

## Inventory Management: A Cost Saving Treasure Hunt

By Tyler Simonton

**WEI Editor's Note:** *It's the message we've been sending throughout this recession—now is NOT the time to screech to a halt and try to “ride it out” with a complete bunker mentality. Savvy companies are the ones who are using this slow time to prepare for the eventual economic upturn by initiating those projects that, when things are swinging, no one ever seems to have the time or resources to accomplish. Distribution, in particular, is one area that's ripe for making improvements now. Tyler Simonton presents six Inventory Management initiatives—ranging from quick wins to larger efforts—that you can apply now, and that will benefit your bottom line both now, and in the future.*

For the last few months, it appears the proverbial economic pendulum seems to have been given an extra kick beyond the normal “swing” to a slower period. But is now the time to put off those technology projects and continuous improvement initiatives?

In the JDEtips November/December 2008 “From the Publisher” column, Andy Klee quotes Dr. C.J. Rhoads (a frequent JDEtips contributor): “Using the downtime to plan for, install, and implement new technologies... will enable the company to better meet the needs of the customer.... Both the company and the customer win in the long run.” If you missed Andy's column in the last issue of JDEtips, log on right now, download the issue, and read it – it is a great one.

There is a great irony in the inevitable busier and slower periods that mark the normal economic cycles. When times are high flying, companies are working so much overtime and weekends that they leave little time to take on initiatives to improve the business. Sometimes even what is needed to maintain the business gets put on the back burner (e.g., “Lets have the Cycle Counter do order picking tomorrow...”). Yet, this is when most companies choose to initiate large technology and improvement projects. Then, when times slow down, the focus becomes cost cutting – which typically means the simplistic cost cutting. Businesses tend to focus on reducing purchases (technology, equipment, outside services), delaying improvement projects, and employee layoffs.

Exactly when the business resources have a little time free to take on projects that would cut costs over the long term and increase customer satisfaction far into the future – they instead circle the wagons, and wait out the slow period. When the inevitable economic pendulum swings back to good times, the business once again faces a familiar set of problems.

**Take these projects on now to benefit both now and when the proverbial pendulum swings back.**

This article highlights six Inventory Management initiatives designed to:

- Reduce cost now and in the future
- Improve customer satisfaction now and in the future
- Position businesses for growth in the future

Take these projects on now to benefit both now and when the proverbial pendulum swings back. JDE® – from World® to the latest EnterpriseOne® release – provides the functionality, tools, and data required to make these initiatives a success.

### **Initiative 1 – Out with the Old, and the Really Old**

Does your warehouse have pallets of boxes printed with Christmas 2006? Are there pallets of brochures for Easter 2007? Are there items in your warehouse that are no longer sold in the retail store OR on-line?

Of the six initiatives in this article, this one is boring and may seem obvious. However, the old inventory, and really old inventory in a warehouse is “low hanging

(and rotting) fruit”. If you do not think your inventory has this issue, take a walk around the warehouse – especially the backs of aisles, and less accessible corners; virtually every warehouse has this problem.

Warehouse space is expensive – really. It is not just the space. Rack is expensive. Material handling vehicles are expensive. Labor is expensive. If a space shortage has forced the business to lease an “overflow” storage location, there are all of the costs above – plus transfer truck costs, and potential customer service impacts.

In a perfect world, obsolete inventory is managed out on an ongoing basis. In reality, when business is booming, the old inventory just sits – taking up more and more space each month.

### Using JDE to Help

Identify Item Numbers with inventory that has not been used recently. Depending on your business, the lifecycle of an item number could be a month or several years. JDE can be used to find these item numbers. In the Item Ledger/Cardex, the transactions for Ship Confirmations or Manufacturing Issues are recorded. In Figure 1, Item 3510 was last used for a Work Order Issue (IM) transaction on November 22, 2006. Yet, Quantity On Hand indicates 984 units still in inventory – and likely with a lot of dust!

All versions of JDE (World to EnterpriseOne) contain information to help identify “dead” item numbers. Work with the IT department to generate a report or

query that identifies Item Numbers with inventory on hand, and the most recent usage date. This is a report or query which should be run periodically to prevent old inventory accumulation.

### Initiative 2 – Not Using RF? Catch Up with the 1980s

RF (Radio Frequency) equipment and barcodes are hardly cutting edge technology at this point. However, it is amazing how many businesses are not taking advantage of the benefits of real-time inventory tracking enabled by RF and wireless devices.

When inventory is tracked on paper, the system and physical inventory NEVER match. Anyone who has ever checked Item Availability inquiry, then walked out to the warehouse and found a different quantity, or different item number – then found the paper record of the transactions in the inbox of someone who is on vacation – knows this frustration. There are many risks to inventory accuracy – lose a piece of paper, write down data incorrectly, mistype data entry, or simply use inventory without recording a system transaction.

The result is customer orders not filled or manufacturing lines stopped due to inventory discrepancies. Customer satisfaction is impacted; costs go up when Sales Orders or Vendor deliveries must be expedited.

### Using JDE to Help

JDE does not come “out of the box” with RF technology. The good news is that there are several excellent RF

Work With Item Ledger									
Select	Find	Close	Row	Tools					
Item Number	3510				Outer Case 12x12x8 Easter 2007				
Branch/Plant	M30								
Location	*				Transaction Date	* - *			
Lot/Serial	*				Document Type	*			
Quantity On Hand	984		EA		Value				
Secondary On Hand			EA						
Records 1 - 2									
	Document Number	Doc Type	Document Number	Doc Ty	Transaction Date	Lot/Serial	Location	Quantity	Trans UoM
<input type="checkbox"/>	453721	IM	453721	WO	11/19/2006		MF.G.	4-	EA
<input type="checkbox"/>	453721	IM	453721	WO	11/22/2008		MF.G.	8-	EA

Figure 1: Example of Item Ledger/Cardex Most Recent IM Transaction

Integration vendors with products designed to work with JDE – including all EnterpriseOne and World versions.

RF integration with JDE does not have to be complex. Most of the RF Integration vendors have pre-built tools for the common Inventory, Warehouse, and Manufacturing transactions. With a small amount of configuration, Inventory Movements, Sales Order Picking, and even Purchase Order Receipts, Work Order Completions and Work Order Issues can occur in real-time and with near 100% accuracy. Figures 2 and 3 illustrate how one third-party vendor, RFgen, integrates with JDE.

The potential benefits are enormous. Inventory is instantly updated whenever a transaction occurs. Data entry costs are reduced. Customer Order accuracy improves. Facility throughput scales up with fewer resources – supporting business growth when order volume increases.

An RF Integration implementation is a great initiative for a slower business period. The Operations team(s) must actively participate in this initiative, in addition to the IT Department. Business processes will need to be reviewed, updated, and documented. For a business that has never used RF technology for inventory transactions, there is typically a significant end-user training effort required to prevent your customers from being impacted by the inevitable “learning curve” associated with the “new” technology.

### Initiative 3 – Implement a Cycle Count Program

“What is Cycle Counting?” The most frequent responses involve keeping inventory accurate, and avoiding Physical Inventory counts. Cycle Count programs are typically designed to maintain high inventory accuracy, and to comply with an auditor’s instructions so doing a full Physical Inventory can be avoided.

But why is inventory accuracy important? The real drivers for inventory accuracy are customer service

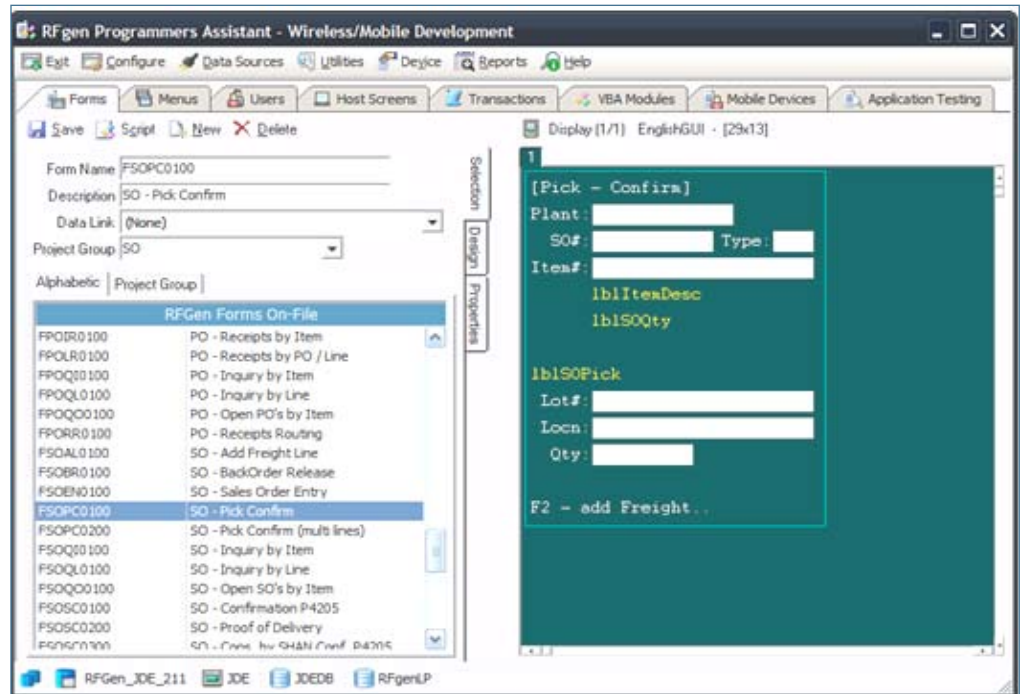


Figure 2: Example, RFgen Screen

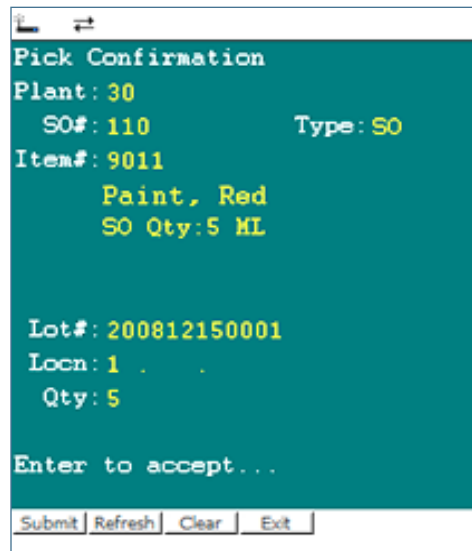


Figure 3: Example, RFgen Pick Confirm

and operations efficiency (i.e., cost). Accurate inventory means customers receive fewer orders shipped short, resulting in greater customer satisfaction and fewer missed revenue opportunities for the company. Accurate inventory means efficient internal manufacturing operations that are not disrupted due to missing components.

You can sell the investment in a Cycle Count program on the root benefits – customer satisfaction and improved operating efficiency.

Continuous Process Improvement is an equally important, but less frequently applied element of a Cycle Counting program. Each inventory discrepancy is an opportunity to both identify and correct the root causes in order to prevent future discrepancies from re-occurring. When building the Cycle Count program, be sure to allocate resources to research why and how the discrepancy occurred.

The reasons for inventory transaction errors vary from simple user errors to systemic process problems, or even software bugs. Identifying these issues and stopping the root cause will result in higher accuracy levels; this translates to higher customer satisfaction, greater operating efficiency, and a real possibility of eliminating inventory physical counts.

### Using JDE to Help

JDE versions including all World and E1 releases contain Cycle Count functionality. And, the RF Integration vendors provide RF-based tools for performing the Cycle Count data entries. Figure 4 contains an overview of the JDE Cycle Count process.

The standard JDE Item Ledger/Cardex, Purchasing Ledger, Sales Order History, and Manufacturing Work Orders provide useful tools for performing root cause analysis on how and why discrepancies occurred. Plus, the RF Integration software provides additional transactional logs when the standard JDE tools are not enough.

To illustrate, let's look at a quick example. Earlier this year, a client began encountering frequent Cycle Count errors in which the inventory was expected in a particular warehouse location, but was not found in that location. A check of the Manufacturing Work Orders found that the missing inventory was committed to the Parts List. After researching through the facility work logs, it was determined that all of the missing inventory was committed to Work Orders

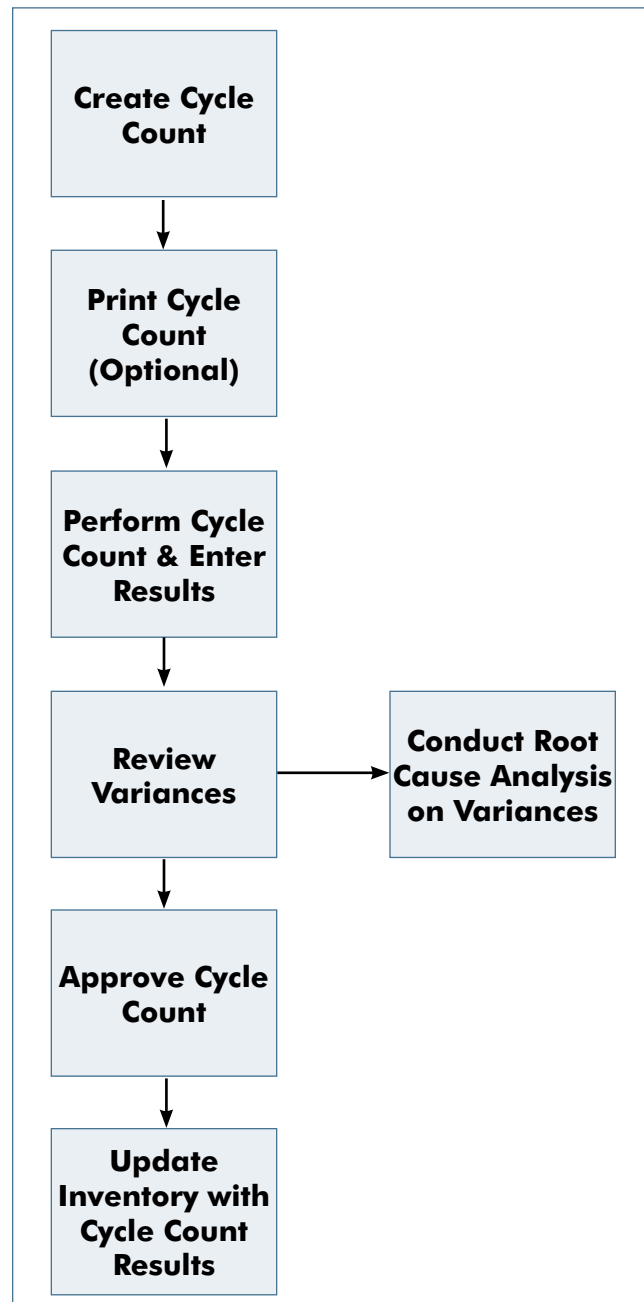


Figure 4: JDE Cycle Count Process

assigned to a single, new employee. The new employee was moving the inventory, then completing the system transactions later in his shift (often 6-8 hours later). With some quick retraining, these discrepancies quickly disappeared.

### JDEtips Articles to Check Out:

As with any JDE functionality, it is important to understand how the tools work. Check out these articles in the JDEtips documents archive for more information:

*Cycle Counting: Or Can I Continue Doing Business While I Count?* Co-authored by Andy Klee and David Mallory, this article addresses one of the most important Cycle Counting realities in JDE.

*Cycle Counting by ABC* (January/February 2007). This is an article I previously wrote that covers the JDE ABC Cycle Counting functionality.

### Initiative 4 – Procurement/Manufacturing Planning Review

Inventory is expensive. Ask the CFO.

Inventory represents company assets tied up in “stuff” sitting on warehouse shelves. One way or another—either through interest on loans or opportunity cost—the business is paying every day to have the inventory on hand. Plus, each day inventory is in the warehouse, it accumulates costs for space and utilities, and runs the risk of incurring costs for inventory relocations as well as becoming lost or damaged.

Every company attempts to balance the various realities of having inventory. The balance includes maintaining enough inventory to meet fill rate objectives, meeting company objectives for total inventory value, and minimizing scrapped inventory due to obsolescence.

For those companies using the standard JDE MRP/DRP/MPS functionality, there are several initiatives you can undertake to make sure the Planning Process is functioning in support of the business by planning

enough of the right inventory, and not overstocking the wrong inventory. (**Note:** If your company is not using a system-based Planning Process, consider a project to get started. The JDE standard functionality is an excellent place to begin.)

Describing the potential components of a Planning Process audit could easily fill this entire journal. The following are the highlights to include in the effort:

- **Analyze the Current Planning Data.** Select a set of Item Numbers, representing a cross-section of Item types in the business. Review the Planning Messages and Time Series data. Does the Planning information make sense? Is too much inventory being ordered? Are Purchase Orders or Work Orders too frequent, or not frequent enough?

Figure 5 shows an example MRP Time Series Screen for a Finished Good Item. Analysis of this data is typically business situation specific. In this example, several things require analysis:

- **Inventory Stock drops too low in week one.** Safety Stock (not shown) for this Item Number is 1240 EA. Therefore, there is a serious risk of shipping orders short and missing revenue.
- **Sales Order Quantities appear very low.** In this example, a recently added Order Activity Rule has not been updated in the Supply & Demand Inclusion Rules, resulting in understated inventory demand.

Description	Past Due	12/19/2008	12/26/2008 P	1/2/2009 L	1/9/2009	1/16/2009 P	2/2/2009	2/9/2009	2/16/2009	3/31/2009
+BAU		-280	-1456	-1916	-2926	-3226	-5516	-7608	-9988	-12400
+BA		-280	-1456	10830	9820	9520	7230	5140	2760	1240
+WOU		24								
+WO		24								
+LEFF	152									
-FSCU		1200	460	1010	300	2290	2090	2360	2360	2360
-FCST		1008	460	962	300	2170	2090	2360	2360	2360
-SDU	432	192		48		120				
-SO	432	192		48		120				
=EAU	-280	-1456	-1916	-2926	-3226	-5516	-7608	-9988	-12400	-12400
+EA	-280	-1456	10830	9820	9520	7230	5140	2760	1240	1240
+PLO			12746							
ATPU		752								

Figure 5: MRP Time Series Example

- **Ask the Planners How It Is Working.** Typically, the Planning staff is quite aware of the company inventory objectives (they hear from the Finance staff when inventory is too high). Ask them some basic questions – do they use the Planning Messages? If not, why not? What is wrong with the data? How could the data be better? Some great clues are likely to emerge.
- **Supply and Demand Date & Quantity Accuracy.** Are there a large number of behind schedule Work Orders or late Purchase Orders? Are there a large number of open Sales Orders past the expected Ship Date? Any of the above is an indication that the Procurement, Manufacturing, and/or Sales Order dates and quantities are not being updated. In Figure 5, there are open Sales Orders in the Past Due period, and an open Work Order in the current period for one case (24 eaches).

An accurate picture of Supply and Demand is crucial to accurate Planning Process output, and to maintaining desired inventory levels. Work with the internal stakeholders to develop processes for keeping the dates and quantities accurate.

- **Safety Stock Levels.** Safety Stock is that “cushion” of inventory that protects against supply and demand variability. Some companies hire PhDs, and create elaborate mathematical models to calculate Safety Stock. In addition to these methods, apply some common sense. Check the Safety Stock quantity against typical usage volumes and the difficulty of procuring or manufacturing an item (the IT Department should be able to help streamline this analysis). Lower Safety Stocks result in lower on hand inventory value, and open up warehouse space – a great combination as long as the customer is not impacted.

- **Minimum Order Quantities & Order Quantity Multiples.** Purchasing smaller quantities reduces on hand inventory.

Depending on the pricing agreements with vendors, shipping costs, and supply/demand variability, it may make sense to purchase smaller quantities, more frequently. In some situations, vendors may be willing to hold the inventory in their warehouse, instead of yours, thus reducing your storage space requirements. This arrangement is especially feasible for items which are used in larger volumes, in consistent quantities (e.g., corrugated boxes, labels, wrappers, packaging materials, commonly used components).

In Figure 5, the recommended Order Quantity during the week of 12/26/2008 is not an even case quantity. The Multiple Order Quantity should be updated to an even case quantity to reduce the chances of having leftover units that cannot be sold.

- **Basic Planning Configuration.** The Item Branch, Additional System Information screen (shown in Figure 6) contains several configuration options which impact Planning Message output and therefore Inventory level. Check the leadtime values – are these accurate? If leadtime is set to 30 days, but really only requires 15 days – inventory sits in the warehouse 15 extra days. Check the Order Policy Code, Value Order Policy (if applicable), Planning Code, Planning Fence Rule, and Planning Fence – these values should make sense for the business. The IT Department will be able to assist with the configuration review by obtain-

The screenshot displays the 'Additional System Info' window for item 'PKG2' (PACKAGING OUTER CASE) at branch/plant 'M30'. The interface includes a menu bar with 'OK', 'Cancel', 'Form', 'Previous', 'Next', and 'Tools'. Below the menu, there are tabs for 'Plant Manufacturing', 'Grade and Potency', 'Service/Warranty', 'Depot/Product Info', 'Supply Chain Planning', and 'Demand Flow'. The main area is divided into two columns of fields. The left column contains: Order Policy Code (4), Value Order Policy (50), Planning Code (2), Planning Fence Rule (3), Planning Fence (30), Freeze Fence (5), Message Display Fence (5), Setup Labor, Move / Queue Hours, and a checkbox for 'Suppress MRP Messages'. The right column contains: Accounting Cost Qty (1), Issue Type Code (1), Time Basis (4), Item Revision Level, Shrink Factor, Shrink Factor Method (%), Leadtime Level (30), Leadtime Manufacturing, Leadtime Cumulative, Leadtime Per Unit, Fixed/Variable (F), and MFG Leadtime Quantity. A 'Periods of Supply' window is also visible in the background.

Figure 6: Item Number Planning Information

ing extracts or designing reports to obtain and sort/categorize the information for more efficient review.

- **Develop Internal Procedures for Periodic Planning Reviews.** Completing these Planning Process review activities once will be beneficial. Implementing procedures to repeat these steps periodically will assure continued attention to these important elements of Inventory Management.

***A well-defined set of inventory metrics will provide a continuous tool for measuring inventory health.***

### ***JDEtips Articles to Check Out:***

*An Overview of JDE DRP/MPS/MRP Planning Process* (January/February 2006). Author Terry Horner covers the basics, and highlights some of the “gotchas” in the Planning functionality.

*Vendor Partnerships: How To Make A Good One* (September/October 2006). Author C.J. Rhoads provides tips on how to approach vendor partnerships, evaluate vendors, and move toward change.

### **Initiative 5 – Inventory Management Metrics**

“Show me the money metrics”. Okay – Inventory Management metrics are not as exciting as a blockbuster Hollywood movie tagline, but the idea is the same. A well-defined set of inventory metrics will provide a continuous tool for measuring inventory health.

The key is to measure the right information for the business, then develop a tool set to make obtaining the data accurate, reliable, and fast (when business volumes pick up, difficult analyses inevitably get put aside). The Inventory Management team should define the measures, then work with the IT department to determine how to develop the tools required. (Reports which can be placed on a menu, or run via an external reporting tool are the best long term solution – with metrics, visibility is crucial!)

There are some common inventory measures tracked by companies with best practice Inventory Management:

- Turn Rate
- Accuracy Percentage
- Order Fill Rate and/or Order Line Fill Rate
- Line Stoppages due to Component Shortages
- Inventory Value

### **Using JDE to Help**

For most of these measures, JDE – World through EnterpriseOne versions – stores the data required to design and develop measurement tools.

- **Turn Rate.** This calculation requires Cost of Goods Sold and the Average Inventory Value. The R41116 Inventory Turn report may meet the business requirements, or a custom report can be developed.
- **Accuracy Percentage.** There are several methods for calculating an Accuracy Percentage. The Cycle Count tables (F4140, F4141, and F4142) provide the data required.
- **Order and Order Line Fill Rates.** The Sales Order History table (F42119) or the Sales Order Detail table (F4211) should provide the required data.
- **Line Stoppages** are probably not available in JDE, so another data source is required.
- **Inventory Value.** The Inventory Valuation Report (R41590) will likely address this requirement, or the business may have its own custom report; you’ll want to check with the Finance department.

Finally, if no one cares about or acts on these metrics, they will be meaningless. To make sure the metrics are regularly reviewed and acted on, incorporate the objectives for the Inventory Management metrics into Company Goals, Department Commitments, and Personal Performance Commitments.

### **Initiative 6 – Speed Up Inventory Flow in the Warehouse**

There is nothing quite like the site of warehouse staging areas jam-packed with inventory, day after day. While some may be inclined to view this situation as a sign of great sales volume, the more accurate view is just what it looks like – inventory “sitting around”.

As inventory piles up in a staging area, it is subject to the risk of damage, disappearance, or shipment to the wrong place. When full warehouse staging space becomes the normal operating procedure, shipping errors start to occur and customers complain. Extra order checking processes are created. Temporary employees are hired to apply hand-written placards after order picking.

Steps are added to business processes which require additional resources, and keep the inventory in the staging area even longer. The cycle often progresses to the point that the warehouse requires larger staging areas, resulting in facility expansion or offsite overflow storage; operating costs rise.

Outbound inventory should be swiftly moved from the rack to the outbound trailer, railcar, or container. Inbound inventory should be moved swiftly from the warehouse door to the rack. Staging space will be reduced and while increased speed of the inventory flow will cut down on shipping errors and improve customer satisfaction, it may even result in cost reductions.

Similar to the last initiative, this one may be a big project involving several departments: Inventory, Warehouse, Manufacturing, and the Customer Service departments, along with the support of the IT department and even outside service providers.

Some important elements of this initiative effort are:

- **Identify and Document the Process Flow Steps for Inbound and Outbound Processing.** This element may seem easy – but it isn't. To identify and document the Inbound and Outbound processes, someone will need to actually follow the processes through the steps both in the office and on the warehouse floor. Then, document the process steps using Microsoft Visio or PowerPoint. It is not enough to use some old flowcharts, or just interview the Inventory Manager or Warehouse Supervisors – all too often these sources are aware of how processes are supposed to work, but not how they are actually working.
- **Analyze the Process Times and Delay Times.** Time studies were invented because they generate very useful information. A formal time study may not be required, but some observation and data collection will be very useful. For example, is there a long delay between Order Picking and Order Checking/Verification? Is there a long delay between Order Checking/Verification and Trailer Loading? Is there a long

delay between Inbound Trailer Unload and Storage Putaway?

- **Analyze the Information.** Bring the members of your team together to analyze the information collected. It is important to have a discussion of why processes are what they are – even if they no longer make sense or are required.
- **Identify Steps to Remove.** Are there steps which can be removed? It is surprising how often there is an obviously non-value added process step.
- **Identify where Technology Can Improve Reliability.** See also Initiative #2. RF, barcode and RFID technology can improve many inventory related processes – especially customer order fulfillment. Can RF technology and updated business processes be used to increase accuracy and reduce labor during checking/verification processes – as well as speed up the time from rack to trailer? Can Outbound label printing be integrated into the RF Picking process, to eliminate a process step?
- **Process-Based Inventory Metrics.** The most reliable way to ensure process improvements are not lost is with metrics. Between JDE and RF Integration tool data, and some collaboration between your business team and the IT department, develop tools for measuring the process flow time. A report or extract which includes Order Fulfillment Flow Time (Release to Warehouse or first Warehouse Pick through Trailer Load) and Inbound Receipt Flow Time (Truck Arrival or Receipt Transaction Time through Warehouse Storage Completed), will provide valuable information on inventory process health on an ongoing basis.

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way to ensure process  
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is with metrics.***

### **Using JDE to Help**

The Sales Order and Purchase Order Activity Rules are a good place to start for this initiative. Just keep in mind, the Activity Rules typically only tell part of the “business process story”; business process steps can

occur without Order Status changes. For example, label printing steps and warehouse putaways typically do not result in Order Status changes.

The Item Ledger/Cardex records many transactions, including Purchase Order Receipts, Inventory movements, and Inventory Shipments. If your business is using the Warehouse Management module, additional information is available in the Warehouse Task file and the License Plate history file.

The Sales Order Ledger and Purchasing Ledger may provide useful information as well. While these files rely on the Order Activity Rule configuration, the data can be useful for analysis of high level process flow times.

### Wrapup

Inventory Management is a key element in both customer satisfaction and controlling costs. During the slow times, high satisfaction keeps your existing customers around; an inventory that is in control helps keep cost of goods sold in check. And, when times get better, customer satisfaction and controlled costs will have the business positioned for sales growth.

Now is the time to improve Inventory Management. Whether it is initiatives that can be accomplished with internal sweat (Clean out the Old Inventory, Implement Cycle Counting, Establish Inventory Management Metrics) or initiatives that require some external help (Implement RF, Planning Process Review, and/or Inventory Flow Review), do not let this opportunity go to waste.

**Tyler Simonton** is a leading expert on JDE Supply Chain modules – including Warehouse Management, Inventory, Manufacturing, and Transportation modules – plus RF Integration. With over 15 years of software experience – including 8 years exclusively using JDE, he brings a strong background in application software, business process design, and project management. He has extensive experience in the food and beverage industry, as well as many other industries – from sports equipment to aircraft manufacturing. You may contact the author at [JDEtips.Authors@ERPtips.com](mailto:JDEtips.Authors@ERPtips.com). Be sure to mention the author's name and/or the article title.



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