Warehouse Maturity
Key to Best-in-Class Performance

Highly Competitive Warehouse Management

Managers have been improving distribution centers haphazardly although effectively for decades. In this manner, logistics operations have been lifted to higher levels of performance. Our research among 500+ distribution centers quantified the potential for cost saving (20 percent average) and service improvement. We unraveled the secrets of the best-in-class and investigated the maturity of modern distribution centers. The research identified a small group of leaders with mature operations (7 percent) and a large group of laggards (55 percent) who are primarily in fire-fighting mode. High-tech and retail are leading sectors.

Strategic Role

Some warehouses, or distribution centers, have excellent performance with 99 percent-plus perfect deliveries, a productive and strongly motivated workforce and a flexibility that anticipates any changes in the market. The distribution center runs smoothly in close collaboration with other departments within the company and with other members of the supply chain. The manager (or director) responsible for the distribution center plays an important strategic role within the company, and is seen as an equal to other managers in sales, production, purchasing and other departments.

Highly Competitive Warehouse Management

Consultant, educator and author Jeroen van den Berg introduces a new approach to warehouse optimization in his book *Highly Competitive Warehouse Management*. Based on scientific research and practical application, he quantifies the potential for performance improvement and introduces an action plan for best-in-class performance.

Day-to-Day Routine

How striking is the contrast with many other distribution centers. Their performance is poor and unreliable. Staff are badly motivated and need the constant attention of the manager and team leaders. The manager is absorbed in his day-to-day routine. Unexpected (and expected) events, special customer requests, delays of incoming goods and dozens of other issues require his immediate attention. Moreover, the distribution function is held in low esteem compared to other departments and is expected to cater to their whims.

Cost Savings

The question arises how performance levels of best-in-class distribution centers differ from the rest? How much can distribution centers realistically expect to save on operating costs? In our research we unraveled the best practices of best-in-class operations. We incorporated these best practices in a *warehouse maturity scan* that estimates the maturity of a distribution center. The scan computes the facility's maturity level at three different stages, which we refer to as effective, responsive and collaborative.

Effective Stage

In the *effective* stage, we standardize the management of the distribution center. We systematically structure the organization, set goals and identify cost and performance levels. These efforts not only simplify day-to-day management, they also facilitate a transparent analysis of the bottlenecks. The distribution center becomes an effective link in the supply chain.

Responsive Stage

In the *responsive* stage, we utilize information technology to increase performance. IT is a powerful enabler of logistical improvements. However, existing logistics models hardly address the use of intelligent information systems. We introduce new planning and control principles that respond in real-time to events.

Collaborative Stage

In the *collaborative* stage, we reconsider the role of the distribution center in the supply chain. We look beyond the four walls of the distribution center. In other words, in the previous stages we sought to do things right in the distribution center, without considering if we were doing the right things. In this stage we demonstrate how to improve the performance of the entire supply chain through better collaboration.

Online Warehouse Maturity Scan

For a better understanding of the discussion, we suggest that you fill out the *warehouse maturity scan* for your distribution center at www.hcwm.net before you continue reading.

How Mature are Distribution Centers?

In total, 500 participants responded to the online warehouse maturity scan between 2008 and 2011. Figure 1 shows the average maturity scores of survey participants. We see a 36 percent compliance with the effective stage, 37 percent with the responsive stage and 30 percent with the collaborative stage.

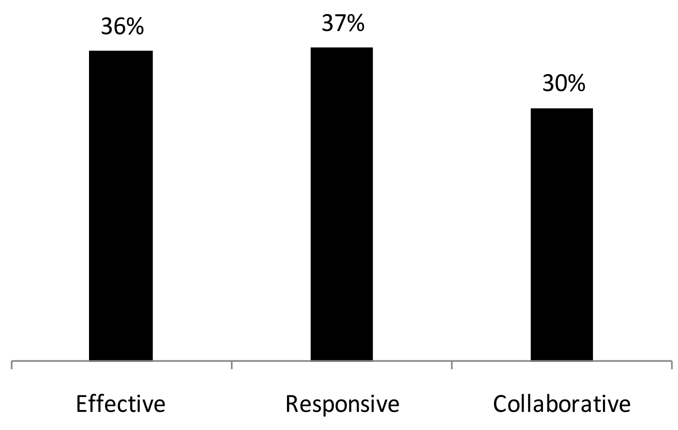

Figure 1. Average participant's score in online warehouse maturity scan.

20 Percent

From the maturity scores we derived a formula that predicts the cost savings potential in distribution centers. The average savings estimate among all participants of the online warehouse maturity scan is 20 percent – a substantial amount. We also asked participants how much they expect can be saved in their distribution centers by adopting best practices in processes, IT and collaboration. The participants expect that they can save 19 percent on average – nearly identical to the 20 percent average computed by the scan. Additionally, we see a strong statistical correlation between estimates computed by the scan and participants' expectations. Therefore, we can conclude that despite the fact that the warehouse maturity scan has a limited set of questions, it gives a realistic estimate of the maturity and savings potential of a distribution center.

Low Hanging Fruit

If we interpret the average maturity scores in Figure 1, one striking observation is the relatively low score of the participants at the effective stage. Since the effective stage lays the foundation for subsequent stages, one might expect that the maturity score on the effective stage is higher than the maturity scores on the other two stages. However, this is not the case. The average effective score at 36 percent is slightly below the average responsive score at 37 percent. Besides, the initiatives required in the effective stage, such as creating transparency and streamlining processes, are relatively easy to achieve and less costly than those in subsequent stages. One expects that managers would be interested in this *low hanging fruit*. However, the outcome of the scan suggests otherwise. Instead, managers attempt to solve their operational problems through IT. Apparently, managers have heavily invested in IT systems in recent years, thereby neglecting the *basics* of warehouse management. Subsequently, they find out that new systems are ineffective due to the immaturity of the organization.

30-40 Percent Adoption

Another observation from the survey is that the absolute scores on all three maturity stages are relatively low. Although the practices which the scan addresses in each of the maturity stages are generally available, an average distribution center only adopts 30 to 40 percent of them. As a result, distribution centers could still attain an average savings potential of 20 percent. This is a substantial amount.

Vertical Markets

Next, we look at the maturity scores of various vertical markets. Here we see that the most mature verticals (i.e., verticals with the lowest savings potential) are high-tech, fashion, consumer goods and office equipment (Table 1). What these four verticals have in common is that their products have relatively short lifecycles. Consequently, companies are forced to keep limited inventory levels to avoid the risk of obsolete stock. Satisfying customers with limited inventories imposes heavy demands on logistics operations. Thus companies in these verticals need mature logistics operations to remain competitive in their markets.

Table 1. Average maturity and savings potential by vertical market.

Vertical Market	Maturity (%)	Savings Potential (%)
High-tech	43	17
Fashion	38	19
Consumer goods (non-food)	38	19
Office equipment	37	19
Healthcare	36	19
Cold storage	35	19
Multi-media	35	20
Food	34	20
Automotive	32	20
Industrial products	29	21
Chemicals	29	21
Do-it-yourself	28	22
Spare parts	26	22

High-Tech Industry

In particular, the high-tech industry outperforms all other verticals in warehouse maturity. This finding is in line with many international studies, which show that supply chain performance is essential for business success in the fast-paced high-tech market. For instance, the *2011 Supply Chain Top 25* by analyst firm Gartner lists five high-tech companies in its Top 10: Apple, Dell, Research in Motion (Blackberry), Cisco Systems and Samsung. The analysts started publishing the list in 2004 and it has been dominated by high-tech companies ever since.

Least Mature Verticals

On the other end of the scale, we find the least mature verticals: do-it-yourself products, chemicals and spare parts. Contrary to the mature verticals, these businesses sell products with long lifecycles. As such, these companies experience less pressure on their logistics operations.

Retail

Next, we look at the results by position in the supply chain. Table 2 shows the average savings potential for companies across the supply chain. Here we see that retail distribution centers are the most mature (i.e., they have the lowest savings potential), followed by e-commerce operations and third party logistics providers. The least mature distribution centers are typically found at manufacturers (of both components and finished goods).

Upstream to Downstream

In fact, if we look at Table 2, we see that companies tend to have increasingly mature distribution centers once we move from upstream to downstream in the supply chain. At the end of the supply chain, where companies deliver to end-customers, logistics operations typically are more complex due to broad product ranges and small, frequent orders. Moreover, their *out-of-stock risks* are more serious. For example, if a retail distribution center cannot supply its stores, this rapidly leads to empty shelves and *lost sales*. For upstream companies this is less crucial. Their products are held by companies downstream in the supply chain, which serve as buffers for their supply interruptions. Hence, if supply is disrupted upstream, there may still be sufficient inventory in the supply chain to serve demand so that end-customers do not immediately have to face out-of-stocks.

Table 2. Average savings potential by supply chain position.

Position in Supply Chain	Maturity (%)	Savings Potential (%)
Retailer	44	17
E-commerce	39	18
Third party logistics provider	39	18
Wholesaler/distributor	30	21
Finished goods manufacturer	30	21
Components manufacturer	26	22

Maturity Gap

Another reason for the maturity gap between upstream and downstream companies lies in the fact that manufacturers traditionally have higher profit margins than retailers. This implies that cost efficiency is more relevant at the end of the supply chain.

We can conclude that logistics complexity, out-of-stock risks and smaller profit margins mean that downstream companies in the supply chain need more mature distribution centers in order to be competitive in their markets.

Leaders and Laggards

Next, we compare the leaders and laggards across all participants. Since the *warehouse maturity scan* computes a savings potential that lies between 0 and 30 percent, we distributed the participants into three segments:

- The leaders with mature operations who have a savings potential of 10 percent or less.
- The followers who have a savings potential between 10 and 20 percent.
- The laggards with immature operations who have a savings potential between 20 and 30 percent.

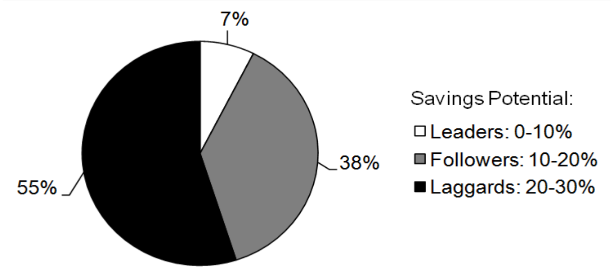

Figure 2. Participants by savings potential.

Leaders, Followers and Laggards

Figure 2 shows the sizes of the three segments. Over 50 percent of the distribution centers are *laggards* according to our definitions. Warehouse operations in this segment are still struggling. Next, we see a large group of *followers* who constitute almost 40 percent of the total. These distribution centers achieve adequate performance levels and managers have a grip on the operation. Finally, there is a small group of *leaders* comprising just 7 percent of the distribution centers. These operations have outstanding performance levels and strongly contribute to the competitive strength of the company.

Summary

Excellent warehouse performance helps companies to create competitive advantage by reducing logistics costs, by increasing internal and external customer service levels, and by aligning business activities. Research shows that best-in-class companies realize competitive customer service levels while achieving logistics costs advantages of 20 to 30 percent over their laggard peers. Moreover, these companies are financially more successful.

There is a small group of leaders in warehouse management, while more than 50 percent of distribution centers are still laggards according to our definitions. Leading sectors are high-tech and retail.

Highly Competitive Warehouse Management

The report *Warehouse Maturity: Key to Best-in-Class Performance* is the first issue in the Management Outlook series on highly competitive warehouse management that will appear in 2012. The reports are based on the book *Highly Competitive Warehouse Management* (2012) by Jeroen van den Berg. This groundbreaking book presents an action plan for moving the distribution center from the typical fire-fighting mode to best-in-class performance.

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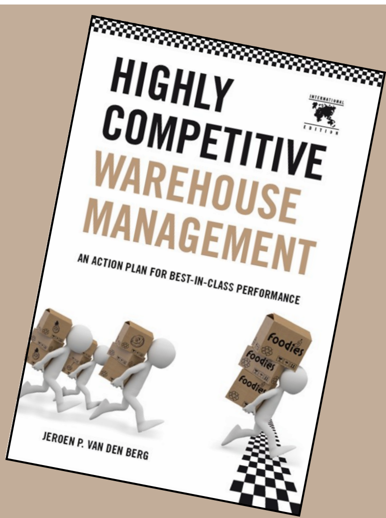

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