WAREHOUSE PRODUCTIVITY

WINNING NEW CUSTOMERS:
THE CASE FOR GAINING
COMPETITIVE ADVANTAGE
THROUGH OPERATIONAL EFFICIENCY

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BELIEVE IT OR NOT, COMPETITIVE ADVANTAGES STILL EXIST!

The biggest source of competitive advantage in the current market, even with warehousing costs at a four year low is, believe it or not, lower costs.

The quickest path to lower costs is, believe it or not, more productive workers.

And there are significant improvements to be made, believe it or not, right in your own warehouse.

Executive Summary

For companies who go after them, operational savings can mean a difference of as much as one-third of the cost of sales. These opportunities take the form of greatly improved operations supported by better technology (decision-making and execution systems); creative utilization of labor resources; and better access to information for everyone in the business, especially the individual warehouse worker.

The range of expectations and requirements of customers is expanding at an accelerated pace. To support these requirements, warehouse facilities need to be more service-centric and flexible. The traditional reaction to new and changing customer demands has been to “throw people at the problem.” Today, the answer is to organize flexible facilities with software and communications devices that enable fewer people to do many more, diverse tasks using better information. The other part of the equation is to improve the management of the newly enabled work force to provide a payoff for their increased effectiveness.

And, believe it or not, this will set you up to sell more business.

This document covers three main areas which contribute to higher efficiency and lower costs:

1) Integrated, flexible software systems that organize and prioritize work. This includes taking more orders from multiple sources, managing diverse inventories, executing tasks for optimal throughput, and measuring the results. The system needs to support very different needs of management, supervisors, and customers, dynamically. This diverse functionality may include order handling via the web, call-center and EDI operations; real-time communications via bar-code scanning, speech recognition and RFID; system directed tasks such as putaway, picking, replenishment, and cycle-counting; automated shipping methods; and system tracking for accurately billing for services. Systems that accommodate these requirements always vary widely by customer. What many logistics companies are seeking is enhanced application functionality, but not full ERP complexity or cost.
2) Dispatching warehouse workers to perform a myriad of tasks with better information in order to enable them to be in the right place at the right time and know what to do. This includes better information flow between the centralized WMS and order entry system, and to the mobile warehouse workers with advanced mobile computers equipped using multiple modes of communication (speech, bar-code scans and browser-based information).

3) Labor management – the ability to forecast and plan for labor needs as well as the means by which to manage that activity in real time and to provide meaningful and timely reports on execution, quality and costs. By combining incentives with skilled use of labor tools and real time information, labor resource costs can be a major contributor to competitive advantage.

A clear vision of the end result, the right solution, the right partners and a strong focus on implementing the right changes in the right way are the keys to putting these double digit savings gains in place.

And then there’s the big payoff: demonstrating these competitive advantages to current and future customers to sell more business.
Introduction

In the world of logistics and supply chain operations, we continue to benefit from the increased uses of technology as seen in higher levels of service, quality and responsiveness not to mention exceptional cost reductions. The most recent warehousing industry cost data (Davis Database, 6/04) reinforces that point. Warehouse costs have dropped for the second straight year in 2003 to 7.4% of sales. It’s worth noting that this is lower than comparable figures for 2000 by .2%.

"Warehousing remains an area of significant opportunity for competitive advantage."

In that light, it will surprise some to learn that these cost reductions and productivity improvements notwithstanding, there are still many opportunities for improvement – especially in the warehouse. Despite upward cost pressures in transportation and inventory due to growing energy costs, warehousing operations (21% of warehouse costs), and especially labor resource management, remains an area of significant opportunity for competitive advantage through further cost reduction.

A pronounced increase in the sophistication and availability of technology focused on labor, in combination with adoption of improved management practices and strategies, presents warehouse executives with the tools to drive costs lower and gain a number of sustainable competitive advantages.

It must also be said that this is not a commonly held perception and few companies have seized the opportunity so far. Navi Radjou of Forrester Research, in a recent report, found that while 92% of participants in a large survey cited “improving operational efficiency” as their top priority (by a margin of 38% over the next most important item),
46% of the same survey group named “changing processes and people behavior” as the most difficult obstacle to achieving their goals.

But the payoff is substantial. Companies, who act to make these improvements, attain double digit competitive advantage over their rivals. The Aberdeen Group’s October, 2004 Benchmark Report puts the competitive advantage gap on costs for those companies (their Best in Class category) at 32% of the cost of sales!

Suffice it to say that “there’s gold in them hills – lots of it.”

**A Look at the Opportunities**

Before exploring the resources at management’s disposal, let’s briefly examine a few of the larger opportunities.

**Obsolete WMS functionality.** Between now and 2008, the industry is expected to spend almost $5 billion per year on supply chain process technology, a good chunk of which will supplant existing legacy applications software. A peek under the hood of much of the WMS software in use today reveals why this will happen in that segment. Some significant fraction of warehouse transactional data is still handled in batch mode. This in turn impacts visibility and timeliness of that data in support of operations and management decision making. All of this is happening despite the increased demand for timely responsiveness and greater customer compliance across all industry segments.

While circumstances vary, many working WMS environments include bolt-on enhancements to the base applications, driven by new capabilities in the technology and new requirements from customers, among them being web access, order handling, RF and EDI. In other cases, software modifications may be the preferred strategy in response to those customer demands. Each approach creates its own set of maintenance issues, even before the ogre of an application upgrade and the related costs raises its ugly head.

Finally, there comes a point when it is no longer practicable to sustain the base system, independent of possible advantages that current, familiar software affords users.

> “Faster, flexible and more capable systems are ready now.”

**Labor and metrics.** One of the areas of greatest opportunity in the warehouse is the management of labor resources. In the September, 2004 Supply Chain Management Review, AMR’s Debra Hofman reports on the high correlation between good demand visibility and delivery of the “Perfect Order” (a 10% improvement in demand visibility yields a 20% improvement in the Perfect Order delivery, for example). There is a
comparable ratio between visibility of the demand for labor resources and operations’ ability to delivery that Perfect Order as required by the customer at or below cost, and to meet or exceed the customers’ time expectations.

The increasing power and falling cost of processing hardware, combined with innovations in RF, voice and elsewhere, have opened the doors for this labor management improvement. Within the past five years, developers have begun to focus on software that is powerful and flexible enough to adequately address the highly variable planning and management needs associated with warehouse labor. The growing adoption of new labor management programs in many industry segments (automotive aftermarket, office supplies, retail, pharmaceutical and others) reflects a new understanding of the benefits of investing in these changes.

“There is an inverse relationship between the complexities of the system…and the amount of training required.”

**Keeping the team current.** A third area of opportunity revolves around the people-system interfaces. It includes both those who use the systems and those who maintain and support them. There is an inverse relationship between the complexities of the system, or the number of interfaced applications to be dealt with, and the amount of ongoing training required for the people who maintain and use the tools effectively. And these issues are only compounded when turnover rates are factored in.

Similarly, end users need more training when unlike applications are interfaced to provide functionality needed to perform their jobs. As noted above, every upgrade brings with it the potential burden of additional training time for the users as well.

**The Wish List - What Should You Expect?**

Put simply, users want to be able to manage some combination of inventory, orders, equipment, people, processes, transportation and information in real time and in compliance with their customers’ ever increasing and varied requirements. It is useful to look at this question through the eyes of a third party logistics provider, a segment of our industry which is highly competitive and cost conscious, one which is notoriously demanding in terms of variable customer requirements, and is arguably the fastest growing segment of the industry.

The strategy many third-party providers are using today says, “If doing this wins me the business and I can do it cost-effectively, I’ll do it.” In reality, they often do quite different things for different customers concurrently. A full scope of services for some customers may be inventory management, order handling, catalogues and pricing kitting or light manufacturing, fulfillment and/or distribution, transportation, returns processing and salvage, invoicing, activity billing and external sales support. In truth, the range of these activities is limited only by the imagination. To support these
requirements software will need to be more process- and service-centric than it has been traditionally.

**Management needs.** Management requirements in this environment not only include the support and tools to execute and monitor daily operations, but the ability to anticipate and plan as well as the means by which to react as things unfold. Labor demand forecasting is a good example. Given what is known about today’s (or this week’s) workload, how can I best deploy my labor resources? As the plan unfolds, can I do “What if...?” analysis in order to react to developments as well and as quickly as possible? How effectively can I communicate my developing situation to suppliers, customers, employees and management? Here, too, flexibility, speed and timeliness are the order of the day.

“How effectively can I communicate my developing situation to suppliers, customers, employees and management?”

**Worker needs.** In any dynamic distribution environment, the needs of the individual warehouse worker are also evolving. Today’s worker is not only mobile, but generally has more cross training and will take on a wider range of tasks in the same day than has been true in the past. The more diverse the activity, the more and better access to timely and accurate information that worker needs. Again, the third party environment provides a more intense version of that situation, but many operations such as those providing same day shipping, face the same challenges.

Here’s a short list of common tasks that systems need to provide and that workers encounter regularly:

- Communicate the next most important task or assignment dynamically, based on the worker’s skill set, equipment and location
- Provide status of Work-In-Process compared to deadline (order or wave completion compared to route dispatch time)
- Provide access to information with which to make decisions (location of the right inventory for replenishment)
- Provide status of inventory in a given location (quarantine versus allocated versus available for sale)
- Rapid information processing (receiving or cross docking)
- Directed putaway or replenishment of newly arrived goods based on current needs
State of completion of staged outbound orders ready for loading

In short, what workers need is “The right information in the right format in the right place at the right time.” And, at the current pace of change, this is just the tip of the iceberg.

The Right Technologies for the Times

Platforms. For many users, a key consideration has become the viability, flexibility, cost and future direction of the system platform. Is it scalable? Will it be viable beyond the current 3-5 year software life cycle horizon? Is it a cost-effective investment? A peek at the development environment tells a lot.

Beyond the war horse AS/400 and Unix platforms, which have enjoyed a long and successful, if high-priced run, the leading candidates are Linux (13 years old at its core) and Microsoft’s .NET, the most recent contender. Forrester Research recently reported that 56% of software developers now regard .NET technologies as “their primary development platform.” The remaining 44%, using Java 2EE, include major players IBM, Sun, Oracle and BEA Systems.

Costs. The latter group above has well-established price ranges, but will suffer by comparison with products now emerging on the newer platforms from a cost perspective. And, surprisingly, the gap between Microsoft and Linux systems is not as significant as one might think. In an August, 2004 Forbes.com article, Daniel Lyons probes the myth that Linux is a “free” operating system. Acquiring it is one thing; using it is another, entirely. Lyons sites per server license costs and maintenance fees levied by a leading Linux distributor, and the likely programming or consulting costs needed to create a “system” as key factors that bring the true “cost to own” into the range of Microsoft’s alternatives. The author also points out that Microsoft has minimal competition from Linux when it comes to breadth of applications available now and in the near term.

A single, unified database. Comparable to the platform issue is the data base issue. Today it is a given that movement of data to and from the data base should be relatively easy and efficient. But it is also a distinct advantage for system performance as well as decision support purposes, if all functions share a common set of data. (Obviously, the data base should not be proprietary.)

A single data base goes a long way toward driving key information to the levels where day-to-day operating decisions should take place. It can empower employees and, at the same time, enable them to move through recurring tasks more quickly and effectively using the best, current information available.
**A simpler life for end users.** Not only will the wider adoption of new technology put new capabilities in the hands of warehouse workers, but the hardware to support it will become simpler. Everything from RF to voice to RFID can be handled today using single, “fanny pack” computing device, multi-modal software and a head set at a cost significantly lower than the aggregate cost of equipment (as much as 40% less) for those functions bought separately. And it enables the user to choose the mode of operation best suited to the need.

Hands free operation for picking or stocking can be alternated with traditional scanning for cycle counting or pallet moves where warranted. Product that can be handled using RFID can be treated that way by the same operator using the same equipment. Data from damaged bar code tags can be keyed in, as can location content and other kinds of queries.

“**One data base, one portable computing device, one applications suite. One size fits more and more.**”

The most progressive software vendors are anticipating additional innovations and growth in functional demand from their customers by driving additional features and functions into the base software package as they come on line. The cost for current and future capability can be built into purchase and support pricing from the outset.

Thus, the addition of voice, at some future point in time, for example, is available for no more than the incremental cost of the individual hardware required to run it. The impact for customers who don’t need the full menu of functionality is minimal. This also enables customers to seamlessly vary the operating menu by facility based on need.

**Managing Labor Resources**

As noted in discussing the Forrester research cited earlier, managing people is an altogether different challenge than managing inventory or equipment. As one manager put it, “They’re everywhere all the time.” In addition, it is difficult to objectively measure performance across a group of individuals, let alone across different tasks.

A human resources manager pointed out a second major labor issue: “It’s hard to keep them motivated.” Less obvious is an important reality implied by this statement – warehouse workers, even in a well-designed and well run operation – exercise considerable discretion as to where and how well they spend their time. Thus motivation is a very important element in improving performance.

As a result of these factors, labor resource management has not been as effective as it could be and, historically, the technology to support it has lagged as well. Many organizations have paid lip service to the issue, but in reality have had little lasting
impact on it, despite the fact that it is one of the largest line items in the operations budget.

However, the picture is improving as innovative companies begin to combine the most effective components of the available solutions – labor software, sophisticated metrics and incentives.

**Labor Metrics**

Historically, organizations have attempted to set goals for completion of recurring warehouse tasks by one of three means, some borrowed from the world of manufacturing and each having its own level of effectiveness. In many cases these goals are expressed in terms of lines, pieces or pounds per hour. The key in all cases is to track performance at the individual level if possible.

**Historical averages.** This is a common and relatively simple approach. By tracking past performance, averaging it and applying that information to comparable periods going forward (same week or month as last year, same day of the week, etc.), it is possible to predict likely future achievement or at least set performance targets. The underlying principle is that the past is a useful predictor of future conditions, let alone results, which is only true to a limited degree. The best users of this approach will attempt to adjust for the differences, but woe be to the operator who uses this approach when demand changes (Wanna buy a typewriter or a cabbage patch doll?).

**Designed rates.** This approach takes into consideration past performance, but looks at the process, tests methods and techniques, and establishes a level of expectation somewhere above the average and below recorded peaks. It, like the historical approach, assumes some training and experience on the part of users and assumes a common methodology among those who perform a given task. With some exceptions, this approach applies the same metric to all instances of a task of the same type – all order picking in a given zone or department is the same, for example.

**Engineered standards.** The engineered standards approach to warehouse labor management has been around since the early 20th century and begins by establishing time values for the components that comprise a defined task. When the time values for these components are applied to a task, an order or putaway assignment, for example, a specific time segment is allotted for that unit of work. Thus the level of expectation is set based on actual time content of the task and is discrete for each instance of the task. This approach offers a better assessment of performance because it relates expectation to specific work content rather than to an independently determined rate.
Labor Management Technology

Regardless of the metric used, one of the major challenges faced by managers has always been the handling the large volume of data associated with tracking thousands of transactions by tens or hundreds of workers across many hours per week. This is a multi-faceted problem involving data capture, data processing and dissemination of results to managers and workers while it is still useful. Problems associated with completeness, accuracy and relevance further complicate the matter.

With the advent of portable computer technology all of that changed. Cost effective mobile computing has now placed widespread adoption of sophisticated labor management techniques within reach of almost any organization with the vision to adopt it, and this development has several important implications. First, data capture is simple and in many cases automatic. Second, bar code and radio frequency technology have made accuracy almost a given, wherever they are applied. (RFID may well extend the benefits of this concept even further.) Third, greater computer power enables users and managers to know in near real time, whether data (and the task) is complete, and if not, what’s missing. Other technical innovations have made it possible for all workers to carry the technology with them as they move from task to task and place to place for a full work shift, without having to recharge or swap batteries.

Incentives

Similar to the existing versions of metrics, there are a variety of incentives that have been applied to warehouse labor in the past. Among their distinguishing characteristics are the forms they take, the way in which they are distributed and the time distance between the events which earn the reward and its realization.

- **Piece work rates** pay employees for units or pieces completed, and are paid in close proximity to the performance itself. In some cases these have been used as the wage rate, not only as an additional incentive.

- **Bonuses** are another approach, with several variants. In its contemporary form it is most often driven by the financial performance of the facility and is paid out quarterly or annually, far removed in time from the accomplishment of the work.

- **Profit sharing** pays individuals a portion of profits, based on a pre-determined plan and paid to all participants once profit has been determined, usually an annual event. This incentive often makes only an indirect link between contribution and reward.

- **Stock option awards** enable employees to purchase company stock at discounted rates and is perhaps the incentive in which personal benefits are farthest removed from the events which earn the benefit as it is realized only when the stock is sold.
Gain Sharing is usually either applied based on performance or attainment of Key Performance Indicators, or is sometimes awarded for implemented improvement suggestions. As applied to warehouse labor, it often takes the form of monies awarded for exceptional performance that are out paid monthly. In its best forms, the size of the benefit rests in the hands of the individual, making it potentially the most effective form of incentive for this group of workers.

The more closely the reward is tied to the work completed and to the individual responsible for it, the more effective it will be. Thus gainsharing offers the greatest potential as an incentive for hourly workers in a warehouse environment. One innovative company pays out gainshares in the form of hourly rate changes, which flex up or down depending on the individual’s performance in the previous measuring period. They have seen sustained double digit benefits in a number of their key measures over several years and across many facilities.

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The Combined Power of Metrics and Incentives

The most effective solutions being implemented today combine improved technology with methods for engaging and motivating employees to achieve shared goals. The table below assumes a minimum level of acceptable level of performance (“0”) and illustrates a general range of potential benefits likely to be realized by each approach.
While every circumstance will differ to some degree, the gap in this range of options is large double digits, consistent with the Aberdeen Group’s research estimate of more than 30%.

**Getting Results**

There is ample evidence that these results and the associated competitive advantages can be attained and are sustainable. Evidence from those companies who continue to set the pace suggests a number of specific steps that are needed.

First, paint a clear vision of the goal. All parties in the equation need to know “where we’re going and why.” The second common denominator among these organizations - and perhaps the single most important one - has been to choose the right partners to help bring the right kinds of support into the process. This may mean both technology and strategies, but it rests heavily on applying the right resources.

The third step is to focus strongly on execution. (It is often the point of failure in efforts of this kind.) For the technology, it means on time delivery of functionality that works well now and can flex as the business changes. It also means training and support that will get the users’ team up to speed as planned, so that the transition period is smooth and as short as possible. For labor, to use that example again, this means devotion of adequate time and resources to help people attain the results, not merely paying lip service to the project. It also means paying daily attention to the training, implementation, training and coaching needed to change the existing environment into an industry-leading one.

Finally, these organizations have managed expectations appropriately. While the total capital investment in this kind of improvement is among the most attractive in terms of ROI among all the opportunities competing for budget dollars, its biggest benefits are, in fact longer term ones. Companies with “short horizons” disease will not realize nearly the gains of their counterparts who take a longer view.

A clear vision of the end result, the right solution, the right partners and a strong focus on implementing the right changes in the right way are the keys to putting these double digit savings gains in place. When implemented properly, besides affording the company immediate competitive advantages including reduces costs, the changes will foster an atmosphere of continuous improvement driven by the hourly work group but which brings benefit to the entire operation.

There is mounting evidence that, perhaps, the most significant functional development in the 3PL WMS arena is its ability to help users sell new business. 3PL operators are learning to think of warehouse software as much in strategic and marketing terms as in tactical ones. They are more often able to tell customers and prospects, “Yes, we can,” – a distinct competitive advantage.
About the Author

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