

# Warehouse Productivity Secrets Revealed:

How leading companies improve labor productivity, safety and fleet utilization with new fleet monitoring & inventory tracking technologies.

Sponsored by:



Presented by:

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# The Warehouse Industry's Challenge

- Forklift trucks and drivers account for over 80% of operating expenses.
- Lack of real time visibility to fleet movement, utilization and driver activity limits productivity improvement.
- Substantial forklift truck accidents result in costly injuries, lost work time and damages.
- Manual tasks associated with data collection and inventory tracking reduce driver productivity while increasing human error and rework.

**A \$10k forklift truck  
can cost over  
\$145,000 per year to  
operate**

**Forklift related  
accidents cost  
employers in excess  
of \$100 Million  
annually**

# “Smart Truck” Solutions

## Safety

- Proximity Alerts
- Impact Detection



## Equipment Monitoring



## Advanced Tracking Technologies

- Asset Tracking (Vehicles, Drivers & Inventory)
  - Optical RTLS
  - RFID
  - Track By Location
- AGV Dynamic Routing
- Mixed Fleet Control
- Consulting Services



## Business Intelligence (Data & Tools)

- Report Library
- Remote Data Mngt
- Inventory Mapping
- Warehouse Optimization Tools
  - “LMS Light”
  - SDK
  - Interleaving



# The IT – Automation Continuum

Data is always a cost –  
it's what you **DO** with it that creates **VALUE**



Data

Information

Knowledge

Action

Collect

Organize

Analyze

Automate

# Georgia Pacific

## Georgia Pacific packaging plant in San Leandro, CA

### The Problem:

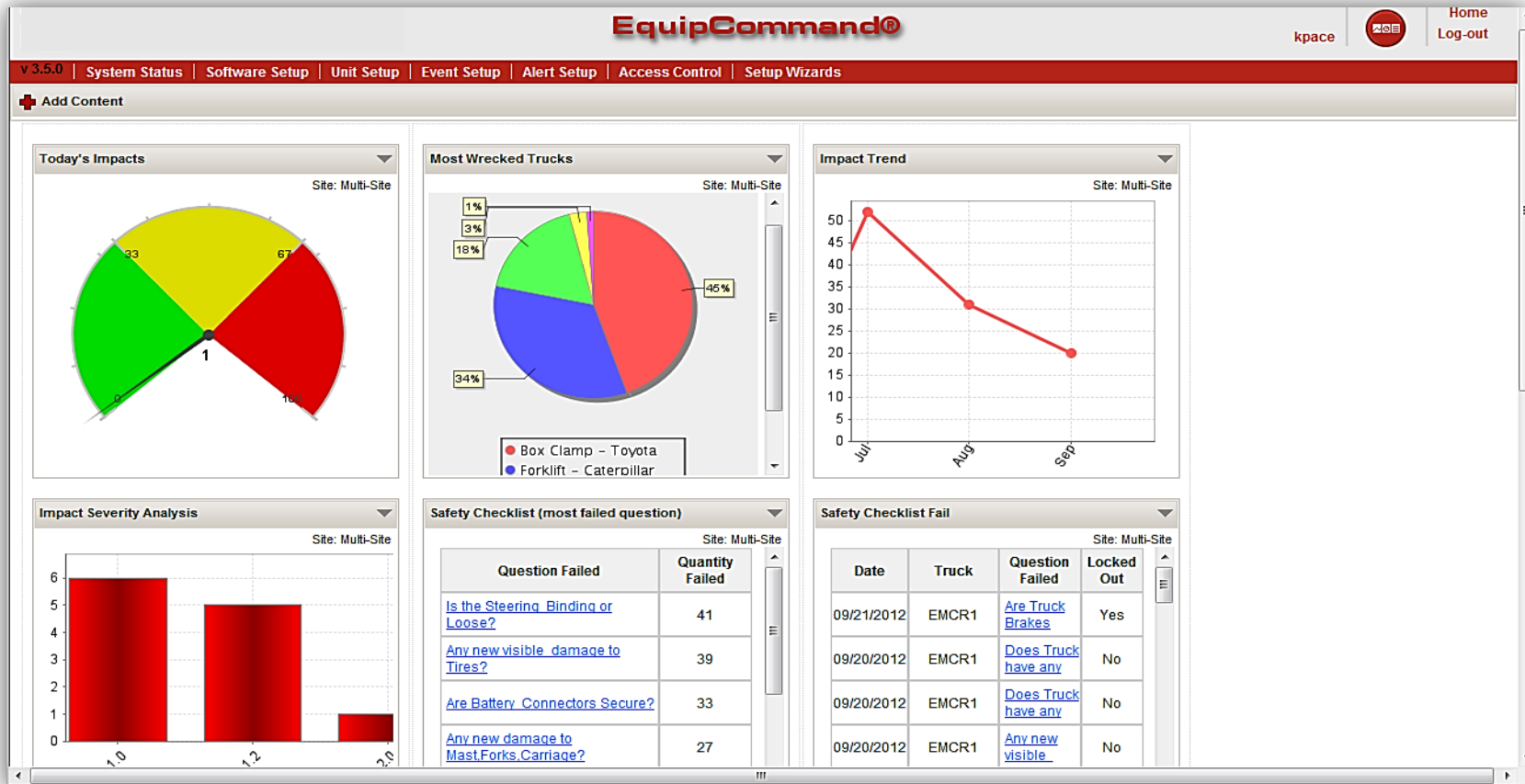
Damaged forklift truck equipment impacted driver productivity and often left operations with not enough forklifts to complete daily work functions



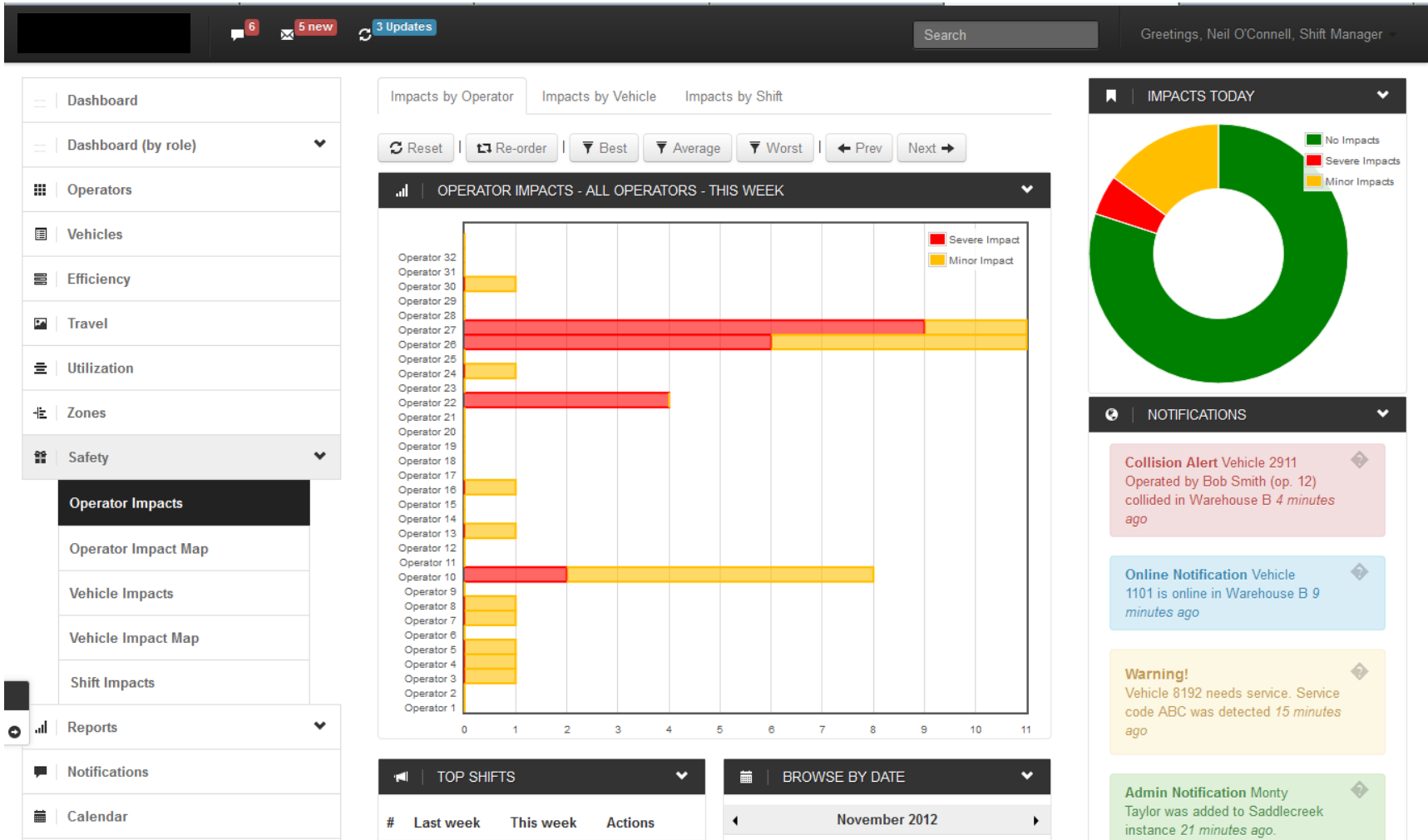
### The Solution: Equipment Monitoring and Impact Detection

- Corrected bad driving behavior and habits
- Improved training and accountability
- Reduced equipment damage and worker downtime
- Significantly improved driver productivity and operational efficiency

# Turning Impact Events Into Knowledge



# New Impact Detection Software Tools



# Operator Impact Map

6 5 new 3 Updates Search Greetings, Neil O'Connell, Shift Manager

Dashboard Dashboard (by role) Operators Vehicles Efficiency Travel Utilization Zones Safety

- Operator Impacts
- Operator Impact Map**
- Vehicle Impacts
- Vehicle Impact Map
- Shift Impacts

Reports Notifications

Impacts by Operator Impacts by Vehicle Impacts by Shift

Reset Re-order Best Average Worst Prev Next

OPERATOR IMPACTS - DANIEL ECKENRODE (OP. 22)

Impact Event 4

Impact Event 1

Impact Event 2

TOP SHIFTS BROWSE BY DATE

IMPACTS TODAY

- No Impacts
- Severe Impacts
- Minor Impacts

NOTIFICATIONS

- Collision Alert** Vehicle 2911 Operated by Bob Smith (op. 12) collided in Warehouse B 4 minutes ago
- Online Notification** Vehicle 1101 is online in Warehouse B 9 minutes ago
- Warning!** Vehicle 8192 needs service. Service code ABC was detected 15 minutes ago
- Admin Notification** Monty



# Yeo Valley Farms

## Yeo Valley Farms Distribution Center in Highbridge UK

### The Problem:

Scanning pick face locations did not guarantee that pallets were placed in the correct location. One misplaced pallet created inaccurate orders and delayed shipping.



### The Solution: Optical RTLS for tracking all vehicles and inventory

- Pick replenishment occurs several times per shift
- Elimination of replenishment of empty pick faces
- Pickers find the CORRECT stock in each bay every time
- Elimination of hand scanning
- Increased forklift truck and labor productivity
- 100% inventory accuracy

# Turning Real Time Data into Action

**1** **Reach6** Log-Off Jay Smith (585 s) 13 43 9 August 2012

Manual Replenish Stock/Order Replenish Rack A Pallet

Unload Trailer Move To Bin Pallet Check

Menu

**2** **Reach6** Log-Off Jay Smith (539 s) 13:44 9 August 2012

No Product Description

Pallet ID: - Date: - Quantity: - Pick Up: - Drop Off: -

Pick Up Pallet From Lorry

Menu Unload Trailer Finish Job

**3** **Reach6** Log-Off Jay Smith (375 s) 14 27 9 August 2012

Yeo Valley Mixed Berry 150g

Pallet ID: 377652 Date: 19/08/2012 Quantity: 800 Pick Up: Lorry Bay 1 Drop Off: C42B

In Wrong Location

Adjust Quantity

Menu Rack A Pallet Job Exception

**4** **Reach6** Log-Off Jay Smith (335 s) 13 55 9 August 2012

Yeo Valley Mixed Berry 150g

Pallet ID: 377652 Date: 19/08/2012 Quantity: 800 Pick Up: Lorry Bay 1 Drop Off: C42B

Adjust Quantity


Drop Off Pallet Here

Menu Rack A Pallet Job Exception


**5** **Reach6** Log-Off Jay Smith (264 s) 13 56 9 August 2012

Current Job Completed

# Turning Real Time Monitoring Into Operating Insight




**Harland  
Simon**



Warehouse  
Insight

Charging Area



**Aisle 9**

46	H47	H48	A49	A50	H51	H52	H53	H54	H55	H56	H59	H60	H61	H62	H63	H64	H65	H66	H67	H68	H69	H70	H71	H72	H73	H74	H75	H76
33	H30	H29	H28	H27	H26	H25	H24	H23	H22	H21	H18	H17	H16	H15	H14	H13	H12	H11	H10	H9	H8	H7	H6	H5	H4	H3	H2	H1

**Aisle 8**

46	A47	G48	G49	G50	G51	G52	G53	G54	G55	G56	G59	G60	G61	G62	G63	G64	G65	G66	G67	G68	G69	G70	G71	G72	G73	G74	G75	G76
33	G30	G29	G28	G27	G26	G25	G24	G23	G22	G21	G18	G17	G16	G15	G14	G13	G12	G11	G10	G9	G8	G7	G6	G5	G4	G3	G2	G1

**Aisle 7**

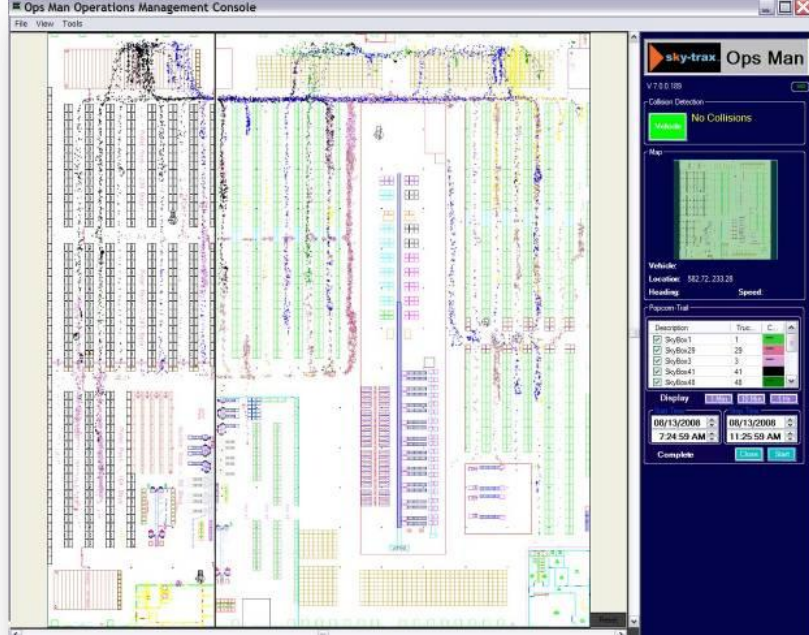
46	F47	F48	F49	F50	F51	F52	F53	F54	F55	F56	F59	F60	F61	F62	F63	F64	F65	F66	F67	F68	F69	F70	F71	F72	F73	F74	F75	F76
33	F30	A29	F28	F27	F26	F25	F24	F23	F22	F21	F18	F17	F16	F15	F14	F13	F12	F11	F10	F9	F8	F7	F6	F5	F4	F3	F2	F1

**Aisle 6**

44	E45	E46	E47	E48	E49	E50	E51	E52	E53	E54	E57	E58	E59	E60	E61	E62	E63	E64	E65	E66	E67	E68	E69	E70	E71	E72
29	E28	E27	E26	E25	A24	A23	E22	E21	E20	E19	E16	E15	E14	E13	E12	E11	E10	E9	E8	E7	E6	E5	E4	E3	E2	E1

**Aisle 5**

44	D45	D46	D47	D48	D49	D50	D51	D52	D53	D54	D57	D58	D59	D60	D61	D62	D63	D64	D65	D66	D67	D68	D69	D70	D71	D72
29	D28	D27	D26	D25	D24	D23	D22	D21	D20	D19	D16	D15	D14	D13	D12	D11	D10	D9	D8	D7	D6	D5	D4	D3	D2	D1



The screenshot displays the 'Ops Man Operations Management Console'. The main area shows a detailed floor plan of a warehouse with various aisles and storage racks. The floor plan is overlaid with a grid of colored dots and lines, representing real-time monitoring data for vehicles and their movements. On the right side, there is a control panel with several sections:

- sky-trax Ops Man** header.
- Collision Detection** section with a green 'No Collisions' status.
- Map** section showing a smaller overview of the floor plan.
- Vehicle** section displaying 'Location: 882.72, 233.28' and 'Speed'.
- Report Tool** section with a table listing vehicle descriptions and counts:

Description	Trac.	C
SkyBox1	1	
SkyBox28	28	
SkyBox2	3	
SkyBox4	41	
SkyBox43	48	

At the bottom of the control panel, there are 'Display' buttons and a 'Complete' button. The date and time are shown as 08/13/2008 7:24:59 AM.

# ...And Valuable Business Intelligence

Wednesday, June 06, 2012 - 00:00 **To:** Friday, July 06, 2012 - 00:00

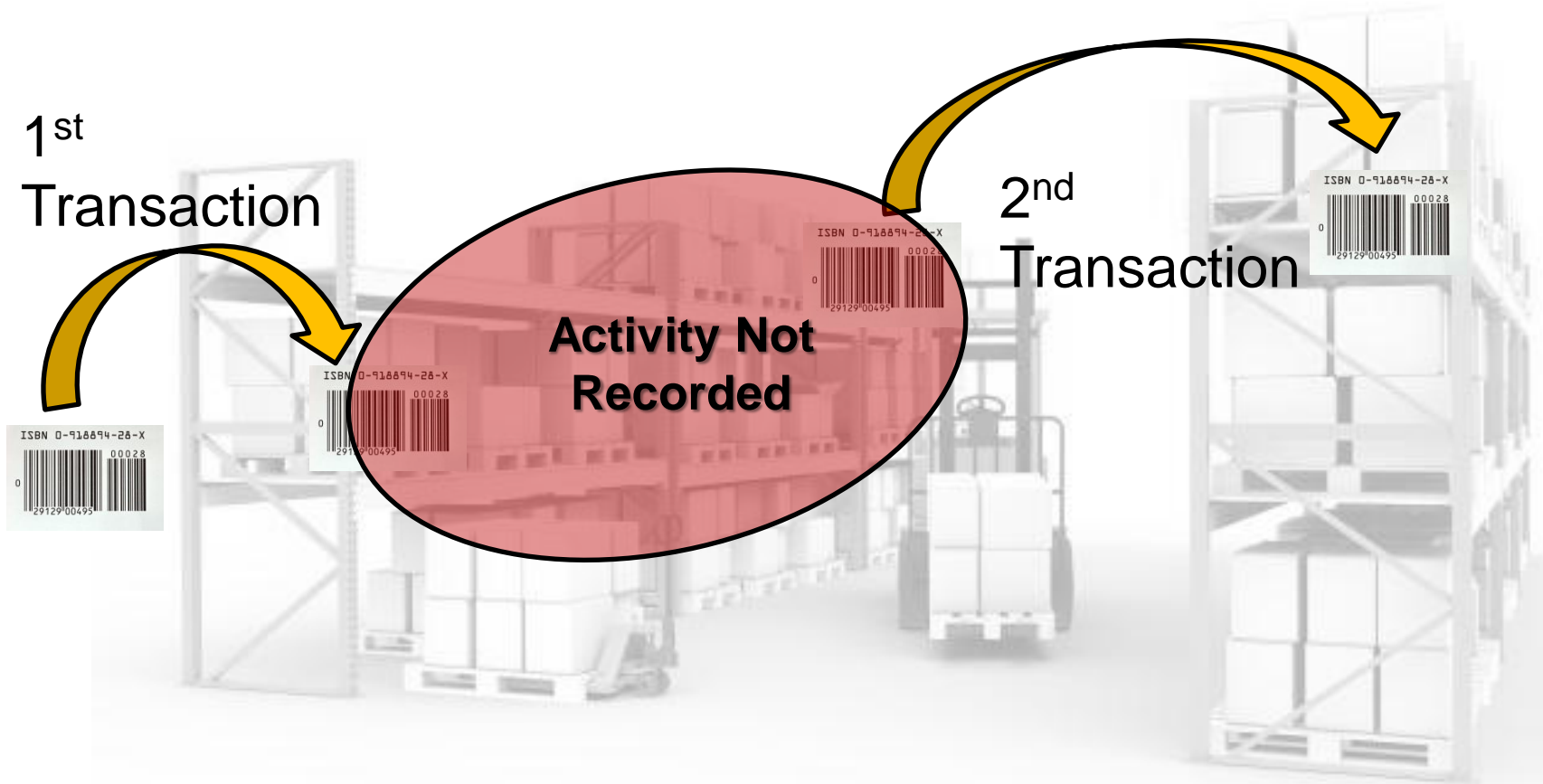
**From:**

**Trucks:** Balance1,Balance2,Reach5,Reach6

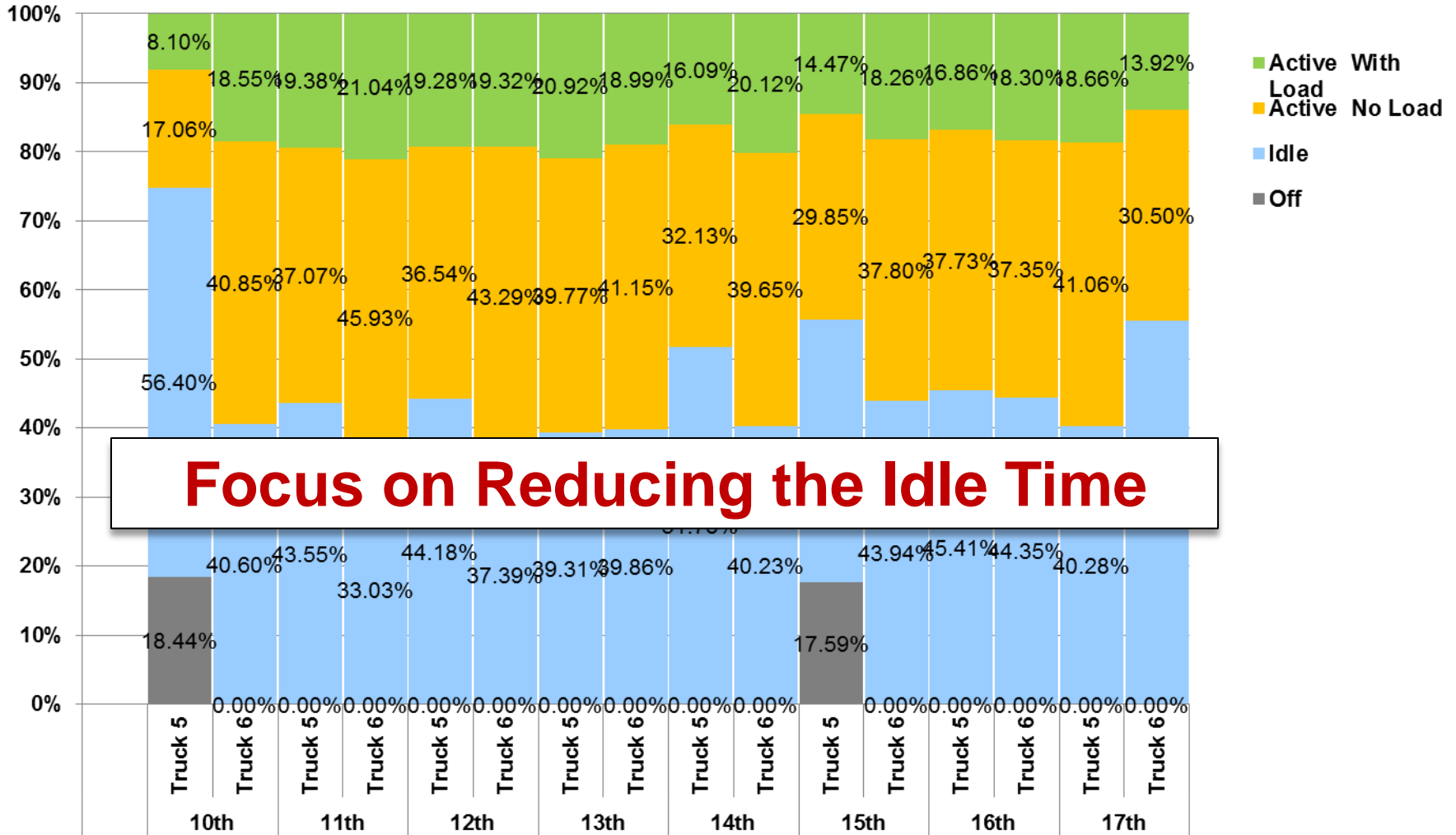
**Operators:**

K.P.I	Value
Number of Moves	26,884
Number of Unauthorised Moves	101
Number of Job Exceptions	87
Percentage of Time Spent Idle	67.14%
Percentage of Time Spent Active	24.50%
Percentage of Time Spent Active with Load	12.25%
Total Distance Travelled (km)	2,320
Total Time Truck Used (hrs)	2,718
Number of Manual Scans	7,878
Percentage of Manual Scans	29.30%
Number of Wrong Location Drops	7,127
Percentage of Wrong Location Drops	26.51%
Average Time Taken for a Transaction (sec)	61.87
Average Distance Travelled for a Transaction (m)	36.86

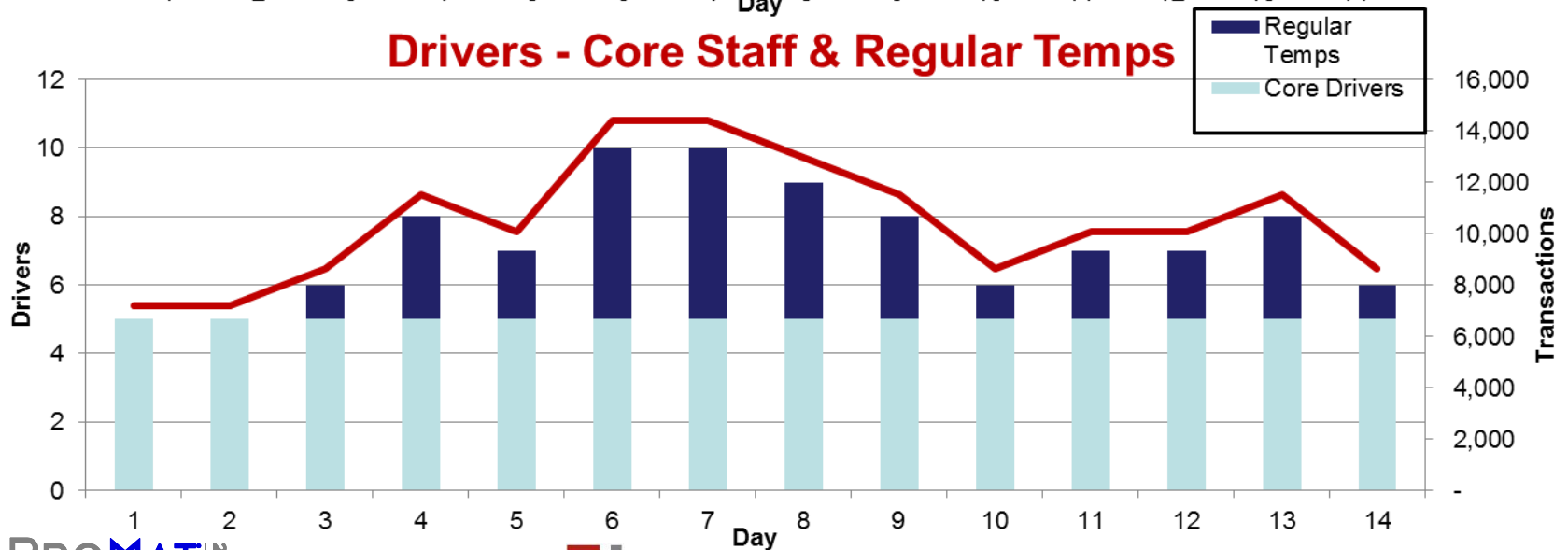
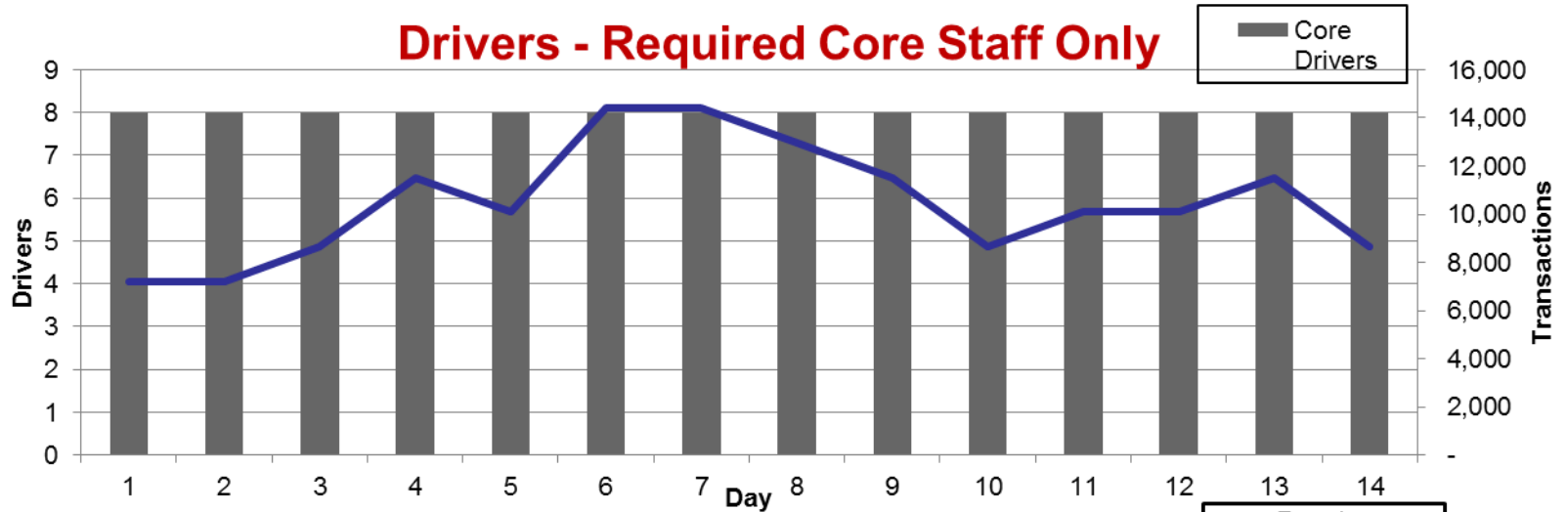
# The Scanned Data Gap



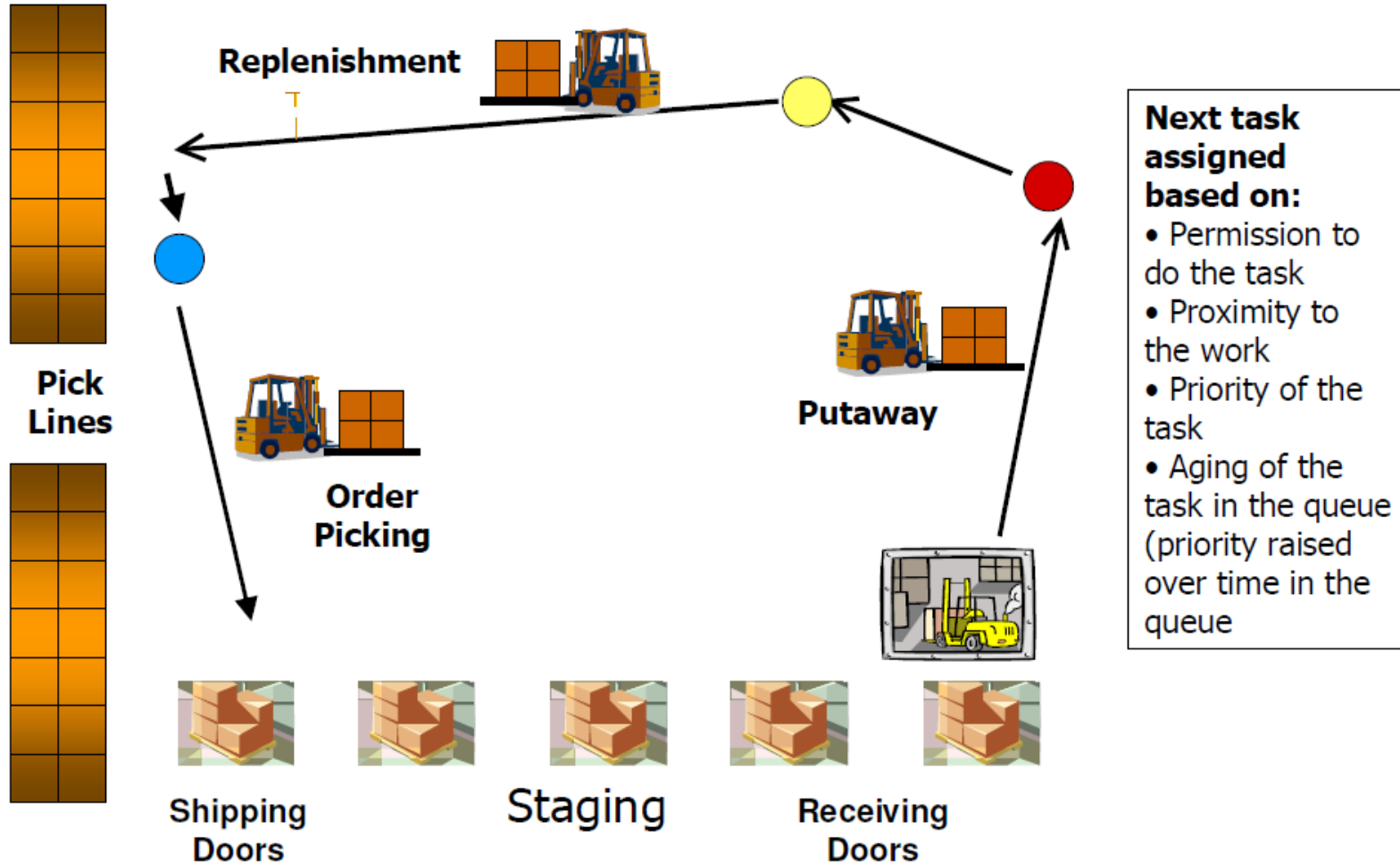
# Reach Truck Activity for September 2012



# Other Examples of Actionable Intelligence



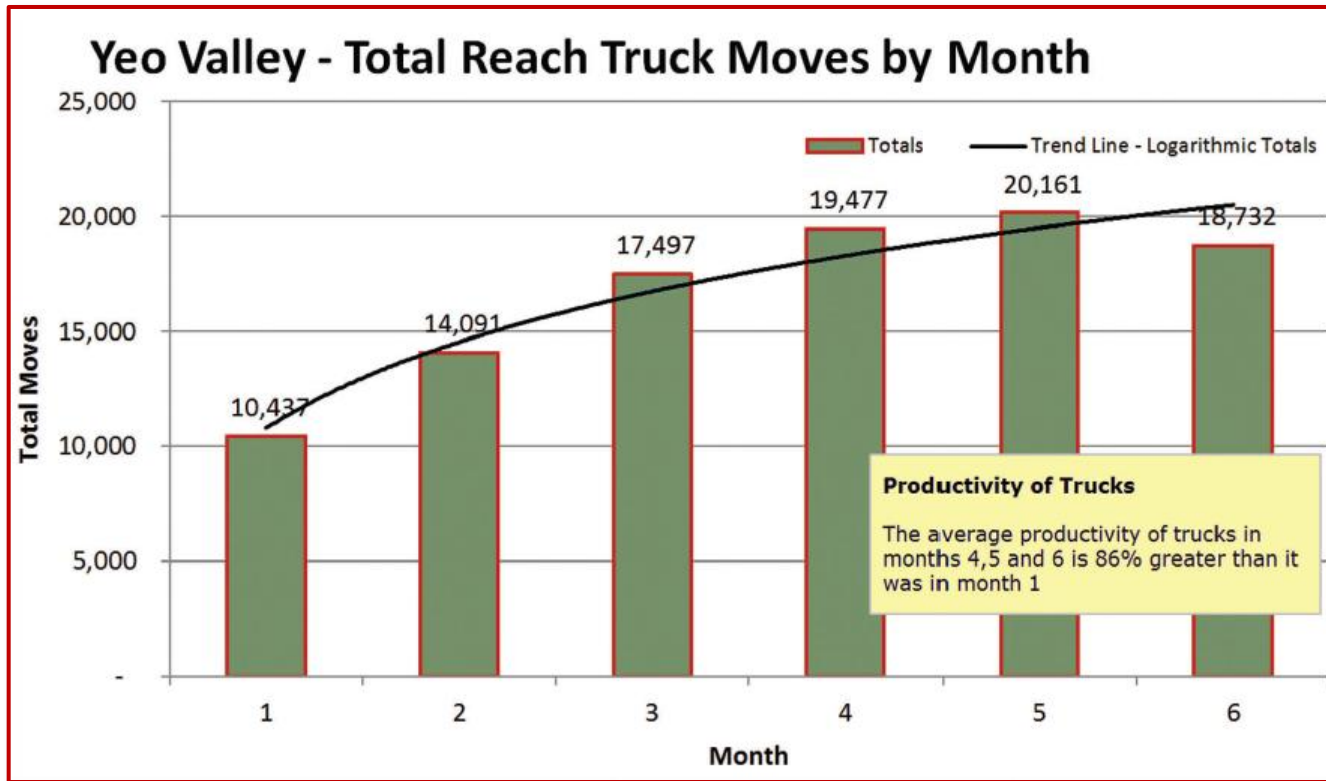
# Reduce Empty Running - Interleaving





# Results

- 30%+ Potential Staff Reduction Overall
- 20% Truck Reduction
- 33% reduction in Reach Trucks & Drivers



# What other users have to say...



***“We have taken the chaos out of the cool storage.”***

- 30% Productivity Improvement
- 40% Reduction in Product Loss
- 65% Reduction in Shipping Penalties
- 33% Fleet Reduction



PRODUCT LIFECYCLE LOGISTICS™

***“We have proven this technology can replace manual data collection to truly provide automatic identification”***

- 100% Location & Pallet Accuracy
- 47% Productivity Gain
- 61% Labor Reduction in 3 Operational Areas
- 10% Equipment Reduction



***“We have seen a direct productivity increase of 5%, achieved a 12% increase in through put and reduced our head count by one.”***

- 12% Increase in Building Throughput
- 99.9% Inventory Accuracy
- 20% Increase in Equipment Utilization



***“The system more than paid for itself within three months. We should’ve installed these years ago.”***

- Dramatic Decrease in Number of Monthly Impacts from 1,036 to 4



***“We’ve seen a 75% decrease in damage involving our material handling equipment.”***

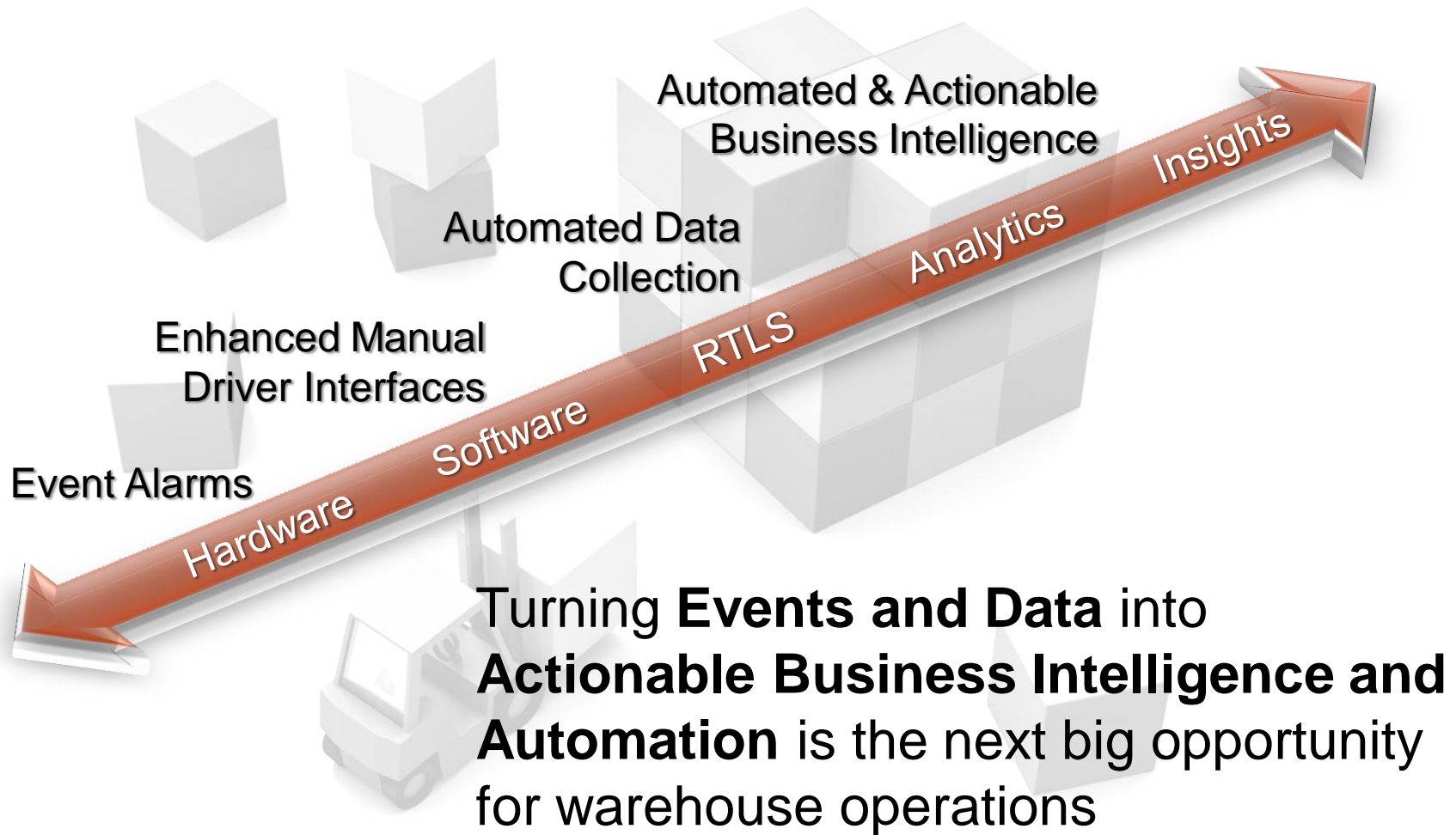
- 75% Decrease in Material Handling Equipment Damage



***“We saw a dramatic decrease in vehicle damage, and realized a 66% savings on parts and labor within 6 months.”***

- Dramatic Decrease in Vehicle Damage, Resulting in \$50,000/year Savings

# Enhancing the Value of Data

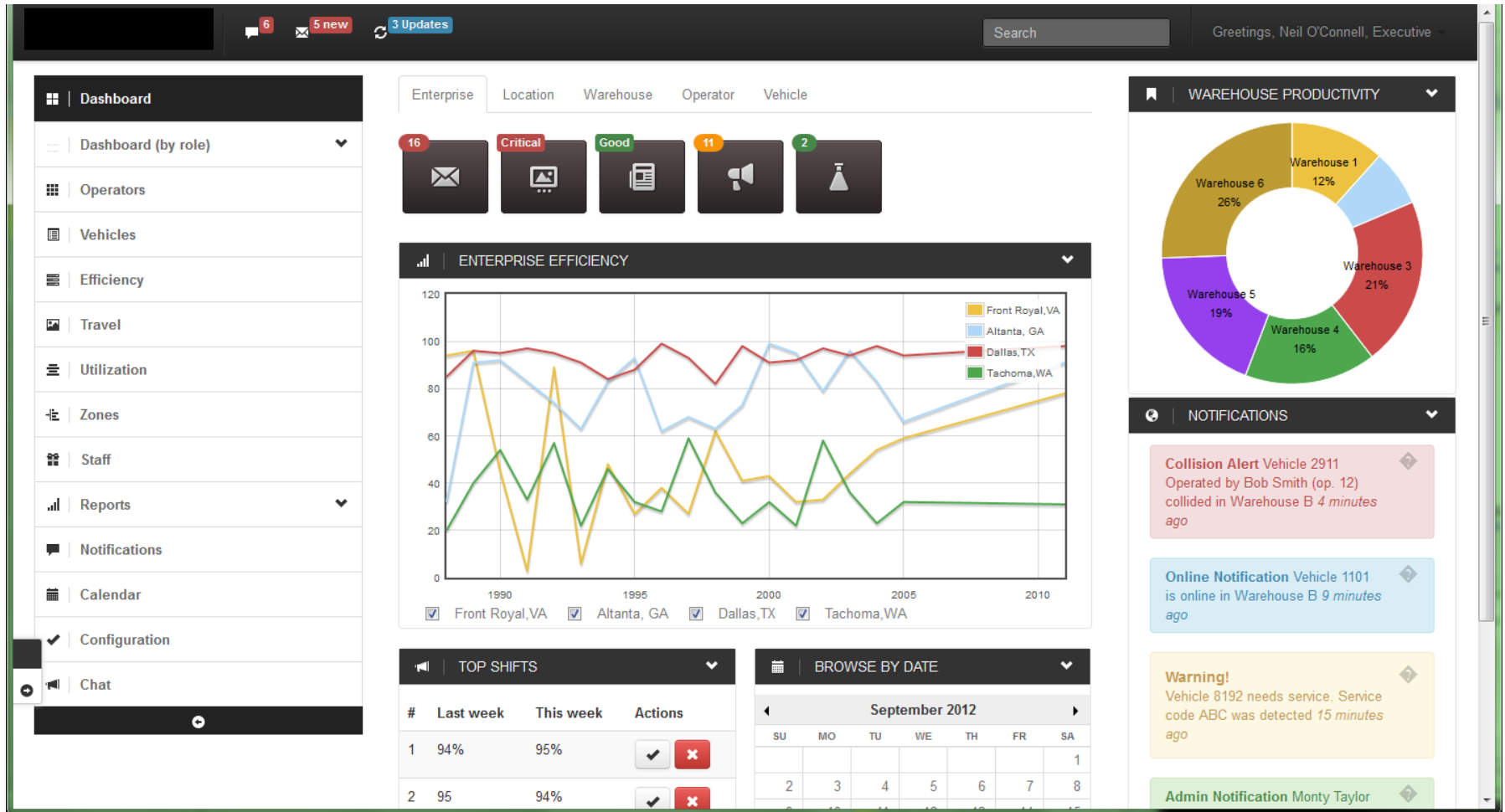


# Enhancing The Value Of Data (Cont.)

- Customizable, roles based dashboards
- Flexible access and portability of data
- Integration with multiple data streams
- Focus management on exceptions and deviations
- Leverage unique operating data with analytics tools for continuous improvement of fleet, labor and warehouse productivity
  - Provide comparisons across industry, enterprise and shift views
- Use real time data to optimize warehouse operations
  - E.g. Interleaving and slot optimization



# Enterprise View Dashboard Example



# Shift Manager View Example

Greetings, Neil O'Connell, Shift Manager

6 
5 new 
3 Updates 

Search

**Dashboard**

- Dashboard (by role) ▼
- Operators
- Vehicles
- Efficiency
- Travel
- Utilization
- Zones
- Staff
- Reports ▼
- Notifications
- Calendar
- Configuration
- Chat

Warehouse
Operator
Vehicle

16

Critical

Good

11

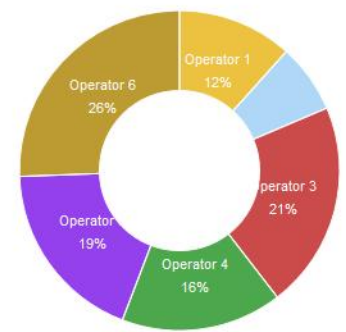
2

**VIEW OPERATOR BY PERFORMANCE** ▼


Reset
Re-order
Best
Average
Worst
Prev
Next

**SHIFT EFFICIENCY** ▼

**OPERATOR PRODUCTIVITY** ▼



**NOTIFICATIONS** ▼

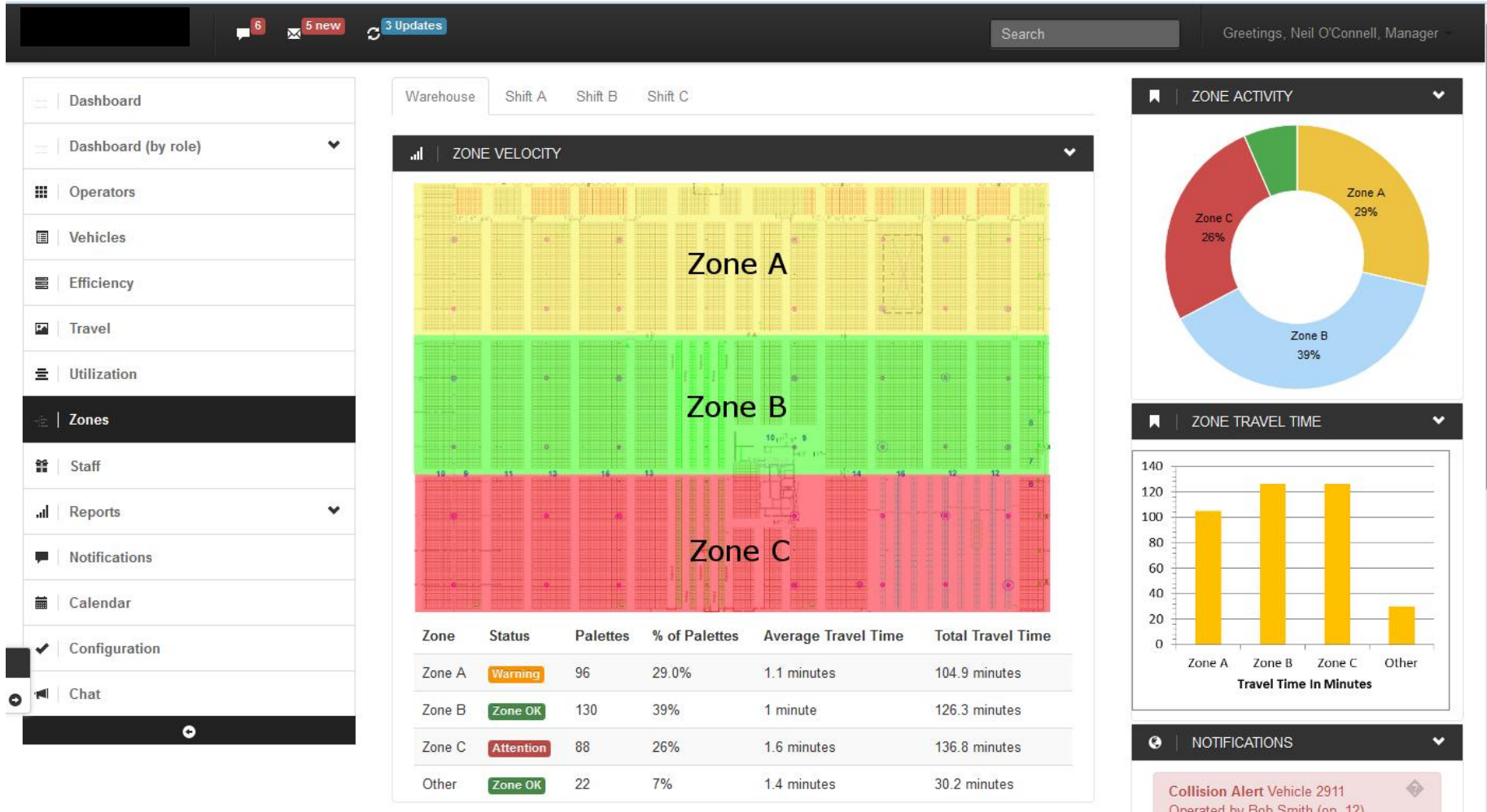
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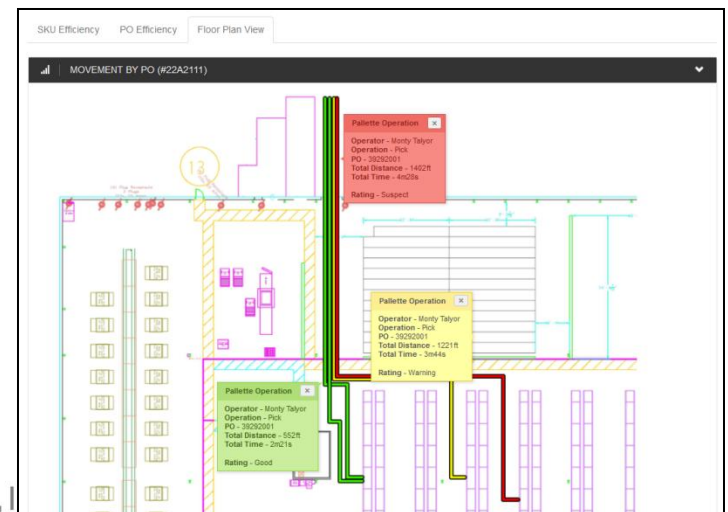
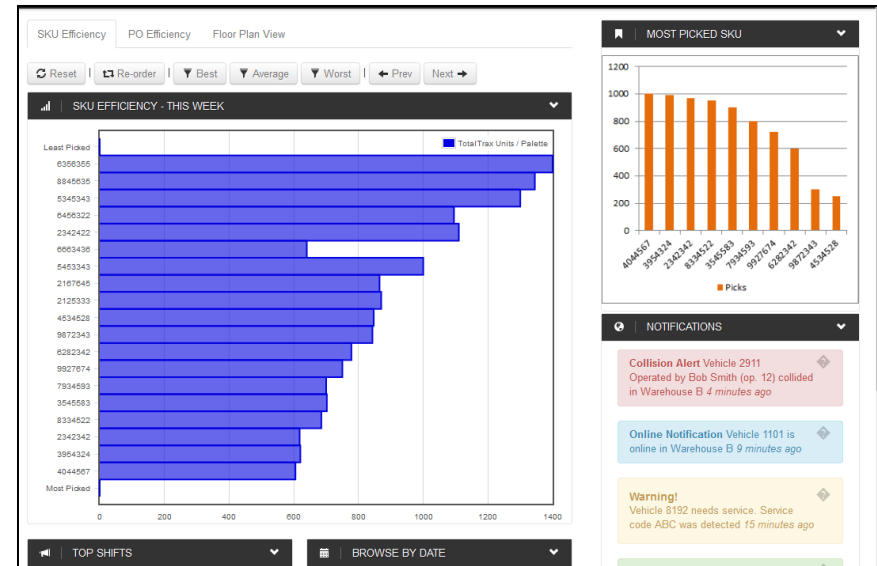
**Admin Notification** Monty Taylor

# Zone Velocity Analytics



# Work Analysis

- View Work Analysis data by SKU efficiency or by floor plan including truck movement:
  - While empty between transaction start and end
  - While loaded with “active” and “incidental” pallets
  - Analyze cost per pallet by P.O. or Customer





# What's Coming Next?

- Equipment Monitoring + Labor Productivity
  - Load Sensing, Job Task Coding
  - Multi-Lingual Capability
- Equipment Monitoring Integrated With Existing VMT's



***For More Information:***

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Home Page: [www.totaltraxinc.com](http://www.totaltraxinc.com)

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