

High Octane Warehousing:

How Top Companies Improve Performance Through
Labor Management, Slotting, and Voice

August, 2007

~Underwritten, in Part, by~



Executive Summary

The majority of warehouses today are struggling to meet customer service objectives while continuing to reduce costs. Companies agree that the key to top performance lies in improving business processes, not building additional facilities or hiring more labor. Aberdeen has identified a group of companies that have succeeded in reducing warehouse costs while maintaining high levels of customer service. These Best-in-Class companies have taken the lead in adopting a group of high performance capabilities for improving the warehouse, and are experiencing measurably better results.

Best in Class Performance

In August, 2007, The Aberdeen Group surveyed 256 firms on their warehousing practices and used three key performance criteria to distinguish Best in Class companies:

- Reduced warehouse labor costs relative to revenues year-over-year
- 99%+ perfect order rate
- Extremely efficient use of warehouse space

Competitive Maturity Assessment

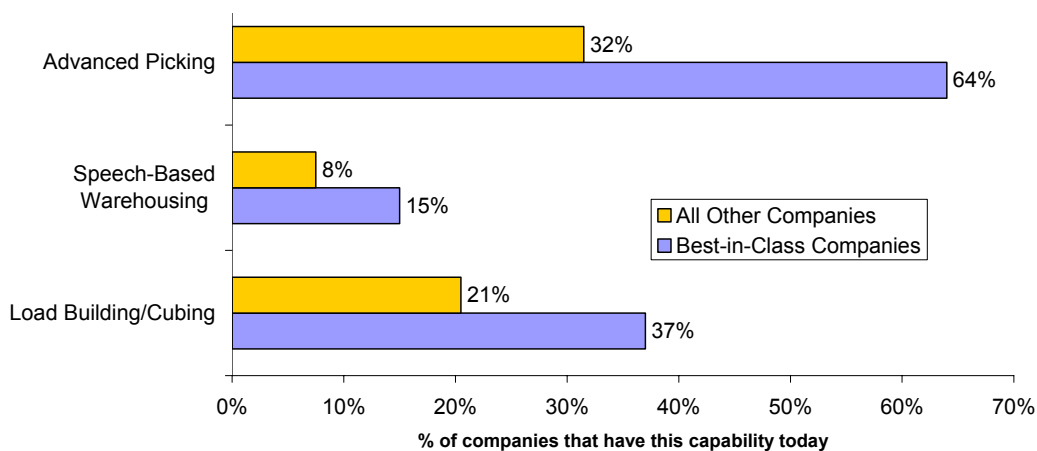
Firms enjoying Best-in-Class performance are:

- Twice as likely as their peers to practice advanced pick methodologies
- Twice as likely as their peers to practice speech-based warehousing
- 80% more likely than their peers to practice load building / cubing

High Performance Capabilities

- ✓ Advanced Pick Methodologies
- ✓ Advanced Replenishment Methodologies
- ✓ Automated Value-Added Services
- ✓ Load Building / Cubing
- ✓ Labor Management
- ✓ Task Management
- ✓ Slotting
- ✓ Speech-Based Warehousing
- ✓ Yard Management

Figure I: Best-in-Class Companies Use High Performance Capabilities



Source: Aberdeen Group, August 2007

Required Actions

In addition to the specific recommendations in Chapter Three of this report, to achieve Best-in-Class performance:

- Laggard companies should migrate to a commercially supported warehouse management software (WMS)
- Industry Average companies should consider speech-based warehousing
- Best-in-Class companies should consider automating their slotting process with blended forecasting and integration to labor management

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Chapter One: Benchmarking the Best-in-Class

Missed Opportunities

Most companies today struggle to achieve true efficiency in their warehouse operations. For many companies, it is a struggle to simply get the correct product out the door on time. Other companies may be keeping their customers happy, but find that their labor costs are skyrocketing. Still others may be watching their margins erode because they are forced to lease expensive “overflow” space at off-site locations, or even buy or lease new facilities.

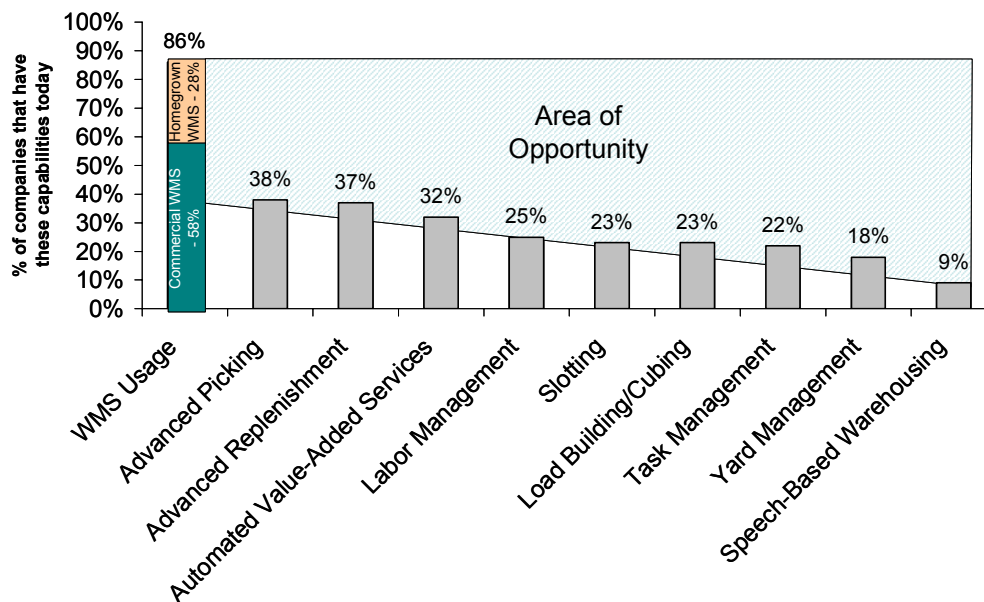
Why are top marks so difficult to achieve? Surprisingly, the reason is not due to a lack of technology. When compared to other areas of the supply chain, warehouses are more likely to have at least a base level of automation. For example, 58% of companies surveyed for this study report having some form of commercial warehouse management software (WMS), compared to only 31% for transportation management. An additional 28% of companies say that they use a home-grown or legacy WMS. This leaves only 14% of companies with **no** automated warehouse management.

The key to why so many companies still miss the mark lies with Aberdeen’s finding that only 25% of companies use one or more high performance warehouse capabilities (such as slotting, labor management, or advanced pick methodologies). This leaves close to two-thirds of companies that have a technology platform that enables automation but haven’t taken full advantage of it at this time.

Fact Facts

- √ Nearly half of all companies saw their warehouse labor costs rise relative to revenue year-over year.
- √ A quarter of all companies do not hit the 90% mark for percent of perfect orders shipped (on-time and complete to customer request).
- √ One-third of all companies feel that their warehouse space is used either inefficiently or “extremely inefficiently.”

Figure 2: Opportunity for High Performance Capabilities



Source: Aberdeen Group, August, 2007

Best-in-Class Performance is Possible

The top 20% of companies achieve warehousing excellence and achieve “Best-in-Class” status according to Aberdeen’s maturity framework. These companies have achieved:

- Reduced warehouse labor costs year-over-year
- Ninety-nine percent or greater perfect order rate
- “Extremely efficient” use of warehouse space*

*Warehouse space utilization is difficult to measure—standards vary greatly depending on the type of warehousing, and measures are often imprecise. Respondents were asked to rate their warehouse efficiency as: “extremely efficient, somewhat efficient, somewhat inefficient, and extremely inefficient.”

Table 1 shows how companies can be categorized based on their performance in these three key metrics.

“Since implementing some new processes and technology, we were able to boost our warehouse throughput by 300% while only adding about 20% more staff. In a period where we’ve seen 30% annual revenue growth, we’re way ahead of the game.”

~Vice President of Operations for a Best-in-Class apparel and accessories manufacturer

Table 1: Companies with Top Performance Earn Best-in-Class Status

Definition of Maturity Class	Mean Class Performance
<p>Best-in-Class: Top 20% of aggregate performance scorers</p>	<ul style="list-style-type: none"> • Reduced warehouse labor costs relative to revenues year-over-year • 99%+ perfect order rate • “Extremely Efficient” use of warehouse space*
<p>Industry Average: Middle 50% of aggregate performance scorers</p>	<ul style="list-style-type: none"> • No change in warehouse labor costs relative to revenues year-over-year • 90-98% perfect order rate • “Somewhat Efficient” use of warehouse space*
<p>Laggard: Bottom 30% of aggregate performance scorers</p>	<ul style="list-style-type: none"> • Increased warehouse labor costs relative to revenues year-over-year • Less than 90% perfect order rate • “Inefficient” use of warehouse space*

Source: Aberdeen Group, August, 2007

Is Your Company Keeping PACE with the Best-In-Class?

So, what can the industry learn from these elite Best-in-Class companies? What are some keys to improving warehouse performance and achieving this status? Aberdeen uses the PACE framework to outline the approach that Best-in-Class companies take, and contrast that with the approach of less successful companies. Table 2 illustrates Best-in-Class key priorities dealing with warehouse-related pressures, actions, capabilities, and enablers.

Table 2: Best-in-Class PACE Framework

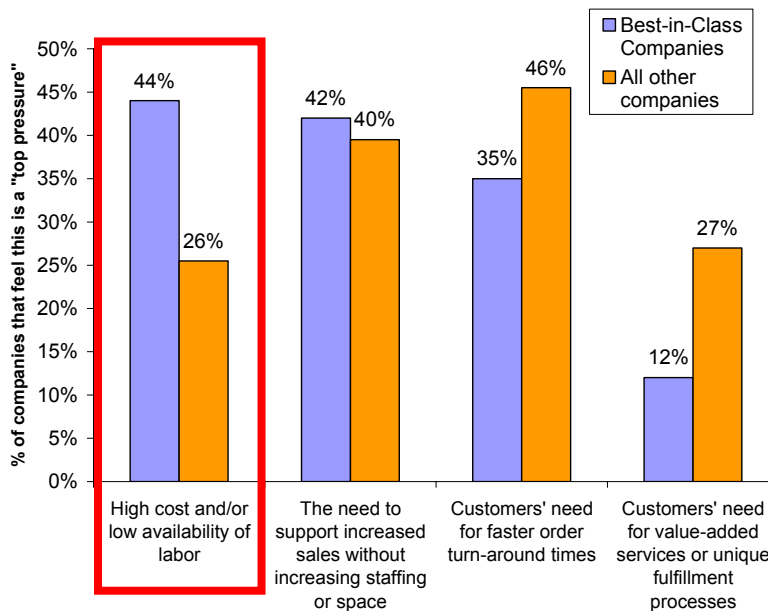
Pressures	Actions	Capabilities	Enablers
<ul style="list-style-type: none"> High cost and / or low availability of labor 	<ul style="list-style-type: none"> Implement more efficient warehouse processes Create a more agile, flexible warehouse to keep up with rapid changes 	<ul style="list-style-type: none"> Advanced pick methodologies Speech-based warehousing Load building / cubing capabilities Slotting 	<ul style="list-style-type: none"> Functionality modules of WMS Functionality modules of Enterprise Resource Planning (ERP) software Speech-based warehousing systems

Source: Aberdeen Group, August, 2007

Pressures—Customer vs. Operational

The first area where Best-in-Class companies differ from others is in their perception of market pressures. When Aberdeen asked companies to cite their top pressures which were causing them to improve their warehousing operations, most companies indicated that they are customer-driven pressures: including the need to get orders out the door faster, the need to meet a compliance mandate, or the need to provide special value-added services. Best-in-Class companies take a very different view. These top companies are much more focused on operational pressures, the primary one being the need to contain labor costs (Figure 3).

Figure 3: Best-in-Class Companies Face Operational Pressure



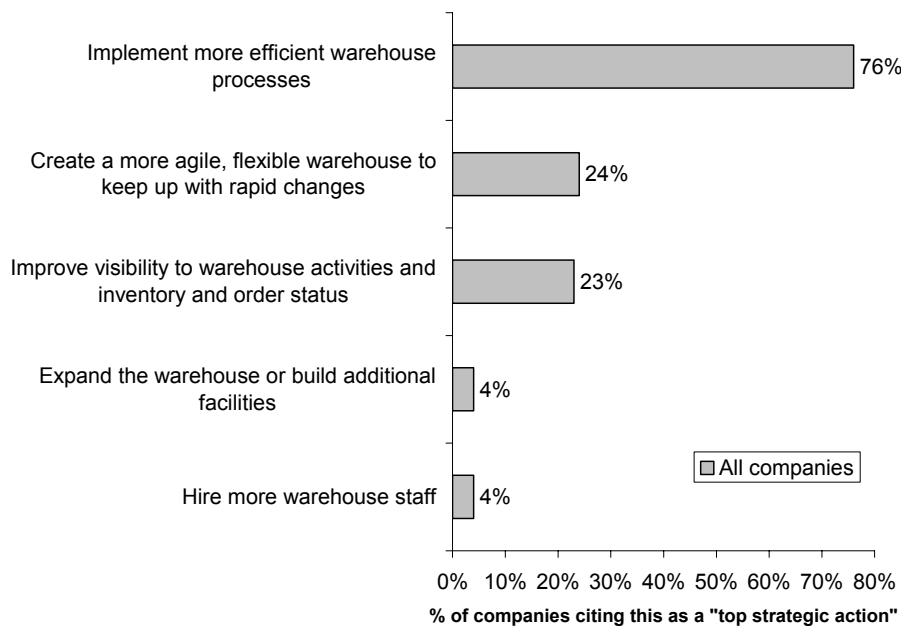
Source: Aberdeen Group, August, 2007

This is a consistent finding when Aberdeen surveys the market—Average and Laggard companies are struggling with just keeping their customers happy, while Best-in-Class companies have already met those objectives and are focused on cost containment. “Struggling to keep their heads above the water” often keeps Average and Laggard companies too busy to even think about acquiring high-performance capabilities.

Best-in-Class Loyalty in Strategic Actions

Companies all seem to agree that the key to overcoming these pressures is improved warehouse processes, not simply adding more workers or leasing more space Figure 4.

Figure 4: Strive For Process Improvement vs. Adding Labor and Space



Source: Aberdeen Group, August, 2007

Aberdeen Insights – Best-in-Class Companies Follow Through

However, Best-in-Class companies tend to be much more loyal to the process improvement strategy than other companies. Because Average and Laggard companies are primarily motivated by the need to get the product out the door, when projects are prioritized, process improvement is often sacrificed in favor of the more expedient step of “staffing up” to keep customers happy. This is evidenced by the rising labor costs that most companies are experiencing. Process improvement projects get nudged to the back burner and never truly get implemented. In contrast, because Best-in-Class companies are primarily driven by the need to contain costs, process improvement projects are often front-and-center. The Best-in-Class invest the time and capital required to acquire high-performance capabilities and reap the rewards.

Chapter Two: Benchmarking Requirements for Success

Best-in-Class companies show a strong preference for capabilities that keep with their overall goals of managing costs through improved warehouse processes.

Competitive Maturity Assessment

Aberdeen’s competitive maturity assessment methodology analyzes each maturity class based on its adoption rate for key warehousing capabilities (Table 3).

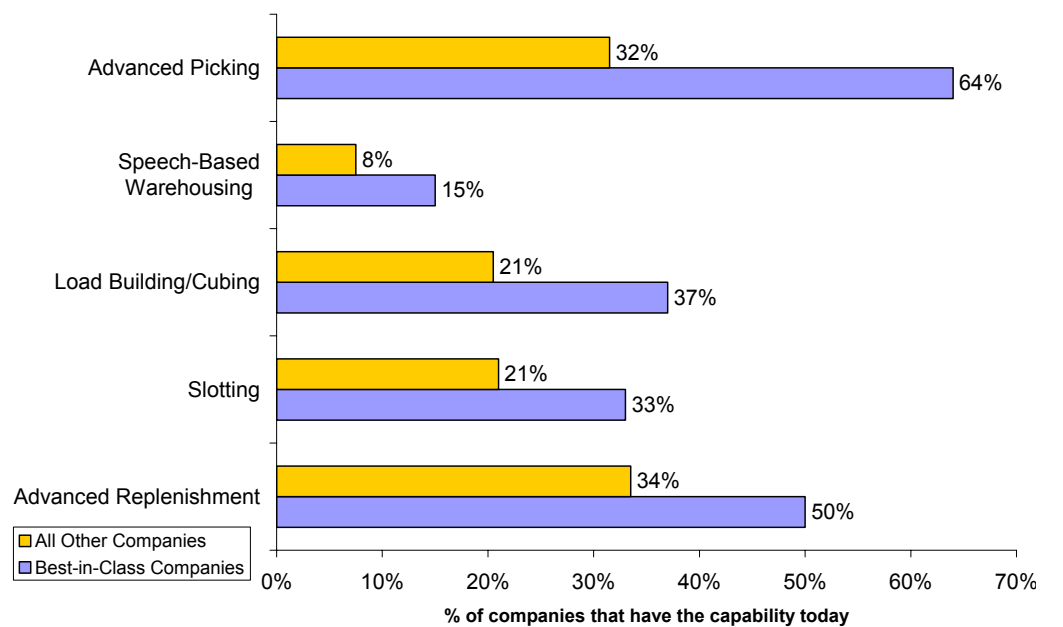
Table 3: The Competitive Framework

	Laggards	Average	Best-in-Class
Process	Advanced Pick Methodologies		
	25%	38%	64%
	Speech-Based Warehousing		
	7%	8%	15%
	Load Building/Cubing		
	20%	21%	37%
	Slotting		
	23%	19%	33%
	Advanced Replenishment		
	33%	34%	50%
	Labor Management		
25%	23%	33%	
Automated Value-Added Services			
27%	33%	36%	
Knowledge	Real-Time Electronic Display to Measure Performance		
	6%	9%	13%
Performance	Daily Measuring and Posting of Warehouse Performance Metrics		
	10%	14%	36%
Technology	<ul style="list-style-type: none"> •81% use some form of automated WMS •7% have completely manual warehouse management 	<ul style="list-style-type: none"> •87% use some form of automated WMS •14% have completely manual warehouse management 	<ul style="list-style-type: none"> •94% use some form of automated WMS •18% have completely manual warehouse management

Source: Aberdeen Group, August, 2007

The comparative difference in adoption rates between Best-in-Class, Average, and Laggard companies is significant in some cases, as illustrated in Figure 5.

Figure 5: Comparative Adoption Rates for Top Capabilities



Source: Aberdeen Group, August, 2007

Warehouse Processes that are Automated in Current Speech Deployments

- ✓ Picking: 68%
- ✓ Replenishment: 44%
- ✓ Shipping: 42%
- ✓ Receiving: 38%
- ✓ Reverse Logistics: 32%
- ✓ Put-Away: 31%
- ✓ Value-Added Services: 27%

High Performance Capabilities

Aberdeen identified a total of nine capabilities that impact improved warehousing, including:

Advanced Pick Methodologies—Reducing Walking

For warehouse operations that primarily involve bringing the picker to the goods, travel time is the great enemy of productivity. The use of advanced pick methodologies is the number one capability that distinguishes Best-in-Class companies from their peers. Generally speaking, these methodologies apply to case or piece picking more so than full pallet picking. There are four advanced pick methodologies which can be employed:

- **Discrete Order Picking:** One person picks one complete order at a time. For many operations, this can be one of the most labor-intensive ways of picking. A picker picks an order to completion, brings it to the shipping area, and then walks over the same path to pick the next order.
- **Cluster Picking:** One person picks multiple orders at the same time. On one path through the warehouse, a worker picks many orders instead of just one.
- **Zone Picking:** Multiple persons pick portions of the same order. Best-in-Class companies with advanced picking capabilities are 78% more likely than their peers to use zone picking.
- **Batch Picking:** Pick the entire supply of a SKU, and then distribute it to multiple orders. Best-in-Class companies with advanced picking capabilities are 65% more likely than their peers to use batch picking.

Quick Guide—When to Employ Each Method of Picking

Cluster picking:

- ✓ items are not bulky
- ✓ there is concentrated geographic SKU distribution
- ✓ items tend to be sold in family groupings and can be stored close together

Zone picking:

- ✓ there is a dispersed geographic SKU distribution
- ✓ a wide variety of items can appear on a single order (i.e. dry goods, freezer, small parts, large parts)

Batch picking:

- ✓ there are very high quantities of certain SKUs that must be picked
- ✓ those SKUs with the high quantities vary greatly throughout a period of time (i.e. high seasonality)

Load Building—Saving Work Downstream

Most companies use load building at the piece pick level to determine, in advance, which size shipping containers should be used for each order. This is powerful information to have ahead of time. Companies that do not “pre-cube” their orders in this fashion generally pick orders to a tote, and then painstakingly re-pack the contents of the tote into the actual shipping container in a secondary packing step. Labor costs are very high when this method of re-packing is used. When carton-level load-building is used, items can be picked and loaded directly into the shipping container, and can be routed directly from picking to carton-seal and manifesting. If bar-code scanning or some other form of Automatic Data Capture (ADC) is used to confirm items as they are picked, there is often no need for anyone after the picker to handle the contents of the order, either for re-packing or accuracy checking. In operations that may have a 2:1 or even a 1:1 ratio of pickers to packers, this can result in a huge savings.

Speech-Based Warehousing—Hands Free and Eyes Free

Of the companies that use speech-based warehousing, the majority (65%) use it to support picking. However, a growing number of companies are also using speech technology to support additional functions as well: 38% of speech-enabled warehouses are using the technology for receiving, and 28% for put-away. Aberdeen’s research indicates that about one in four speech-enabled warehouses are even using the technology for complex tasks like quality assurance and value-added services. Companies are also increasingly using the technology for high-density piece picking, with 64% of speech-users deploying the technology this way.

Advanced Replenishment Methodologies—Keeping Bins Stocked

Effectively managing the movement of goods from overstock to primary can ensure that goods are available at the correct pick-face in time for the pick and can reduce or eliminate waiting for goods in a two-tier system. Key types of replenishment include:

- **Visual Replenishment:** This non-automated method is used in non-critical applications where a worker can visually see the entire primary pick area and make a subjective judgment as to how much stock to replenish.
- **Min/Max Replenishment:** Replenishment is triggered automatically when inventory levels fall below a pre-set minimum. This technique is used by 79% of companies that practice advanced replenishment.
- **Demand-Based Replenishment:** Replenishment is triggered automatically when inventory levels are not sufficient to meet the demand in a given day. This is used by 65% of companies that practice advanced replenishment.

Slotting—Where Does Everything Belong?

Slotting is one of the most sought after capabilities by warehouse managers today. It can be defined as determining the optimal location for each SKU in the warehouse—not an easy task in any operation. Key capabilities for a thorough slotting program include:

- Blended demand forecasting
- Multi-tier placement rules
- Integration with labor management

Fast Facts

- √ Best-in-Class companies are 80% more likely to use Load Building/Cubing than their peers.

Additional Types of Replenishment

- √ **Top-Off Replenishment:** Each bin can be automatically replenished to its “full” state regardless of minimum levels or demand
- √ **Hot Replenishment:** An unexpected shortage can trigger an immediate replenishment of a given bin
- √ **Cross Dock Replenishment:** Inbound receipt fills the picking location

Fast Facts

- √ Best-in-Class companies are 57% more likely to use an automated slotting solution than their peers.

For slotting to be effective, it must be done on a regular basis as seasons change and new products are introduced. Aberdeen research shows that Best-in-Class companies are 82% more likely to perform slotting on (at least) a quarterly basis.

**Case Study:
Vera Bradley Triples Throughput While Reducing Labor Cost to Sales**

Vera Bradley is a maker of women’s fashionable luggage, handbags, and accessories. Prior to 2007, the company operated a completely manual distribution center which involved paper-based, discrete order picking to carts. There was no rhyme or reason to where items were located in the warehouse, and a significant amount of labor was required after picking to painstakingly pack each order and apply shipping labels to the cartons. The company was experiencing revenue growth of around 30% per year, and their manual distribution methods simply weren’t keeping pace with the increased throughput requirements in the warehouse.

In February of 2007, the company simultaneously went online with four major projects: they opened a new distribution center, transitioned to a new ERP, a new, best-of-breed WMS, and commissioned a material handling system featuring pick-to-light technology, a zone-routed conveyor system, and a shipping sorter. While this approach might have overwhelmed many companies, Vera Bradley’s WMS provider and material handling systems integrator worked hand-in-hand to make the project a success.

In the new system, the warehouse is slotted using an automated slotting system from their WMS provider. The system automatically identifies fast moving items and places them at strategic points in the warehouse, avoiding congestion by having all of the fast movers in one area. The picking process has been completely re-vamped and automated. Prior to picking an order, the WMS uses cartonization technology to “pre-cube” the order and determine how many shipping containers will be needed, and which SKUs will be placed in which containers. The boxes are erected and the shipping labels are pre-applied. Items are then picked directly to the shipping container in a zone-pick process, often involving many workers picking portions of the same order. Each carton in a ten-carton order is picked independently of the others. A conveyor system routes each carton to only the zones where a pick must be made. After the picking process is complete, there is only a minimal amount of labor required—after a quick stop at a semi-automated case seal station, each box is automatically sorted to the correct dock door and loaded into a waiting trailer.

As noted earlier—revenue continues to grow at a 30% rate, but labor requirements have grown much more slowly. Additionally, warehouse throughput capacity has grown THREE-FOLD—from 40,000 units per day to over 120,000 with the process improvements.

Vera Bradley successfully leveraged several of Aberdeen’s “high performance” capabilities to create an effective system: Slotting, cartonization, and advanced pick methodologies. “There was no one thing we did that gave us these results,” says Matt Wojewuczki, Vice President of Operations for Vera Bradley. “Slotting is great, but when you add in cartonization, the systems really moves to the next level.” Wojewuczki expects the system to pay for itself in under two years—a successful project by most standards.

**Key Components of an
Effective Yard Management
System**

- √ Close interface with the WMS to enable linking of trailer number to an in-bound purchase order
- √ Important to be able to accurately track contents of trailer by line item
- √ Real time locator systems
- √ Directing work of yard equipment

Yard Management

Yard management can be defined as the tracking of the location, age, and contents of trailers in the warehouse yard. The need for yard management varies greatly by operation; warehouses with a higher ratio of inbound trailers to available dock doors will have a much greater need for this technology. The key benefits to using a yard management system are reduced detention / demurrage charges on trailers in the yard, and reduced stock outs as inbound goods can be prioritized and unloaded quickly.

Automated Value-Added Services

Nearly one-third of all companies surveyed report using some form of value-added services. Some examples of more commonly performed services are kitting / assemble to order, price ticketing, personalization, gift packs, and gift wrapping. Best-in-Class companies using value-added services are nearly twice as likely as their peers to have their WMS support accessorial billing. They are also 62% more likely to utilize a WMS with bill of material support to track consumption of components.

Deploying Labor

Labor management systems track real-time activity by warehouse workers and compare that information to established benchmarks. They are often used to support incentive pay pro-grams, where workers are paid based upon their efficiency. The benefits to such a system are improved worker productivity, improved accuracy and accountability, and consequently improved morale and retention in the workplace. Best-in-Class users of labor management systems are 49% more likely to use a system that features engineered labor standards or key value indicators. They are also 38% more likely to use systems that feature predictive labor management. Some key features to consider when selecting a labor management system are:

- Support for engineered standards
- Heel-to-toe tracking
- XYZ coordinate mapping
- Labor forecasting

Task Management

Task management systems automatically determine which tasks should be performed by whom and in which sequence. They are not necessarily employed in conjunction with labor management systems, but they are most effective when done so. Aberdeen research shows that Best-in-Class users of task management systems are 29% more likely to practice automated task interleaving. For example, some operations, especially those involving full pallet moves, can benefit greatly from in / out combined cycles. These operations are similar to the “back-hauling” concept in trucking. Combined cycles involve taking an inbound load and putting it away, and then picking an outbound load without a trip back to the dispatch area in between. In certain operations, this ability can be a tremendous boost to productivity as it reduces empty fork time.

Chapter Three: Required Actions

Whether a company is trying to move its warehouse performance from “Laggard” to “Industry Average,” or “Industry Average” to “Best-in-Class,” the following actions will help spur performance improvements:

Laggard Steps to Success

- **Conduct a Thorough Business Process Review.** Before beginning any warehousing initiative, it is important to clearly map out long term objectives, and current business processes. When conducting such a review, it can often be helpful to enlist outside help, either from a logistics consulting firm, or by recruiting someone to head up the project who has extensive industry experience.
- **Use a Commercial Warehouse Management Software System.** With a few exceptions, the high performance capabilities described in this report require a WMS system to function properly. Most of these capabilities are simply too complex to be implemented effectively in a manual, paper-based, non-real-time environment. Investing in WMS will be the launch-pad for warehouse improvement with a real impact to the bottom line. Gone are the days when it made sense for a company to hire programmers and build a custom warehousing solution from scratch. In today’s world of rapidly changing logistics requirements, flexibility and agility are the keys to effective warehousing. Most WMS developers have embraced Service-Oriented Architecture (SOA) to some extent in their product design. SOA allows business processes to be easily changed without wholesale re-writes of the WMS source-code. Furthermore, leading WMS developers continue to innovate and offer increased functionality in regular upgrades. Choose a partner that is poised to grow with you.
- **Begin Deploying Advanced Picking and Replenishment.** These two steps are a natural starting point. Picking and replenishment processes should be optimized before attempting to implement programs like slotting or labor management. In fact, optimizing these processes should be an integral part of the business process review as well as the WMS software selection steps. It can be difficult to know whether cluster picking, batch picking, or zone picking will be the most effective way to fulfill orders. The general guidelines presented in this report can be a start, but it will likely make sense to closely examine a wide variety of scenarios to determine which process is the best fit. Large operations may benefit from modeling and simulation software, which can examine a number of variables which will affect the operation. The emphasis should be on flexibility—don’t build a perfect process that is so tailored to your needs today that it cannot grow with you in the years to come.

Fast Facts

- √ 58% of companies today use a WMS system

Related Aberdeen Research

To read more about **Advanced Picking Methodologies**, click [here](#).

Industry Norm Steps to Success

- **Piece-Pick Operations Should Begin with Pre-Cubing Loads.** For companies that perform a high quantity of piece-picks, pre-cubing and picking directly to the shipping container can be a significant way to save on labor costs downstream. The full benefits of pre-cubing will likely only be realized once pick accuracy has been assured through bar-code scanning or voice confirmations.

Then, a step of manual order checking can be either eliminated or significantly cut back. Cubing devices can be used to automatically capture the dimensions and weight of each SKU. Even with this technology, there will be a certain investment of time that must be made up-front to build out a SKU database. However, this database can serve as the basis for picking directly to the shipping container, and also for a weight-verification program. For companies shipping goods where there is a significant variance in weight from one piece to the next, in-motion weight verification can be a reliable means of ensuring that the correct quantities of each item have been picked.

- **Consider Speech-Based Warehousing.** Companies requiring hands-free, eyes-free picking will likely find speech-based warehousing to be a flexible, effective solution. Especially in moderate SKU-density pick areas, switching for paper to voice (or even bar-coding to voice) can frequently boost pick rates and improve accuracy. A company should not consider voice until they have invested the time in a thorough business process review, and have implemented a WMS to direct the warehouse functions. Distributors wishing to implement voice may first wish to find out which voice providers already have functioning interfaces with their WMS. However, this should certainly not be the sole criteria when choosing a provider. Flexibility should be a consideration. Will the provider allow a variety of choices in hardware? Does the provider offer voice-enablement for all warehousing functions, or are most of the field installations simply pick automations? Another factor to consider is whether the distributor requires additional functionality beyond that which is provided with the WMS. Some voice providers can extend application functionality, while others focus on simply converting the WMS commands to voice.
- **Consider Automating Value-Added Services.** For companies that offer value-added services, or that anticipate the need to do so, this form of automation can offer both labor and cost savings. An initial area to focus on is bill of material maintenance, as well as the “SKU re-configuration” which must occur during kitting processes. Find out if your WMS supports the type of value-added services that you perform. If so, implementing this step may simply involve taking the time to build out business rules, create a bill-of-materials database, and configure that software module. If your WMS does not support value-added services, exercise caution when deciding whether to customize the application. If changes will not be incorporated using SOA principles, then it may be very difficult to upgrade or modify easily. Value-added services requirements frequently change, so flexibility and adaptability should be a key concern when determining whether to customize your WMS. No company wants to be left with a legacy application at the end of the day, so tread carefully when considering this step.

Best-in-Class Steps to Success

- **Implement a Slotting Program.** Once a company has picked the “low hanging fruit,” so to speak, steps like slotting can be a key to improving efficiency even further. Slotting typically involves a very intense initial setup and configuration process, followed by incremental “re-slotting” at certain intervals. For slotting to be effective, it must be an ongoing process. See if your WMS provider offers a slotting module. Slotting often means many things to many people, so be

Related Aberdeen Research

To read more about **Speech-Based Warehousing**, click [here](#).

Related Aberdeen Research

To read more about **Automating Value-Added Services**, click [here](#).

Related Aberdeen Research

To read more about **Slotting**, click [here](#).

careful when choosing a provider—make sure that the project requirements are defined up-front, and that the company you select has a proven track-record of success in complex operations. A key decision that will need to be made is the extent to which you will rely on the slotting provider’s professional services group, versus your own in-house experts. It is usually advisable to have a large degree of assistance at least during the setup process. Your team are experts on your operational and business rules, and the software providers team are experts on their product. Over time, however, for the periodic “re-slotting” of the warehouse, it may make more sense for your team to take over these incremental changes.

- **Implement Labor and Task Management.** These two capabilities are not synonymous, and may not necessarily need to be implemented in a single step. It is vital that a good task management system either be resident as part of the WMS, or at least have a very tight, real-time interface to it. Task management focuses on “what tasks should I be doing now?” whereas labor management focuses on “how long should this task take me?” A number of WMS providers offer robust labor management systems, but, like slotting, never assume that the term means the same thing to you that it does to your software provider. Make sure that the system you are considering includes full engineered labor Standards that can be developed based on time-studies of your particular operation. Make sure that the system uses XYZ coordinate mapping to determine travel times between points. Don’t be afraid to consider point solutions here—if your WMS provider doesn’t offer a system that will truly meet your needs, it will be unlikely that implementing half-measures will be effective in the long run.
- **Build a Tight Interface to Your Yard Management System (YMS).** Aberdeen research has shown that whether or not the YMS is a module of the WMS, or a point-solution with a close interface, cross-functional management of the yard is the key to success in this area. A good YMS will not simply track location and age of trailers, but will allow demand-based prioritization of trailer loading and unloading. This requires an interface to the WMS and perhaps also the order management system. Real-time locator systems are also an important consideration, but only after the YMS has been fully integrated into the warehousing operation.

The comparatively wide usage of automated WMS systems has made a variety of choices available to companies seeking to improve their warehouse performance. Companies should take advantage of this opportunity to automate and elevate their performance to Best-in-Class status!

Case Study: Brigg & Stratton Use Labor Management to Automate Value-Added Services

Briggs & Stratton is the world’s largest producer of air-cooled gasoline engines for outdoor power equipment. The company’s parts division ships around 22 million parts each year. A major portion of the labor required in this operation centers around the packaging process, which with its bill of materials and assembly instructions more closely resembles a kitting operation than anything else. The operation was time consuming and difficult to improve upon manually.

Related Aberdeen Research

To read more about **Labor and Task Management**, click [here](#).

Related Aberdeen Research

To read more about **Yard Management**, click [here](#).

**Case Study:
Brigg & Stratton Use Labor Management to Automate Value-Added Services**

Briggs & Stratton had previously implemented a full Labor Management System (LMS) in the picking portion of the operation, and was able to reduce their labor requirements by 18% in the first month. In March of 2004, the company decided to bring this same technology to bear in the packaging operation. By using a combination of pre-existing master standard data (MSD) coupled with specific time-studies performed at their operation, Briggs & Stratton was able to establish engineered standards that both labor and management believed in. After rolling out the LMS in the packaging area, the company was able to realize a 12% savings in direct labor costs in this area almost from the beginning.

“We wanted to move away from doing imprecise, internal time-studies to try to determine worker productivity,” says Bill Harlow, Distribution Center Manager for Briggs & Stratton. “With this project, we were able to minimize the amount of resources on our end during the implementation by selecting a company that was able to provide a turn-key project.”

At the same time that the company has been able to reduce labor costs, customer service levels have increased. The previous rate for on-time shipments was 96%, but since the Labor Management System has been put into use, this number has broken the 99% mark, leaving Briggs & Stratton with happy customers, and happier accountants.

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Appendix A: Research Methodology

Between July and August 2007, Aberdeen Group examined the use of transportation management technology and researched the experiences and intentions of more than 250 enterprises in a diverse set of industries.

Responding executives completed an online survey that included questions designed to determine the following:

- The top pressures which are causing companies to improve their warehouse operations
- Key strategic actions companies plan to take in response to these pressures
- What capabilities and enabling technology have a strong correlation to improved supply chain performance

Aberdeen supplemented this online survey effort with telephone interviews with select survey respondents, gathering additional information on warehouse management strategies, experiences, and results.

The study aimed to identify emerging best practices for warehouse management across industries, and provide a framework by which readers could assess their own capabilities.

Responding enterprises included the following:

- **Job title/function:** The research sample included respondents with the following job titles: Logistics/Supply Chain (61%); Manufacturing (7%); Business Process Management (6%); Procurement (5%).
- **Industry:** The research sample included respondents from a variety of industries, including: Distribution (14%), Retail (12%), Transportation/logistics (10%), Industrial Equipment Manufacturing (8%), Food/beverage (6%).
- **Geography:** The majority of respondents (71%) were from North America. Remaining respondents were from the Europe/Middle-East/Africa region (18%), Asia-Pacific region (10%), and South/Central America and Caribbean (2%).
- **Company size:** About 32% of respondents were from large enterprises (annual revenues above US\$1 billion); 43% were from midsize enterprises (annual revenues between \$50 million and \$1 billion); and 25% of respondents were from small businesses (annual revenues of \$50 million or less).

Solution providers recognized as sponsors of this report were solicited after the fact and had no substantive influence on the direction of the Integrated Transportation Management Benchmark Report. Their sponsorship has made it possible for Aberdeen Group to make these findings available to readers at no charge.

Table 4: PACE Framework

PACE Key
<p>Aberdeen applies a methodology to benchmark research that evaluates the business pressures, actions, capabilities, and enablers (PACE) that indicate corporate behavior in specific business processes. These terms are defined as follows:</p> <p>Pressures — external forces that impact an organization’s market position, competitiveness, or business operations (e.g., economic, political and regulatory, technology, changing customer preferences, competitive)</p> <p>Actions — the strategic approaches that an organization takes in response to industry pressures (e.g., align the corporate business model to leverage industry opportunities, such as product/service strategy, target markets, financial strategy, go-to-market, and sales strategy)</p> <p>Capabilities — the business process competencies required to execute corporate strategy (e.g., skilled people, brand, market positioning, viable products/services, ecosystem partners, financing)</p> <p>Enablers — the key functionality of technology solutions required to support the organization’s enabling business practices (e.g., development platform, applications, network connectivity, user interface, training and support, partner interfaces, data cleansing, and management)</p>

Source: Aberdeen Group, June 2007

Table 5: Maturity Framework

Maturity Framework Key
<p>The Aberdeen Maturity Framework defines enterprises as falling into one of the following three levels of practices and performance:</p> <p>Best in class (20%) — Transportation management practices that are the best currently being employed and significantly superior to the industry norm, and result in the top industry performance.</p> <p>Industry norm (50%) — Transportation management practices that represent the average or norm, and result in average industry performance.</p> <p>Laggards (30%) — Transportation management practices that are significantly behind the average of the industry, and result in below average performance</p> <p>In the following categories:</p> <p>Process — What is the scope of process standardization? What is the efficiency and effectiveness of this process?</p> <p>Organization — How is your company currently organized to manage and optimize this particular process?</p> <p>Knowledge — What visibility do you have into key data and intelligence required to manage this process?</p> <p>Technology — What level of automation have you used to support this process? How is this automation integrated and aligned?</p> <p>Performance — What do you measure? How frequently? What’s your actual performance?</p>

Source: Aberdeen Group, June 2007

Table 6: Relationship between PACE and the Competitive Framework

PACE and Competitive Framework How They Interact
<p>Aberdeen research indicates that companies that identify the most impactful pressures and take the most transformational and effective actions are most likely to achieve superior performance. The level of competitive performance that a company achieves is strongly determined by the PACE choices that they make and how well they execute.</p>

Source: Aberdeen Group, June 2007

Appendix B: Related Aberdeen Research

Related Aberdeen research that forms a companion or reference to this report includes:

[Technology Strategies for Multi-Site Warehouse and Order Management](#); April, 2007

[Warehouse Automation--What's Really Working For Pallet, Case, and Piece Pick Operations](#); January, 2007

[The Key to Getting the Most Out of Yard Management Systems](#); March, 2007

[Warehouse Labor Management—Implementation Strategies That Work](#); August, 2007

[Three Key Components to Effective Slotting](#); August, 2007

[Debunking Some Myths About Speech-Based Warehousing](#); August, 2007

Research That Will Be Published in Coming Months (click on link to submit request):

[Advanced Picking and Replenishment Methodologies for High Performance Warehousing](#)

[Cartonization—Key to Labor Reduction in Piece Pick Operations](#)

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