Editor’s Note: A little more than two decades ago, your editor wrote about warehousing for the Harvard Business Review. In an article co-authored with Professor B. J. LaLonde, we talked about steps needed to improve productivity, and one of these is the need to create round trip payloads for forklift trucks within the warehouse. This was based on our knowledge of the ability to create backhauls for motor carriers. It is now fair to say that neither the authors nor their readers appreciated the technical difficulty of creating backhauls inside a warehouse. Two decades later, there are now several warehouse management systems that offer a practical means of finding and implementing round trip payloads on forklift trucks. We are grateful to Jim LeTart of McHugh Software International, Rick Domzalski of Quaker Oats and Ken Cote and Joey Harp of Saddle Creek Corp. for their help in providing information about this subject. KBA

Task interleaving is the term used in describing a warehouse management system to mix tasks to reduce travel time. Sending a forklift operator to put a pallet in a storage location on his way to his next picking location is a typical example of task interleaving.

In many warehouses, 50 to 60 percent of workers’ time is spent in traveling, and task interleaving promises to reduce that travel time by 10 to 20 percent. When this happens, there can be a significant reduction in the number of people working in the warehouse because the waste involving needless traveling is substantially reduced. Some systems have the ability to balance the work that must be done on a given day with maintenance or other routine duties which are needed in every warehouse.

The system updates all information in its files as changes occur. System directed activities can respond immediately to changing conditions and priorities as they occur within the warehouse. As an operator completes the task, the system determines the next work assignment based on overall warehouse priority, proximity to the work area, and the priority of jobs that must be done.

The system may be able to bypass tasks that would cause congestion in certain aisles or storage locations. The system can adapt to any number of workers, distributing the work among them. The tasks that are interleaved include receiving, shipping, repacking, and even sweeping. For example, the system might determine that it is efficient for one worker to perform two picks, a staging operation and then a put-away. The system is designed to adapt to necessary movement rules, such as the use of narrow aisle trucks in the order picking area.

The goal of this procedure is to minimize “dead-heading.” As one task is completed, the system will direct the operator to perform a different task in a nearby area. Such tasks might include a let down, storage consolidation, picking, or a cycle count. An effective task interleaving system will all but eliminate the need for workers to cruise the aisles with “empty forks.”

One feature of task interleaving is the ability to combine order picking with letdown requests designed to refill particular pick slots before they become empty. When put aways and letdowns are handled on the same trip, there is a significant improvement in lift truck efficiency.

Two tools are necessary to implement this procedure. First, the lift truck operator must be equipped with a radio control device, such as a radio frequency terminal, with a CRT monitor located on the vehicle. Second, each pallet, unit load or case should have a “license plate” or identification number that is applied as the unit is received.

The process of task interleaving is best understood by relating the process to three traditional tasks performed in most warehouses:

- The movement of cargo from the receiving dock to a storage slot.
- The movement of product from a storage slot to a shipping dock.
- Transfer of product from bulk storage to a pick area to replenish a picking slot.

When the lift truck operator handles the first of these tasks, he or she describes the job on the keyboard of the radio frequency console. The interleaving system might then instruct this operator to move the inbound cargo from the receiving dock to a storage location designated as “J16”. When this task is completed, the operator enters menu item No. 1: “looking for work.” Then the system determines how and where other products located near “J16” could be moved from storage either to a shipping dock or a forward pick area. Priorities can be established for put-away and replenishment. Furthermore, the system can be abandoned altogether when there is an urgent need to complete one task as quickly as possible.
Typical options offered by the McHugh system are shown below. Figure 1 shows the standard menu that appears on the CRT screen. When the lift truck operator keys option 1, Figure 2 may appear as the system is cycling through various options. Figure 3 demonstrates the prompts that insure proper identification of inbound product. Figure 4 illustrates a typical order picking instruction. Once the order has been picked, Figure 5 provides the shipping instruction.

For example, at the Quaker Oats distribution center that we inspected in Pennsylvania, there is a rule that every outbound truck must be loaded within two hours after the driver arrives. If a supervisor discovers that any truck is nearing the maximum allowed time, the lift operator is instructed to abandon the interleaving system and concentrate on completing the load just as quickly as possible. However, when task completion is not an issue, the lift truck operator will use the “looking for work” menu item as each task is completed. Because the Pennsylvania operation is a plant warehouse, productivity gains are smaller than those available from a distribution center that is remote from any manufacturing location. The people at Quaker reported a productivity gain at the plant warehouse of 30 percent with the use of task interleaving.

In contrast, productivity gains of up to 50 percent are achieved in Atlanta at Saddle Creek Corp., a third-party warehouse that serves Quaker Oats. The system has the capability of balancing 15 different available tasks and determining which one should be handled next. One feature of the system is storage consolidation, or the ability to put two short rows together in order to vacate a needed empty storage slot. In the operation in Atlanta, productivity rates of 34 pallets per hour are commonly achieved.

While task interleaving provides dramatic improvements in productivity by reducing travel time, the limitations of such systems must be kept in mind. As noted, a plant warehouse must put a high priority on removing cargo as it leaves the production line in order to avoid a logjam in the plant. Furthermore, every warehouse must place a high priority on prompt service to customers, even when there is some sacrifice in efficiency. Whenever the “looking for work” menu feature must be ignored for these or similar priorities, the advantages of the system are degraded.

Commonsense would indicate that the system will provide greater productivity gains in a very large warehouse than it would in a small one, and the gains will be greater with a large number of SKUs than they would with a small number. In a 5000 square foot operation handling just two SKUs, the gains from task interleaving would undoubtedly be quite modest. As the warehouse grows in size and complexity, the opportunities become much greater.

In most warehouses, the lift truck operator is traveling with empty forks at least 50 percent of the time. Task interleaving is a prime example of the use of computer logic and radio communication to allow warehouse operators to greatly increase the percentage of time that their lift truck operators either carry a payload or perform some other productive task. For this reason, it is reasonable to assume that task interleaving software will become far more widely utilized in the future than it is today.
 Will Your Customer Promote A Union?

A friend and labor lawyer startled us with news about a “good citizenship” letter that a client in third-party logistics received from one of his major customers. The letter, altered to maintain confidentiality, reads as follows:

Dear Mr. Blank:

During our company’s recent contract negotiations with Amalgamated ChickenPickers Union (ACU), our company agreed to adopt a position of neutrality with respect to ACU organizing campaigns.

The ACU has identified your facility as one that this union wishes to organize. Accordingly, we are notifying you of our company’s policies in this regard and encourage you to adopt similar policies. We recognize that whether your facility adopts such policies is entirely within your discretion.

Our company does not intend by this letter to pressure your organization or interfere with your relationship with your employees. However, our company has advised its suppliers and the business community in the past of the positive aspects of our relationship with the ACU. Furthermore, the ACU has advised our company that its goal is good, fair and equitable treatment of employees, wages and benefits competitive within their industry, a safe workplace, and compliance with applicable federal and state labor and employment laws. We appreciate your attention to these matters and hope you will contact us if you have any questions.

Sincerely,
Joe Anonymous, Exec. Dir., Industrial Relations

We understand that more than one purchaser of logistics services is adopting the same posture with all suppliers, including its third-party logistics suppliers. Have you received a letter like this one? If so, do you have a strategy for dealing with this situation? If a union shows your employees a letter like this and tells them “your customer does not care if you are union,” how do you respond? We will be happy to have feedback from our readers.

WAREHOUSING TIPS

Is The AC Motor A Better Mousetrap?

With the exception of Toyota, electric trucks use DC (direct current) motors. Toyota claims that AC motors have better torque and acceleration, less parts, and improved battery charging capabilities. We asked other experts for their opinion on this, and it was our impression that the jury is still out.

Converting battery voltage from DC to AC requires additional electronics. Because this is new technology, most mechanics won’t be able to work on it. Therefore, the pioneers may get arrows in their backs. If other lift truck manufacturers join Toyota in converting from DC to AC, we will then have good evidence that this development has changed from a fad to a trend.

New Dangers With “Temps”

The fastest-growing type of employment in warehouses as well as many other industries is the use of temporary workers, sometimes referred to as “permatemps.” At a time when the number of jobs in the workforce grew by 41 percent, the number of jobs in the temporary supply industry rose 577 percent! A growing number of managers are following a “temp to perm” hiring policy in which all new workers come from a temporary agency, and only the best of these are hired into the regular workforce. A surprising ruling from the National Labor Relations Board last August permits some temporary workers to organize. Perhaps the worst part of this situation is the fact that workers may seek a union not because they are unhappy with the company, but with the staffing agency that employs them.

Attorney Jeffrey A. Berman of Sidley & Austin in Los Angeles has suggested some steps to protect the employer in this new situation. The first is to set up your own temporary agency. The second is to exercise greater control over the outside agencies that you deal with. This works best when you are a major client of one agency.

Taking Care of Your Career

Editor’s note: This was inspired by The Career Prescription by J. A. Searing and A. B. Lovett, Prentice-Hall.

Unless you are the chief executive, you could reach a point where you suspect that you have progressed as far as you can in your organization. When you have these feelings, here are some things that can help you continue to grow in your job:

1. Volunteer for special projects, and look for a chance to do something new and different
2. Seek a new assignment to broaden your job experience
3. Take every opportunity to enter a seminar or some other training course that advances your technical knowledge
4. Always help others with less experience, even those who may be promoted to a bigger job than you have
5. When problems occur, try to treat causes rather than symptoms
6. Ask for feedback from your boss, and also from trusted co-workers or customers

If you never act like a dead-end employee, you will never become one.
The Settlement

The most widely publicized dispute between a logistics provider and the customer was the pair of lawsuits filed in 1997 by OfficeMax and Ryder.

For over two years, the press followed this case with great interest, particularly since OfficeMax had been in similar disputes in the past. When the dispute was settled last fall, some jubilant press releases followed. This article is not a press release, but a very balanced analysis of the dispute written by a lawyer with wide experience in third-party logistics.

While some people acted like victors, Mr. Spira is not so sure: “Does the favorable settlement mean Ryder is a winner here? Not really. Most big cases don’t have winners. The parties analyze their positions and take the best deal they can get. The $5 million (award) may help cover some of the expenses but it won’t help explain how Ryder got into this mess in the first place. On the other hand, OfficeMax confirmed its hard-earned reputation as a difficult customer to be approached carefully.”

Which Conglomerates Are the Big Winners?
By Christopher Helman, Forbes, September, 2000, pg. 256.

For those interested in the rollup phenomenon in third-party logistics, this article provides excellent background on this strategy. A sub-headline tells the theme of the article: “how to spell indigestion: R-O-L-L-U-P-S.” The article describes three good cases and three bad ones. The prime example of a bad idea is AutoNation, a collection of 400 new and used car dealerships that has lost 84 percent of its value since 1997. The author concludes that AutoNation’s management had no fundamentally better way to make money at this mature, highly competitive, low margin business.

At the other extreme is Sysco, the nation’s largest food service distributor. The stock now trades at 32 times earnings, and since the company has only 12 percent of the market, there is room for growth. Another successful case is H&R Block, now trading at 14 times earnings.

In examining the successes and failures, the author notes that sometimes the basic concept is promising but the first mover isn’t the winner. Then there is the matter of execution. Getting a group of autonomous businesses to work together isn’t easy, and the result can be a debilitating divisiveness. Readers will decide whether third-party logistics is more like auto retailing or more like food service distribution. And all of us will be watching the execution as the roll-up phenomenon progresses in the logistics industries.

Interoperability Standards Needed To Avoid Logistics Chaos
By David G Kulik, Global Logistics and Supply Chain Strategies, December 2000, pg. 70.

Did lack of standardization kill off the dot-coms? The author is convinced that this was at least a major part of the problem. Some degree of inter-operability is absolutely needed for transportation exchanges and tracking of shipments.

The “How To” Book of Logistics
©2000 by Dick Morreale, 182 pp., softcovers $26.50, order by telephone, 714-777-6523 or e-mail to dickm50@pacbell.net.

The author developed several versions of a book titled “Logistics Rules of Thumb,” and this work is described as “12 mini-seminars on the basics of logistics and supply chain management.” Like the earlier works, this book is a very readable and useful anthology of commonsense ideas concerning logistics. The 12th chapter, called “How to establish a logistics checklist” may be the most useful of all. Other chapters deal with warehousing, purchasing, locator systems, physical inventories, transportation, software, negotiation, and selection of third-party providers.

Logistics in the 21st Century
By Robert Mottley, American Shipper, January 2001, pg. 34.

This article recaps a panel presentation by three respected authorities: Robert E. Sabath of Deloitte and Touche, Joseph C. Andraski of OMI International, and Donald E. Schneider of Schneider National Inc. While a cyber-linked future is predicted, we are also warned that palm held computers are no substitute for management. “A driver does a great job as a driver, but you need internal logistics managers to manage freight flow.”

Revolutionary changes in inventory management are also predicted: “the days of inventory being carried for weeks on end will be over. You’ll see 24 hour cycles of inventory. As a result, the idea of distribution centers as we know them today is going to change dramatically.”

Far less of the software used in logistics will be owned in 2010. High-speed regional freight railroads will emerge as a solution to the congestion we have on highways today. In marine transportation, container ships will be smaller and faster. The development of triple axle trucks will allow another 10,000 pounds of payload and do less damage to the highways. To solve the shortage, minimum age for commercial drivers will be lowered from 21 to 18, and a growing number of retired people will have a second career as drivers.