An Objective Guide to Selecting a WMS

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~ Underwritten, in Part, by ~

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An Objective Guide to Selecting a WMS

The selection of a suitable Warehouse Management Software (WMS) system is a key objective for many companies today. Properly fitting the correct software solution to the operation is critical. Warehouses depend on optimized business processes to ship product out on time and with a minimal amount of labor cost.

The right WMS can be the piece of enabling technology that allows companies to achieve these goals, meet ROI expectations and improve their profitability. A failed WMS implementation, however, has the potential to put a company out of business in a worst-case scenario. Some companies have also been disappointed to see that their WMS implementation involved more resources than anticipated to implement, and took more time than budgeted. Additionally, a poorly fitting WMS can cost a significant amount of ongoing money to maintain and upgrade.

Pressures Driving WMS Investment

In our recent survey (Warehouse Management Excellence: Maximizing Resources and Efficiency, November 2010) supply chain executives indicated that the top pressure causing them to make investments in their distribution operations was the need to support increased sales without increasing staffing or space (cited by 45% of 158 respondents). Please refer to the sidebar for the split of industry among these respondents.

Figure 1: Top Pressures Driving Distribution Center Investment

<table>
<thead>
<tr>
<th>Pressures</th>
<th>Percentage of Respondents, n = 158</th>
</tr>
</thead>
<tbody>
<tr>
<td>The need to support increased sales without increasing staffing or space</td>
<td>45%</td>
</tr>
<tr>
<td>Increased demand / supply fluctuations (e.g., seasonality, promos, product introductions)</td>
<td>35%</td>
</tr>
<tr>
<td>Need for better utilization of underutilized resources (e.g., people, technology, space)</td>
<td>31%</td>
</tr>
<tr>
<td>Rising operating expenses</td>
<td>29%</td>
</tr>
<tr>
<td>Customer turn time requests (e.g., faster order turn-around times, order adds)</td>
<td>28%</td>
</tr>
<tr>
<td>Limited space or throughput capacity for warehouses</td>
<td>28%</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, November 2010
The second biggest pressure, however, was the need for better demand planning and forecasting tools to meet increased demand and supply fluctuations (cited by 35% of respondents).

While companies have an immediate need to improve distribution efficiency, they need to execute on this strategy within the broader context of overall supply chain efficiency and an overall pressure to improve warehouse management. This highlights a key point that companies selecting warehouse management software should consider: **balancing immediate operational demands with long-term strategic needs**. While selecting a software solution (whether deployed in-house or through a Logistics Service Provider), the above criterion should be highly prioritized.

Indeed, any evaluation of the option to install or enhance the warehouse management software needs to be evaluated against a range of other options available to improve warehouse performance and efficiency relative to company-wide improvement and capital plans. To gauge the overall level of company interest across a full suite of options companies were asked to complete the ROI solutions matrix found in Table 1.

**Table 1: Technological Investment Hurdles and ROI Guidelines**

<table>
<thead>
<tr>
<th>Expected ROI</th>
<th>All Types</th>
<th>Auto ID</th>
<th>LMS</th>
<th>WMS</th>
<th>3PL</th>
<th>Material Handling</th>
<th>Voice</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percent of Companies Planning</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>0 - 6 months</td>
<td>73%</td>
<td>55%</td>
<td>41%</td>
<td>18%</td>
<td>18%</td>
<td>14%</td>
<td></td>
</tr>
<tr>
<td>7 - 12 months</td>
<td>19</td>
<td>13</td>
<td>11</td>
<td>8</td>
<td>5</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>13 - 18 months</td>
<td>28</td>
<td>22</td>
<td>16</td>
<td>12</td>
<td>6</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>19 months - 2 years</td>
<td>58</td>
<td>45</td>
<td>29</td>
<td>22</td>
<td>8</td>
<td>7</td>
<td></td>
</tr>
<tr>
<td>2 - 3 years</td>
<td>12</td>
<td>8</td>
<td>6</td>
<td>8</td>
<td>2</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>3 - 5 years</td>
<td>7</td>
<td>3</td>
<td>5</td>
<td>1</td>
<td>1</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>More than 5 years</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>Total Companies</td>
<td>128</td>
<td>94</td>
<td>71</td>
<td>53</td>
<td>23</td>
<td>23</td>
<td></td>
</tr>
<tr>
<td>Months to ROI...</td>
<td>19.7</td>
<td>19.0</td>
<td>19.4</td>
<td>19.0</td>
<td>18.0</td>
<td>18.5</td>
<td></td>
</tr>
<tr>
<td>Percent expecting less than 1 year ROI</td>
<td>18%</td>
<td>17%</td>
<td>21%</td>
<td>19%</td>
<td>26%</td>
<td>22%</td>
<td></td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, November 2010

Note: while none of the companies in the study have internal ROI financial paybacks set at beyond five years this does not imply that years of usage is less than five years. In many instances these solutions have been in place at these companies for seven to 10 years or more. For automation and equipment the depreciation schedules themselves are seven years or more but the payback expectation is still two years or less.

In the study most companies indicated that they have a WMS currently (over 68% cited that they have an in-house or commercial solution). Yet from Table 1 we can see that 41% of those companies seek to install / upgrade / enhance their WMS. An important takeaway from Table 1 is that even though the warehouse management software installation is localized to a warehouse, the ROI timeframe is almost the same as more complex implementations such as material handling or auto ID.
There may be many specific reasons a company has to improve warehouse throughput or efficiency within their organization. However, each company needs to carefully select the WMS solution that best fits their needs and meets an overall ROI payback averaging 19.7 months.

It is the purpose of this document to provide an objective guide that a company can use to select/upgrade/enhance their WMS solution consistent with their needs and their specific ROI requirements. In the sections that follow, references to study results have all been made based on the 158 companies from the November 2010 study referenced earlier, unless otherwise noted.

In the next section we will take a look at the key process, organization, performance and knowledge management capabilities that are necessary to be supported by the WMS software solution.

**Capabilities Needed for Warehouse Management Success**

Aberdeen used three key performance criteria in warehouse management to distinguish the Best-in-Class from Industry Average and Laggard organizations. Respondents were ranked according to three key performance criteria:

- Percentage of orders delivered from the warehouse on-time and complete to customer request: 96% for Best-in-Class companies
- Percentage change in warehouse labor costs per unit handled versus prior year actual: 4.7% for Best-in-Class companies
- Percentage of actual warehouse operating cost (year to date) performance versus Budget: 3.6% for Best-in-Class companies

Based on the above criterion, the process, organizational, knowledge and performance management capabilities of the companies were filtered and results are shown in Table 1 (Warehouse Management Excellence: Maximizing Resources and Efficiency, November 2010).

**Table 2: The Competitive Framework**

<table>
<thead>
<tr>
<th>Process</th>
<th>Best-in-Class</th>
<th>Average</th>
<th>Laggards</th>
</tr>
</thead>
<tbody>
<tr>
<td>Confirm transactions with automatic data capture (bar-coding, speech, RFID)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Zone Picking (Multiple persons pick portions of the same order)</td>
<td>83%</td>
<td>69%</td>
<td>51%</td>
</tr>
<tr>
<td>Receive goods without using paper documents</td>
<td>75%</td>
<td>56%</td>
<td>23%</td>
</tr>
<tr>
<td>Preplanned cartonization and picking instructions</td>
<td>60%</td>
<td>47%</td>
<td>37%</td>
</tr>
<tr>
<td>Container Management (managing containers and the orders and lines they contain, tailoring for shelf ready by store)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Process</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Aberdeen’s Best-in-Class Competitive Framework Defined**

The Aberdeen Competitive Framework defines enterprises as falling into one of the following three levels of practices and performance:

- **Best-in-Class (20%)** — Practices that are the best currently being employed and are significantly superior to the Industry Average, and result in the top industry performance.
- **Industry Average (50%)** — Practices that represent the average or norm, and result in average industry performance.
- **Laggards (30%)** — Practices that are significantly behind the average of the industry, and result in below average performance.
Companies embarking on a WMS selection process should utilize Table 1 as a guide for identifying the key capabilities that should be supported by the WMS software. In the next section we will look at the challenges a company will face if a poorly matched software solution is selected.

### Potential Consequences of a Bad WMS Software Selection Process

Failing to properly select and implement a WMS can have negative consequences – ranging from actual operational shutdown to less severe outcomes. Generally speaking, there are seven areas where a poorly fitting WMS can negatively impact a company:

1. **Loss of Functionality**
2. **Loss of Flexibility**
3. **Constrained Growth**
4. **Over-Paying**
5. **Excessive Upgrade Costs**
6. **Delayed implementation**
7. **Failed implementation**

### Loss of Functionality

Foregoing key items of functionality is one of the most common consequences of making a poor WMS selection. Companies may define...
their core functionality fairly well up-front, but fail to define and explore the multitude of “exceptions to the rule” which happen every day. As a result, the WMS fails to accommodate a certain percentage of distribution transactions adequately - forcing requirement shortcomings or "manual work-arounds." When the company is forced to develop manual "work-arounds" to process these some of the efficiency gains which were projected with the new software fail to materialize.

**Loss of Flexibility**

Companies may do an excellent job of defining their current operational needs, and selecting a warehousing system which will accommodate them. However, in today’s dynamic business climate, companies’ distribution requirements may change significantly over a period of just a few years. Additional sales channels, an increased need for value-added services, and new customer or regulatory compliance requirements, upgrades or streamlines due to enhanced material handling equipment automation can all require significant changes in the day-to-day operation of the distribution center. Companies that fail to take these potential future scenarios into account may find themselves stuck with a WMS system that does not offer the functionality required to meet the new challenges. Don’t be part of the 10% that find out too late that the solutions will not meet future needs (overall, 10% of the companies from our recent study indicated that the technology will not be flexible enough as our needs change). Custom development of features and functionality can be the expense that reduces savings and efficiency – the modifications themselves are expensive, and each time the system is upgraded these custom workflows must often be rebuilt.

**Constrained Growth**

In a related scenario, companies may find that although their basic business processes may remain constant over time, their transaction volumes may greatly increase. While this may be the proverbial "good problem to have," certain WMS systems are not architected to support ultra-high transaction rates. This is particularly troublesome in highly automated warehouses which rely on real-time interfaces to scanning and auto ID (73% seek to enhance here, as shown in Table 1). Supporting real-time transactions or simply increased unit volumes may require software and/or hardware upgrades. While this problem can sometimes be rectified by hardware upgrades, these come at a price. An equally unattractive scenario would involve the wholesale replacement of the WMS with a system that runs on a completely different software platform (i.e. Windows/Unix/I-series).

**Over-Paying**

An opposite scenario occurs when companies over-buy and pay more for a system that has far more features than their business will ever need. This can occur when a purchasing company fails to involve a broad enough spectrum of vendors in the selection process or does not adequately assess
their short to long-term needs. Sometimes, executives may think back to a previous WMS selection they were involved in some years ago, and invite the same basic group of vendors to the table, assuming that their needs can only be met by this group of providers. Despite the consolidation in WMS developers that has occurred over the last decade, a number of newer players have also entered the marketplace with fresh solutions and architectures (there are over 40 vendors in our current landscape in the research preview, An Objective Guide to Selecting a WMS). Failure to evaluate the right range of providers can cause companies to overpay. In other instances the payback savings are not realized with 7% of the respondents claiming "that the promised benefits were not realized." Another scenario that can occur is that a company may select a system that is a good operational fit, but may fail to negotiate well with their solution provider and end up getting the right product, but over-paying for it in initial cost, cost of integration, and/or ongoing maintenance.

**Excessive Upgrade Costs**

Beyond cost of technology integration, and/or ongoing maintenance to a well suited WMS are upgrade costs triggered by future process change or automation initiatives. Source-code modification is expensive – both now and later. Sometimes these modifications, or “mods” as they are often termed, are inevitable in order to meet the business requirements. However, companies that might have made their peace with the initial cost of such code changes may be dismayed to see that these changes are required every time and upgrade or process change is called for. Failure to understand the business needs is often at the root of this problem. Even if the lack of understanding was on the part of the WMS provider, and the user-company is able to get that provider to cover the cost of the initial code modifications, the user company will almost surely bear the cost of future upgrades. In addition, many WMS providers have moved to architectures that allow for multiple configurations and options within the core or base products that minimize the initial and future need for vendor custom "mods." If you select the right WMS to begin with it can pay for itself in the long run.

**Delayed Implementation**

Often when the WMS is misaligned with business needs, the configuration and testing period of the implementation can take much longer than initially planned. If the WMS implementation is tied to some critical enterprise event – a new facility opening, or one closing – these software delays can become extremely expensive. Even if this is not the case, a delayed or extended implementation can cause a company to miss out on efficiency gains and cost savings which could have occurred much earlier. Take precautions to carefully evaluate the true timeline for implementation and identify upfront if "it will take too long to implement the technology" which is cited by about 5% of all companies.
Failed Implementation

On some occasions, WMS implementations have actually failed, with negative results to the company. Product may fail to ship on time, or fail to ship at all. Orders can be cancelled, and customers and sales revenue or profits can be lost. The WMS and accounting systems may not be properly integrated, causing clients to be improperly invoiced. Inventory may not be properly updated, wreaking havoc with procurement. Companies in this situation must devote a significant amount of internal and external resources to remediating the problem on an emergency basis, thus impacting profitability on both ends of the equation.

Avoiding Failure and Maximizing Results

A key reason for the sub-optimal WMS implementations can be traced to a failure to follow a thorough detailed software selection process - companies fail to properly define their requirements up-front in the race to get a solution implemented. Other times, they fail to consider the full range of options available to them from a variety of types of software providers.

Failure to perform due diligence in the selection process can have operational consequences for many years to come. Conversely, however, a properly administered process can provide a company with a WMS solution that will improve operational efficiency and be a platform for growth long into the future.

Aberdeen has designed and put into practice a methodology for selecting software with proven results in the real world. As indicated by the numbers of companies that have seen erosion against savings, delays, or complete project failures learn to carefully consider your requirements in the project justification stages. This report will outline the major components to this process and should serve as a useful guide to any company seeking to achieve Best-in-Class results by implementing or enhancing their warehouse management software.

Steps to Follow in a Proper Selection Process

The steps required to take a WMS project from concept to selection can generally be split into two broad phases (Figure 2): a strategy phase where processes are architected in an objective environment free of vendor influence, followed by WMS selection phase where the right vendor is matched to operational needs.
Prior to beginning the Strategy phase, a company should create a cross-functional project steering committee, with representatives from operations, IT, inventory, sales, accounting, and other major functions participating. Additionally, one or more executive sponsors (refer to Table 2 for organizational sponsorship requirement) should be defined who are responsible for providing support and making decisions at major project milestones.

**The Strategy Phase**

As noted, the Strategy phase is executed largely free of any vendor participation. Its goal is to define the company’s needs in as much detail as possible and to create a framework within which potential solution
providers can be evaluated. Aberdeen’s process involves five basic steps in this phase:

1. Optimize Processes
2. Project Future Savings
3. Determine Solution Budget
4. Determine Integration Strategy
5. Determine Long-Term Needs for WMS Selection

**Optimize Processes**

There is a saying that expensive new technology plus old processes equals expensive old processes – and nowhere is this truer than in the distribution center. A first step in any WMS selection project must be to first conduct a distribution optimization exercise. Companies that take this step sometimes find that they can delay the purchase of an expensive WMS system by months or years, and instead focus on internal process improvements to achieve significant savings. Some key elements to a good distribution optimization study include:

- **Benchmark KPIs.** Conducting a basic benchmarking assessment early on is a good way to determine the level of process re-engineering that may be required. Companies that are already performing at Best-in-Class levels in many categories may decide to only make minor modifications to their processes rather than the riskier wholesale re-engineering that Laggard companies may need. Companies should list the important metrics which define success in their distribution center, and then research how their performance compares to that of other companies. Aberdeen benchmark studies (*Warehouse Management Excellence: Maximizing Resources and Efficiency*, November 2010) define many key metrics that are relevant to warehouse management excellence.

- **Define current state processes.** Begin with an overall mapping of major processes and exceptions. Flow charts are an excellent tool to use here. Capture the broad steps which must occur when “all goes well,” and then define the main exceptions to the rule and how they are handled. Where most WMS systems end up having functionality gaps is usually in the area of exception handling, so it is vital that these be properly documented. Once the master flowchart of processes is created, a more detailed description of operations document must then be generated, which lists the steps at the keystroke level which are required to execute each one. Spreadsheets are an excellent way to capture this information. Pay special attention to the manner in which information flows to and from users: Do users have to read data off of a paper document? Must they look it up in a fixed computer terminal? Is it available on a wireless mobile device? Do users confirm tasks visually? Do they make written notes? Be sure to capture the work behind the scenes if administrative staff has to key data into software systems after the warehouse work is done. Once this document is complete, revisit the exceptions again. Circulate the
document to key staff members and ensure that no exception, no matter how small, has been left off.

- **Allocate labor.** The next step is to determine the amount of labor required to perform each transaction type. There are many methods for this. Perfect precision is usually not required here, so companies will generally not need to resort to engineered time studies at this stage. The goal is to determine in a typical day the number of man-hours required to execute each major type of transaction.

- **Identify problem areas.** Are certain processes contributing greatly to the number of errors made on outbound orders? Are some processes taking so long that they hold up the flow of orders and impact delivery times? These areas and others need to be flagged as deficient during the business processes review. Another way to isolate pain points and process gaps is to compare your processes to those of the Best-in-Class so if you are spending too much on overtime, for example, look are your labor planning and labor management systems and compare them. In the area of centralized direction (80%) of Best-in-Class companies and 74% of Industry Average companies provide for centralized direction of processes in the warehouse.

- **Design future state.** This is one of the most critical areas of the entire strategy phase, and it is both an art as well as a science. The solution to certain process issues may seem obvious; in other cases, further research must be done to identify the best way to rectify problems. Thorough analysis of operational data is usually warranted at this stage. For example, in order to determine if a company should implement high-performance distribution processes like cluster picking or batch picking, the company must thoroughly analyze key order metrics such as average lines per order, line item commonality, and pick-to-put ratios. Only then can complex solutions be properly evaluated. It can be immensely helpful at this stage to gain some outside perspective into what Best-in-Class companies are doing to address similar situations. If you have similar volumes and product profiles to other companies and yet are Laggard in your performance you may want to look into gaps in capability. In the area of zone picking (multiple persons pick portions of the same order) the Best-in-Class at 73% are 3.2 -times as likely as Laggards to have this capability. Fresh ideas and approaches will ensure that all possible approaches are evaluated. It is also a good idea to identify more than one potential way to solve each problem. The Best-in-Class approach may turn out to be too costly to implement right away, while there may be a good fallback position to take which is adopted by Industry Average companies. Bundle the various solutions into two or three process groups which represent the ideal solution, an improved solution, and an acceptable solutions.
Project Future Savings
Before any new processes can be advocated, a company must first know the business implications associated with adopting them. This involves answering two basic questions: How much money will the new processes save? How much are we willing to spend to implement them?

In the same manner that labor was allocated to current processes in the optimize processes step, labor also needs to be projected for the future processes. The same spreadsheet approach is often sufficient here as well. Estimate the amount of future labor which is required to execute each task. Sometimes it can be helpful to model pick travel paths and assess the amount of labor required in a typical day with the new processes compared to the old. Some third-party pick-path modeling tools are available that can construct a rudimentary model of this data that is less precise than a true time-study but more than sufficient for these purposes. If you already have engineered standards the data is much easier to collect - here Best-in-Class companies are 1.8 -times as likely as all others (the Industry Average and Laggard companies combined) to track actual time to complete tasks against a system-calculated time for quantifying performance.

It is also important at this stage to try to quantify the savings which can be achieved from improved customer service. What is the true cost to rectify a miss-shipment? How often do these errors lead to lost business? If a company ships to major retailers, how much do they spend annually on charge-backs due to non-complaint shipments? In some instances, poor processes can lead to poor space utilization as well, thus adding additional operational cost to the equation.

All of these factors must be taken into account for each potential process group which is being considered. The output of this step is a projected annualized operational savings for each process group.

Determine Solution Budget
Now that the company has a sense of the potential savings which are available, they must next determine how much they are willing to invest to achieve those savings. A good starting point is to ask what payback period is acceptable on the investment (the ROI matrix in Table I is a great starting point if you want to compare). Multiplying this payback period by the projected annual savings can establish a rudimentary budgetary figure for the maximum the company wants to spend on a solution. Companies shouldn’t forget ongoing costs as well – most WMS providers charge anywhere from 18% to 22% of the software license fee as a recurring annual support cost to keep the system current and rectify problems. Don’t overlook maintenance cost as 10% of all companies cite this as a barrier to project justification.

Determine Integration Strategy
Thus far, the strategy phase has primarily involved operational resources. However, once the operational requirements have been defined, it is
important to involve the IT group to begin to map out the more technical characteristics of the solution which is pursued. The IT group will be responsible for integrating the new software with the company’s existing software systems, as well as maintaining and supporting the solution internally. WMS systems must often interface with a number of different host systems, including ERP, MRP, POS, TMS, and accounting software, as well as any material handling control systems. Here again software integration issues (based on difficulty or cost) is cited as a key barrier to investment by 34% of all companies.

Some of the key questions for the IT group to consider at this phase of the project are:

- What operating system is preferred? (Windows, UNIX, I-series, etc.)
- What deployment architecture is desired? (Client-server, Web-based, Software-as-a-Service, etc.)
- What database is preferred? (Oracle, DB2, SQL, etc.)
- Does the IT group desire a solution with open source code to allow them to make extensive modifications (many WMS companies do not allow this)?
- Is the IT group ready to take on the task of creating a series of interfaces between their host systems and a third-party WMS? How much effort do they feel this might entail?
- What other IT projects are scheduled for the next 24 months which may divert resources from this project?
- Does the IT group prefer to implement a WMS which is a module of their ERP system in order to minimize the amount of interface work that is required?
- How will the system ultimately be supported? Will the IT group take responsibility for creating new workflows as these are needed, and making code changes when required? Or will they depend on the WMS provider or third-party integrator to perform these tasks?

Many companies experience a significant disconnect between the IT and operations department, and this disconnect can create problems during a complex software implementation. Bridging some of these gaps early in the process can be vital for the future success of the project. Involving the IT group up-front in the strategy phase is a good way to achieve this internal cohesiveness.

**Determine Long Term Needs**

As important as it is to properly define and re-engineer the current business processes, failing to take into account future changes can hamstring an organization for years to come. To properly assess the potential impact of these changes, it is important to conduct an Enterprise Strategy Review.
Attending this session should be the entire Project Steering Committee, the Executive Sponsor(s), and C-level executives from various functional areas who are involved in long-term business planning. It should be noted that at 50%, Best-in-Class companies are 28% more likely than all others to have one or more VP level positions active in WMS and automation implementations. Some of the key questions which should be asked during the Enterprise Strategy Review are:

- What levels of organic growth are projected?
- What will be the nature of this growth? Will it involve greater sales of the same SKUs to the same clients? Greater sales of the same SKUs to new clients? Greater sales of new SKUs to new clients?
- What other sales channels is the company exploring? Will the company begin to sell to larger retailers with vendor compliance mandates? Is the company planning to begin or ramp-up a direct-to-consumer channel?
- What is the trend with regards to order profiles? Are customers placing smaller, more frequent orders?
- To what extent does SKU proliferation affect the enterprise?
- Is the company contemplating any mergers or acquisitions that will have a material impact on the operation?
- Is the company planning to target new geographic markets?
- Is the company planning to source product differently?
- What pending regulatory changes will affect the operation?

The operations group must then consider the potential impact of any of these changes on the distribution center processes. The key changes anticipated in the Executive Strategy Review should then be incorporated into the Business Process Review.

Another important area to consider is the company’s technology roadmap. Is it the company’s intent to continue using the current ERP system? Will a major upgrade or replacement of this system occur in the near future? Does the company already have systems in place to manage the other major areas of the supply chain (transportation, inventory management, demand planning and forecasting, order management, global trade management, etc.)? What additional needs exist for technology solutions in these areas? Specific requirements for these broader areas do not need to be defined at this stage, but major gaps in the company’s technology footprint should be identified.

**The WMS Solution Selection Phase**

Once the overall strategy has been defined, a company can formalize their WMS selection process. Aberdeen actively tracks 41 providers of WMS software ([An Objective Guide to Selecting a WMS](#), November 2010). No WMS selection endeavor should ever include that many vendors - not even on the
"long list." Aberdeen has identified the following six distinct value propositions that a vendor could offer.

**Six Value Propositions - Software Selection Criterion**

Aberdeen recommends that a company first identify the value proposition which is best aligned with their needs, and then select from a shorter list of companies. These six value propositions are:

1. **Full Features and Functionality**

Distribution companies with this strategy seek a software system with a robust feature set which includes WMS, labor management, slotting, order management, and other features, all available on a single platform. There is generally minimal desire for third-party integration to achieve this functionality. Extremely high rates of transactions may also need to be supported particularly in a case where labor management, auto-ID is deployed to individual piece and sku levels. A trade-off these companies may need to make involves system investment – these companies may have to be willing to pay more for their solution than companies with less robust needs.

**Case Study – Full Features and Functionality: Quantum Foods**

Quantum Foods takes raw beef and processes it into steaks to be sold in restaurants, supermarkets, and airlines. For most of its history, the company used Third-party Logistics Providers (3PLs) to distribute their product. However, in 2005, the company decided to open its own 300,000 square foot distribution center in Bolingbrook, Illinois. For the first time, Quantum would need a warehouse management software system to manage distribution.

"We didn’t have any distribution processes in place," says Mike Sacco, Vice President of Logistics for Quantum Foods. "That was a good thing and a bad thing. We were free to architect the best business processes right from the beginning, but we also knew that we were going to encounter situations in the distribution center that we hadn’t even thought of. For us, it was important to select a large WMS provider that already had a full range of features and functionality available that they could quickly configure for us, without having to start building these things from scratch."

But Sacco cautions that it was important for the company to look beyond just functionality; "All the features and functionality in the world are useless if the WMS organization can’t support the product well. We knew we would need round-the-clock support during the go-live, and the ability for the company to quickly respond to request for new workflows once we were up and running."

continues
Quantum selected a vendor with a large global organization that had both the pre-existing features they needed, as well as the ability to support ongoing changes. The company went live with the new system in 2005 and saw a significant increase in inventory accuracy without having to add any administrative personnel. Their WMS provider brought enough resources to bear on the project to ensure that the go-live went smoothly.

Some time later, Quantum made a major change in their business model, and began offering third-party distribution services from their new facility. This change would require their WMS to have the ability to manage accessorial billing and to track ownership of product in the warehouse, something it was not currently doing. Fortunately, their WMS provider already had a framework in place to allow companies to perform 3PL services. While the module required a bit of fine-tuning to accommodate Quantum’s specific operation, the new functionality was rolled out successfully and has allowed the company to tap into this additional revenue stream.

"Partnering up with a WMS provider that had vast resources was a key for us to be able to change our business model when we needed to," says Sacco.

2. Flexibility and Adaptability

Companies looking for more flexibility may have highly unique business processes which need to be accommodated, while still maintaining the ability to enhance and upgrade their system in the future. These companies should focus on systems with a high degree of user-configurability, often achieved through Service-Oriented-Architecture (SOA) – see the M.S. Walker Inc. example in the sidebar for more information. These companies often have strong internal IT capabilities and are able to create custom workflows in the software system with minimal outside assistance. The software systems which fit these needs sometimes cost less than those in the first group. A trade-off these companies may need to make, however, is that some of the more advanced features they seek such as order management, yard management, labor management, and slotting may need to be integrated from third-party software providers as they are not a core part of the WMS. Where labor management systems are deployed they can generate significant labor saving of more than 20% so be careful to evaluate this opportunity and possible solutions when you evaluate your strategy.

3. Short Time to Value

Companies with this need often have a low level of process complexity in the distribution center, as well as minimal amounts of automated material handling equipment. These organizations seek a basic, no-frills solution that can be implemented quickly and which will allow them to address their most
pressing areas of inefficiency. These companies have often accepted the fact that the solution they are searching for might only meet their needs for the next three to five years, and are willing to implement a more robust solution in the future. See the Short Time to Value example in the sidebar for more information.

4. Ease of Enterprise Integration

Many companies seek a warehousing solution that is very closely integrated to their ERP system. They may not wish to build a WMS/ERP interface themselves, or take responsibility for costly upgrades and maintenance of this interface. These companies do well to investigate WMS solutions which are offered by their ERP providers. The range of features and functionality available in ERP-based WMS systems ranges broadly. Some of these companies have developed native WMS applications while others have developed them through acquisition of best-of-breed WMS providers. Depending on the ERP currently in use, some trade-offs may need to be made in terms of features and functionality.

5. Ease of MHE Integration

Companies with a high level of automated Material Handling Equipment (MHE) such as conveyors, carousels, and AS/RS systems often seek a solution that is closely integrated to these systems. They may seek a solution that will give them a single point of visibility and control over these devices with the ability to support very high transaction rates. These companies do well to investigate hybrid WMS or Warehouse Control Software (WCS) solutions developed by manufacturers of material handling equipment or systems integrators. As with the previous category, companies in this group must be often willing to accept fewer features and functionality out-of-the box. When it comes to integration to other systems like ERP or to MHE many companies do not fully consider the requirement. Here again software integration issues (based on difficulty or cost) is cited as a key barrier to investment by 34% of all companies.

6. Industry Focus

Some companies may seek a solution that is tailored to their industry and already accommodates special workflows and features that are unique to their business. 3PLs and retailers with special price sticking, value-add or shelf-ready programs often fall into this category. Additionally food/beverage and pharmaceutical companies have needs to track lot and batch and expiry dates at an inventory location and item level. In addition some companies have expanded needs to support multi-channel logistics. Any industry-focused solution, while providing specific functionality, may also limit growth options for companies that plan to expand operations across industry or country boundaries.

AAdvantage North America is a small third-party logistics provider in Florida that needed to quickly deploy a WMS as they transitioned to doing case and piece-pick projects. The company needed a system that would be affordable, and which could be implemented relatively painlessly.

“We couldn’t afford to add IT staff and have a costly implementation,” says Jud Harris, IT Director for AAdvantage. “An on-demand WMS was a ‘must-have’ for us. We went live in 30 days, and we don’t have to maintain the system in-house.”
When Barrett Distribution Centers, a third-party logistics provider, was selecting a WMS provider for their network of distribution centers, the company was looking for more than just a software package. Barrett is very active within the 3PL community, and wanted a WMS that was focused on their specific industry and used extensively by their peers.

“We wanted our vendor to provide us with an atmosphere of camaraderie and collegiality with our industry peers who were also using the same software,” says Arthur Barrett, CEO. “We wanted to be able to discuss the types of features and functionality that were important to all of us, and guide the developer’s R&D efforts.”

Barrett chose a WMS from a smaller provider that was focused specifically on the 3PL industry. “We’re confident that we have a system that will grow with us, and keep abreast of rapidly changing customer demands,” says Barrett.

Steps in the WMS Solution Selection Phase
The solution selection phase can be split into three main steps:

1. Determine the vendor pool: the RFI process
2. Determine finalists: the RFP process
3. Negotiation and selection: the final phase

Determine the Vendor Pool: The RFI Process
Once a company has identified their WMS selection strategy, they must identify a group of vendors which are best positioned to execute that strategy. This involves creating a Request for Information (RFI) document, distributing it to a group of providers, and then analyzing the results. This step can be a lengthy one, depending on a company’s knowledge and awareness of the WMS vendor community. Aberdeen actively tracks 41 different WMS vendors, receiving regular briefings and updates on their capabilities and client wins. However, most companies will not find it feasible to send even a short RFI to this many vendors. Some broad “pre-screening” can be extremely valuable at this stage.

Companies that choose not to use outside resources at this stage can alternately determine to simply send the RFI document to a large body of providers in order to pre-screen them. The RFI will need to be sent to the “long list” anyway; some companies opt to send it to a “longer list” upfront to develop the vendor pool.

An effective RFI should focus on the following areas:

- Corporate profile (financials, company size, etc.)
- Client base (number of clients, industries served, etc.)
- Maintenance and support capabilities
- Peripheral modules offered (i.e. transportation management, demand planning and forecasting, store operations, etc.)
- Technology profile (platforms, databases, deployment architecture, etc.)
- Systems which have been interfaced with previously
- Method of creating project-specific workflows

Be aware that many WMS providers have multiple products available due to previous acquisitions. The same company may offer an I-Series WMS as well as a Windows-based WMS with completely different capabilities. Make sure that the vendor provides responses which are valid for the version of their software which is actually being considered.

The RFI does not need to focus heavily on functionality; this is one of the prime purposes of the Request for Proposal (RFP) stage which will soon follow. The RFI should nevertheless be a weighty document to ensure that a complete profile of each provider can be created.

When transmitting the RFI to a group of vendors, it can often be helpful to accompany it with a short key requirements document. This one-to-two page document outlines the major objectives of the project along with a brief description of the nature of the operation. In some cases, WMS providers may conclude from this document that their software may not be a good fit for the company, thus saving all parties a significant amount of trouble.

Vendors should be given an appropriate amount of time to complete the RFI; generally two weeks at a minimum. A properly formatted RFI document will allow the vendor’s responses to be easily evaluated side by side. It is Aberdeen’s opinion that it is not vital to personally meet with each potential candidate at this time or to listen to lengthy formal presentations, although these are most certainly a part of the subsequent steps. The goal of the RFI process is to identify a manageable number of vendors to promote to the next stage of the process where much closer scrutiny will occur.

Aberdeen recommends that the list of finalists be no fewer than three companies, and no greater than six. The list should most certainly contain vendors that can support the company’s chosen WMS selection strategy; however, it often makes sense to evaluate companies that may bring a different set of offerings to the table.

For example, a company may determine that they wish to pursue the first strategy to determine full features and functionality. They may include two or more vendors that can clearly support that strategy, but they may also wish to evaluate vendors that focus more on the flexibility and adaptability strategy. It may be that after thorough scrutiny, it can be determined that one of these vendors is well suited to meet the company’s needs at a lower cost than one of the full features and functionality vendors. By restricting
engagements to the top two value propositions a company should be able to reduce the candidate pool to a manageable number. Additionally, as the process unfolds, the company may begin to place more emphasis on the importance of using a solution with a strong industry focus. By including vendors from more than one category in the following RFP process, a company can truly evaluate the trade-offs with each approach.

**Determine Finalists: The RFP Process**

Now that a reasonably-sized pool of vendors has been selected, purchasing companies can turn their attention to the work of evaluating specific features of each vendor's solution and the cost/benefit of these.

Aberdeen recommends a three-round RFP process consisting of written bids, scripted demos, and client site visits. Some WMS providers have created pre-written RFP templates for this purpose. While these can often be an excellent starting point for this phase of the project, companies should not use these templates verbatim. A general purpose template will, by nature, not include any of the special processes that are unique to a company's operation. Additionally, vendor-authored templates often focus very heavily on aspects of software which that particular vendor excels in, and may focus less attention on other areas. Vendor-authored templates should be used as a framework for an RFP that is created by the purchasing company and is specific to their own needs.

**Round 1: Written Bids**

Perhaps the single most important tool to help a company ascertain what they are actually buying is a good RFP document. A poorly written RFP which allows for over-generalization on the part of vendors can provide a false sense of security for purchasing companies. If they have not been extremely specific in this document about what features are available, how they will be deployed, and what the costs/benefits of each will be, a purchasing company may be on the receiving end of some unpleasant surprises after the ink dries on the contract. The following are some best practices that should govern the creation of the RFP:

- **Set the ground rules to elicit fair play from purchasing companies.** Most moderate-complexity operations will require an RFP document that covers at least 400 to 500 line items of functionality. It will require much time and attention to detail on the part of the WMS provider. Additionally, the subsequent steps in the process will require out-of-pocket expense on the vendor’s part as they are required to travel to the company site and demonstrate their software. Purchasing companies owe it to these vendors to manage their RFP process in a fair and professional manner that respects that time commitment required by the vendors to participate.

- **Pre-qualify solution costs.** While a purchasing company should never disclose its actual budget to a software provider, if some very
general, budgetary pricing can be solicited during the RFI process, then a company can zero-in on those providers that have a solution within their budgetary constraints. It is unfair for a purchasing company to continue to involve vendors whose initial price estimates were far outside of their budget without disclosing the same to them, and giving them the option to drop out of the process.

• **Non-adversarial approach.** While the RFP document is meant to avoid confusion at later stages of the implementation, a purchasing company should not assume that vendors are “out to get them” and that the RFP tool is designed primarily to prevent vendor fraud. It is Aberdeen’s experience that most pricing and functionality disagreements during WMS implementations are not due to any conscious act on the part of the software vendor to mislead the purchaser. They are often due to an honest failure to properly understand the operation during the sales stage of the project. This is just as often due to a failure of the purchasing company to properly define their requirements as it is a failure on the part of the vendor to ask the right questions. The RFP document serves as a way to protect both parties from the beginning: the purchaser will not be stuck with a system that doesn’t meet their needs, and the WMS vendor can properly price their system and not be forced to provide “free” development time during the implementation to make the system work properly.

• **Allow enough time.** It is Aberdeen’s experience that a thorough RFP will require at least two weeks of time to complete, and no less than this amount of time should be allowed when the documents are transmitted. Companies should build at least one additional week into their timetable to allow vendors who request extensions to have some additional time to complete the RFP.

• **Be responsive to questions.** Vendors will almost certainly have questions and the purchasing company should designate a specific person to field these in a timely fashion. Most vendor questions should remain confidential as they could reveal specific bidding strategies. However, occasionally questions may be asked which reveal inaccuracies or unclear areas of the RFP. In these cases, the response should be disseminated to all of the bidders.

• **Full disclosure.** Opinions vary on this matter, but it is Aberdeen’s feeling that each WMS provider should be told which other companies are being considered during the process. In reality, this is an advantage to the purchasing company as well – vendors can do a better job of highlighting key differences between themselves and the other bidders, and may also be motivated to submit more competitive pricing. Purchasing companies should also fully disclose any pre-existing relationships which may exist with any of the bidders. Vendors have a right to know, for instance, if the company is using another vendor’s products in another business unit or for...
some other application. The playing field should be disclosed in as much detail as is reasonable in order to prevent acrimony down the road.

Some important points to observe in the required bid package from each solutions provider are:

- **Disambiguated response format.** The RFP should be structured so as to reduce or eliminate ambiguous responses from the vendors. When trying to assess features and functionality, it is vital to understand the level to which a WMS provider can truly offer a given capability. Is the capability simply something that is theoretically possible with the software, but has never actually been built and deployed? Is the functionality something will require extensive source code modifications to create, or does it merely require configuration changes to implement? Is this functionality that can be easily configured by the software user or does the developer need to do this? Is this functionality that is actually being used by the WMS developer's clients in the field? The best way to truly get to the heart of the situation in this regard is to restrict the vendors into providing a handful of multiple-choice responses for each item of functionality, with the ability to add free-form comments in a separate section.

- **Customization vs. configuration.** Companies purchasing a WMS do well to understand the difference between software “customization” and “configuration.” These terms often mean different things to different companies, so it is advisable to define them in the outset of the RFQ document. Generally speaking, configuration involves changing certain standard switches and settings within the software to achieve the required functionality. Configuration changes can sometimes be made by the user, although more complex changes often need to be made by the software developer. An attractive feature of configuration changes is that these changes generally survive a software upgrade process relatively intact. About 50% of companies seeking to install or enhance their WMS cite ease of configuration as a top priority for multi-site deployment.

  Customization, on the other hand, usually implies much more fundamental changes to the source code of the software. These can usually only be made by the software developer, (unless the developer has a policy of open-source code) and are unique to this instance of the application. Code changes (often called modifications, or “mods” for short) usually involve re-coding at the time of an upgrade, which can be expensive. Companies should not necessarily shy away from customization or “mods” if the end-result is functionality which will save much time and effort in the operation. However, the purchasing company should have the software provider specify the exact number of such “mods” and quote a fixed price for these. Thirty-two percent (32%) of
companies cite customization needs as a barrier to WMS justification and another 12% indicate that it is "too costly."

A middle-ground between these two options involves the use of SOA. This allows unique workflows to be created outside of the core source-code, in a virtual “black box.” The underlying source-code can be upgraded without requiring the extensive level of changes to the custom workflows that would be needed if these were written in custom code. In order to achieve this, a WMS system must be architected differently from the ground-up. Only a handful of WMS providers offer true SOA.

- **Beware of “vapor-ware.”** While a certain amount of operational specific software changes must be made on nearly every project, a company should be very wary of software companies which plan to develop entire modules of functionality for them if these do not exist currently. Functionality such as slotting, labor management, and task interleaving cannot be developed overnight. Companies betting on having their WMS provider create these modules from scratch could expect long delays and a very rocky implementation as the bugs are worked out of these parts of the software.

  With this in mind, Aberdeen has found it to be of great value to ask – for each item of functionality – whether it is currently in use by clients that will provide a reference. This encourages more thoughtful responses on the part of the vendor, and helps the company better weight the trade-offs from having custom functionality developed.

- **Be clear about costs.** With 57% of all companies indicating that upfront costs are too high, Aberdeen also finds it advisable to ask, for each item of functionality, whether this is included in the vendor’s base price or is available at an additional cost. This will greatly minimize misunderstandings down the road, during the functional specification stage of the implementation.

- **Mobility matters.** Nearly all WMS systems offer a greater set of functionality on a PC than is offered on a wireless mobile device. While this is to be expected, companies should make sure that vital functionality is available in the hands of the warehouse staff. The best way to achieve this is to require vendors to specify, for each item of functionality, whether this is available on handheld computers, on a PC, or on both. With well over 69% of companies are using barcodes and RF technologies - this is an area of prime importance that requires careful review during the strategy phases.

- **Spotlight on reporting.** Over 85% of companies use some form of reporting for warehouse operation. Determine what exists today either in manual spreadsheets or automated systems. WMS systems vary greatly in their ability to create easily customizable reports. Companies purchasing software should compile actual copies/images of the reports currently in use in the operation, and at a minimum,
ensure that these can be replicated by the new system. Additionally, it can be helpful to create samples of new or enhanced reports which they expect to have with the new software, and require vendors to indicate whether their systems can properly generate these.

- **Versions.** Software companies are constantly enhancing their products and releasing new versions. Unfortunately, not all providers test these new versions as thoroughly as their peers may; hence, the need for purchasing companies to spend some time focusing on which version of the software they will be provided with. It is good to ask how long their version has been released, how many clients are using it, and how many are not. In some cases, companies may elect to implement an older version of the software if a new version with significant changes has been released very recently. If a company is considering purchasing several different software modules from the vendor, it is important to find out if the specific versions of the software are currently implemented together at any other client sites.

- **Interfaces.** One area of WMS implementations which can spiral out of control if poorly managed is the area of system interfaces. The WMS will need to interface with a minimum of one host system to feed it with purchase orders and sales orders; more complex operations may require many interfaces. During the RFP process, the interface requirements should be documented in as much detail as possible. Touch points between the various systems should be identified. Data elements to be transmitted should be identified, as well as the format and frequency of the transmissions. It is also important to require vendors to specify and provide pricing for any third-party software which may be required to make the interfaces work.

Although it may be desirable to have the WMS vendor take “full responsibility” for the system interfaces, this is usually unrealistic unless the WMS and ERP are both provided by the same company. There will almost surely be extensive work required on the part of both organizations to ensure that all of the required systems talk to each other properly. Companies should make a realistic estimate of the amount of internal IT resources required for the project and ensure they will be available.

- **Hardware.** There are often more hardware requirements for a WMS implementation than for other types of business software. A wireless network will need to be installed in the distribution center. Make sure to conduct a radio-frequency site-survey to determine the number of wireless access points which are required, and the position of these.

    Handheld computers will be required for nearly every worker in the distribution center with over 69% of companies using them today.
Investigate the various models available and determine an operating system which will easy to use and fast. Many companies may prefer a Windows platform for their WMS, but may nevertheless opt for character-based displays on mobile devices for ease of use and simplicity.

Server requirements for the WMS also vary widely depending on operating system and provider as well as the amount of real-time processing that is required (over 45% of all companies use real-time picking solutions to support current process). Hardware requirements should be clearly specified by the vendor, and the purchasing company should solicit pricing for this as well.

Companies should determine if they will purchase their hardware from the WMS provider or from a third-party distributor. Purchasing the hardware from the WMS provider may be lightly more expensive in some cases, but can be a way to achieve a greater degree of accountability from the vendor and minimize finger-pointing post-sale.

- **Secondary document – the description of operations.** As important as the RFP document is to describing a WMS provider’s features and functionality, it is just as vital to tie the functionality items together in the specific workflows that will be required in the company’s distribution center. Each process should be described in detail, line-by-line, with an area for the vendors to indicate whether they are compliant with each line item. Attention to detail here is essential – companies should take the time to list the exceptions to the rule as well as the normal-state processes. Although this may require a significant amount of time to create, this document can serve as a starting point for the creation of demo scripts during Round 2, as well as for the creation of test scripts much later on during the implementation.

**Bid Review**

Some companies have attempted to create a numeric scoring system to evaluate the bids. While these do serve a purpose, it is Aberdeen’s experience that there is no shortcut for a thorough, thoughtful review of each bid on a line-by-line basis. Vendors may differ greatly in terms of the functionality that they offer; to truly evaluate the implications of each vendor’s feature-set, the purchasing companies must distinguish between “need-to-have” and “nice-to-have” functionality and determine which gaps are acceptable and which are not.

A useful tool in reviewing bids involved using the “conditional formatting” feature in the company’s spreadsheet program. The spreadsheet generally needs to be formatted in this way prior to being transmitted to the vendors. The company defines which responses are desirable and which are not, and formats the spreadsheet to color-code the good and bad responses. In this way, the responses of each of the bidders can be evaluated side-by-side with visually discernable highlights.
At the end of the first round, companies should ideally have three or less bidders advance to the next stage of the process.

**Round 2: Scripted Demos**

Now that the various systems have been evaluated on paper, it’s time to see them in action. Scripted demos allow the vendor and purchasing company to interact in person and to demonstrate exactly what the software can, and cannot do.

**Scheduling the demo.** As early as possible after Round 1, the companies that will advance to the next round should be given the date and time of the demo, as well as an agenda and the scripts. As with the RFP, vendors should be allowed a sufficient amount of time to prepare for the demo and to book travel far enough in advance to lock in reasonable fares. A minimum of two weeks is recommended from the time when the scripts are transmitted to the time of the actual demo. A clear agenda should also be disseminated at this time which includes the following key elements:

- Tour of the operation
- General discussion of requirements by the purchasing company
- General free-form presentation time by the vendor
- Demonstration of all standard functionality by the vendor
- Execution of scripted demos by the vendor
- Pricing discussion

It is usually advisable to block out an entire day of time for each vendor. In some cases, the initial facility tour and requirements discussion can be done only one time with all vendors attending.

**Creating the scripts.** Unscripted demos which are driven by the vendors can often present a very incomplete picture of the product, as the vendors will naturally showcase their best features and not dwell on their shortcomings. To counteract this, Aberdeen recommends that a minimum of three specific scenarios be scripted for demonstration by the vendor.

The scenarios chosen should be ones which are somewhat unique to the company’s operation, or which are most important to its proper operation. The entire scenario should be listed out clearly, and should perhaps involve exceptions to the normal operation. The inputs/outputs or expected results should be specified. Companies should be prepared to provide some sample data for the vendors’ use here as well.

**The demo itself.** Proper facilitation of the demo can go a long way towards making it a good use of all parties’ time. The schedule should be closely adhered to. Questions which arise should be captured, and owners assigned to any follow-up tasks. It is
important to avoid getting too sidetracked on any particular issue. It is common to schedule time in the future for a follow-up demo to address any questions which arise but would be too time-consuming to address during the main demo. A “parking lot” should be created for these issues which will be addressed at a future date.

The same version of the software which has been quoted should be shown during the demo. The demo should always be executed using a live version of the vendor’s software – screenshots embedded into a slide-show do not tell a company anything about the vendor’s ability to meet the functionality. An emulator which can show the view that an operator will see on their handheld computer is also extremely helpful.

Companies are also advised to make a video recording of the entire demo for reference purposes later in the process. This will encourage vendors to provide well-thought-out responses to questions, and will help resolve any differences of opinion which may occur during the implementation phase. Of course, all parties should be informed that the demo is being recorded.

During the demo itself, and especially during the scripted portions, purchasing companies should feel free to challenge information and to ask the vendor to “show” functionality, not simply explain it.

Both companies should emerge from the demo with a clear understanding of what the next steps will be as well as any open action-items.

Round 3: Client Site Visits

Following the scripted demos, there may be some vendors that clearly do not offer acceptable solutions and can be dropped from the process. However, companies should not feel that the list must absolutely be paired down at this point.

The next step in the process involves contacting other clients of the WMS vendors and discussing the vendor’s performance. When possible, companies should visit these client sites in person, even if these involve travel. This time and cost will be well spent compared to the cost of rectifying a bad software selection.

When meeting with potential clients, the purchasing company should feel free to ask questions of the client privately, and not in the presence of the vendor. More candid responses can often be received this way. Additionally, companies may request that the vendor put them in contact with clients whose implementations did not go exactly according to plan in order to understand how the vendor addressed these issues. Find out if the implementation was completed on-time and on-budget, and if not, why.

When possible, the site chosen should be one which uses the same version of the software that has been proposed, and should be somewhat operationally similar. The period of time for the visit should be kept to a
minimum, out of respect for the user-company’s time; one hour should be sufficient for most purposes.

**Negotiation and Selection: The Final Phase**

Following the site visits, the purchasing company should hold an internal meeting with all stakeholders to discuss the merits of each vendor’s solution, and to attempt to arrive at a decision as to which course of action to pursue. There may often be real differences of opinion at this stage between the operations and IT groups at a company. The solution which is the most feature-rich may not be the one that is easiest to integrate. Both parties must attempt to reach an accommodation if this situation arises. It is vital that a company be honest with itself at this point about what trade-offs are to be made. What additional IT resources may need to be allocated if a certain path is chosen? What functionality will be given up? If the company feels it is important to spend more money than they originally intended on a solution, have they clearly outlined the benefits?

**Consistency with Company Capital Improvement Protocols and ROI Requirements**

No selection or final negotiation is complete without proper analysis of all cost/benefit components or a detailed total cost of ownership and ROI analysis. Most companies have strict guidelines for submission of required documents and financial models that must be submitted (for senior management approval and to finance) at several points in the final selection process. In our November study we asked about the ROI expectations and found the results in Table 1. While the actual months to payback expectation varies by company and solution most companies still require all components to achieve a payback of less than two years. Please note that it is often the case that WMS implementations are coupled tightly to technology and process improvements (such as new auto ID, voice, or material handling solutions). If the costs and benefits of your WMS solution is so coupled you will need to isolate or possibly aggregate costs/benefits to the overall project and make sure the aggregate ROI still meets company hurdles. Again theses ROI models and approvals will require a refresh as final negotiations and cost/benefits assumption are made clear.

Once an internal decision has been reached, then the company must negotiate the best fair price it can get from their short list of solution providers making the cut. This report is not designed to be a tutorial on negotiating strategy, but Aberdeen has found a few key points to be of value:

- **Preserve walk-away power.** Remember that technology for technologies sake can be fruitless. If at this stage of the game it is felt that “the technology will not help us solve any problems we are having,” your company you should walk away. If you do see the need it is ideal at this stage to have at least two vendors whose solutions could meet the company’s needs; this will give the purchaser the “walk-away power” which is so vital for the
impending negotiations. To achieve this end, it is important to continue to focus on other vendors throughout the preceding steps, even if a front-runner seems to emerge early on. By finding a way to make at least two of the vendor solutions work (your short list), purchasers keep their options open and will have more bargaining power.

- **Consider an incremental commitment.** It is ideal to have firm pricing from each vendor for each aspect of the implementation: software licenses, hardware, software modifications, professional services, interface work, and ongoing maintenance. However, in some instances, the WMS providers may only provide estimates for some of these items, reserving the right to revise their pricing once the functional specification stage of the implementation is completed. Such a position is not necessarily an unreasonable one on the part of the WMS provider but if they make it to the final round make sure these costs are included in negotiations. Properly researching every aspect of a software modification or interface requirement may not be feasible by the vendor without a financial commitment on the part of the purchaser. Unfortunately, this leaves many of the pricing details to be negotiated at a later date, after the purchaser has made a full commitment to the vendor and when the purchaser has a substantially reduced bargaining position.

Aberdeen suggests that purchasers adopt a different approach. Rather than making a full financial commitment to a vendor while some pricing details are still unresolved, purchasers can propose a middle-ground. The purchasing company issues a purchase order to the vendor for the professional services required to create a functional specification and to provide firm pricing for all of the unknown details. The software licenses are not purchased, nor are the hardware or full implementation services.

The vendor is now rightly compensated for the additional work required to finalize the details of their offering, and the purchaser still preserves a large measure of their leverage to procure attractive pricing for any changes which do arise. This strategy can go a long way towards reducing acrimony during the subsequent implementation phase.
Vera Bradley is a designer of women's handbags and travel bags and accessories. Based in Fort Wayne, Indiana, the company has experienced rapid growth since its inception in 1982, culminating in the company going public in 2010.

Several years ago the company made a decision to modernize its distribution operations; a major component to this initiative was the selection and implementation of a new WMS. Aberdeen recently interviewed Vera Bradley's Executive Vice President of Operations, Matt Wojewuczki. The following are some key points he made:

- **On determining the vendor pool:*** "At the beginning of this process, we had a tremendous amount to learn. We knew we wanted to include the three biggest players in the WMS marketplace, but we didn't want a single-dimensional picture of what was available. We engaged a consulting firm to suggest another seven vendors to include that were less well known but that brought some unique approaches to the table. By the end of the RFP process, we went from a list of 10 vendors down to a list of three, each with a different set of strengths."

- **On flexibility:*** "Flexibility was, and continues to be, a key driver for us. Since we've rolled out the WMS, we added a direct-to-consumer channel and have had to do a lot more kitting work. Additionally, we now do business with more retailers and have new compliance requirements. We paid a lot of attention to flexibility and adaptability in the selection process, and it's paid off. Our WMS provider has been able to roll with everything we've thrown their way."

- **On walk-away power:*** "After the scripted demo process, we had narrowed the field to just two providers. The pricing was close enough that neither vendor had much of an advantage there. Our RFP and scripted demo process showed us that both providers were more than capable of meeting our requirements. We literally could have chosen either company and had a viable solution. This knowledge allowed us to really focus on some of the intangibles like cultural fit and client feedback. It also helped us to negotiate hard on price, knowing that we had other alternatives."

"At the end of the day, we're glad we took such a systematic approach to our software selection process. We couldn't be happier with the partner we chose, and our distribution operation has allowed the company to grow by leaps and bounds," says Wojewuczki.

"Our RFP and scripted demo process showed us that both providers were more than capable of meeting our requirements. We literally could have chosen either company and had a viable solution. This knowledge allowed us to…negotiate hard on price, knowing that we had other alternatives."

~ Matt Wojewuczki, EVP Operations, Vera Bradley
**Conclusion**

Companies following a thorough, detailed process, like the one previously outlined, can have a much greater level of confidence that their software implementation or enhancement will go smoothly and meet expectations. This process will pay dividends in many more areas - beyond just a single software implementation. Greater cross-departmental cohesiveness and ownership/visibility can often result from such an exercise, and a surprising amount of “low hanging fruit” is often identified that can improve efficiency without the need for technology. Following this methodology will result in a software implementation or combined software/process/technology upgrade that exceeds the project goals and positions the distribution center to be an enabler of growth for many years to come.

For more information on this or other research topics, please visit [www.aberdeen.com](http://www.aberdeen.com).
Appendix A: Research Methodology

Between October and November 2010, Aberdeen examined the use, the experiences, and the intentions of more than 158 enterprises using warehouse management in a diverse set of enterprises.

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

Responding enterprises included the following:

- **Job title**: The research sample included respondents with the following job titles: Manager (34%); Director (22%); EVP / SVP / VP (12%); Consultant (10%); Staff (6%); CEO / President (5%); and other (11%).

- **Department / function**: The research sample included respondents from the following departments or functions: procurement, supply chain, or logistics manager (51%); operations manager (17%); IT manager or staff (12%); senior management (6%); sales and marketing staff (4%) and other (10%).

- **Industry**: The research sample included respondents from: Wholesale Distribution (14%); Retail and Apparel (12%); Food and Beverage (11%); Industrial Manufacturing (11%); Consumer Packaged Goods (CPG) (7%); Computer Equipment (6%); Pharmaceutical Manufacturing (5%); Health and Medical (5%); Government, Aerospace and Defense (2%); and other (27%).

- **Geography**: The majority of respondents (73%) were from North America. Remaining respondents were from the Europe, Middle East, and Africa (EMEA) (17%), Asia-Pacific region (8%) and South/Central America and Caribbean (2%).

- **Company size**: Thirty-six percent (36%) of respondents were from large enterprises (annual revenues above US $1 billion); 38% were from midsize enterprises (annual revenues between $50 million and $1 billion); and 26% of respondents were from small businesses (annual revenues of $50 million or less).

- **Headcount**: Thirty-nine percent (39%) of respondents were from large enterprises (headcount greater than 1,000 employees); 43% were from midsize enterprises (headcount between 100 and 999 employees); and 18% of respondents were from small businesses (headcount between 1 and 99 employees).

Study Focus

Responding supply chain and operations executives completed an online survey that included questions designed to determine the following:

- The degree to which WMS/LMS (or 3PL service solutions) or automation is employed in their warehouse operations and the financial implications of the solutions in use.

- The structure and effectiveness of existing WMS/LMS (or 3PL service solutions) or automation implementations.

- Current and planned use of warehouse related services/automation to aid operational and promotional activities and improve resource utilization.

- The benefits, if any, that have been derived from warehouse related services/automation initiatives.

The study aimed to identify emerging best practices for utilizing and improving resources in warehouse operations. Additionally, this study will provide a framework by which readers could assess their own warehouse management capabilities.
### Appendix B: A Comparison of Material Handling Usage

The following tables show the overall levels of current adoption in current use by the 158 companies surveyed along with the relative likelihood (in terms of times more likely) of the Best-in-Class to utilize the specific enablers versus all other companies. (Please note that in the 13 items in bold the likelihood exceeds two-times)

#### Table 3: Product Handling Equipment Usage Rates

<table>
<thead>
<tr>
<th>Product Handling Equipment</th>
<th>All</th>
<th>Best-in-Class</th>
<th>Average</th>
<th>Laggard</th>
<th>vs. Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Single-deep rack</td>
<td>79%</td>
<td>93%</td>
<td>77%</td>
<td>75%</td>
<td>1.22</td>
</tr>
<tr>
<td>Static shelving</td>
<td>60%</td>
<td>74%</td>
<td>58%</td>
<td>53%</td>
<td>1.30</td>
</tr>
<tr>
<td>Counterbalanced style lift trucks</td>
<td>50%</td>
<td>60%</td>
<td>54%</td>
<td>34%</td>
<td>1.28</td>
</tr>
<tr>
<td>Reach or deep-reach style lift trucks</td>
<td>47%</td>
<td>64%</td>
<td>43%</td>
<td>42%</td>
<td>1.49</td>
</tr>
<tr>
<td>Double-deep rack</td>
<td>44%</td>
<td>65%</td>
<td>42%</td>
<td>32%</td>
<td>1.71</td>
</tr>
<tr>
<td>Narrow aisle lift trucks (operating in clear aisles of up to 72”)</td>
<td>34%</td>
<td>47%</td>
<td>36%</td>
<td>21%</td>
<td>1.52</td>
</tr>
<tr>
<td>Gravity flow racks</td>
<td>31%</td>
<td>48%</td>
<td>31%</td>
<td>19%</td>
<td>1.85</td>
</tr>
<tr>
<td>Pallet flow rack</td>
<td>31%</td>
<td>50%</td>
<td>25%</td>
<td>29%</td>
<td>1.85</td>
</tr>
<tr>
<td>Carton flow rails</td>
<td>25%</td>
<td>33%</td>
<td>27%</td>
<td>16%</td>
<td>1.43</td>
</tr>
<tr>
<td>Push-back rack</td>
<td>24%</td>
<td>35%</td>
<td>18%</td>
<td>26%</td>
<td>1.59</td>
</tr>
<tr>
<td>Very-narrow-aisle (VNA) lift trucks (operating in clear aisles of 72” or less)</td>
<td>22%</td>
<td>44%</td>
<td>20%</td>
<td>8%</td>
<td>2.75</td>
</tr>
<tr>
<td>Triple-deep rack</td>
<td>19%</td>
<td>30%</td>
<td>14%</td>
<td>19%</td>
<td>1.88</td>
</tr>
<tr>
<td>Drive-in / drive-through rack</td>
<td>18%</td>
<td>39%</td>
<td>11%</td>
<td>17%</td>
<td>3.00</td>
</tr>
<tr>
<td>Mechanized deep lane storage</td>
<td>5%</td>
<td>7%</td>
<td>4%</td>
<td>8%</td>
<td>1.17</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, November 2010

#### Table 4: Integrated Systems Usage Rates

<table>
<thead>
<tr>
<th>Integrated Systems</th>
<th>All</th>
<th>Best-in-Class</th>
<th>Average</th>
<th>Laggard</th>
<th>vs. Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ruggedized Mobile Computers (forklift mounted or handheld)</td>
<td>48%</td>
<td>64%</td>
<td>50%</td>
<td>31%</td>
<td>1.49</td>
</tr>
<tr>
<td>Conveyor-based picking systems</td>
<td>27%</td>
<td>53%</td>
<td>22%</td>
<td>14%</td>
<td>2.65</td>
</tr>
<tr>
<td>Automated shipping sortation</td>
<td>21%</td>
<td>47%</td>
<td>18%</td>
<td>8%</td>
<td>3.36</td>
</tr>
<tr>
<td>Vertical carousels and/or vertical lift modules</td>
<td>17%</td>
<td>29%</td>
<td>16%</td>
<td>10%</td>
<td>2.07</td>
</tr>
<tr>
<td>Cartonization Software</td>
<td>16%</td>
<td>31%</td>
<td>10%</td>
<td>15%</td>
<td>2.58</td>
</tr>
<tr>
<td>RFID Technology</td>
<td>14%</td>
<td>18%</td>
<td>15%</td>
<td>12%</td>
<td>1.29</td>
</tr>
<tr>
<td>Horizontal carousels</td>
<td>12%</td>
<td>15%</td>
<td>10%</td>
<td>12%</td>
<td>1.36</td>
</tr>
<tr>
<td>Automatic Guided Vehicles (AGVs)</td>
<td>10%</td>
<td>14%</td>
<td>11%</td>
<td>4%</td>
<td>1.56</td>
</tr>
<tr>
<td>Speech-based warehousing</td>
<td>9%</td>
<td>16%</td>
<td>10%</td>
<td>3%</td>
<td>2.29</td>
</tr>
<tr>
<td>Pallet handling automated storage and retrieval system (AS/RS, directed robot)</td>
<td>9%</td>
<td>18%</td>
<td>7%</td>
<td>7%</td>
<td>2.57</td>
</tr>
<tr>
<td>Automatic palletizing systems</td>
<td>8%</td>
<td>14%</td>
<td>7%</td>
<td>5%</td>
<td>2.00</td>
</tr>
<tr>
<td>Pick-to-light and put-to-light systems</td>
<td>7%</td>
<td>14%</td>
<td>7%</td>
<td>2%</td>
<td>2.80</td>
</tr>
<tr>
<td>Case handling automated storage and retrieval system (AS/RS, directed robot)</td>
<td>6%</td>
<td>19%</td>
<td>3%</td>
<td>5%</td>
<td>4.75</td>
</tr>
<tr>
<td>In-motion manifesting system</td>
<td>6%</td>
<td>11%</td>
<td>4%</td>
<td>4%</td>
<td>2.20</td>
</tr>
<tr>
<td>Unit sortation (tilt tray, cross belt, paddle, etc.)</td>
<td>6%</td>
<td>14%</td>
<td>5%</td>
<td>2%</td>
<td>2.80</td>
</tr>
<tr>
<td>Unit dispensing (A-frames)</td>
<td>4%</td>
<td>11%</td>
<td>1%</td>
<td>2%</td>
<td>5.50</td>
</tr>
</tbody>
</table>

Source: Aberdeen Group, November 2010
Appendix C:
Related Aberdeen Research

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

- Robotics going Mainstream: Improve Warehouse Productivity and Safety; September 2010
- International Transportation: Optimize Cost and Service in a Global Market; July 2010
- Labor Management: Instill Accuracy, Efficiency, and Productivity in the Warehouse and Retail Store; March 2010
- On-Time and Under Budget: Maximizing Profits with Efficient Warehouse Management; December 2009
- Warehouse Operations: Increase Responsiveness through Automation; July 2009
- Five Key Steps to Optimizing Warehouse Management; February 2009
- Distribution Center Strategies for Today's Economy: Managing Growth Without Adding Labor or Space; November 2008
- Warehouse Automation: How to Implement Tomorrow's Order Fulfillment System Today; October 2008
- Agile Logistics: Transforming the Distribution Center; May 2008

Information on these and any other Aberdeen publications can be found at www.aberdeen.com.

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