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# **Polaris & Stern**

## ***A Fulfillment Stream Partnership***

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# Purpose of Today's Presentation

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- **Why did Polaris drive for Lean Fulfillment (LFS) ?**
- **How did we go about implementing the LFS ?**
- **What data was required ?**
- **What tools are we using ?**
- **What are the measures of success ?**
- **What did we learn along the way ?**
- **What is the suppliers perspective of the journey ?**

# Polaris Industries Overview

- Established 50+ years ago in Roseau, Minnesota
- Annual 2007 sales of \$1.8 billion
- Headquarters in Medina, Minnesota
- Plants in Roseau MN, Spirit lake IA and Osceola WI
- Polaris designs, engineers, manufactures and markets all-terrain vehicles (ATVs), including the Polaris RANGER™, snowmobiles and Victory Motorcycles for recreational and utility use.
- 450 + Suppliers
- 14,000 + Part Numbers



# LeanCor Overview

## Vision:

- To be the global leader in Lean Fulfillment Stream.

## Background:

- Created to drive the next step in the evolution of Lean
- The only 3PL dedicated to the application of Lean principles
- Teaching, operating, writing, thinking the Lean Fulfillment Stream

## Services:

- Training and Education (Public & Private Sessions)
- Consulting (Quick Win Services)
- Lean 3PL Operations (Logistics Engineering & Route Management)



# Stern Industries Corporation



Supply Chain Management - Baxter, MN



Stern Manufacturing/Rubber - Staples, MN  
Stern Manufacturing/Rubber - Aitkin, MN  
Stern Manufacturing/Rotomold - Riverton, MN



Brainerd, MN

***Integrated Solutions for a Demanding World***



- Established in 1969 in Chaska, Minnesota, moved to Staples, Minnesota in 1973
- Corporate Office in Baxter, Minnesota
- Plants in Staples, Aitkin, Brainerd, and Riverton, Minnesota
- Stern Industries is a combination of a manufacturing company and a supply chain management company.
- On the supply chain management side, we have 19 pickup points for Polaris, besides our own manufacturing plants.
- We have been a Polaris supplier for about 20 years, and are currently their 4<sup>th</sup> largest supplier.



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# Why did we do it ?

# The Need For Change: Logistics Wastes



Inventory



Transportation



Time



Space



Process



Packaging

## Lean Inbound Fulfillment – Project Goals

1. Optimal frequency of delivery from selected suppliers and customers
2. Leveling flow of material to the manufacturing plant and customers
3. Implementing pick up verification and pipeline visibility processes
4. Reducing raw material and finished goods inventory levels
5. Implementing disciplined, integrated logistics engineering processes
6. Management and reduction of transportation costs
7. Implementation of returnable packaging
7. Uncover “rocks” and dealing with issues at the root cause

***Reduce Waste + Reduce Lead Time = Reduce Costs***



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# How did we start ?

# The First Few Steps

Phase 1  
1 Month

## Phase 1 – Vision Generation

- October 06 – November 06
  - Current Condition Analysis
  - Opportunity Analysis
  - Operational Gap Analysis
  - Cost Reduction Opportunities Assessment

Phase 2  
3 Months

## Phase 2 – Implementation Planning

- February 07 – April 07
  - Short Term Goals & Long Term Planning
  - PFEP & Supplier Data Collection
  - Static Launch Design
  - Launch Schedule
  - Planner/Supplier Training
  - Supplier Volume Audits
  - Volume Volatility Analysis
  - Cross-Dock Planning & Kaizen Events

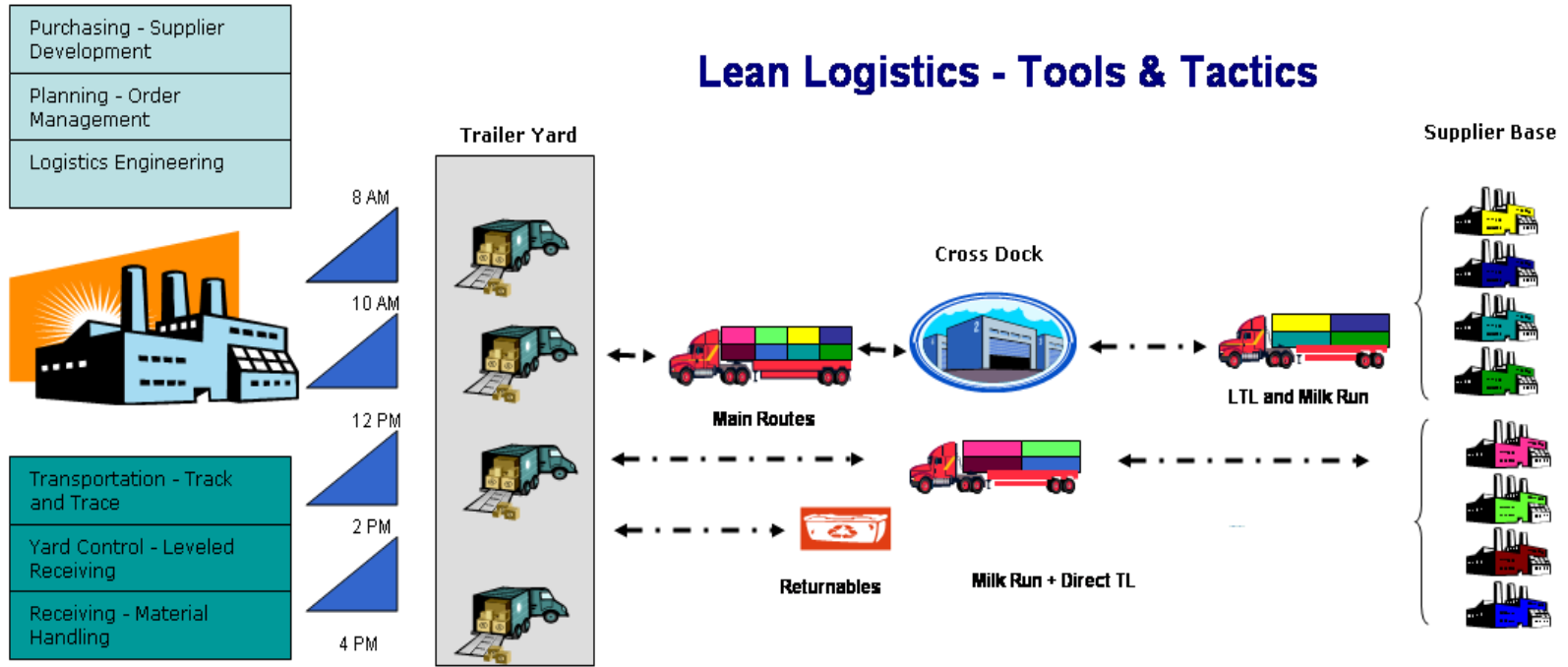
Phase 3  
Ongoing

## Phase 3 – Implementation

April 07 – Present & Ongoing

- Project Management
- Opportunity Measurement
- Continuous Improvement & Savings Analysis

# The Tactical Plan



**Collaboration**  
**Problem Identification**  
**Root Cause Analysis**  
**Problem Resolution**

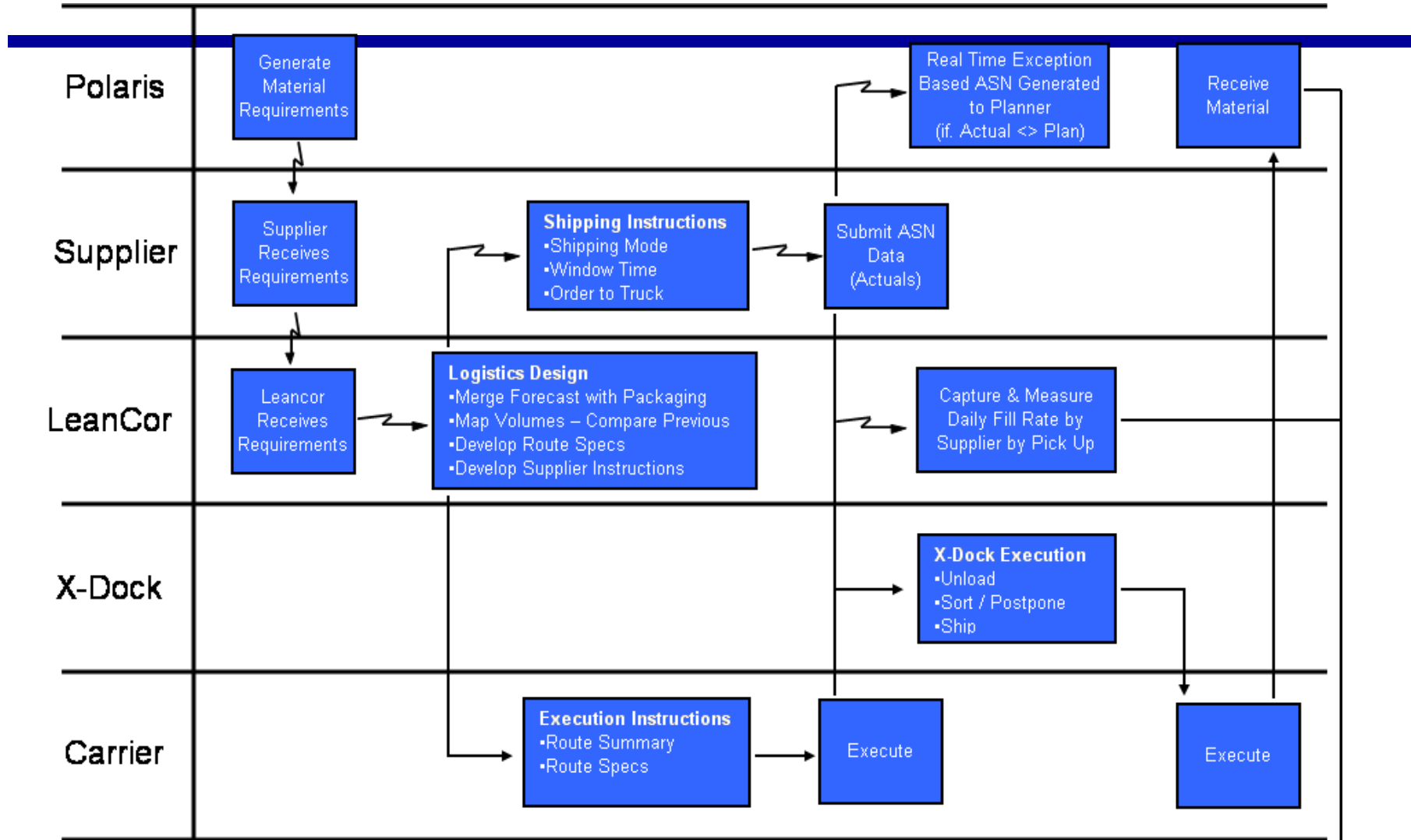
**Increased Delivery Frequency**  
**Receiving Schedule**  
**Yard Schedule**  
**Leveled Flow**

**Milk Runs**  
**LTL Consolidation**  
**Cross Docking**  
**Track & Trace**

**Lot Size Reduction**  
**Shipping Instructions**  
**Pick Up Verification**  
**Supplier Development**

**Standard Processes - Visibility to Activity - Plan:Do:Check:Act : Immediate Feedback - Identify and Fix Problems - Stabilize**

# The Lean Inbound Fulfillment Process



**Plan - Do - Check - Act**

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# What data did we need ?

What were the challenges in collecting the data ?



# Supplier File

<b>SUPPLIERS</b>	Vendor Number
	Supplier Name
	Polaris Key Contact
	Confirmed Shipping Address
	City
	State
	Zip Code

<b>SHIPPING INFO.</b>	Contact Person
	Phone Number
	E-mail
	Fax Number
	Confirmed Shipping Days (Ex: MTWRF)
	Shipping Hours
	After Hours Contact Person
	After Hours Contact Phone Number

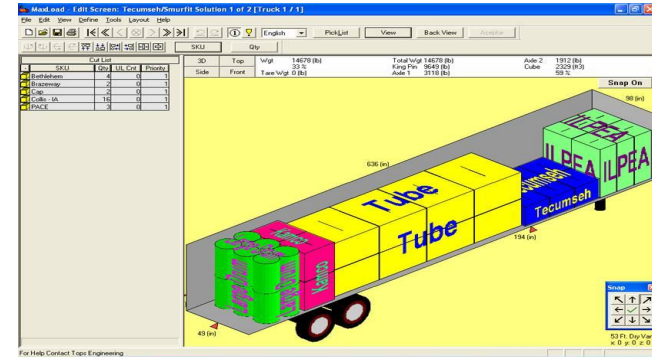
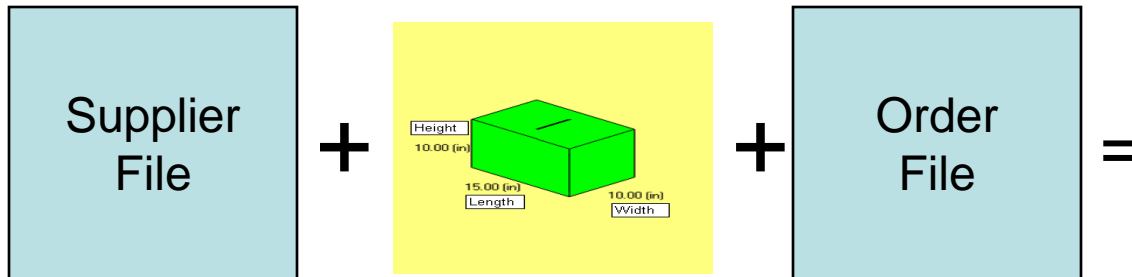
<b>CONTACT INFO.</b>	Supplier Contact
	Supplier Contact Phone
	Supplier Contact Email
	Supplier Contact Fax

<b>IDIOSYNCRASIES</b>	Multiple Shipping Locations? (yes/no)
	Returnables Involved? (yes/no)
	Terms (Prepaid, Collect etc.)
	Current Mode (LTL/TL)
	Current Pickup freq./week (1, 2, etc.)
	Pallets / per pickup (1,2,etc.)
	Weight / per pickup (500,2500,etc.) (lbs)
	Notes

<b>Parts Per Plant</b>	Roseau
	Spirit Lake
	Osceola
	Vermillion
	Total

# Order File

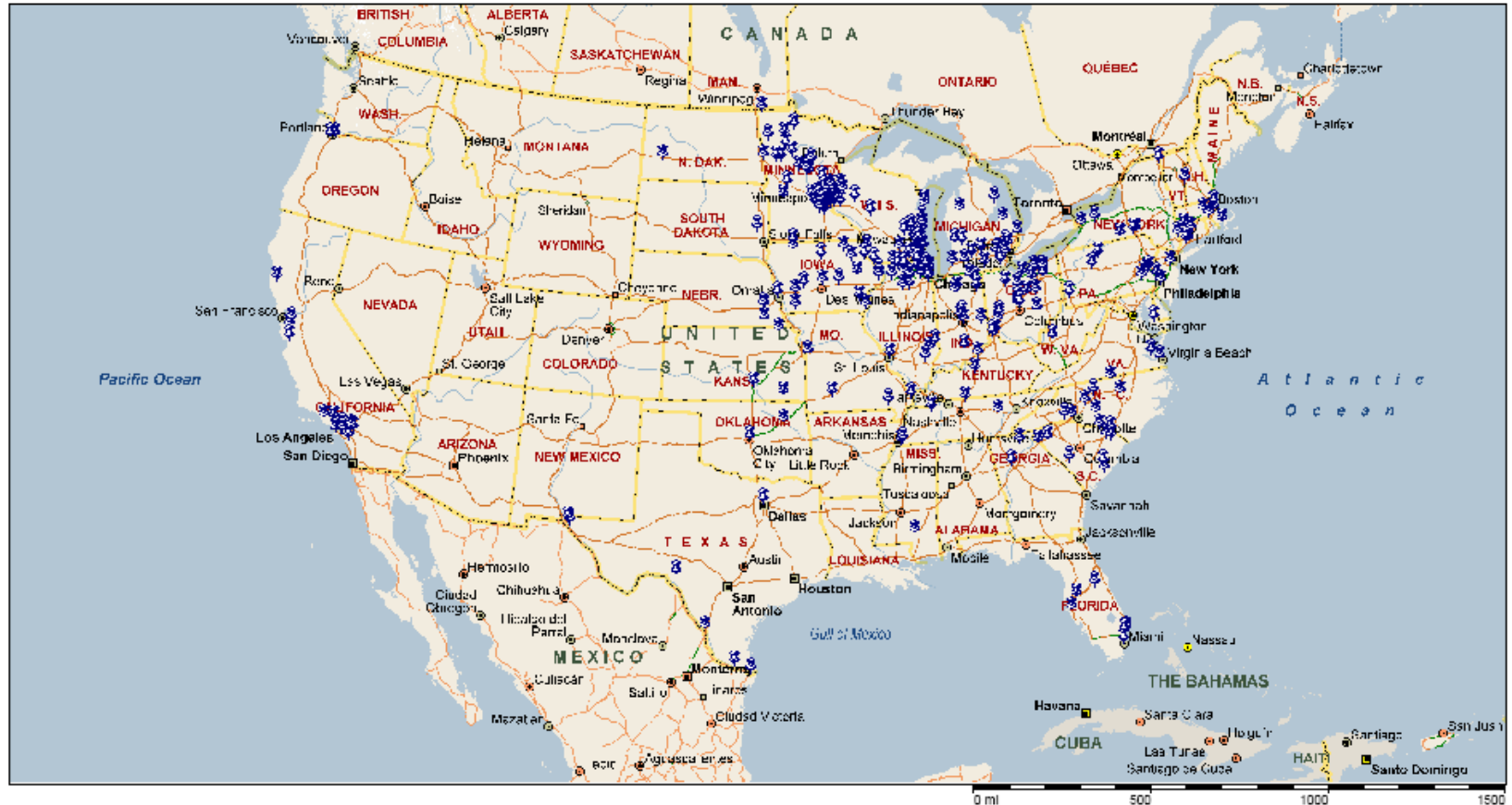
Order Number	Vendor Number	Warehouse	Planner	Item number	Item description	Req Date (Dock Date)	Req Qty
P721166	89594A	2	111	1203655	ASM-AIRBOX,550	07-Feb-08	6
P721835	89594A	2	111	2520409	ASM-FUEL TANK	08-Feb-08	150
P722081	89594A	2	111	2520595	ASM-FUEL TANK	08-Feb-08	288
P722089	89594A	2	111	5436568	DUCT-CLUTCH, AIR OUTLET	08-Feb-08	280
P722935	89594A	2	111	5135416	SPACER-THROTTLE	08-Feb-08	600
P723005	89594A	2	111	5434545	BUSHING-SWINGARM,LH,HYBRID,BLK	08-Feb-08	400





# Supplier Map

North America Supplier Locations



# Lean Launch Plan

Region Name	Target Start Date	Target "Go Live"	19-Mar-07	26-Mar-07	2-Apr-07	9-Apr-07	16-Apr-07	23-Apr-07	30-Apr-07	7-May-07	14-May-07	21-May-07	28-May-07	4-Jun-07	11-Jun-07	18-Jun-07	25-Jun-07	2-Jul-07	9-Jul-07	16-Jul-07	23-Jul-07	30-Jul-07	6-Aug-07	13-Aug-07	20-Aug-07	27-Aug-07	3-Sep-07	10-Sep-07
			Wisconsin/Milwaukee	3/19/2007	4/30/2007	█	█	█	█	█	█	█																
Review and Kaizen	4/23/2007	5/21/2007						█	█	█	█	█																
Cleveland, Buffalo	5/7/2007	6/4/2007							█	█	█	█	█															
Chicago	5/14/2007	6/11/2007								█	█	█	█	█														
Michigan / N. Indiana	5/28/2007	6/25/2007										█	█	█	█													
PA, CT	6/18/2007	7/16/2007													█	█	█	█	█									
Lincoln, NE / IA	6/25/2007	7/23/2007														█	█	█	█	█								
Carolinas, TN, KY / S. Indiana	7/2/2007	7/30/2007															█	█	█	█	█							
S. Texas, El Paso	7/9/2007	8/6/2007																█	█	█	█	█						
CA/Oregon	7/16/2007	8/13/2007																	█	█	█	█	█					
Roseau (NW inbound)	7/23/2007	8/20/2007																		█	█	█	█	█				
Minnesota - Metro 1	3/19/2007	8/27/2007	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Minnesota - Metro 2	3/19/2007	9/3/2007	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█
Minnesota - Metro 3	3/19/2007	9/10/2007	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█	█

Region Name	Target Start Date	Target "Go Live"	10-Sep-07	17-Sep-07	24-Sep-07	1-Oct-07	8-Oct-07	15-Oct-07
International	9/10/2007	10/8/2007	█	█	█	█	█	█
Vermillion	9/17/2007	10/15/2007		█	█	█	█	█

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# What tools are we using ?

# Daily Engineering

MaxLoad - Edit Screen: Tecumseh/Smurfit Solution 1 of 2 [Truck 1 / 1]

File Edit View Define Tools Layout Help

English Pick List View Back View Accept

SKU Qty

Cut List			
SKU	Qty	UL Cnt	Priority
Bethlehem	4	0	1
Brazeway	2	0	1
Cap	2	0	1
Collis - IA	16	0	1
PACE	3	0	1

3D	Top	Wgt. 14678 (lb)	Total Wgt 14678 (lb)	Axle 2 1912 (lb)
Side	Front	33 %	King Pin 9649 (lb)	Cube 2329 (R3)
		Tare Wgt 0 (lb)	Axle 1 3118 (lb)	59 %

49 (in) 636 (in) 194 (in) 98 (in)

Tube Tube Tecumseh Tecumseh ILPEA ILPEA ILPEA

Snap On

Snap

53 Ft. Dry Van  
x: 0 y: 0 z: 0

For Help Contact Tops Engineering

# On Line Supplier Instructions

Complete Shipment

No Freight To Ship

<b>Customer</b>	<b>Company</b>	<b>Address</b>	<b>City</b>	<b>State</b>	<b>Zip</b>
Supplier	Demo Customer	democust location	Florence	KY	41042,US
	DemoWidgets			MI	45920,US
<b>SubRoute # DEMO21</b>					
<b>Master BOL(Sub route)</b>		<b>Notes</b>			
<b>Trailer #</b>					
<b>Carrier</b>	Berno Trucking				
<b>Pickup Date</b>	11/27/2007				
<b>Pickup Start Time</b>	08:00	<b>Carrier In</b>			
<b>Pickup End Time</b>	08:45	<b>Carrier Out</b>			
<input type="button" value="Save Updates"/>					

<b>Main Route</b>	<b>DEMOE47 - Demo East London Plant</b>						
<b>BOL #</b>		<b>Total Non-Mixed Pallets</b>					
<b>Estimate Arrival Date</b>	11/29/2007	<b>Total Mixed Pallets</b>					
<b>Estimate Arrival Time</b>	17:00	<b>Total Pallets' Weight ( lb )</b>					
							<input type="button" value="(Print Pallet Label)"/>
<b>Part #</b>	<b>Description</b>	<b>Dock Due Date</b>	<b>PO release #</b>	<b>Order Qty</b>	<b>Revised Qty</b>	<b>Shipped Qty</b>	<b>Packing Slip</b>
7041550	SPRING-COMP,IFS,10.75/120#/IN	11/30/2007	P662995:2	450.0	500.0		
7041945	SPRING-CLUTCH(ALMOND/ROUND)	11/30/2007	P668698:1	500.0	510.0		
7042206	SPRING-COM,.375R,6.4,425#	11/30/2007	P675788:46	330.0	330.0		
7042208	SPRING-COM,.515R,6.40,715#	11/30/2007	P662970:3	400.0	405.0		
<input type="button" value="Save Changes"/>							

<b>Main Route</b>	<b>DEMOF48 - Demo Fort Wayne Plant</b>						
<b>BOL #</b>	100529865	<b>Total Non-Mixed Pallets</b>				4	
<b>Estimate Arrival Date</b>	11/29/2007	<b>Total Mixed Pallets</b>				2	
<b>Estimate Arrival Time</b>	17:30	<b>Total Pallets' Weight ( lb )</b>				1600	
							<input type="button" value="Print Pallet Label"/>
<b>Part #</b>	<b>Description</b>	<b>Dock Due Date</b>	<b>PO release #</b>	<b>Order Qty</b>	<b>Revised Qty</b>	<b>Shipped Qty</b>	<b>Packing Slip</b>
7041157	SPRING CLUTCH (VARIABLE RATE)	11/30/2007	P656704:43	1000.0		1000.0	PL-763495
7041198	SPRING-CLUTCH,CHRM SILICON,RED	11/30/2007	P662026:83	100.0		100.0	PL-743296
7042202	SPRING-CLUTCH,BLUE/GRAY	11/30/2007	P662030:5	1000.0		1000.0	PL-634167
7042246	SPRING-SEAT LATCH,TORSION	11/30/2007	P657102:3	500.0		500.0	PL-841539
7042307	SPRG-PIN,SHIFT INDICATOR	11/30/2007	P658682:45	120.0		120.0	PL-067421
<input type="button" value="Save Changes"/>							

# ASN -Discrepancy Email

From: ASN-System@leancor.com  
To: weblinxPlan1@leancor.com  
Cc:  
Subject: [LeanCor.com: ASN Discrepancy:04/24/2007 DEMO21 Trailer]

Sent: Tue 4/24/2007 12:44 PM

-- This e-mail was automatically generated by LeanCor's ASN SYSTEM --

LeanCor has just updated the 04/24/2007 DEMO21 Trailer with the following actual quantities not matching the required quantities on 2007-04-24 11:44:05

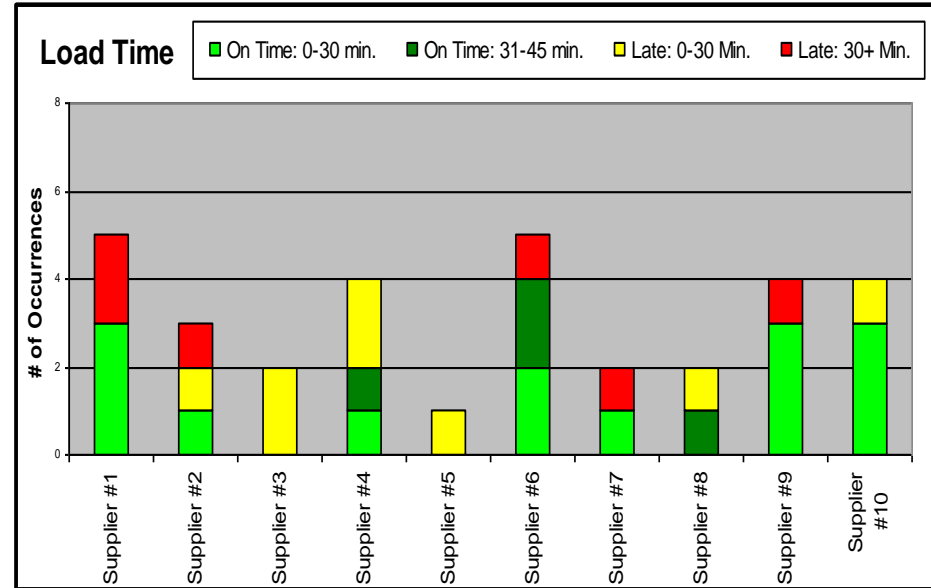
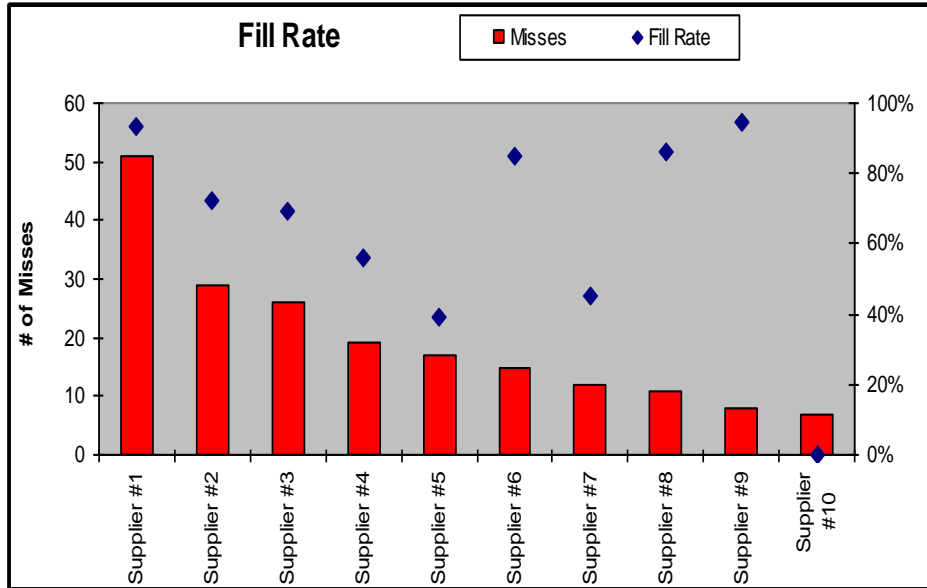
Route	Vendor #	Part Number	Description	PO	Req. Date	Req. Qty.	Act. Qty	Packing Slip
DEMO21	90392A	199332	DUST PAN	P283832:28	2007-04-26	300	200	33232A
DEMO21	90392A	7041789	SPRING-EXHAUST	P658989:24	2007-04-26	600	450	33232A
DEMO21	90392A	7042004	SPRING-ACCELERATOR	P658995:86	2007-04-26	200	150	33232A
DEMO21	90392A	7043078	SPRING-THROTTLE	P659005:45	2007-04-26	400	200	33232A

Scheduled Yard Arrival time for this route is 04/24/2007 15:45 CDT

Notification issued: 2007-04-24 11:44:05

Please do not reply to this email.

# PDCA Call – Everyday – 1 PM Central



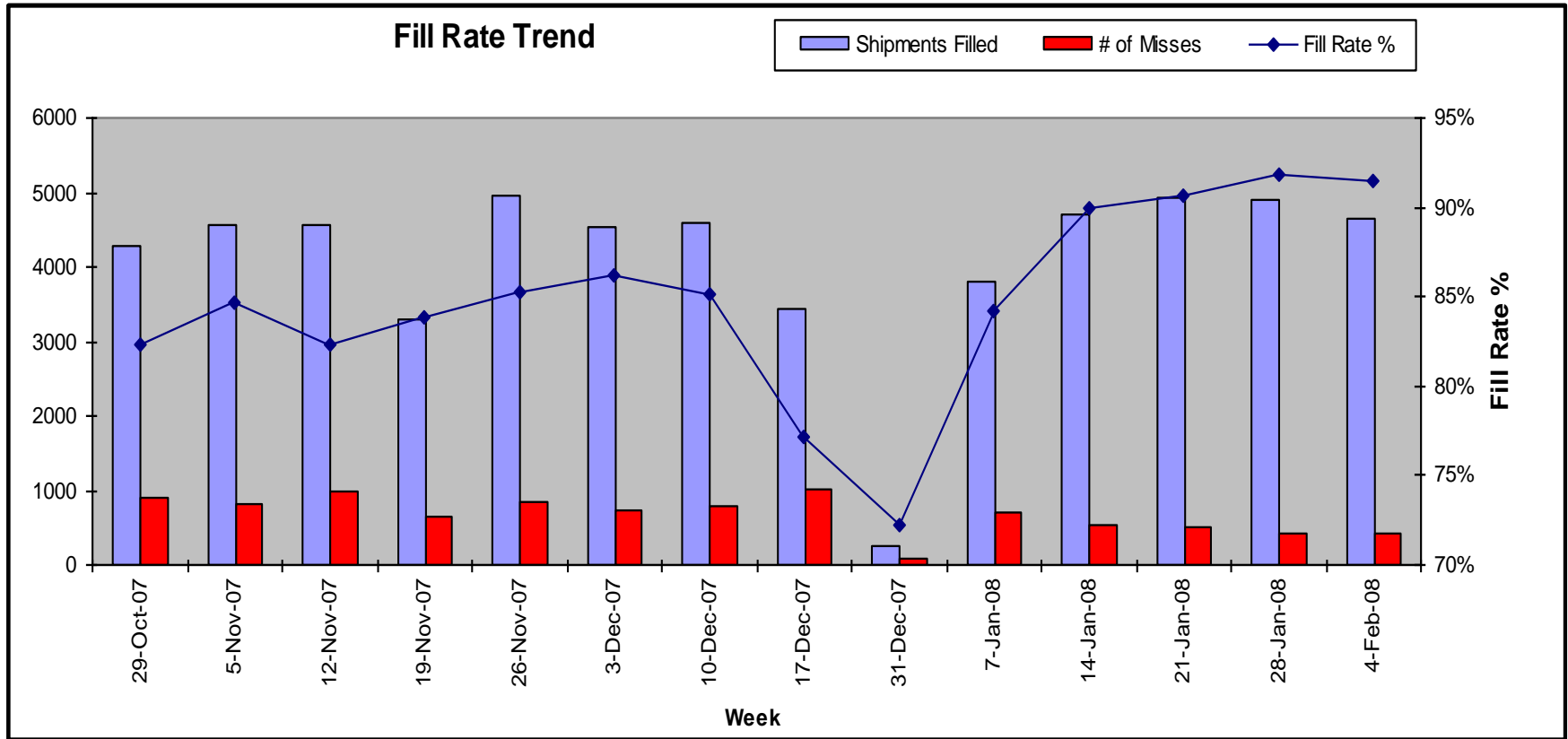
Daily Visibility... Daily Action...

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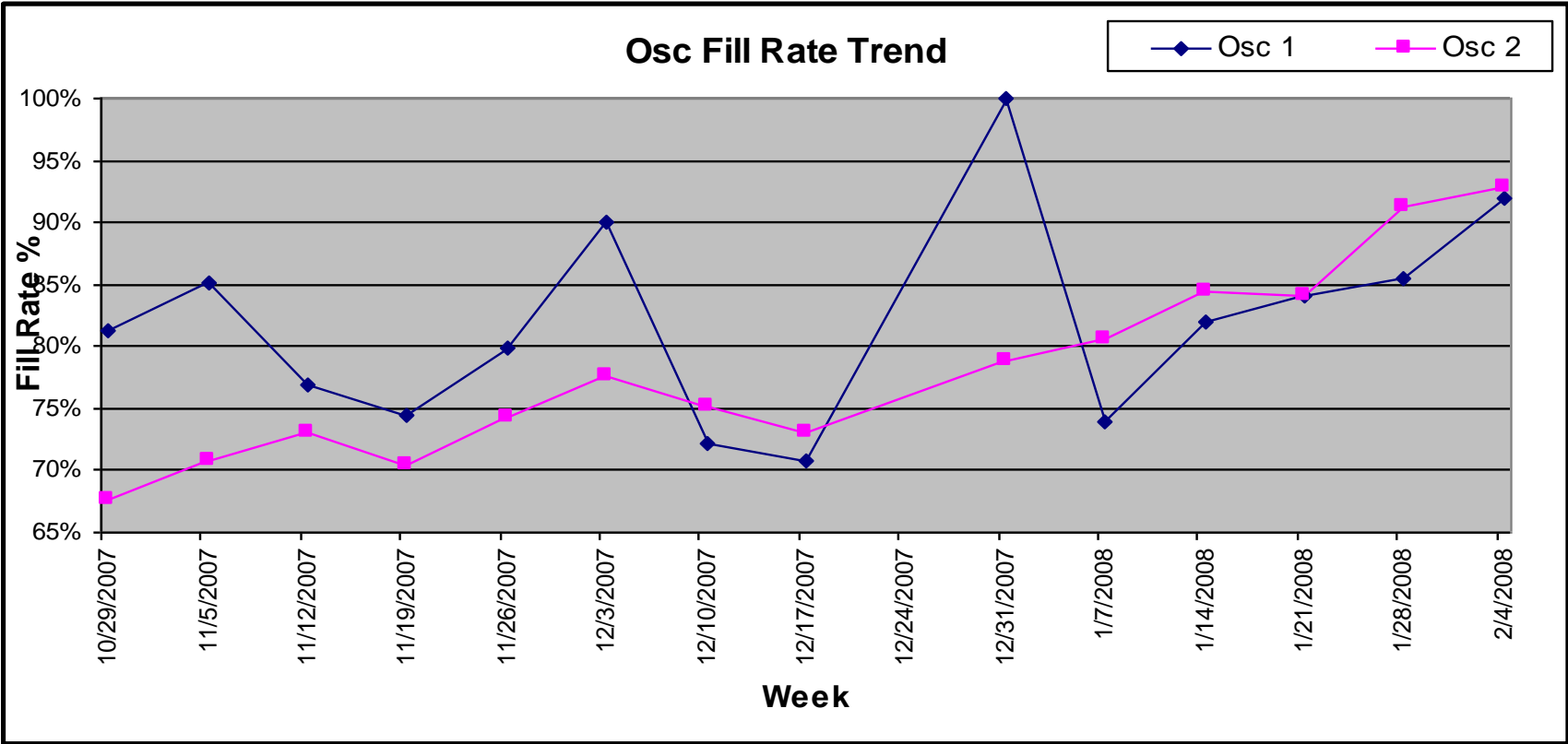
# The Measures of Success...the measures of work to do...



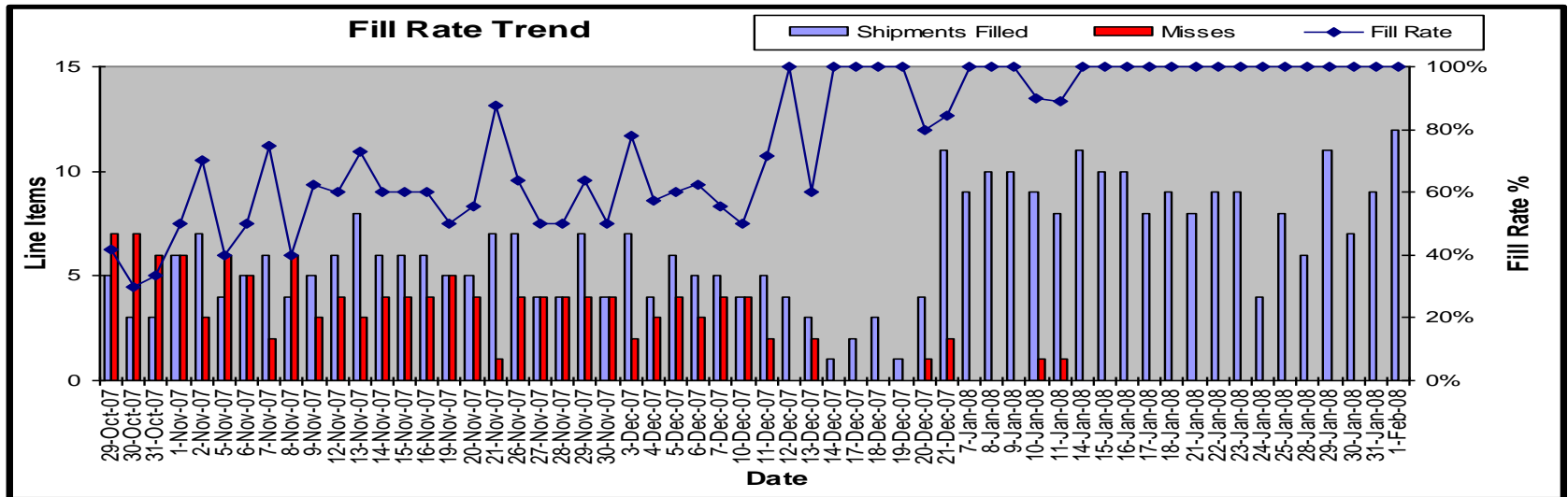
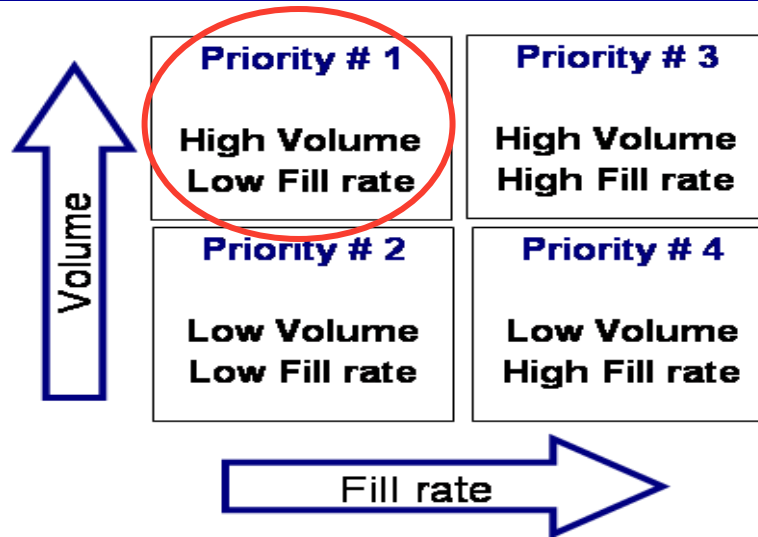
# Network Fill Rate Trend



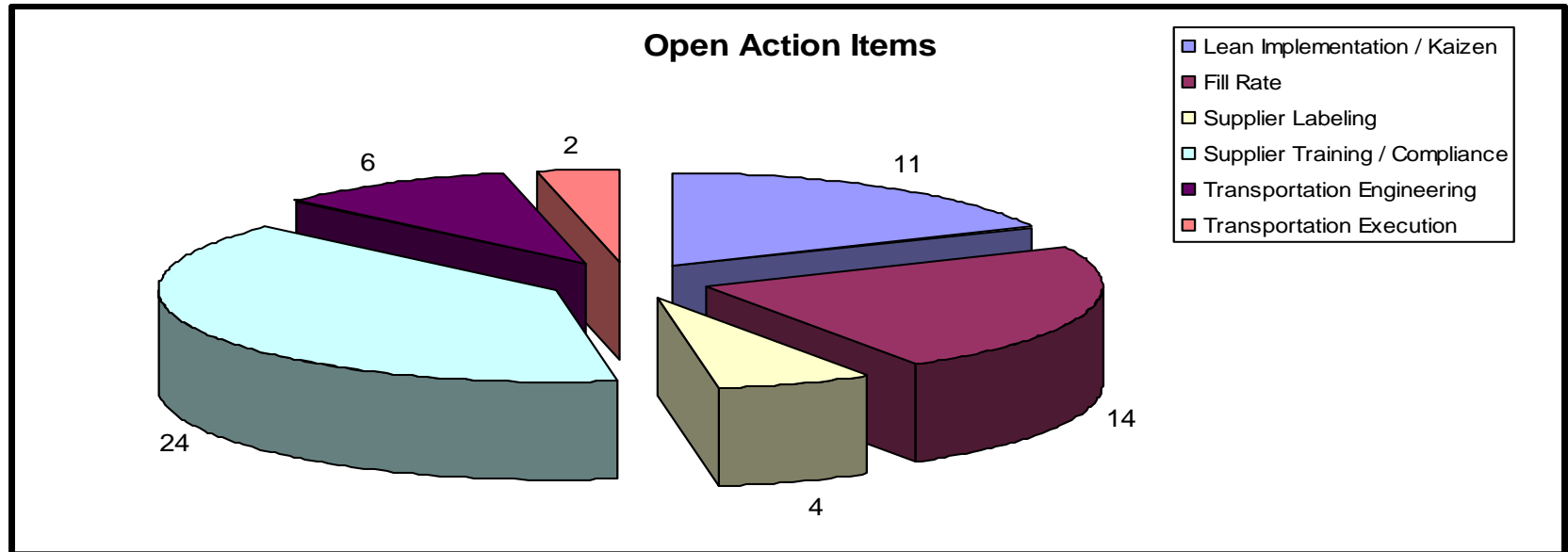
# Osceola Fill Rate Trend



# Supplier Engagement - Development



# Issue Resolution



## Examples of Issues

- Suppliers with multiple shipping locations
- Non-static shipping locations by part #
- Non-standard packaging
- Non -standard order quantities <> Supplier packaging quantities
- ASN compliance
- Palletizing and labeling of material

# The Suppliers Perspective

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What could Polaris have done better ?

# Initial Supplier Impact

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Time spent entering actual shipped quantities

Additional pallet label process

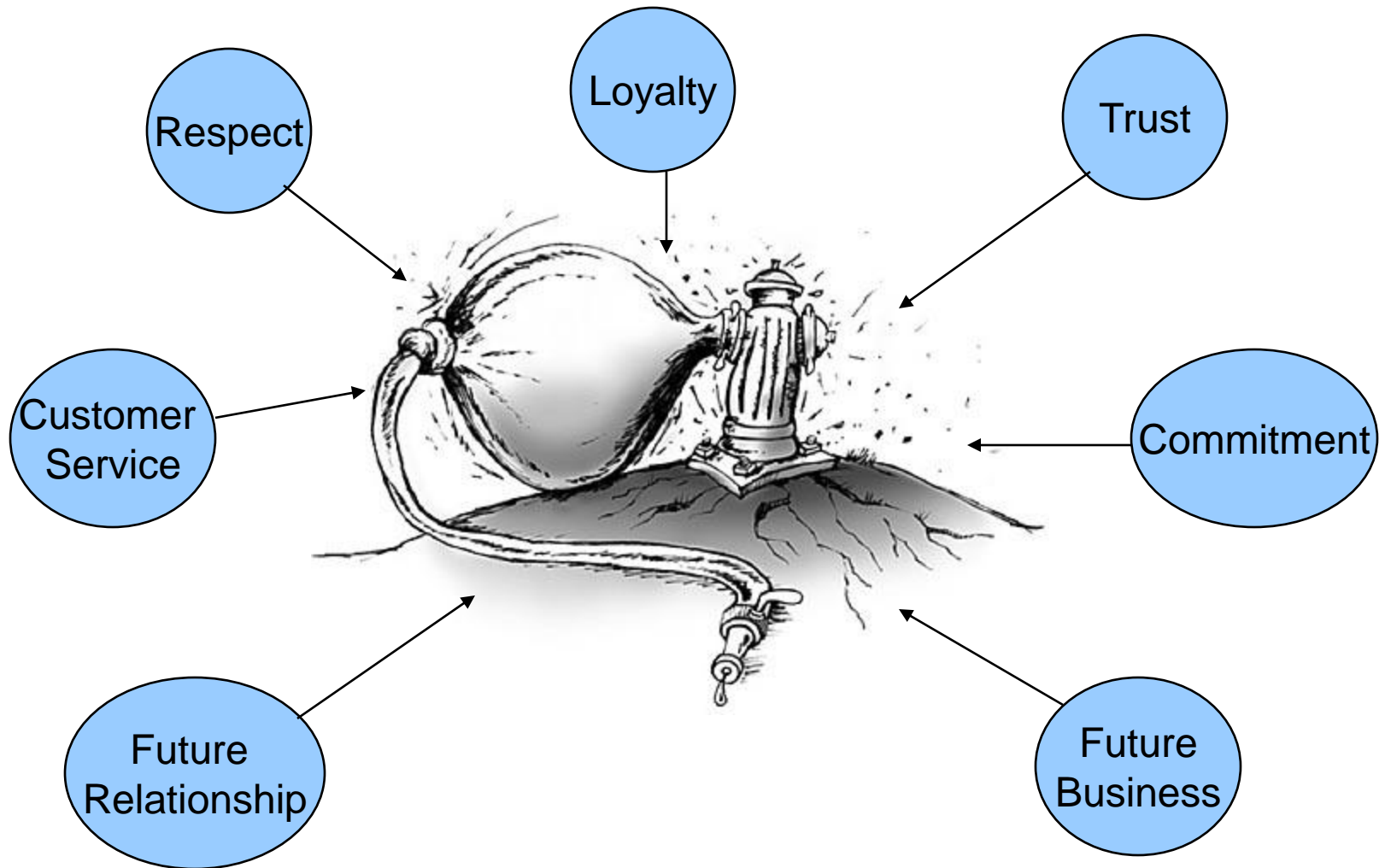
- Only applies to some suppliers

EDI vs. Weblinx instructions

- Polaris capable of receiving EDI ASN's by June 30, 2008 (optional by supplier)

**Impact of transitional work will be offset by long-term waste reduction.**

# Reasons for Supplier Support



# Reaching the Right People

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## Top 30% In The Organization

- Recognize the need for change
- You need total commitment

## Bottom 70%

- Bottom 70% must be convinced of the need for change (communication)
  - Understand benefits
  - Explain the potential hurdles to overcome
- Cooperation as a whole in the bottom 70% to implement the change

**Demand realistic results and look for constant improvement!**



# Long Term Supplier Benefits

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## Stability

- Static route design drives stable pick up days / times at the supplier

## Standardization

- Standard labor plans due to static design
- Improved dock utilization through plan

## Accountability by Activity

- **Carrier accountability after the freight leaves the supplier's dock**
  - Supplier ships on time
  - Carrier delivers on time

# In Summary - The Three C's

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- **Communication**
  - More Honest Communication Starting Out
  - Understanding that there will be problems
  - Continue the Communication within organization
- **Commitment**
  - To stay the course
  - Take charge attitude (initiate demands)
- **Cooperation**
  - Through communication you have Team Work

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# THANK YOU!

## Questions?