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# Caterpillar Production System at Cat Logistics



Supply Chain Award  
Project of the Year  
2011

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+



**vib**  
Vereniging voor  
Inkoop en  
Bedrijfslogistiek

**PIGS**

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# Excellence in Aftermarket not only to Caterpillar...

## AUTOMOTIVE

**VOLVO**  
Volvo Car Corporation

 **HYUNDAI**

 **LAND-ROVER**

 **Ford**

 **KIA**

 **SAAB**

 **SCANIA**

 **MAZDA**

 **SSANGYONG**

 **AFFINIA**

 **QH**

 **EATON**

**DAIMLER**

 **Xpart**

## INDUSTRIAL

**CATERPILLAR®**

 **AGCO**

 **Manitowoc**

 **FG WILSON**

 **kverneland group**

 **MCE**  
MITSUBISHI CATERPILLAR FORKLIFT

 **Perkins**

## MINING, OIL & GAS (MRO)

 **Mosaic™**

 **NEWMONT™**  
The Gold Company

## OTHER SERVICE PARTS

(Aerospace & Defense, Technology and Consumer Durables)

**Honeywell**

 **Husqvarna**

 **HARLEY-DAVIDSON COMPANY®**

**BOMBARDIER**  
AEROSPACE

 **BOMBARDIER**

**TOSHIBA**  
 **U.S. Cellular**  
*"The easy people talk around here."*

 **IRWIN®**  
Industrial Tools

# Cat Logistics Lummen



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- European Master for **Hyundai** (since 1997) and **Kia** (since 2006)

- Replenishment to other European DC's + Dealer Direct to Benelux
- 52,000 sq m
- 145 people
- 10.000 outbound order lines per day
- Bonded warehouse



**MOBIS**



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# CPS Boards



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CAT Production System		An Admired Global Leader Making Progress Possible				Facility / Business Unit Level				ISODING PRINCIPLES	
		PLAN	DO	CHECK	ACT	CHECK	ACT				
<b>PEOPLE</b>		Key Objectives Plan	Operational Load Plan	HR and LT225	Process Performance and Environmental Risk	Controlled EPP (MIL, REL, SS, SAFETY)	PEOPLE Objectives	PEOPLE Objectives		Plant Objectives (Operational Excellence) (MIL)	
<b>QUALITY</b>		Key Objectives Plan	Customer Satisfaction (SST) or (SSE) or (SPE)	Customer Quality Objectives (All These Things are Done and Reported on (SPE)	Customer Satisfaction	Standard Work, Customer Awareness, 5S and 6S, Inventory, Quality Awareness	QUALITY Objectives	QUALITY Objectives		Plant Objectives (Customer Satisfaction) (SPE)	
<b>VELOCITY</b>		Key Objectives Plan	Standardized Best Data Performance	Lean Inventory System	% Plant	Plant of the Month Awardability	VELOCITY Objectives	VELOCITY Objectives		Plant Objectives (Customer Satisfaction) (SPE)	
<b>COST</b>		Key Objectives Plan	Strength Chart (Risk Propagation)	Customer Quality Objectives (All These Things are Done and Reported on (SPE) and (SSE) and (SPE)	Cost Objectives	Cost Objectives	Cost Objectives	Cost Objectives		Plant Objectives (Customer Satisfaction) (SPE)	

Facility boards with **P**eople, **Q**uality, **V**elocity & **C**ost KPI's



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# Continuous Improvement in Action

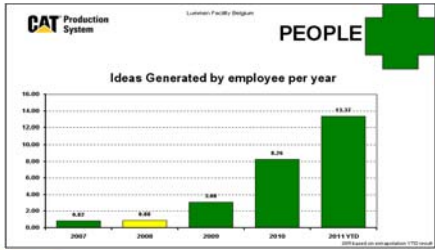


- Engage minds throughout the team
- Utilize ideas from those closest to the work
- Feedback loop is critical



People metric:

- Number of ideas per employee per year
- Number of ideas closed within 30 days



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# PQVC Balanced Scorecard



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**CATERPILLAR**  
*Caterpillar: Confidential Yellow*

Last Update: **May-10**  
Selected Period: **2010**  
Date: **6/27/2010**  
Time: **12:05**

**PQVC Balanced Scorecard**  
*Standard Edition*

**CAT** Production System

Global reporting database

28 PQVC metrics by:

- Client
- Facility
- Manager
- Network
- Region
- Division



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# Projects



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Different types of projects exist:

- Rapid Improvement Workshop (RIW)
- CPS 6 sigma project (DMAIC)
- Value Stream Transformation (VST)

Examples Lummen:

- Improve short term absenteeism
- Value stream transformation of the shipping floor



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# Improve short term absenteeism



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Negative discussion → Positive discussion



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# Improve short term absenteeism



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Focus on  
administration



Focus on  
communication



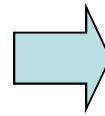
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# Improve short term absenteeism



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Individual manager approach



Standard Process



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# Improve short term absenteeism



From



To

- ✓ Negative discussion
- ✓ Focus on administration
- ✓ Individual manager approach

**4% short term absenteeism**

- ✓ Positive discussion
- ✓ Focus on communication
- ✓ Standard process

**2.9% short term absenteeism**



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# Value Stream Transformation Shipping



## Burning Platform

- Growing Dealer Direct business
- Client request to integrate Returnable Boxes

## Hurdles

- Process area layout inadequate for changing business
- WMS adjustments needed for Returnable Boxes project
- Overcome people's resistance to change



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# Value Stream Transformation Shipping



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## PEOPLE



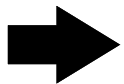
- Layout changes resulting in 15 safety and ergonomic improvements

## QUALITY



- Significant improvement on claims
- Zero lines missed during start-up Returnable Boxes

## VELOCITY



- Extended cut-off times triggering 60% additional sales for France
- New layout & flow supporting future growth

## COST



- Within budget Returnable Boxes implementation

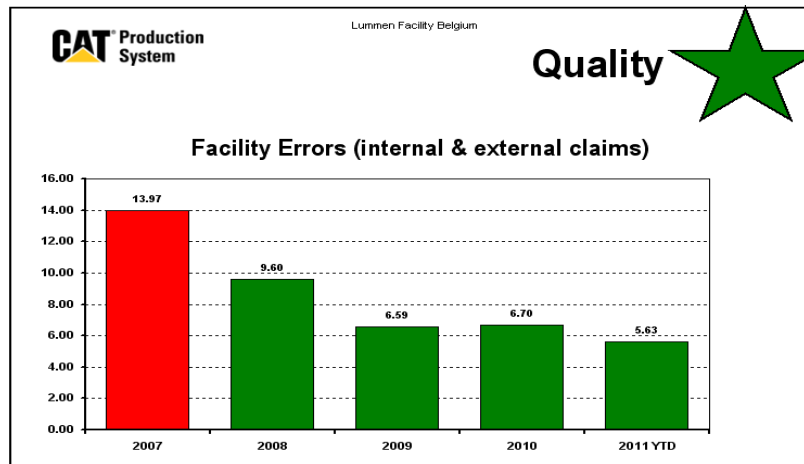


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# Results (Lummen)



LUMMEN PQVC Evolution 2007-2011		U/M	2007	09 2011 YTD	2007-2011 Progress
PEOPLE +	EOS Engagement Index	%	76.00	86.00	10 points
	YTD Ideas Generated Per Employee		0.82	8.52	939%
	% of Ideas Closed Within 30 Days	%	61.21	96.64	35 points
QUALITY ★	Facility Errors (Internal & External Claims)	per 10.000 order lines	13.97	5.57	-60%
	Storage Location Accuracy	%	98.78	99.61	0.83 points
	Bin Denials (NAs)	per 10.000 order lines	15.16	3.81	-75%
	CPS Assessment Score		N/A	56.64	173%
VELOCITY ➔	Receipts Posted in Standard (Recv Perf)	%	100.00	100.00	0 points
	Shipped Within Standard (Cust Del Perf)	%	99.86	100.00	0.14 Points



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# Key changes



From



To

✓ Individual facilities setting KPI goals, measuring KPI results, ...

✓ Certain improvement tools used, but not in full effect (eg housekeeping program, ...)

✓ Unused creativity of all Caterpillar employees

✓ Global goal setting for KPI's, measuring KPI results in 1 reporting database, ...

✓ Many CPS tools implemented, actively being used and integrated

✓ More than 500,000 improvement ideas created



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# Future ...



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✓ Continue our roadmap

✓ Sustain our success

✓ Improve CPS further



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# Thank you !



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Anke Roeyen  
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Supply Chain Solutions  
Caterpillar Logistics Services, Inc  
EAME Region



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