

Research report

Retail logistics and merchandising in the USA: current status and requirements in the year 2000

Edward W. McLaughlin
Debra J. Perosio and
John L. Park

The authors

Edward W. McLaughlin is Professor, Debra J. Perosio is Extension Associate and John L. Park is Research Associate of the Food Industry Management Program, Cornell University, Ithaca, USA.

Abstract

This study presents the results of a survey of senior level retail executives in the USA. Responses provide an indication of retail perceptions surrounding the order fulfillment process. As retailers look ahead toward 2000, technological readiness will drive virtually all retailer expectations of suppliers. The use of Electronic Data Interchange (EDI) will become an industry mandate; those vendors who want to be the number one or two partner in a category will be technologically sophisticated. This technological readiness will dramatically reduce order time while improving invoice accuracy – an edict clearly voiced by retailers. Finally, as suppliers and retailers look ahead, the formation of mutually beneficial partnerships will dominate.

Introduction

As changing consumers and changing technology alter the way consumer product manufacturers and retailers go to market, conventional theory and practice at every stage of the evolving distribution systems are being critically reevaluated. At the retail level, increasing competition for often no-growth markets has emerged from a variety of nontraditional grocery operators – mass merchandisers, deep discount drug stores, warehouse clubs and supercenters, to name a few (Kinsey and Senauer, 1996). This blurring of traditional channels has led retail operators and suppliers alike to review many of the basic assumptions underlying their businesses in search of cost reduction and profit enhancement opportunities (King and Phumpiu, 1996).

Although consumer product companies have clearly been concerned with minimizing the costs of their distribution systems since at least the beginning of the twentieth century, it wasn't until the early 1990s that industry leaders formed the Efficient Consumer Response (ECR) working group. In January 1994, the results of their first investigation was formally announced at the Food Marketing Institute Mid-Winter meeting. At that time, it was estimated that as much as \$30 billion could be eliminated from the grocery distribution system through more coordinated retailer-supplier efforts. Much of this \$30 billion was being wasted, the report indicated, because of inefficiencies in product assortment, product introductions, promotions and replenishment. Since then, initiatives like ECR have become especially important given the increasing consolidation and management sophistication of both manufacturing and distribution companies coupled with the greater demands placed on individual item performance as a result of new product proliferation and various category management initiatives (Fernie, 1995; King and Phumpiu, 1996).

Thus, the majority of retailers have adopted two general, often opposed, categories of response: strategies to add value and strategies to reduce costs. The stakes are large. The best retailers recognize that they are not capable of achieving their strategic goals alone. Manufacturer partners are essential. Yet relatively little is known about the criteria retailers use to select these partners, as well as the current and future expectations retailers have for their manufacturing partners.

This report addresses these key strategic issues, particularly with respect to the overall “order fulfillment process” between manufacturers and their wholesale/retail customers. As employed in this report, the order fulfillment process refers to all logistical and distribution functions beginning with the placement of an order by a retailer and concludes when the order is delivered by the vendor to the retailer distribution center and/or stores.

Order fulfillment is central to ECR, which attempts to eliminate unneeded and redundant costs from grocery distribution channels. As such, an enhanced understanding of current order fulfillment practices and expectations regarding how they will change in the future will make an important contribution to both retailer and supplier efforts to make their distribution systems more responsive, more efficient and also to improve the overall performance of the grocery distribution system (Ferne, 1997). Whereas many of the reports issued by various industry committees provide useful guidelines and examples of “best practices”, they often do not provide specific benchmarks, nor do they attempt to project the status of certain key practices for the future. Yet if the industry is to progress – this is particularly true for individual companies – information is needed regarding both the current state of ECR practices across the industry and how these specific requirements are likely to evolve in the future.

The research which fathered this paper (McLaughlin *et al.*, 1997) had the overarching goal of improving the understanding of retailers’ expectations, both current and in the future, of the requisites of order fulfillment. In this paper, results are reported regarding two of the specific objectives from this research:

- (1) To identify the extent of retailers’ preferences for various performance enhancing distribution practices, especially the use of electronic technologies.
- (2) To forecast how retailers expect these key factors to change in the future.

Methodology

Primary data came from a national, representative sample of retailers in three classes of trade – mass merchandisers, drug store and grocery chains – in two distinct waves:

- (1) Personal interviews conducted at the headquarters location of 15 leading wholesaler/retailers. In each of these

companies, researchers devoted a full day to executive interviews with individuals representing multiple functional levels. The selection of companies included top tier firms in roughly equal numbers from each of the food, drug and mass merchandising channels.

- (2) Two mail questionnaires – one with questions relevant for retail distribution personnel and the other with questions more appropriate for retail merchandising personnel. The names of key contacts within each retail organization came principally from Cornell’s own mailing lists of grocery industry executives, as well as the industry trade directory, *Retailers and Wholesalers, ’95 (Supermarket News, 1995)*.

In total, our research included 54 different retail respondents, from all three principal retail trade channels. The individuals responding to our survey come in nearly equal parts from the distribution and the merchandising divisions of their companies. On the whole, the size distribution of respondents is quite representative of the retailing industry: large retailers from each trade channel dominate our sample and, although the confidentiality we assured the participants prevents our disclosing company names, our sample included many smaller retailers as well. Together, these retail companies supply over 28,000 stores in all 50 states, and represent 1996 industry sales of approximately \$320 billion. Thus the views and forecasts documented in this report capture the directions, both current and projected, of the majority of US retailing industries for mass merchandise, grocery and drug-related products.

Empirical results

Responsibility in order fulfillment

The first query of retailers regarded the individual(s) internal to their organization who had major responsibility for generating orders and for interacting with the supplier representative. The retail merchandising personnel in our survey indicated that the buyer is a key contact responsible for new product orders, re-orders, and promotional orders (Figure 1). Seventy-five per cent of all merchandisers agreed the buyer has responsibility for new product orders. Seventy-five per cent of all merchandisers also indicated the buyer has primary responsibility for promotional orders,

and 65 per cent indicated the buyer's duties include reorders. This is in stark contrast to other responsible positions, namely the buying clerk, category manager, and director of merchandising. Merchandisers seemed to suggest that the buying clerk has responsibility for re-orders, and the category manager has primary responsibility for ordering new products and promotional items. In regards to supplier interaction, the director of merchandising tends, in most retail organizations, to deal with policy and strategic issues rather than day-to-day issues. On the distribution side of the business, 93 per cent of the distribution personnel responding to our survey said the warehouse manager has the primary responsibility for the order fulfillment process (Figure 2).

Figure 1 Merchandisers' indication of product ordering responsibility by order type

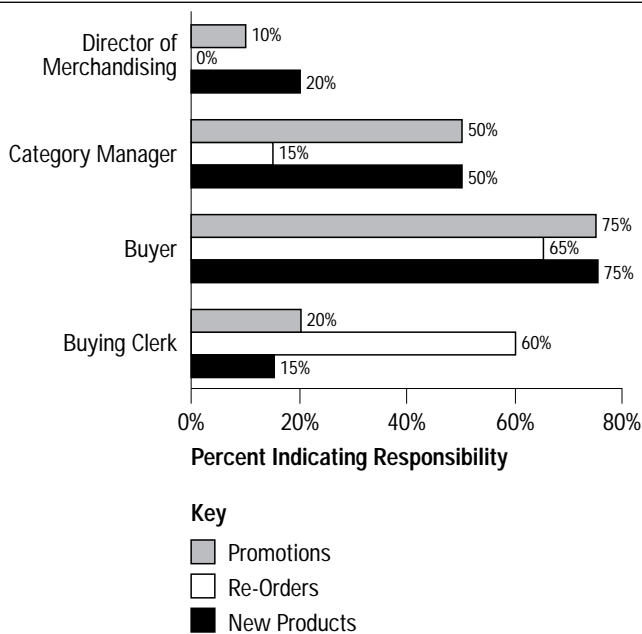
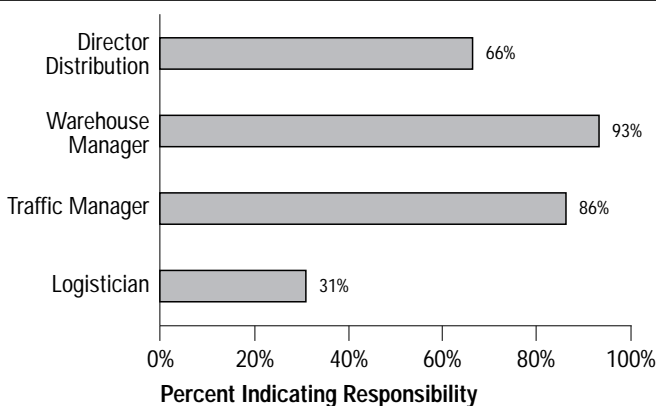


Figure 2 Distributors' indications of product ordering responsibility

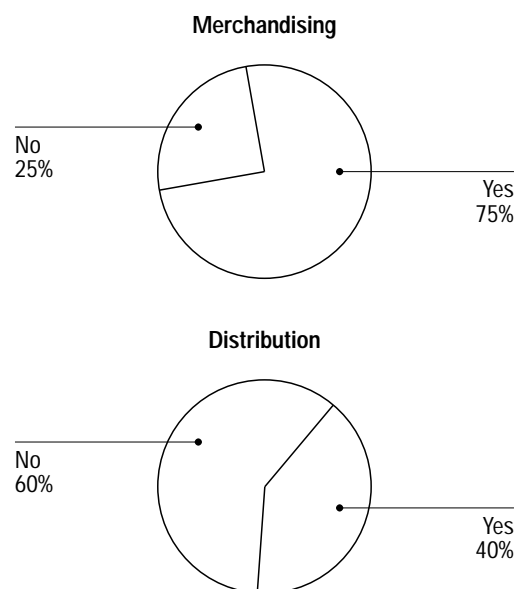


Organization and ordering

We asked retailers a series of questions regarding their current practices and requisites of suppliers with respect to order fulfillment and how they expected these requisites to change by the year 2000. Interviews revealed many companies have multifunctional teams organized – informally or formally – to address order fulfillment issues. However, there is a discrepancy among merchandisers and distributors as to their perceptions of the actual presence of those teams within their respective companies (Figure 3). Among merchandisers, 75 per cent indicated their company has a multifunctional order fulfillment team. This is in contrast to only 40 per cent of distributors who felt similarly. Responses indicating the make-up of these teams further exemplifies this discrepancy. According to merchandisers who indicated they use a multifunctional team, marketing positions primarily compose the team. Conversely, their distributor counterparts indicate a decidedly more distribution oriented team. Ironically, only a minority of retailers genuinely integrate functions across merchandising and distribution divisions in their “multifunctional teams”.

Merchandisers also evaluated order cycle time now and in the future for three types of items: seasonal items, promotional items, and everyday items. Order cycle time is defined here as the number of business days that reflects the elapsed time from the retail

Figure 3 Percentage of merchandising and distribution executives who report having multifunctional teams

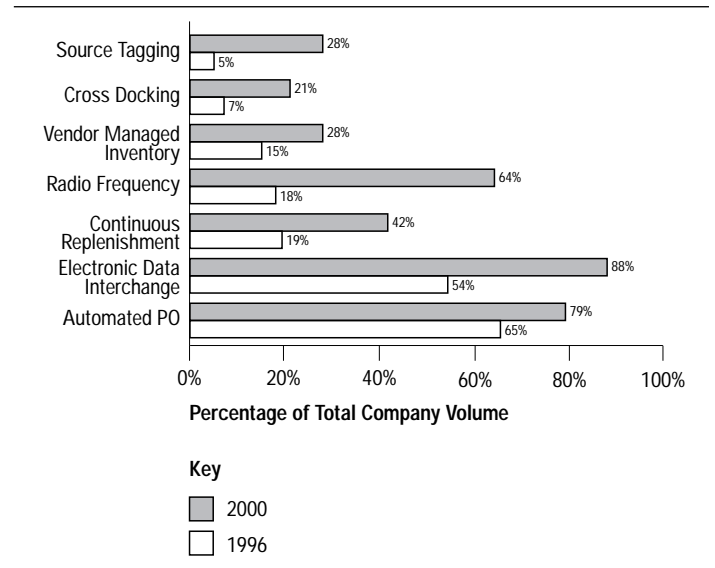


placement of the order with the supplier until the order is received at the retail DC. Figure 4 shows that in 1996, seasonal items have the largest order cycle time with 15.3 days on average, followed by promotional items (10.95 days) and everyday items (8.3 days). This ranking was unchanged as merchandisers reported their company goals for order cycle time in the year 2000, generally expecting order cycle time to diminish for each item type by three to five days on average.

Current and expected use of technology

Merchandisers and distributors described the extent of technology use in their organizations. While only a few forms of technology seemed to already have extensive use, all forms project a healthy growth by the year 2000 (Figure 5). Automated purchase orders are currently the most pervasive form of technology. Reportedly, 65 per cent of total company volume was transacted this way in 1996, and is expected to grow to 79 per cent by the year 2000. Another significant use of technology was electronic data interchange (EDI) with a reported 54 per cent of total company volume transacted this way, expected to grow to 88 per cent by the year 2000. Although radio frequency technology showed an average use of 18 per cent of total company volume, its projected use by the year 2000 was 64 per cent, indicating a growth of over 250 per cent. Results are similar for continuous replenishment (CRP) and vendor managed inventory (VMI). Reportedly, 7 per cent of

Figure 5 Use of technology as a percentage of the total company volume; 1996 and the year 2000



total company volume used cross docking in 1996. This is expected to triple by the year 2000. Electronic article surveillance (EAS), generally referred to as source tagging in industry jargon, is the process whereby electronic anti-theft labels are applied to consumer products. Although only 5 per cent of total company volume used source tagging in 1996, it is expected to rise to 28 per cent in the year 2000. Moreover, in a related question, our respondents predicted that it will be employed by approximately one-half of all retailers by the year 2000, up from about 41 per cent today.

Merchandise indications of EDI usage as a percentage of total company volume (Figure 6) are characterized by overwhelming expectations of growth. We find that purchase orders are a primary use of EDI technology; 71 per cent of total company volume utilized EDI for purchase orders in 1996, rising to 93 per cent by the year 2000. Purchase order acknowledgment was another significant activity for use of this initiative. In fact, it utilized EDI transmission for 50 per cent of total company volume in 1996, rising to 81 per cent by the year 2000. Significantly, by the year 2000, utilization of EDI transmission is expected to account for over 50 per cent of total company volume for all the logistic functions identified in Figure 6. Currently, only purchase orders and purchase order acknowledgments exceed this level of EDI usage.

Figure 4 Order cycle time by type of item; 1996 and the year 2000

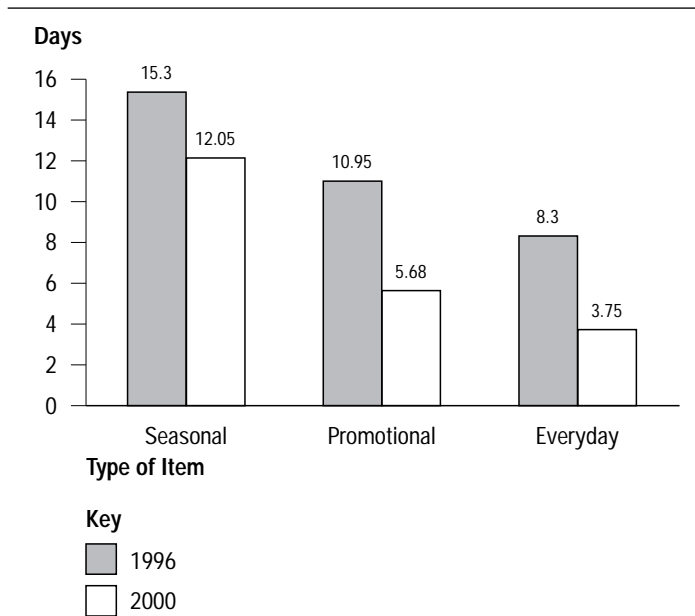


Figure 6 Utilization of EDI transmission as a percentage of total company volume; 1996 and the year 2000

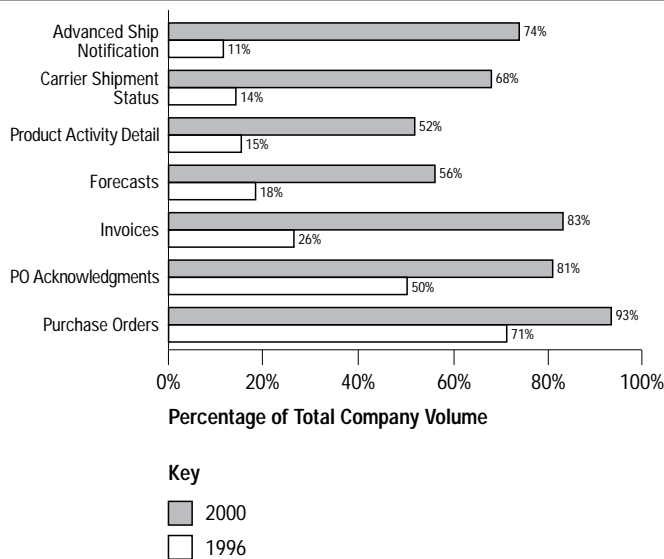
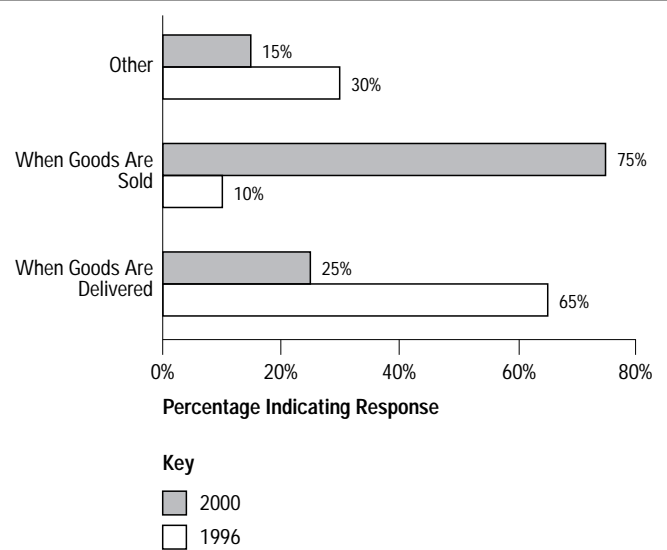


Figure 7 Current and expected policies regarding when to pay supplier invoices



Payment terms and timing

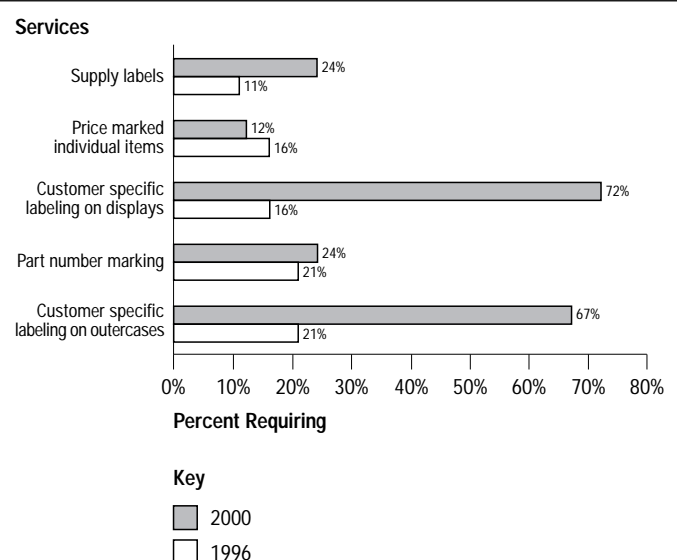
One of the most dramatic shifts predicted by retailers in this study relates to invoice payments terms. Two changes are relevant. First, in the food channel, where practices in the grocery section tend to dominate and dictate to other sections, payment terms appear to be changing. Some vendors have already departed from the historical “2 per cent 10 net 30” terms for a longer payment schedule such as “2 per cent 17 net 30” (that is, the 2 per cent discount is good for 17, not just ten, days) in order to be more consistent with dry grocery practices. Second, 65 per cent of merchandisers indicate they currently pay supplier invoices when goods are delivered to the retailer’s warehouse. However, a dramatic shift is predicted in the year 2000; retailers expect to pay invoices when goods are sold at the retail outlet, as indicated by 75 per cent of merchandisers’ responses (Figure 7).

Although only a few retailers have actually implemented this new practice (only about 10 per cent) according to our survey, fully three-quarters of all retailers expect to shift to this payment scheme by the year 2000. While retailers explain that this will encourage suppliers to take more complete responsibility for their products until the “sell-thru”, instead of simply abdicating responsibility once the product is dropped off at the retail DC, such a departure from historical payment practices will have substantial impact not only on the length of time before payment is initiated to the supplier but potentially on vendor in-store merchandising activity as well. In both cases, this appears to be retailers’ exact motivation.

Overall vendor requirements

In general, retailers indicated that they require a far greater level of services from vendors. Currently, 21 per cent of merchandisers indicate they require customer specific labelling on outercases, 21 per cent indicate they require part number marking, 16 per cent indicate they require customer specific labelling on displays, 16 per cent indicate they require price marking on individual items, and 11 per cent indicate they require supply labels. Two major changes seem to be in store by the year 2000, however. In the year 2000, fully 72 per cent of merchandisers indicate they will require customer specific labelling on displays, and 67 per cent indicate they will require customer specific labelling on outercases (Figure 8).

Figure 8 Merchandiser requirements for specific vendor services



Strategic implications and perspectives

Our survey shows that the majority of retailers now have regular meetings of multifunctional groups, incorporating both merchandising and distribution personnel. However, a disaggregated view reveals that communication is far from seamless. When asked if multifunctional teams existed, three-quarters of all merchandising personnel agreed they did, but only 40 per cent of distribution personnel were of the same mind. Some distribution personnel stated the belief that the distribution function still does not have the status of the merchandising function and, resultantly, distribution personnel can be more easily “overlooked”. As such, system breakdowns or “disconnects” can occur. For instance, retail buyer/category managers typically reported “obtaining optimal packing configurations subject to obtaining the lowest price bracket” as their overall guiding objective. This goal can lead to system inefficiencies. Following such a directive from a retailer may lead a vendor to build a pallet or load a truck only with space efficiency in mind in order to qualify a buyer for “maximum volume thus minimum price”. Yet in so doing, he may inadvertently be sacrificing time efficiency for space efficiency. This is one illustration of how actions taken by merchandisers without full knowledge of how such actions may impact the distribution part of his business may result in a breakdown in overall system wide efficiency.

However, to the extent that this perception continues, it appears to be true at fewer and fewer companies. Indeed, the overall trend is decidedly the opposite. Many of the major retailers interviewed in this study described a complex schedule of separate weekly and monthly meetings, not just between senior executives, but working committees of personnel from entire departments devoted to replenishment, traffic, inventory management, logistics, and forecasting. Retail corporate hierarchies are becoming more complex as new “layers” are being created, bridging the merchandising and distribution functions. New positions such as “logistician” and “shelf landed cost analyst” are typical. Rather than view these additional positions as expanded bureaucratic layers, vendors would do well to regard them as critical links in the new order fulfillment process.

While “multifunctional” teams are on the increase – presumably improving communication within the retail organization – retailers concede that 40 per cent of order fulfillment problems result from miscommunication between their own buyers and distribution centre personnel. However, retailers blame vendors for the other 60 per cent of problems, citing poor vendor performance along a number of specific dimensions. There has clearly been a move away from the era when all logistics functions were lumped together into one monolithic department.

The time that retailers allow suppliers to fill an order is dependent on order type. Lead times or order cycle times are expected to be longer for seasonal and special promotional items than for everyday items, both now and in the future. But suppliers should take note: retailers expect to cut the average lead time for everyday items by greater than one-half (from 8.3 days to 3.75 days) between 1996 and the year 2000. Although a few vendors are already at this standard, in general, meeting this retailer expectation will require large investment, enormous additional operational streamlining, and coordination over the next few years from the majority of product suppliers.

The exigencies of these reduced lead times for suppliers has its bright side, however. Retailers point out that the magnitude of the lead time reductions that they expect cannot be accomplished alone. Improved partnerships with suppliers are essential. So while the burden of reacting to shortened lead times and the resulting lower levels of safety stock at retailers’ DCs will be borne largely by vendors, these same vendors will now play a more critical role with each retail account. Each retailer will be thrust into a position of relying more on the performance level of each of the (remaining few) vendors.

Although historically the retailing industry has lagged behind most other industries in its use of technology, that condition can no longer said to be true in the latter part of the 1990s. All of the retailers in this study reported already using various new and many times innovative technologies especially in their distribution activities but what’s more is the growth they expect to generate in only the next three years. Of the seven major procurement and distribution technologies in Figure 5, every one is expected to grow in use

by the year 2000, in some cases by over 300 and 400 per cent.

A number of specific technologies were isolated for special elaboration with retailers. For example, retailers reported that 88 per cent of their total company volume would be transacted by means of electronic data interchange (EDI) in their companies by the year 2000. After in-depth probing, we learned that retailers forecast that over half of all volume will be transacted by means of at least seven major EDI technologies by the year 2000. In order for this to actually happen, several of the currently employed technologies will have to grow three- and four-fold between now and the year 2000: cross docking, advanced shipping notice, carrier shipment status, product activity detail and electronic invoicing.

Other technologies, while projected to grow, do not apparently have the growth potential expected by retailers above. Vendor managed inventory (VMI) for one, although expected to approximately double by the year 2000, apparently is not expected to experience the growth rates of, say, electronic invoicing. The reasons can be explained by differing retailer beliefs regarding the proper role of the vendor. Certain retailers view the process of suppliers taking responsibility for managing inventory as the natural evolution of shifting functions and their attendant costs backward in the supply chain toward manufacturers.

Others see such a shift as risky: what evidence, they ask, leads to the expectation that suppliers can manage the inventory any better, or even as well, as retailers? Moreover, how can suppliers possibly be expected to manage inventory when they will never be privy to all the retailer-controlled information such as the cost of capital, the other competing products retailers may be planning to put on promotion, the new stores which might be opening, and the other items which the retailer may discontinue? Yet these latter possibilities will certainly alter the demand for other products in the category over which the manufacturer has inventory responsibility. To minimize such a possibility yet still take advantage of the potential efficiency gains involved in having supplier managed inventory, a few retailers are going so far as to offer regular "training courses" in which suppliers are expected to enroll to learn precisely how retailers want their inventory managed and to qualify as

"partner-experts" in the retailer's information technologies and operating systems.

Most of the major suppliers have not only clearly heard the warning of this electronic imperative, it is they, in many cases, leading the innovation. In fact, larger suppliers appear to be aware of the advantages that technological leadership confers on them relative to their small- and mid-sized competitors. There is an important structural implication to this retailer demand for greater and greater levels of information technology: small- and medium-sized suppliers may possess neither the resources nor the expertise to compete. Although virtually all retailers in our interviews maintained that niche suppliers will always have a place in the industry, it appears increasingly likely that suppliers will be bifurcated into two groups: a dominant group of principal, technologically sophisticated companies and a second group of local, fringe suppliers.

One company's statement on vendor performance standards reveals the dilemma: in explaining its policies of "vendor accountability for electronic commerce", this retailer pays lip service to allowing specific exceptions for smaller vendors ("whose annual dollar volume does not exceed \$100,000"), yet it states unambiguously later in the same set of guidelines that these exceptions are temporary only. Simply stated: in the future, suppliers will either have the resources to compete with expensive and sophisticated technologies or they will exit the industry.

Most retailers interviewed acknowledged that they are studying ways to triple their cross-docking activity before the year 2000. Drug store retailers were more cautious, however, since they are generally not able to send pallet size loads, normally associated with cross-docking feasibility, to store level. However, even drug store executives admitted to attempts to increase cross-docking of products for promotional activity. Retailers want product as "display-ready" as possible from the vendor: pre-packed consumer packages and clearly marked secondary shipping cartons. Very few retailers, however, were so committed to reductions in handling associated with cross-docking that they were encouraging direct store delivery (DSD). Most retailers look unfavorably on the loss in delivery control that they believe inevitably occurs when there is no proper "paper trail" on record at the distribution center.

Most retailers recognize that better demand forecasting is fundamental to necessary cost reductions. Furthermore, most understand that alliance with suppliers is the only sensible way to achieve such improvement. Indeed, slightly over half of all retailers surveyed believe that demand forecasting is their responsibility. Nearly as many, however, maintain that it is the vendor who should properly take over that function. Suppliers must be vigilant in identifying whether retail accounts expect to take over demand forecasting responsibility themselves or whether they expect it to be a natural – and incremental – service provided by vendors.

Retailers currently report using source tagging to address the alarming shrinkage and loss of high value items, particularly in economically disadvantaged store locations. The candidates most often cited for inclusion in source tag programs are batteries, cigarettes, OTC drugs, various GM/HBC products (Preparation H and contraceptives, for example, are some of the highest shrinkage items) and liquor. Although source tagging has traditionally been conducted in the retail store environment, according to several leading retailers in this study, its application can be conducted more economically by the manufacturer. Indeed, our survey suggests that whereas only about a third of source tags are applied by suppliers in 1996, retailers expect nearly 90 per cent of all tags to be affixed by suppliers by the year 2000. Retailers continuing to resist source tagging systems mentioned four leading constraints:

- (1) their inability to select only one of the two currently available yet incompatible technologies;
- (2) the current level of first-generation technology;
- (3) the current lack of incorporation of the tagging technology into the UPC bar code; and
- (4) perceptions regarding current prohibitive costs.

Despite these retailer perceptions, tagging technology appears to be spreading. Until recently, source tagging had been limited primarily to drug and mass merchandise channels, but in the past year several major grocery chains on both coasts have added EAS systems in all of their stores.

Although some retailers (and suppliers) voice unfavourable opinions of source tagging because they view it strictly as an increase in

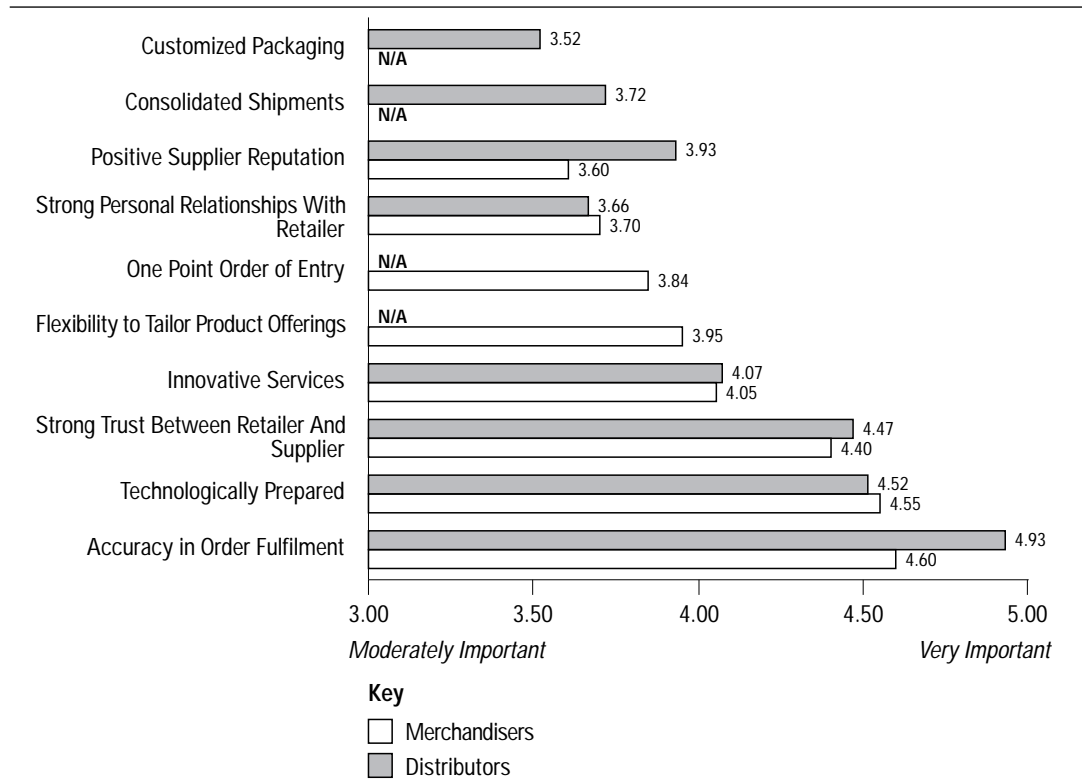
costs, others suggest an alternate view. Not only might it reduce overall costs, as losses are more effectively controlled, but some pointed out that source tagging makes the products so much more secure that many more merchandising options become available that were formerly foreclosed. One retailer suggested that cross-merchandising batteries with various electric devices that require batteries will result in a dramatic increase in batteries sold, not stolen.

As retailers move toward becoming more rigorous and comprehensive in their evaluation of their suppliers, records and “scorecards” on each vendor are quickly becoming the order of the day at the vast majority of retail companies. Currently, many of these scorecards are preliminary, often somewhat informal, even a little crude. Many retailers admitted that at the present they only monitor the performance of their leading vendors – perhaps the top 20 or so who account for the vast majority of all sales (most retailers subscribe to the “80-20” rule that roughly 20 per cent of vendors account for 80 per cent of their business). With scorecards, retailers have the ability to rank/rate vendors on a variety of performance standards. Further, as retailers fully implement their vendor guidelines, penalties for noncompliance, substantial in the aggregate, are projected to grow.

Other retailers are pursuing sophisticated information management systems to track the performance of their vendors in excruciating detail. One major retailer, for example, reported performance on a monthly basis and compared it to past performance and to the performance of other vendors for each supplier to the retail organization. This includes over 1,000 different vendors. The retailer divides performance into six principal categories – purchase order performance, invoicing, DC performance, transportation, store performance and EDI performance – and then assigns an importance “weight” to each of these categories to arrive at an overall “consolidated score” which ranks every vendor serving the particular retailer from first to last.

In light of the retailer expectations reported herein, we asked respondents to rate the importance of given supplier attributes that classify a vendor as a benchmark company (Figure 9). Although merchandiser and distributor responses differ slightly, one should note the top three attributes ranked by each group included:

Figure 9 Importance of supplier attributes to merchandisers for determining benchmark status



- (1) accuracy in order fulfillment;
- (2) technological preparation; and
- (3) a strong trust between retailer and supplier.

Innovative services ranked next in both groups. This is one more indication of the importance of technology in the development of future retail-vendor partnerships. The clear message is that suppliers need to deliver on the criteria that matter most to retailers. Any time vendors can work with key retail personnel to improve their individual company performance, retail-vendor partnerships will certainly be strengthened.

Several clear trends and recommendations emerge regarding retailer expectations relative to the order fulfillment process as we approach 2000. Based on information like that contained in this report, vendors should strive to invest in the performance improvement measures which matter most to retailers. Such initiatives will clearly require improved communications both electronically and personally. The findings presented in this report provide strong support for the trend that retailers will continue to shift responsibilities (e.g. custom labelling, pricing, and source tagging) and their related costs toward vendors while shifting payment practices

increasingly towards consignment selling. Finally, retailers' new demands for support, advice, and collaboration is likely to drive supplier value from the product and service orientation of today to the provision of complete business solutions.

References

- Fernie, J. (1995), "International comparisons of supply chain management in grocery retailing", *The Service Industries Journal*, Vol. 15, October, pp. 134-47.
- Fernie, J. (1997), "Retail change and retail logistics in the United Kingdom: past trends and future prospects", *The Service Industries Journal*, Vol. 17, July, pp. 383-96.
- King, R.P. and Phumpiu, P.F. (1996), "Reengineering the food supply chain: the ECR initiative in the grocery industry", *American Journal of Agricultural Economy*, Vol. 78, December, pp. 1181-86.
- Kinsey, J. and Senauer, B. (1996), "Consumer trends and changing food retailing formats", *American Journal of Agricultural Economy*, Vol. 78, December, pp. 1187-91.
- McLaughlin, E.W., Perosio, D.J. and Park, J.L. (1997), "Retail logistics and merchandising: requirements in the Year 2000", Department of Agricultural, Resource, and Managerial Economics, Cornell University, RB 97-08.
- Supermarket News* (1995), Retailers & Wholesalers, 95. Fairchild Publications, New York, NY.