

HYPERFORMANCE

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The Geek Shall Inherit the Earth

Track 4 Session 1

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Abstract

It has been said that "all the material handling problems have been solved and software is the only remaining frontier." This smart perspective session will examine the buzz in Supply Chain software today and what you need to be thinking about to remain relevant and competitive in the connected, mobile, social, analytical, predictive, cloud-based big data world we are trying to catch.

Agenda

- **Introduction**
- **Technologies**
 - RFID and the Supply Chain – Finally?
 - Business Intelligence – Oxymoron?
 - WCS taking control of the warehouse – Usurping the WMS?
 - Produce Traceability Initiative – Farm to Table?
 - Cloud – Is the sun shining?
- **Key Takeaways**
- **Questions**

RFID Definition

Radio Frequency Identification is a data collection technology that uses electronic tags for storing data. RFID is an automated form of identity identification.

RFID Background

- **In the early 2000's, the RFID technology was the “next great breakthrough” for tracking product through the Supply Chain.**
- **The initial expectations were not realistic, and developing an actual ROI for the different applications was not initially viable.**

RFID Background, cont.

- **However, RFID continues on a trajectory toward widespread applications within the Supply Chain.**
- **The catalyst was the realization RFID was not a replacement for bar codes.**
- **The application of RFID has to add value and provide a ROI.**

RFID Applications

- **Authentication of products.**
- **Tracking of products, particularly high value, through the supply chain.**
- **Inventory validation; by utilizing RFID tags and readers, products can be counted in seconds.**
- **Rapid identification of inventory losses.**
- **Sensors can detect missing or incorrect shipments and send an alert.**

RFID Applications, cont.

- **Serialization to track individual products.**
- **RFID tags are being utilized at the point of sale for faster checkout of customers.**
- **Faster identification of “stock outs”, completing a physical inventory in a store is fast and accurate.**

RFID Examples

NYK

- **NYK uses RFID technology to maintain inventory of containers in its container yards. Location and status is updated quickly and efficiently.**
- **The payback is the quick locating of containers for drayage pick up.**
- **Control and security within the yard.**

American Apparel

- **American Apparel uses RFID tags to increase check out speed, update inventory, and restock the fixtures efficiently.**

Carlsberg

- **Carlsberg in the UK uses RFID tags for a keg tracking system.**

CTrack

- **CTrack markets RFID-based tags in Europe for cargo tracking seals. The RFID tags record which goods are loaded and removed from a specific truck.**
- **The RFID tag also provides the capability to monitor temperature for goods ensuring freshness and quality.**

RFID Future

Barriers

- **RFID systems installation is a significant investment as compared to other options. The cost has been decreasing due to advances in technology and wider acceptance.**
- **There have been unsubstantiated health concerns related to RFID technology.**

RFID Future, cont.

- **RFID is growing in acceptance and applications throughout the supply chain, particularly for higher value products.**
- **The trend for utilization of RFID is unmistakably increasing, particularly for high value products, serialization, inventory control applications, and maintaining quality.**

RFID Future, cont.

- **A major initiative for retailers is to fulfill direct to consumer orders using the store inventory. RFID enhances the accuracy of inventory and assists in locating the product.**

Warehouse Control System (WCS)

Definition

- WCS's are primarily equipment control systems that send instructions using PLC's (Programmable Logic Controls) to conveyors, sorters, or automatic storage systems to "do their thing". Initially, the focus was material flow.

WCS Background

- **The shift began with the use of PLC's to carry out commands to material handling equipment.**
- **The PLC's of today provide more capability and memory than the previous technology.**
- **The days of being simply a messenger for the WMS are over. Today's WCS can balance workflow and provide instruction to set priorities.**

WCS Applications

- **Major focus for the WCS is order fulfillment.**
- **Utilizing the WCS to balance workload across the equipment to maintain a balanced flow through the system.**
- **With an automated sorter, more orders can be “dropped” as additional capacity in the sorter and packing stations become available.**

WCS Applications, cont.

- **The cost of utilizing the WCS is significantly less than a WMS, particularly in a less complex facility.**
- **WCS has evolved to keep pace with increasing sophistication of material handling systems by also controlling pick-to-light, radio frequency identification systems, voice-directed picking, automatic sorters, and storage systems.**
- **WCS can perform “dynamic balancing”, adjusting workflow in real-time.**

WCS Examples

American Eagle



- **American Eagle uses a WCS in its Direct to Consumer facility. This is particularly applicable because of the order size and same day or next day service requirements.**

- **Zappos recently installed a WCS in its 400,000 square foot distribution center in Kentucky. The WCS serves as the “brains” of the operation, controlling high speed conveyors, mergers, and sorters. The WCS receives orders from the WMS and manages the flow through the distribution center.**

Business Intelligence (BI)

Definition

- BI is the ability to summarize data into meaningful, real-time, and fact-based information that facilitates and simplifies decision making.
- BI is the transition of data analysis from the “Analyst”, to the user, enhancing the skill set of supply chain managers.
- BI is an attempt to provide insight directly to users involved in supply chain activities. Analytics start to be inside transactional systems, instead of a separate data base.

BI Background

- **Gartner sees the maturation of data-driven companies as moving from descriptive reports and queries, to diagnostic analysis and visualization, to predictive analytics, to prescriptive analytics, for optimum performance.**
 - Descriptive – how things are performing
 - Diagnostic – visualization and analysis as to why performance did not meet expectations
 - Predictive – forecasts performance based on real time information
 - Prescriptive – provides recommendations of how to reverse the current trends, potential bottlenecks, or resource allocation

BI Applications

- **BI software retrieves and extracts raw data into meaningful, real-time, and fact-based information.**
- **The key is using BI to resolve potential bottlenecks before they disrupt the flow of product.**

BI Applications, cont.

- **BI can sort through voluminous data to quickly perform queries, optimize reporting of key performance indicators, and update dashboards and scorecards in real-time.**
- **BI provides real-time metrics of performance. These real time metrics can vary, depending upon the facility, situation, or demand.**
- **BI software makes automated purchasing possible.**

BI Applications, cont.

- **The use of BI, merged with mobility, brings an additional benefit - timely, accurate information - directly into the hands of the supply chain managers. Provides the capability to sever the “cord” between application and user.**
- **Through mobility, most BI software can be used on any tablet or smart phone. The benefits of BI can be delivered as real-time data to personnel on the floor, in the field, or while meeting with suppliers.**

BI Examples

- **SuperValu uses BI and mobility to:**
 - Provide mobile data access to improve supply chain performance.
 - Align the organization with a common information data set.
 - Access analytics without extensive upfront IT investment.
 - Quickly reorder merchandise, based on current sales.
 - Measure the impact of in store promotions in real time.

BI Examples

- **BI mobile smart phones and tablets, and 4G networks combine to provide the Supply Chain manager with real-time, accurate information formatted in a user-friendly way, anytime, anywhere. The result is a Supply Chain manager who can take decisive and timely action to improve customer service and reduce cost.**

Produce Traceability Initiative (PTI)

Definition

- Initiative to trace product from source, through the supply chain, to the end user.
- Provides traceability to ensure accountability for product safety.
- Evolved from the E-Coli outbreak from spinach several years ago.
- This was an industry-initiated Initiative, because of the belief a government-imposed solution would be detrimental to the industry. The Produce Marketing Association joined together to initiate the traceability effort.

PTI Applications

- **The Initiative's focus was to develop a method to trace product from the field in an effort to identify, pinpoint, and limit future food safety issues without eliminating an entire commodity from the grocery shelves.**
- **The PTI has also been expanded to other foods, such as meat.**

PTI Applications, cont.

- **The PTI enables the “surgical” removal of product from the grocery supply chain.**
- **The PTI system enables visibility of the handling of foods from field, cooler, distributor, and retailer through the supply chain. Visibility improves freshness and accountability.**
- **The PTI is moving the industry to an automated supply chain.**

PTI Applications, cont.

- **Early adopters are experiencing benefits, such as real-time packing visibility, accuracy improvements, and a reduction in rejection rates.**
- **The most significant benefit is when there is a crisis. The benefits are quick response and quick notification and removal of the affected product from the food supply chain. The alternative is a 100% recall of the product.**

PTI Examples

United Supermarkets



- **Several retailers, such as United Supermarkets, have notified suppliers that they must comply with the new requirements.**
- **United Supermarkets is recording and storing the traceability numbers as the product is received in the distribution center**

- **In 2013, Wal-Mart notified their fresh produce suppliers they must comply with the PTI case labels**
- **“These efforts are design to create transparency in the supply chain so our customers can be confident in the freshness of the produce”, as stated in the letter sent to produce suppliers.**

PTI Future

- **The potential of Produce Traceability Initiative technology and methodology to other consumer products is a foreseeable possibility. Examples would be health and beauty aids.**
- **Over the counter drugs and health aids.**
- **Recalls of non-perishable product, when there are safety or health risks this expedites the recall effort.**

Cloud

Definition

- Hosting software systems outside of the firms' IT infrastructure.
- Hosting is provided by a third party IT service provider. Some of the major players are IBM, Microsoft, and Amazon.
- Cloud computing enables the user to access software systems through a remote connection.

Cloud Background

- **Transportation systems began migrating to the cloud several years ago. WMS's are beginning to migrate to the cloud.**
- **Currently, the cloud is an option, but not a preference, for supply chain software suppliers and users. But, there is definite momentum.**
- **Dwight Klappich of Gartner recently said, “We are seeing rapid emergence and adoption of cloud-based WMS.” “Companies that agonized over whether to keep their data behind a firewall or on the web.... were worried about scalability and performance issues in the cloud have done complete turnarounds.”**

Cloud Applications

- **Cloud-based WMS's reduce the cost of ownership by minimizing IT infrastructure to support the WMS installation.**
- **Cloud-based WMS's are “fault tolerant”, since cloud systems have a “hot” backup.**

Cloud Applications, cont.

- **Using the cloud for WMS's enables the ability to set up a warehouse and logistics operation quickly, as long as there is a physical location.**
- **The cost of ownership for supply chain systems with multiple distribution centers can be significant. With a cloud application, all facilities can access the system via the cloud.**

Key Takeaways

Imagine the Supply Chain of the future...

- Your supply chain systems hosted in the cloud, providing redundancy, lower cost, quick development, and 24x7 access.
- The use of RFID and PTI to track product through the supply chain at the item level.
- The retail outlets where product is sold instantly able to determine stock-outs and replenishment requirements through RFID technology and Business Intelligence.

Key Takeaways, cont.

- The availability of predictive and prescriptive information via mobile devices, anytime and anywhere, to resolve supply chain problems and take advantage of sales opportunities.
- No need to rely on IT resources or Data Analysts to support your decision making.
- Utilization of the capabilities of a WCS, cloud computing, and mobility technology to expedite the start up of a new facility, significantly faster and at a lower cost.

Key Takeaways, cont.

- RFID is finally gaining significant traction. How can you successfully use this technology within your operation.
- Mobility and electronic information available whenever and wherever.
- Business Intelligence eliminates the need for specialists and IT resources to provide information for your operation.

Key Takeaways, cont.

- How can PTI be applied in your supply chain?
Product recalls are a fact of “business life”. How fast you react is critical in a connected world.



Questions



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