

SAGE ACCPAC SAGE PRO

**WMS** Warehouse Management System



Cost Justifying Warehouse  
Management Technologies in  
Small and Midsized Warehouses

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## **Introduction**

In today's competitive marketplace, the primary focus of many organizations is to reduce the costs associated with operations and customer service. To accomplish this, companies are embarking on a wide range of process-improvement initiatives. One proven method for increasing customer service without incurring additional long-term expenses is to take advantage of new technologies to improve a company's supply chain efficiencies—including the implementation of a warehouse management system (WMS). The WMS concept has now matured into a collection of time-tested technologies that reduce inventory costs and increase overall inventory management efficiencies. By implementing WMS technology with an integrated back-office accounting system, organizations can achieve a higher return on their software dollars and provide the best possible service to their customers.

A WMS can provide an organization with tangible benefits that quickly and dramatically improve warehouse operations and increase material management efficiencies without adding headcount. By implementing a WMS, a company achieves a number of significant benefits that include:

- Reduced picking/shipping errors
- Improved inventory count accuracy
- Increased employee productivity
- Elimination of most warehouse paperwork
- Improved space utilization
- Reduction of physical inventories
- Better workload control
- Improved labor management and reporting
- Better support of customer EDI requirements
- Ability to better prioritize warehouse activities for preferred customers

In this document we will discuss how Sage Accpac WMS can pay for itself through effective inventory management and cost savings, and how it is a key component in the end-to-end business management solutions of Sage Software.

## RF-based Integrated WMS

Sage Accpac WMS is a real-time inventory management and order execution system that intelligently directs all warehouse functions by directing operators through their tasks and managing material flow throughout the warehouse. Sage Accpac WMS is radio frequency (RF) based—that is, it operates on a RF network with RF terminals, access points and antennas, and utilizes barcode technology, thus enabling a paperless environment. One of the most important elements of Sage Accpac WMS is its ability to provide real-time transaction verification. The system performs instant verification of data entry and provides error notification while an operator is still performing the current task. This real-time verification ensures accuracy, prevents errors in receiving, stocking, picking, and promotes productivity by guiding operators through their tasks based on accurate inventory quantities and locations—all of which leads to enhanced customer service.

The scalable wireless backbone is built to meet IEEE<sup>1</sup> 802.11b open systems standards for wireless communications over a TCP/IP (Transmission Control Protocol/Internet Protocol) network, and allows the addition of third-party devices to operate cost effectively by using the same RF system.

## Working with WMS

Every warehouse, large and small, performs four basic functions: receiving and put away, picking and packing, shipping and inventory control. Below are a few functionality highlights that Sage Accpac WMS offers.

### Receiving and Put Away

Sage Accpac WMS provides a RF-based solution to automate inventory receipt and put away processes. Tightly integrated with the Sage Accpac ERP Purchase Orders module, Sage Accpac WMS eliminates receiving errors and short-shipments by matching the receipt of goods (through barcoding technologies) with the original purchase order details while reporting any variance.

Sage Accpac WMS receipt and put away effectively moves received goods from the dock into the warehouse and the right location, storing these items efficiently in reserve or pick bins. As a result, companies can facilitate timely and accurate order fulfillment by creating an optimized order-picking environment for warehouse staff.

With Sage Accpac WMS, warehouse managers can assign multiple employees to the receipt and put away of a large inbound shipment. Conversely, multiple receipts can be simultaneously checked-in by a single employee. These features contribute to a highly effective receiving environment and allows for greater control in the allocation of human resources, while eliminating the introduction of transcription errors. Further, with the help of an integrated EDI system (such as Sage Accpac Exchange) that provides advanced ship notifications, warehouse staff can plan ahead for in-coming shipments and allocate required resources.

During receiving, Sage Accpac WMS allows companies to capture important information on items such as weight, size, expiration date, and so forth. Sage Accpac WMS can also be configured to store products either in a default location or many locations throughout the warehouse, accelerating the put-away process. Sage Accpac WMS determines whether to store an item in a primary pick bin or in a reserve bin based on the quantity of unit being put away, and the quantity that currently exists in the primary pick bin. It also monitors the quantity available in a primary pick bin and directs operators to replenish from the oldest unit in a reserve bin when necessary.

The final phase of receipt and put-away processing is the automated update of purchase orders and inventory information into the Sage Accpac accounting system. This automation eliminates manual intervention and errors, while providing accurate and up-to-date inventory control information.

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<sup>1</sup>IEEE 802.11b – Institute of Electrical and Electronics Engineers (IEEE) is a nonprofit U.S. engineering organization that develops, defines, and reviews standards within the electronics and computer science industries. IEEE 802.11b is a standard for Wireless LAN (WLAN). A WLAN is a LAN that is based on a Wireless interface. WLAN technology makes using LANs easier, because users can roam within the coverage area of the WLAN without having to deal with cables.

## **Picking and Packing**

Since the warehouse should remain focused on its primary task of fulfilling customer orders, Sage Accpac WMS offers a feature rich and efficient “picking and packing” solution. Taking advantage of RF-based barcoding technologies and seamless integration with the Order Entry module, Sage Accpac WMS tightly orchestrates the activities within the warehouse, helping to maximize human resources.

Following order receipt, fulfillment is made easy as Sage Accpac WMS matches available stock to the order, enabling the warehouse manager to see at a glance which orders can be filled immediately. Staff, equipped with RF-based handheld computers, are given explicit direction in picking every order, including verifying “picks” by reading barcodes to confirm the product selected, the shipping carton in which it is placed in and the quantity required. Further, staff may even pick multiple orders during a single “walk” through the warehouse. Sage Accpac WMS streamlines the picking and packing process through the automatic generation of shipping labels; by indicating the volume of the order; by guiding warehouse employees to the right direction in the most efficient sequence; and through serial number and lot number tracking. As a result, picking speed and accuracy is greatly improved, orders are filled on time and customer satisfaction is increased.

Advanced kitting functionality of Sage Accpac WMS directs the assembly of kits on demand, reducing the need to keep finished goods in the warehouse. Kitting allows Sage Accpac WMS to manage multiple inventory items as a single-unit. Instead of placing an order for individual sub-components, only the assembled item is ordered. Sage Accpac WMS then, based on the bill of materials, performs the “explosion” to guide the picker to pick the required sub-components needed to build the assembly.

Whichever picking style works may work best for a particular warehouse—wave, batch, simultaneous or sequential zone—Sage Accpac WMS manages the process efficiently. Picking inventory in a warehouse that is managed by Sage Accpac WMS means never having to look for “missing stock” or “walking around the warehouse” to fulfill customer orders. Whether you are picking items that expire in the next seven months or picking items with pre-allocated serial/lot numbers, Sage Accpac WMS guides staff through the warehouse in the most efficient way.

Furthermore, Sage Accpac WMS offers the ability to maximize the productivity of a company’s warehouse staff. By maintaining detailed information on the flow of inventory from both a “pick” and reserve bin, warehouse staff can be assured that when they are directed to a specific bin—the item will be there. Requests to replenish empty bins may be managed during off-peak hours or coordinated to run simultaneously with picking activities without interruption.

## **Shipping**

Sending the wrong package or items to the customer may be more than just embarrassing—it may cost a company a customer. In addition, it may cause a client great expense and downtime if they are counting on this particular organization to deliver the right product...on time; and with additional compliance fines and the violation of service level agreements, and it becomes clear that the shipping dock is the last chance to ensure shipments are perfect—every time. Sage Accpac WMS eliminates these errors and helps deliver the service excellence customers deserve while keeping shipping costs under control.

Sage Accpac WMS provides a streamlined shipping solution that produces packing slips, carton content labels and shipping labels before the carton is packed, eliminating errors in transcription from the customer order. It also automatically calculates shipping weight and keeps track of cartons shipped for an order. When integrated with a multi-carrier shipping system, Sage Accpac WMS offers companies the ability to shop for the best shipping rate, potentially saving thousands of dollars annually. Additionally, Sage Accpac WMS can generate the required labels for hazardous materials and customs requirements, packing slips and generate Advanced Shipping Notifications (ASNs).

Sage Accpac WMS saves on labor costs by significantly reducing the need for dedicated shippers and checkers, freeing up warehouse personnel for other activities. Upon completing an order, pickers merely verify the package weight, tape up the box and put it aside for the carrier. With Sage Accpac WMS companies know exactly what's going out the door and can give customers immediate information about when their shipment will arrive. Equally important, the Inventory Control module is immediately updated, ensuring everyone across the organization, from the warehouse staff to the customer service staff, have complete access to all order shipment information.

### **Inventory Control**

Sage Accpac WMS provides accurate and immediate information on the quantity, location, condition, status and history of any item in the warehouse at any time, eliminating transcription errors throughout the warehouse operations process. Fully integrated with Sage Pro ERP and Sage Accpac ERP, Sage Accpac WMS ensures complete control and flow of information between the back office and warehouse floor, while a browser-based interface provides the ability to generate reports and track inventory movement across the enterprise.

Complete control over inventory—including up-to-the-minute notification of when replenishment is needed and a full audit report of every product moved through the warehouse—enables a clear picture of what is going on in the warehouse and reduces reliance on “just in case” inventory levels. With less capital tied up in inventory and the possibility of reducing the amount of needed warehouse space, this can amount to considerable bottom-line savings. Also, with complete inventory control management (down to the contents of particular bins), pickers are no longer sent to an empty bin - increasing productivity and saving on labor costs. Precise up-to-the-minute inventory control helps you keep up with the fast-pace of e-business, enhancing the effectiveness of Web store operations and overall customer service. Sage Accpac WMS supports FIFO (first in, first out) and LIFO (last in, first out) stock rotation, serialized inventory and lot and expiration-date tracking, ensuring complete control over the shipped product.

When it comes to physical count of the inventory, Sage Accpac WMS supports by-date, product or bin cycle counting<sup>2</sup>. Sage Accpac WMS dramatically improves the accuracy of cycle counting by taking advantage of RF-based barcoding systems, eliminating transcription errors. Automatic updating of inventory information with Sage Accpac WMS Inventory Control system further improves efficiencies across the enterprise.

### **Return on Investment**

Sage Accpac WMS is designed to bring order and control to the warehouse, directing the efficient movement of goods and labor, in turn reducing costs and improving customer service. Inventory accuracy is the key to maintaining an efficient warehouse and avoiding poor productivity, poor purchasing practices and poor customer service. Sage Accpac WMS offers a solution that ensures companies know what they have and where they have it in real time.

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<sup>2</sup>Cycle counting – A method of taking inventory that does not require the inventory organization to shut down in order to count actual inventory items. Cycle count is performed to ensure accuracy of inventory quantities and values.

Sage Accpac WMS also allows for the development of efficient procedures for completing daily tasks that are used to create audit trails for productivity tracking. These audit trails enable companies to perform two very important management functions: 1) determine where things are going wrong; and 2) manage labor. As the system directs operators through the warehouse, it maximizes time and space utilization while minimizing errors, increasing productivity levels by an estimated 20 to 30 percent. Management can also track operator activity based on real-time reports generated from the system.

Sage Accpac WMS increases operator accountability and improves management control so managers are free to focus their efforts on warehouse improvements rather than on dealing with unwarranted emergencies. Sage Accpac WMS also decreases training time and reduces overall training costs. This self-checking, intelligent system enables new employees or temporary workers to work productively without extensive product knowledge.

For the purpose of an example, we will assume that a company is shipping 250 orders (around 600 cartons) a day, pays an average of \$10 per carton for freight and has fully-burdened labor costs of \$20 an hour. In a manual or disconnected warehouse operation, typically it takes 30 keystrokes to ship a carton and update the host computer. If we multiply that by 600 cartons a day, that comes to 18,000 keystrokes a day, multiplied by 22 working days a month, equals an astounding 396,000 keystrokes! If we assume one error for every 800 keystrokes, a 0.12% possibility, we would find 495 errors per month or about 23 per day—**approximately 4% of the total daily shipments.**

In a warehousing setup, a mistake can typically mean that a wrong product was sent and has to be picked up again; and normally the company shipping the product pays that expense. Additionally, it includes the cost to reshipe the correct product, and many times there is the added expense of expedited freight to keep your client happy. Plus, let's not forget the cost of administrative time to change and *correct* the invoices. Clearly, errors are easily a *\$50 cost each*. So, even if we are extremely conservative, and use **only 7 errors a day as significant**, (which is 98.83% accuracy) at \$50 each, our costs come to \$350 a day; multiplied by 22 working days, \$7,700 a month and **\$92,400 per year**. This alone can justify the investment in Sage Accpac WMS.

Next, let's consider the direct saving in labor gained from eliminating the manual rekeying of data in the accounting department. Ask your accounting clerk how long it takes to type in the freight charges, the 18 character alphanumeric tracking number, other data, and the keystrokes necessary to complete the order. Let's say it takes one minute per order, multiplied by 250 orders or 4.2 hours a day. This is assuming that this clerk types non-stop and does not take a single break or gets interrupted. At a labor rate of \$20/hr with benefits, multiplied by 4.2 hours, we have a total labor expense of \$84 a day, \$1,848 a month and an additional **\$22,176 a year**. Sage Accpac WMS linked to the shipping system can cut labor costs significantly and pay for itself over and over again.

Another area where we can reduce labor costs is customer service. Find out how many times you receive inquiries about the status of shipments. How much time do you spend researching such inquiries? Let's say that 10% of your shipments trigger a phone call and you get 25 per day. If you spend 10 minutes on each one, you are spending 250 minutes x 22 workdays or 5,500 minutes/month, which comes to 92 hours a month. At \$20/hr that equals \$1,840 a month or **\$22,080 a year**.

## Possible Savings

From accurate shipping,  
\$92,400

From back-office  
integration,  
\$22,176

From improved  
customer service,  
\$22,080

From integrating  
EDI with WMS,  
\$24,552  
plus  
\$26,400

In this example -  
total possible  
annual savings  
with  
Sage Accpac WMS,  
**\$187,608**

*How much  
are you letting  
slip away?*

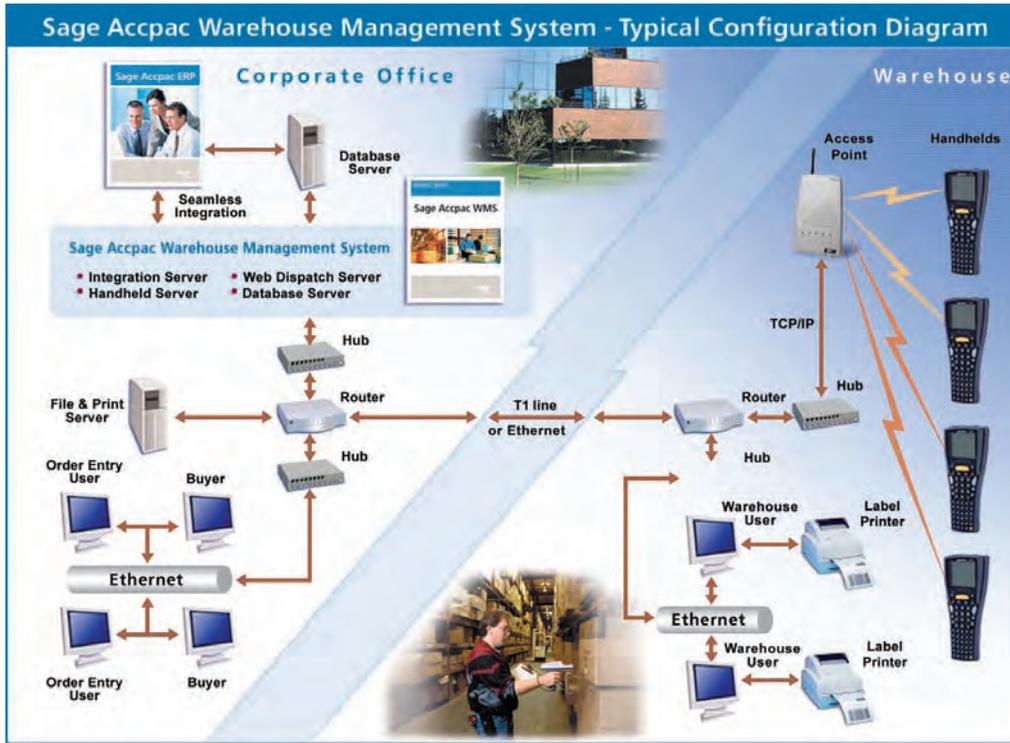
Sage Accpac WMS linked with Sage Accpac Exchange, an Internet-based EDI system, can automate the process of notifying the customers of the shipments through Advance Ship Notices (ASNs) and significantly reduces the number of calls received for shipment status. Using EDI-based communication also reduces the collection time for receivables. If at any time, you have \$1 million of receivables, collecting them 5 working days earlier will have significant impact on cash flow. Further, you no longer need to send paper-based invoices to the customer. At 250 shipments a day x \$.37 (for the postage), you would save \$93 a day or \$2,046 a month (\$24,552 per year). This, too, goes right to the bottom line. Most large retailers are requiring their suppliers to accept EDI transactions for orders and advance ship notifications. In case of shipping errors, backordered items or the absence of complete documentation, including shipping labels, contents lists, packing lists, ASNs, and so forth, a customer might bill back with a penalty and "charge back," as much as \$500 per order. If out of the above-mentioned 7 errors in a day, 2 of the errors were with those customers who transact using EDI and the "charge back" on these two orders was \$100, our costs will come to \$2,200 per month and \$26,400 per year.

Another area where Sage Accpac WMS saves money is in the inventory management arena. Let's assume your company loses \$300 worth of inventory items every month through shrinkage, damage, misplacement or the "unknown." These lost materials must be replaced with profit dollars, assuming your distribution profit margins are 6%. To cover the loss of \$300, you must sell an extra \$5,000 each month or \$60,000 annually. This puts an additional burden on any salesperson. With RF-driven perpetual cycle counts and inventory movement control, you can achieve up to 99.99% accurate inventory information. Companies often find themselves taking orders and making promises that they cannot deliver. When the back office is not in sync with the warehouse operations, and when the inventory information is not accurate, some customer orders remain backordered, fully or partially. Someone then has to make the painful call to advise the expectant customer of the discrepancy and make the necessary adjustment. This can affect future sales prospects for those customers. Further, with 99.99% accuracy, you will need to book fewer expenses in inventory write-offs at the end of the year, once again positively affecting the bottom line.

Improvement in work efficiencies is yet another benefit that Sage Accpac WMS helps achieve. The directed movement of pickers through aisles, simultaneous input of data, real-time validation and accurate location positioning of items (pickers never go to an empty bin, never wonder if some quantity is available in the overhead bin, and so forth.) all contribute to quicker, easier, and hassle-free picking process in the warehouse, thereby increasing the efficiency and productivity of the warehouse staff.

With increased work efficiencies, companies can benefit from fewer staff to maintain the same shipping volume. In other words, companies can either reduce cost or use the existing staff to expand business to higher volumes and hence higher revenues. Fewer staff would also mean buying and maintaining less warehouse equipment such as forklifts, RF handhelds, and so forth. All these savings can positively affect the bottom line.

## Typical Configuration Diagram



The above diagram shows the typical configuration of Sage Accpac WMS. The two distinct locations, Corporate Office and Warehouse, might be in the same physical location connected on the same high-speed Ethernet network or in different cities connected through a T1 line. In the Corporate Office, Sage Accpac WMS is installed along with other Sage Accpac end-to-end business management applications such as Sage Accpac, Sage Pro, Sage Accpac CRM or other applications. For example, users in the Corporate Office can be entering sales and purchase orders. These sales and purchase orders, entered in Sage Accpac, ACCPAC eTransact Web store, or Sage Accpac ePOS, are visible to the warehouse users. The warehouse manager is then able to schedule and manage its resources for receiving, put-away, picking, packing and shipping. Warehouse users are connected to Sage Accpac WMS through RF-based handheld devices and their activities are immediately reflected in the Corporate Office and inventory is updated in real time. A sales manager in the Corporate Office or the warehouse manager in the warehouse has an option of expediting or holding the picking of an order, as the business situation demands.

As business grows, organizations can connect more warehouses to the corporate office and link them to the centralized WMS system for automated and accurate pick, pack and ship. The only additional cost comes from the communication link, additional hardware and in some cases, additional user licenses for Sage Accpac WMS.

## Sage Accpac WMS Components

### Software Components

- Sage Accpac WMS
- Sage Accpac WMS Link to Sage Accpac or Sage Pro
- Database Server
- Sage Accpac WMS Link to Sage Accpac Exchange for ASN

### Hardware Components

- RF-based Access Points
- RF-based Terminals
- Barcode Printers

### Minimum System Requirements

	Client Workstation	Server*
Operating System	Windows 98, or Windows ME, or Windows NT Workstation, or Windows 2000 Professional	Windows NT Server 4.0, or Windows 2000 Server, or Windows 2000 Advanced Server
Processor	350 MHz Pentium II	1 GHz Pentium 4**
Memory	256 MB	For a 10-user system: 1 GB
Monitor	SVGA with 256 or more colors	SVGA with 256 or more colors
CD-ROM Drive	Required	Required
Other	Serial/Parallel port for printing bar code labels, Support for thermal printers	TCP/IP support, Sage Accpac or Sage Pro workstation software, fixed IP address, Raid 5 SCSI hard disk support, dedicated network switch, T1 connection between buildings, and 100BaseT Ethernet network
Pointing Device	A mouse, supported by Windows	
Free Disk Space	100 MB for application files	
	<b>Minimum System Requirements for Terminals</b>	
Wireless	Integrated IEEE 802.11b or 2.4 GHz 802.11b	
Scanner	Built-in one-dimensional scanner	
Display	8 lines by 16 characters	
Interfaces	RS-232 serial port	
Terminal Emulation	VT 220 terminal emulation	

\* For Sage Accpac WMS installation, depending on the number of users and transactions, separate servers recommended for database, handheld, Web dispatch and Sage Accpac or Sage Pro integration management.

\*\* Recommended dual processor system for database management server.

## **Conclusion**

Sage Accpac WMS can help companies achieve increased customer satisfaction and competitive operational efficiencies. In today's competitive marketplace, it's imperative for companies to allocate resources to service and support to maintain customer loyalty and win new business. In fact, every one of the following top eleven reasons cited for Sage Accpac WMS implementation is customer-centric. Quite simply, most companies implement Sage Accpac WMS to ensure that their customers get what they want when they want it. If an organization cannot provide the following list of services, someone else will.

- Reduced picking/shipping errors
- Improved inventory count accuracy
- Increased employee productivity
- Elimination of typical warehouse paperwork
- Improved space utilization
- Elimination of physical inventories
- Better workload control
- Improved labor management and reporting
- Compliance with customer EDI requirements
- Support for value-added customer compliance programs
- Ability to better prioritize warehouse activities for preferred customers

Sage Accpac International, Inc.  
6700 Koll Center Parkway  
Third Floor  
Pleasanton, CA 94566

925-461-2625  
800-873-7282  
[www.sagesoftware.com](http://www.sagesoftware.com)

