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VERTICAL MARKET ANALYSIS

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WHOLESALE  
DISTRIBUTION

1993-1998

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**U.S. Information Services  
Market Analysis Program**



S E P T E M B E R 1 9 9 3

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WHOLESALE  
DISTRIBUTION

INFORMATION SERVICES  
OPPORTUNITIES & TRENDS

1993-1998

**INPUT**®

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**Information Services Market Analysis Program**  
(MAP)

**Wholesale Distribution**

***Information Services Opportunities & Trends***  
***1993-1998***

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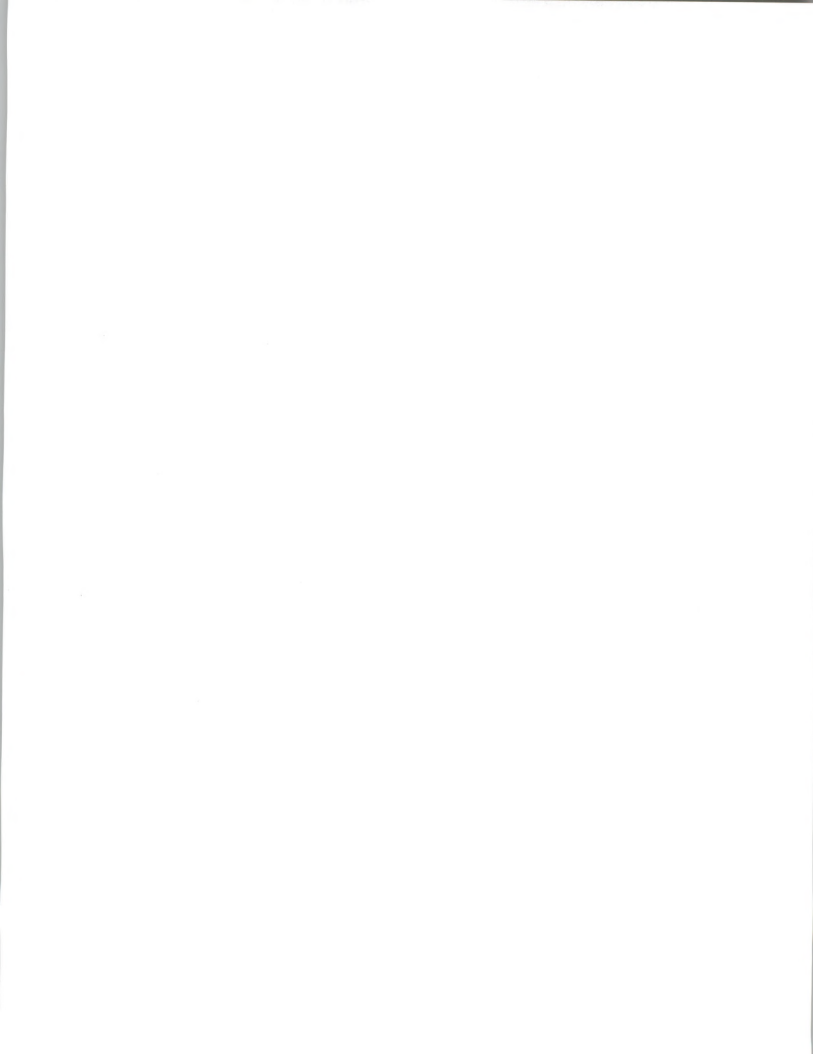
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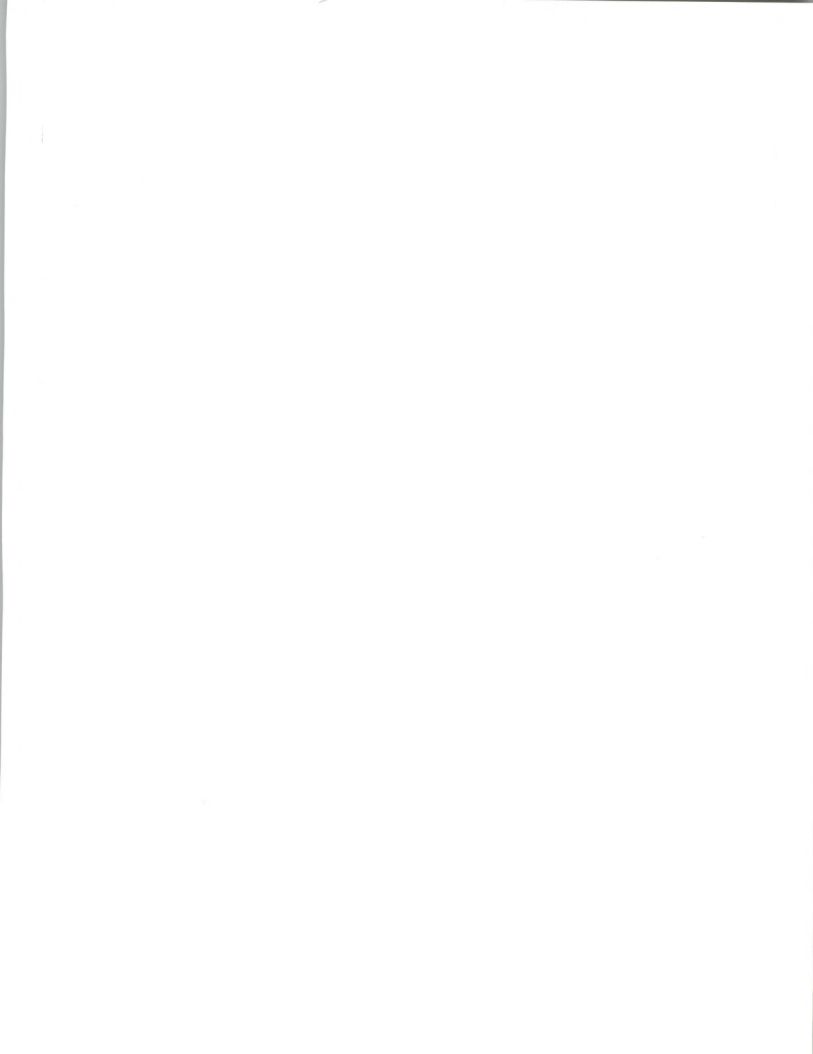
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## Introduction

This forecast update presents the 1993 INPUT forecasts for the use of information services personnel in the wholesale distribution vertical sector. A discussion of recent market issues and competitive factors that are influencing the use of information services in this vertical market is included.

Although this report is prepared for the wholesale distribution sector, the information technology industry should be aware that some manufacturers and retailers perform similar systems functions.

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### A

## Definitions

The following section defines wholesale distribution, retailers acting as distributors, and manufacturers acting as distributors.

### 1. Wholesale Distribution

Wholesale distribution is a service industry to manufacturers and assemblers of finished goods. The primary function of wholesale distributors is to sell and deliver merchandise to retailers or other companies. This would include any business or institution that sells or consumes goods, including other distributors.

Distributors take title to the goods and warehouse them until such time as the sale takes place. Some transactions (drop shipments) are ordered after the sale is complete and shipped directly from the vendor's warehouse.

Given their position as a middle man between the supplier and the marketplace, distributors place a high value on their vendor and customer relations. They approach each in a different manner and regard these relationships as the strength of their companies. Maintaining these relationships often erodes the profit margin, thereby demanding that distributors operate in a highly efficient manner. Successful distributors are among the most efficient of all businesses.





In summary, the distributor must have an acceptable product base, strong marketing skills, efficient inventory control, and excellent customer service, while maintaining low operating expenses. Information technology is vital in maintaining a balance of these items.

## 2. Retail Distribution

Retail distribution is defined as chain retailers that purchase goods from a distributor or a manufacturer and stock the goods for subsequent distribution to their retail outlets. Retailers normally take on the distribution function to improve profits. However, in some cases this may be done to improve the control over their service levels.

Retailers take possession of the goods and warehouse them until such time as the retail store requires restocking. From the time the retailer orders the goods and delivery is made to the store, the retailer performs the same functions as a wholesaler.

The retailer is a middle man only in the sense that he carries the responsibility of maintaining proper inventory levels and performing timely shipping functions.

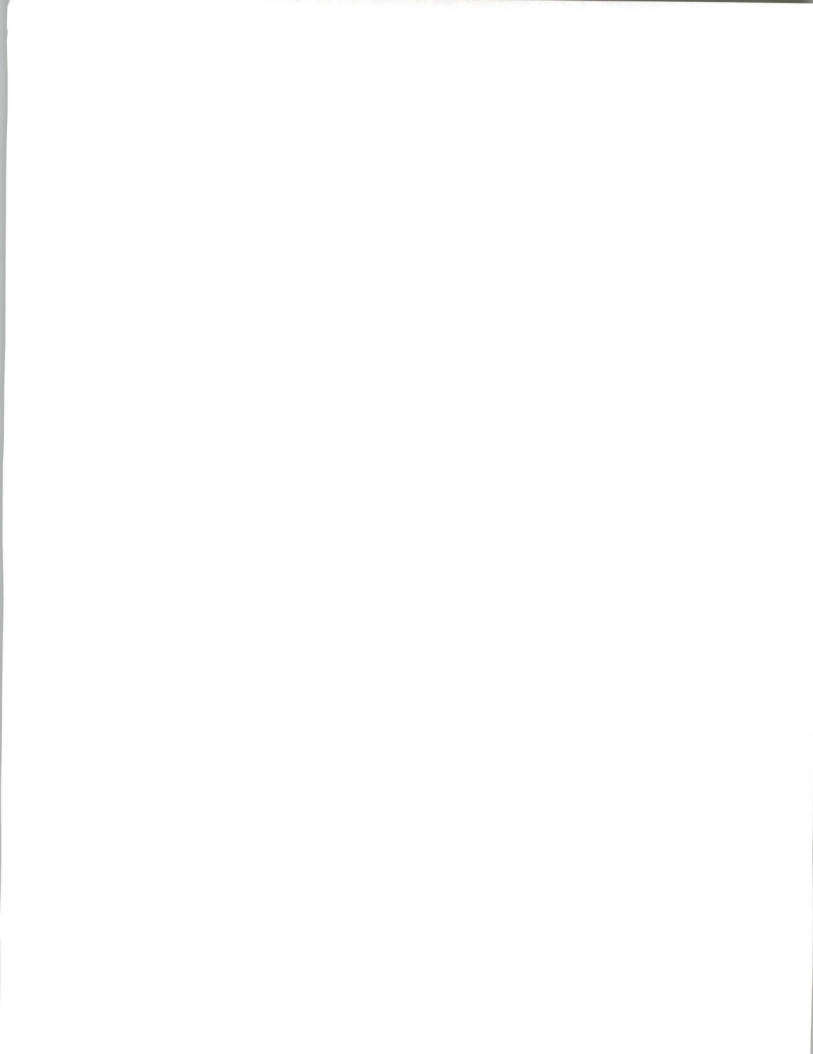
When compared to wholesale distribution, retailers enjoy some major advantages. They are less likely to be concerned about vendor relations and may have a captured customer base. These advantages, along with the profit advantage, can be eroded if the distribution function is less efficient than anticipated. Of course, any department or organization that has a guaranteed income and a captured customer base is in danger of becoming bureaucratic.

Possibly the biggest advantage is that the retail stores have the opportunity, through point-of-sales systems, to track consumer demand. This, if properly interpreted, should result in very efficient inventory purchasing.

## 3. Manufacturing Distribution

Manufacturers and assemblers have traditionally been distributors from the point of finished goods forward. There is, however, a growing trend in the industry to sell directly to the end consumer. This trend has been accelerated by advanced IT capabilities.

Manufacturers and assemblers produce goods that are warehoused for subsequent sale to distributors, institutions, and chain store retailers. Generally manufacturers rely on wholesale distributors to market and deliver their goods to the marketplace. Some manufacturers, those that sell to the local geographical area, distribute their own goods. This is quite common for smaller companies that produce perishable items such as baked goods and dairy products.



It is important to note that there is a growing trend, especially among newer companies, to sell directly to the consumer, apparently without objection from the wholesaler or retailer. This trend is most evident in manufacturers of PC hardware and software products. Historically, manufacturers went to great lengths to protect a distributor's marketplace. However, the current state of the economy and the advancement in IT has made this a very tempting opportunity to increase profits for manufacturers at the distributors' expense.

#### 4. SIC Classifications

In this analysis of the use of information services in the wholesale distribution market, the vertical market is defined as establishments in the following SIC groups:

- 5xx - General Wholesale SIC
- 501 - Motor Vehicles and Automotive Equipment
- 502 - Furniture
- 503 - Lumber and Construction
- 504 - Sporting Goods and Toys
- 505 - Metals and Minerals
- 506 - Electrical Goods
- 507 - Hardware, Plumbing, and Heating
- 508 - Machinery and Equipment
- 509 - Miscellaneous Durables
  
- 511 - Paper and Paper Products
- 512 - Drugs and Sundries
- 513 - Apparel, Piece Goods, and Notions
- 514 - Groceries and Related Products
- 515 - Farm Products
- 516 - Chemicals and Allied Products
- 517 - Petroleum and Petroleum Products
- 518 - Beer, Wine, and Other Distilled Beverages
- 519 - Miscellaneous Nondurables



**B****Report Organization**

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The objectives and organization of the report are described in this chapter. Other chapters of the report include the information described below:

- Chapter II details the trends, events, and issues of importance in the wholesale distribution sector, as well as factors that can have an impact on the use of information services in this market.
- Chapter III describes the organization and use of technology, major trends in the use of information systems, key applications, and the use of outside products.
- Chapter IV provides the numerical forecast for the information services market.
- Chapter V provides a review of vendor competition, including the competitive climate, competitive position, participating vendors, and leading vendor profiles.
- Appendix A presents the Forecast Data Base, which contains a detailed forecast by delivery mode and submode for the wholesale distribution sector.
- Appendix B gives a reconciliation to last year's forecast.

Three additional vertical market reports should be referred to in relation to this Wholesale Distribution Sector Report:

- *Retail Distribution Information Services Market, 1993-1998*
- *Business Services Information Services Market, 1993-1998*
- *Banking and Finance Information Services Market, 1993-1998*

A collection of all 15 INPUT market sector or industry reports and 7 cross-industry reports constitutes INPUT's 1992 Market Analysis Program. Together, they provide a complete overview of the U.S. information services industry.





## Trends, Events, and Issues

### A

#### Environment and Market Changes

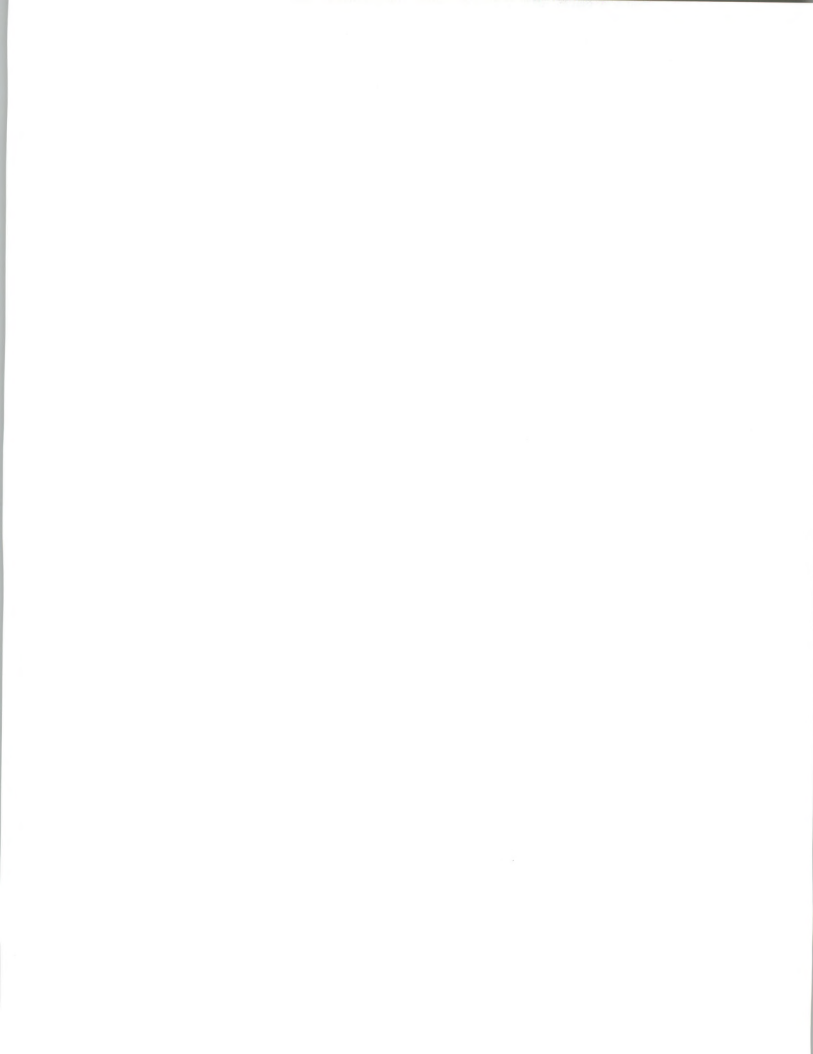
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The most severe change currently affecting wholesale distribution is that the function is gradually migrating to the manufacturing and retail segments. This is discussed in more detail in Chapters III and VI.

Major trends that were most visible in wholesale distribution during 1992 were: the increasing importance of distribution functions for manufacturers (one type of wholesale distribution), the rising use of information technology (IT) to support improvements in distribution functions, and the increased interest in client/server technology.

- The increasing importance of distribution in manufacturing has been brought about by the need to improve services to clients and reduce costs as well as by the need to improve financial results. Distribution had taken a back seat in manufacturing while attention was given to mission-critical systems in MRP and accounting, but these systems have improved sufficiently to allow manufacturers to pay attention to service improvements that can be gained in distribution.
- The increasing use of IT to improve distribution functions is illustrated by the implementation of new warehousing and logistics IT application systems as well as by the growing use of networks to facilitate customer service and order entry, expanding use of electronic commerce, and more use of product coding to track goods and control ordering and stocking.

The increasing use of IT has been encouraged by greater use of client/server technology and downsizing, which has brought the capability of improving distribution functions to more customer service, warehouse, and other operational units.





The improvements in retail and manufacturing business which occurred in 1992 may not have been as substantial as desired, but they did result in an increase in wholesale business and signal that the low level of sales that has plagued business during the last few years may be coming to an end.

- Improvements in manufacturing during the year had a definite, positive impact on wholesale business.

As was true for the last few years, 1992 results differed among the areas of the market being served.

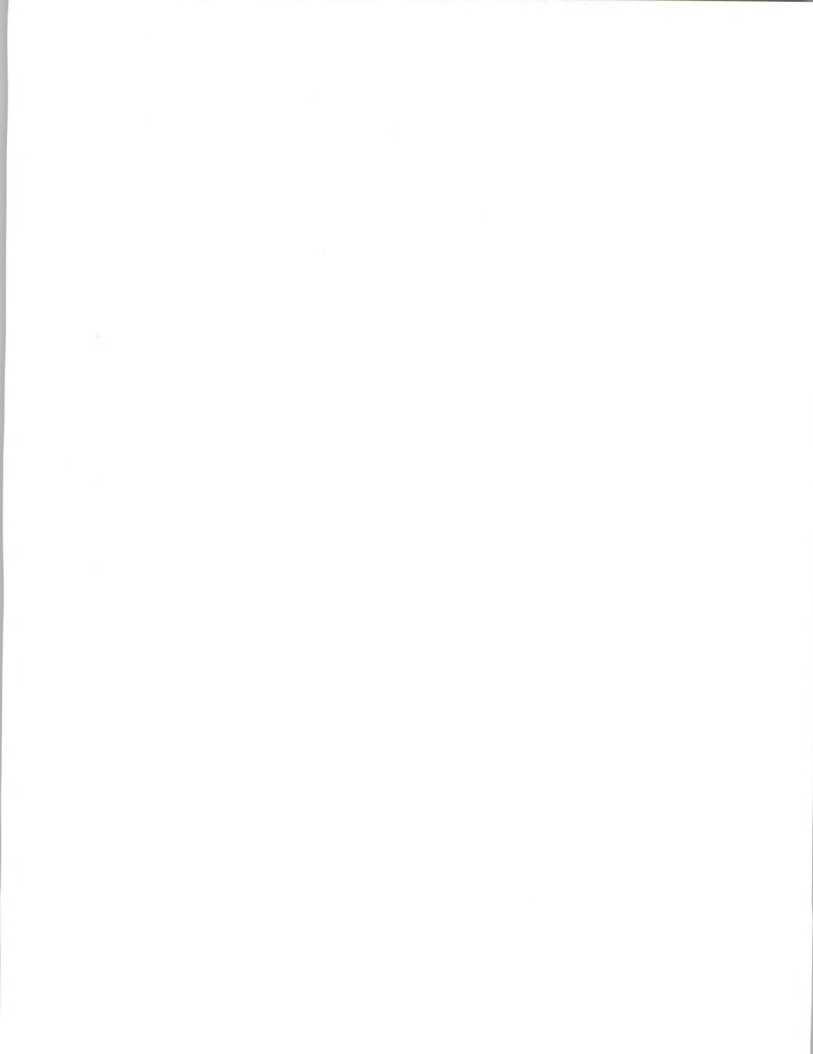
- Wholesale distributors serving a number of retail industries including apparel, shoes, appliances, furniture, and home construction supplies continued to be affected by poor sales in these industries throughout most of the year. Sales picked up in most of these categories at year end.
- Wholesalers handling drugs and medical supplies or serving some areas of the electronics industry and the auto aftermarket continued to report better conditions.

One factor that has made a significant impact on shipments of goods for retail trade in 1992 was the force exerted by giant retailers such as Wal-mart and Target.

- The power of these relatively new giant retailers has been magnified by the fact that the high volume of retail orders that traditional department stores once generated fell sharply during the last five years, which impacted the business of wholesale distributors.
- In addition to telling manufacturers what goods to make, the giant retailers are able to specify what should be shipped and when to ship it.

A number of wholesalers have also reported a loss of customers as small construction firms or restaurants discontinued purchases and shipments from wholesale supply firms and began to use giant retailers or hyperstores such as The Price Club and Costco, soon to merge, that serve both wholesale and retail clients.

- In some cases, these stores have started to deliver a selected line of merchandise. With this added function they look very much like a wholesale distributor.
- These stores combine warehouse-like storage of items, a large inventory, and prices that are just as low or lower than the prices of the wholesalers that these buyers formerly used.



- One chain of giant stores serves anyone who pays a low fee to become a member. These stores are like warehouses, with bulk amounts of food that are sold to restaurants and individuals and bulk amounts of office supplies and consumer goods sold to individuals and small businesses. This type of business can take sales away from smaller wholesalers.

The current business climate has continued to put pressure on wholesalers to use technology to change or upgrade key functions in distribution.

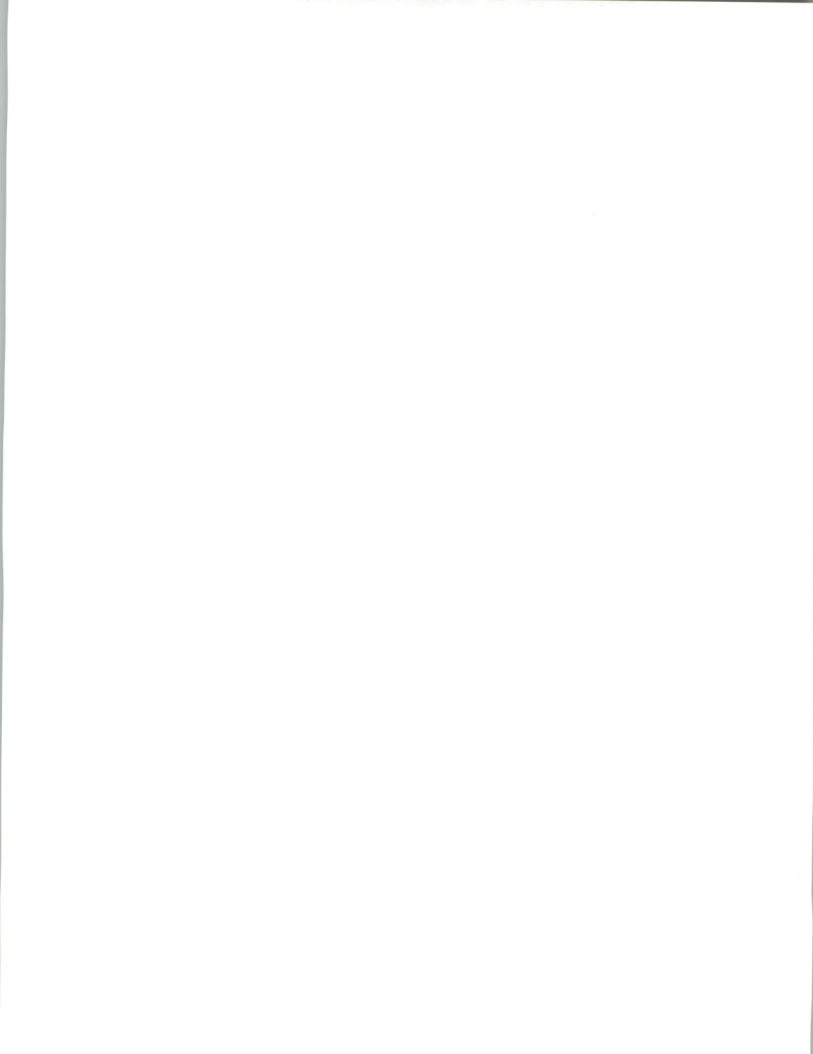
- In addition to warehousing and logistics, pressure is being felt to increase technology use for order entry, transaction processing, supplying information on delivery status, picking and shipment of orders, and communication of information in electronic forms.
- Customers are also demanding more quality of service in terms of speed of response to inquiries and orders and quick delivery of goods that meet their specifications.

A summary of the key business issues identified by wholesalers in response to INPUT's annual survey is shown in Exhibit II-1:

EXHIBIT II-1

### **Key Business Issues in the Wholesale Distribution Market**

- Increased emphasis on manufacturing distribution
- Schedules and needs of giant retailers
- Improvements in warehousing and logistics
- Expanding use of IT to support wholesale distribution
- Financing business changes and improvements



Wholesale distributors can be divided by the submarkets that they serve, such as apparel stores, hardware stores, or restaurants.

Distributors can also be classified by other factors such as size or whether they are independent wholesalers or part of a company that has manufacturing or retail components.

The needs for warehousing and logistics as well as other systems can be different based on the type of wholesaler, the goods or materials handled, and the customer involved.

About 5,500 large distributors handle 50% of all wholesale sales, and most of them have the resources to upgrade services to meet the strong competitive pressures that currently exist in the industry. A number of users in this size grouping have large on-line transaction processing (OLTP) systems on mainframes and/or minis, but they have started to explore and use downsized systems on client/server architecture.

About 30,000 midsized firms handling 25% of wholesale business experienced more business difficulties and consolidation than the largest firms did.

- Concerns of these firms are directed toward reducing costs as well as serving clients.
- These firms have started to explore and use workstation-based products.

About 265,000 smaller firms in wholesale distribution handle the remaining 25% of sales, and they are suffering most from the competition and unfavorable conditions that prevailed in retail distribution and manufacturing during the past few years.

- These firms rely upon intensive clerical work by their owners and economic automation to keep costs down and serve their clients.
- Many of these firms have used processing services as well as turnkey systems and software products from VARs, small vendors, and computer stores to meet their needs.

Wholesale firms were among the first users of information processing services.

- ADP and other processing firms continue to offer accounting and other application systems to meet the needs of wholesalers, although many wholesale customers have gone in-house.



- Many wholesalers have turned from processing services to turnkey systems. Turnkey vendors such as Imrex in the auto aftermarket (and other markets as well), Unisol in jewelry, and Eagle in food distribution continue to appeal to distributors since they specialize in segments of the wholesale market. VARs also appeal to wholesalers for this reason.

A number of vendors are promoting general purpose approaches to wholesale functions that are gaining usage, however.

- The Lawson product, Wholesale Distributor, has powerful order entry and integrated accounting functions.
- The NCR Silver System has POS, integrated accounting, and remanufacturing management functions that are of interest to prospects.

Software and hardware vendors including IBM, DEC, Unisys, and Oracle, have addressed needs for increased OLTP for large as well as smaller wholesale distributors.

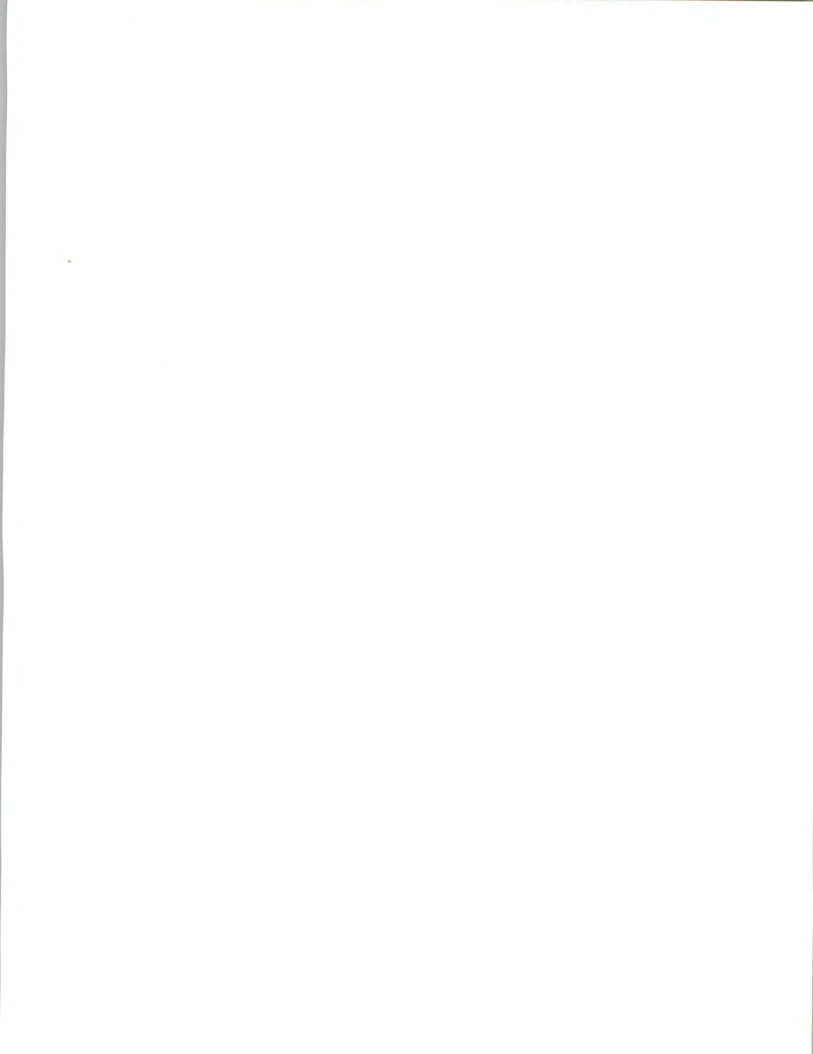
Network capabilities have also been expanding to meet OLTP and other needs.

- A major toolmaker obtains 65% of its orders via direct links to customers.
- A clothing manufacturer obtains on-line POS data from its customers to determine when reordering should take place.
- LANs in giant retail outlets or megastores aid in handling information about product locations and inventories.

In order to leverage network capabilities, Andersen Consulting has been offering an on-line order processing, inventory management, customer service, and DRP (distribution resource planning) capability for distributors called DCS/Logistics.

More comprehensive warehouse and logistics systems are needed by wholesalers to meet current demands of clients.

- The movement to efficiently control warehousing and other steps involved in the motion of goods and materials to customers has been brought about by the demand of manufacturers and retail outlets to minimize the amount of inventory that they carry but still obtain reorders rapidly enough to meet needs. A number of software vendors, including Computer Associates, are supplying new warehouse systems to meet these needs.





- New warehouse and logistics systems such as FASTsystems, offered by IM America, not only address just-in-time types of needs, but they examine the accounting and financial implications of storage and other logistics functions.

Many systems offered in wholesale distribution have already been or are currently being downsized.

- The Andersen DCS/Logistics system has been implemented on a workstation.
- American Software has moved its mainframe distribution product to a workstation running under MS/DOS. It will also be implemented under Windows and OS/2.
- J.D. Edwards has developed an OS/2 version of its distribution application system.

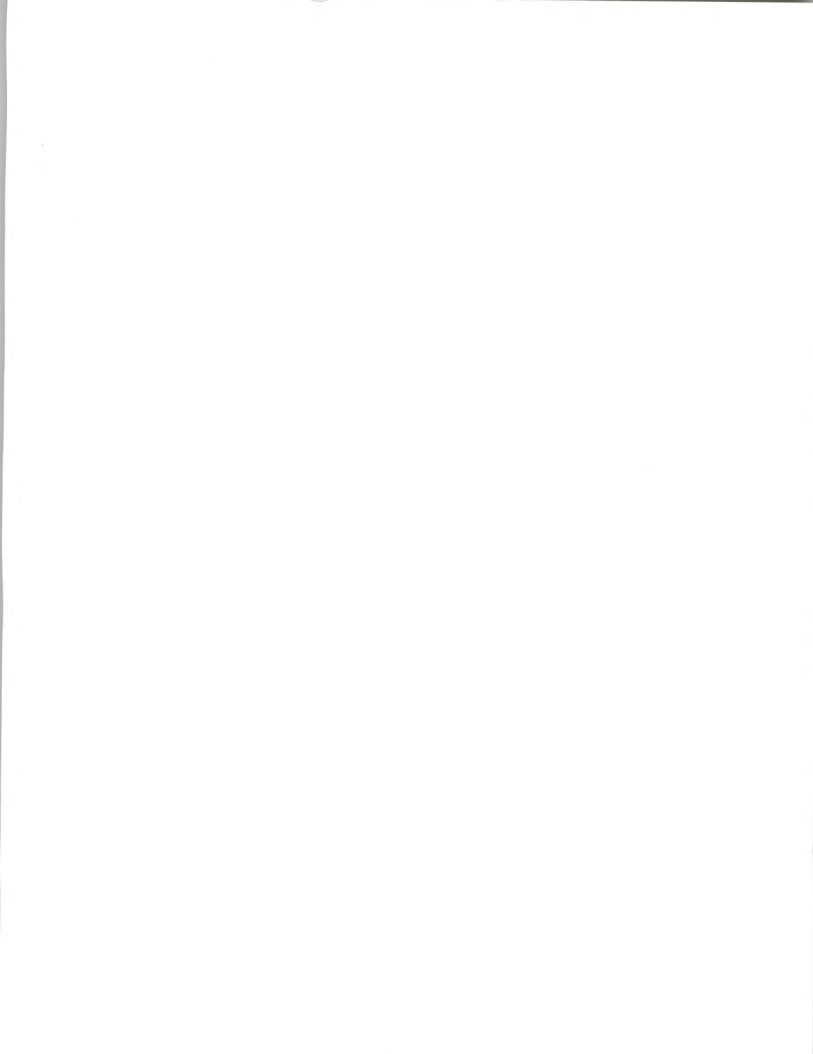
The midrange implementations of some distribution systems such as the AS/400 version of the J.D. Edwards program are still achieving more volume than the workstation version. However, the workstation versions, particularly the RS/6000 version of the Lawson product, are gaining in use.

- Product information systems installed on RS/6000s and other workstations have been sold to wholesale distributors.
- The accounting system implemented by Macola on workstations has also grown in use in wholesale distribution companies.

The type of system mentioned above can be thought of as a step in electronic commerce since it allows buyers to bypass human assistance during an ordering process. Electronic commerce is gaining momentum in wholesale distribution activities, according to INPUT EDI research studies.

- One element of electronic commerce, the use of EDI in ordering and settlement, has been growing due to the fact that large retail stores and manufacturers have encouraged or forced their wholesale suppliers to use it.
- The availability of electronic information on products to aid ordering by wholesalers is another example of electronic commerce.

The use of bar codes to manage inventory and parts delivery functions and the use of data from POS units at clients' locations to monitor sales and needs for reorder also illustrate how wholesalers are exploiting electronic commerce.



A summary of key technology trends mentioned by wholesalers' vendors that are currently affecting the market are listed in Exhibit II-2.

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EXHIBIT II-2

### Key Technology Trends Identified by Vendors and Users in Wholesale Distribution

- Technology trends mentioned by respondents:
  - Transfer of data to PCs for end-user manipulation
  - Increased use of off-the-shelf PC software products
  - Expansion of network capabilities including the use of LANs
  - Expansion of electronic commerce
  - Downsizing of application solutions
  - Increasing automation of logistics and warehousing functions

Vendors serving the wholesale information systems market report that considerable effort is needed for most sales and there is pressure to reduce the prices of solutions, as heavy competition is being encountered.

## B

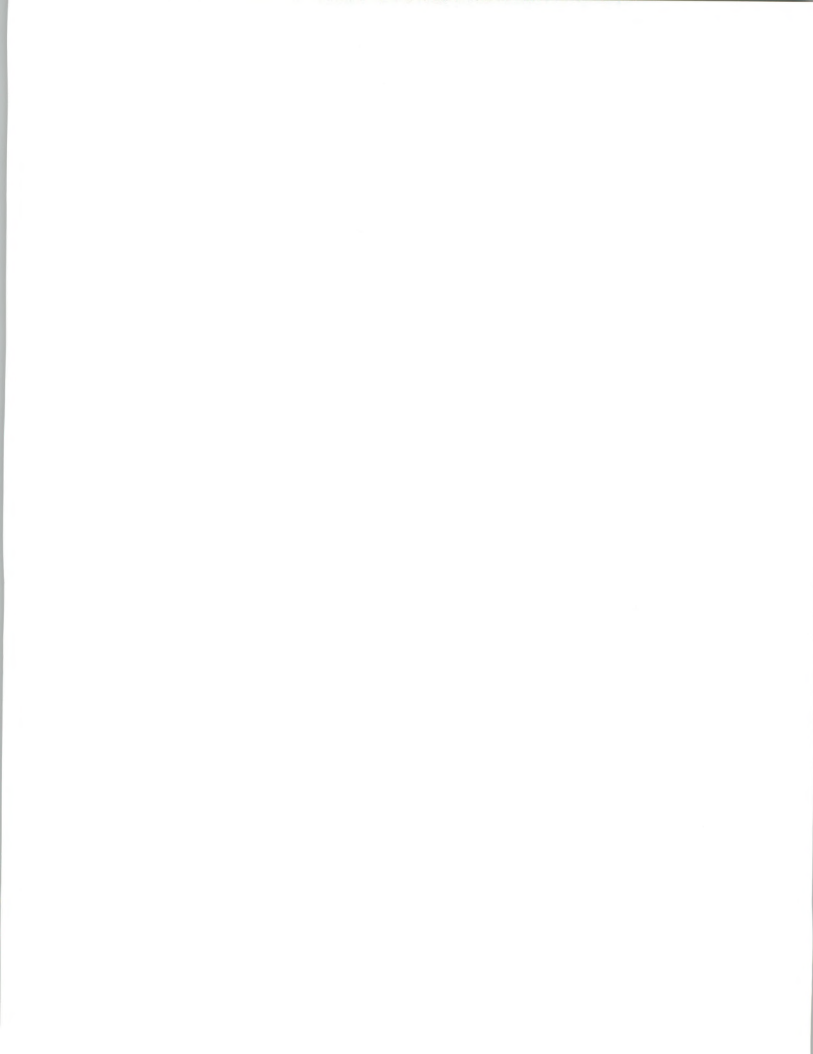
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### Current Wholesale Distribution Events

Wholesalers felt increasing levels of pressure from retail giants in 1992.

- Wal-mart, with about \$55 billion in sales in 1992, has electronic linkages with all 5,000 of its suppliers. Some manufacturers have set up special distribution teams to meet its needs.
- Home Depot, which has rapidly reached an annual sales level of about \$7.2 billion, requires all lumber suppliers to bar code each piece of wood delivered.

Large retailers as well as manufacturers now report that their wholesale suppliers have changed business methods, including warehousing, so that they can more quickly respond to needs. Both retailers and manufacturers also report they are attempting to improve the quality of suppliers in other ways, such as rapid replacement of defective units or parts.

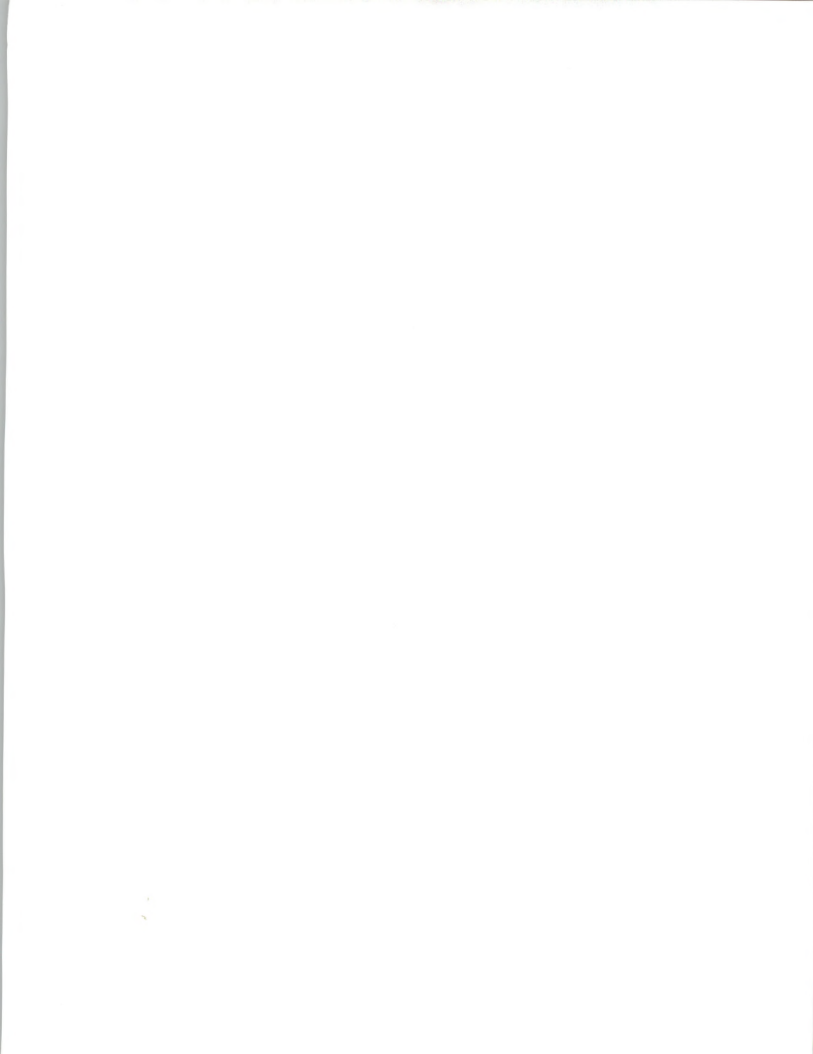


There is a continuing expansion of network capabilities between wholesalers and their clients to expedite ordering, shipment instructions, and other services. These capabilities have been promoted or facilitated by the clients in many situations lately.

- Wal-mart and Sears are now providing their trading partners with inexpensive data transmission services.
- J.C. Penney has implemented a program in the last few years to increase the number of suppliers that are linked to its headquarters for EDI communication from 300 to 5,000.

Some large wholesalers such as the clothing manufacturer and wholesaler, Damon, have installed POS equipment at many of its retail clients so that it can track sales and expedite reordering for them.

The more intensive use of IT in wholesale distribution is illustrated by innovative applications of GIS (geographical information systems) during the last few years. One wholesaler uses a GIS to help plan the reassignment of sales territories. Another uses a GIS to create maps that indicate where client inventories are above or below plan.





# Information Systems

## A

### Organization and Use of Technology

---

#### 1. Budgets

This year's survey of wholesale distributors indicates that a large number of companies is concentrating future development on moving data from the mainframe computer to the PC. This is not surprising since productivity is a major goal of the 1990s and new client/server architectures are perceived as more cost efficient, hence more productive.

It should be noted that only wholesale distributors, varied in size, were surveyed. Manufacturers could well be interested in distribution software.

A few of the large national distribution companies have recently, or are currently, revamping their entire system.

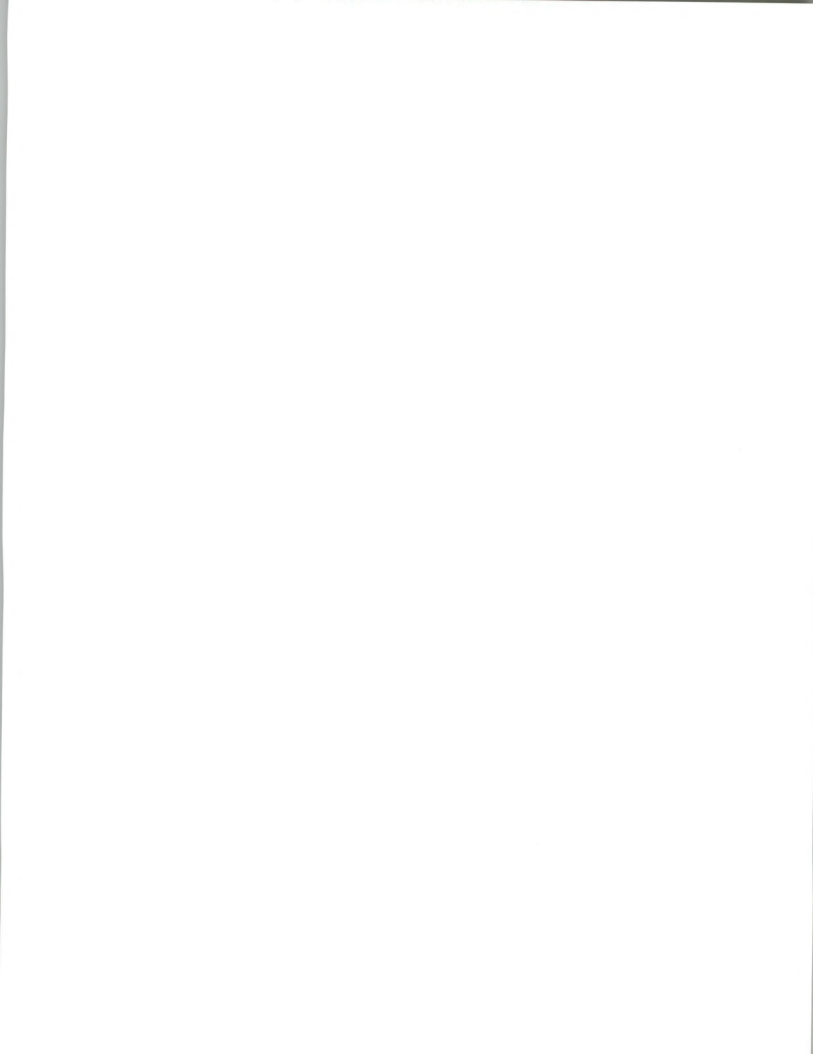
The majority of those surveyed indicated they will be moving to client/server systems and/or moving data to a PC to allow the end user to gain more information.

#### 2. Hot Technologies

The hot technologies for the 1990s will be in line with the goals of the distributor. Those major goals are improved customer service, reduced inventory, and data entry reduction.

##### a. Electronic Commerce

Electronic commerce is defined as a business transaction performed electronically between computers, without data entry. The definition goes beyond Electronic Data Interchange (EDI), computer-to-computer exchange of business documents in a standard business format. Electronic





commerce includes all electronic transactions, from ordering airline tickets through Prodigy, a modem connection between a small retailer's PC and a wholesaler, up to and including transactions between the largest mainframes.

Electronic commerce also includes transactions performed within the same company, such as radio-controlled warehouse and logistic systems, end-user data bases, and automatic data entry systems.

Electronic commerce's goal and justification is to shorten the transaction cycle while reducing labor costs.

Electronic commerce continues to grow at a rapid pace and is finding new markets in the distribution industry.

Many distributors' initial contact with electronic commerce came under pressure from vendors and large retailers to comply with their EDI requirements. The cost of compliance is absorbed in order to retain the business relationship.

The alert distributor now recognizes the potential to benefit from the use of electronic commerce. (See Users' Needs later in this chapter.)

#### **b. Document Imaging**

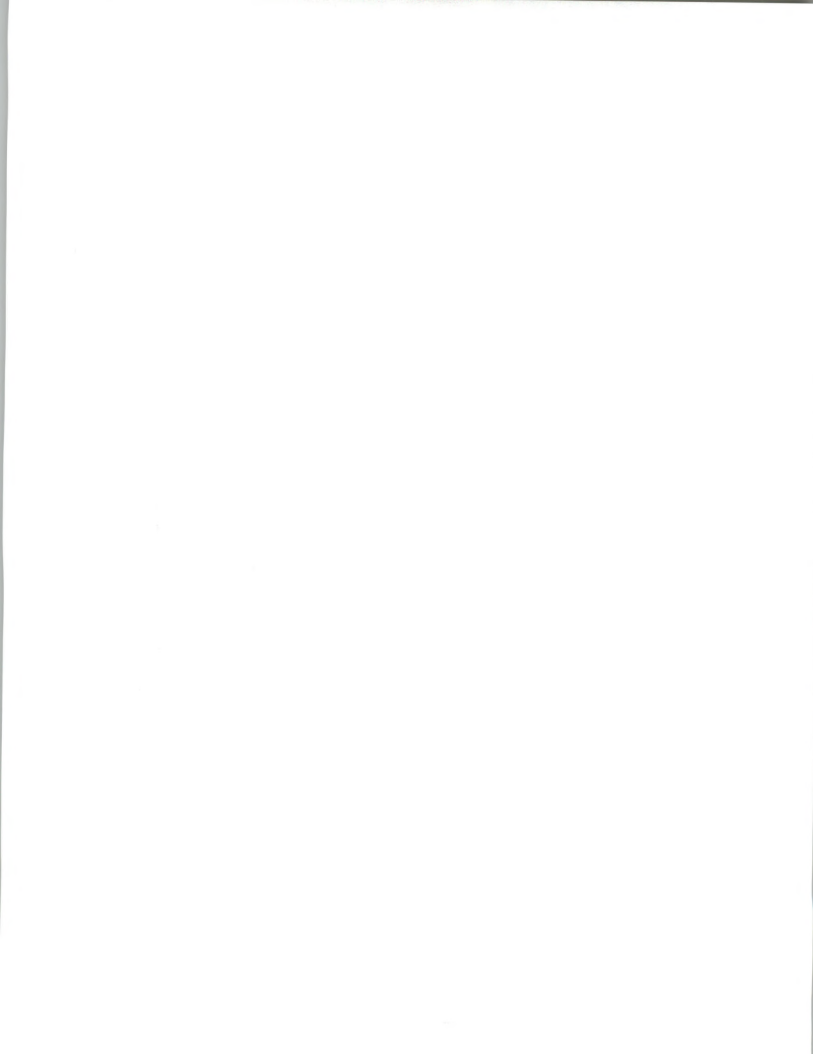
Document imaging using CD ROM technology is becoming very attractive to the distributor. Recent price reductions have justified these systems for even small distributors.

Distributors have a massive paperwork problem. Customers frequently request invoice copies to be mailed or faxed. What was a labor-intensive function can now be performed with the entry of a few simple transactions. The advantage of document imaging over paper copies or microfiche is enormous.

#### **c. End-User Data Bases**

The advantage of end-user data base processing is that it allows the user to extract and manipulate data without the involvement of the information technology department. Some packages are user friendly, such as MON-ARCH offered by Personics, and are specifically designed for this purpose and are attractive for one-time reports or queries. For more complex manipulations performed on a regular basis, one of the several leading data base products can be used.

End-user data bases, files, or reports are moved to a PC for manipulation. The data is selected and manipulated, with the results written to a report or to another file.



For example, distributors traditionally produce a number of control and information reports. Individuals are assigned the task of reviewing the data and taking action as needed. Since some of these reports are quite large, this task may take longer or be less accurate than desired.

Instead of printing the report, data can be moved to a PC. The rules of review and action are performed by the PC software, which selects the exceptions and in many cases will perform the subsequent action. Actions can be to print an exception report, send a fax, send E-mail, or even update the mainframe. (See Automatic Data Entry Systems, later in this chapter.)

End-user data bases are also attractive to those departments, such as marketing, that require in-depth and varied data. In theory, IS need only supply the raw sales data. The end user can process a standard set of programs and be able to process one-time criteria at will. The fact that manipulated data can be exported enhances historical and comparison reporting.

Perhaps the most untapped area of end-user data bases and automatic data entry systems is their ability to enhance third-party vendor systems.

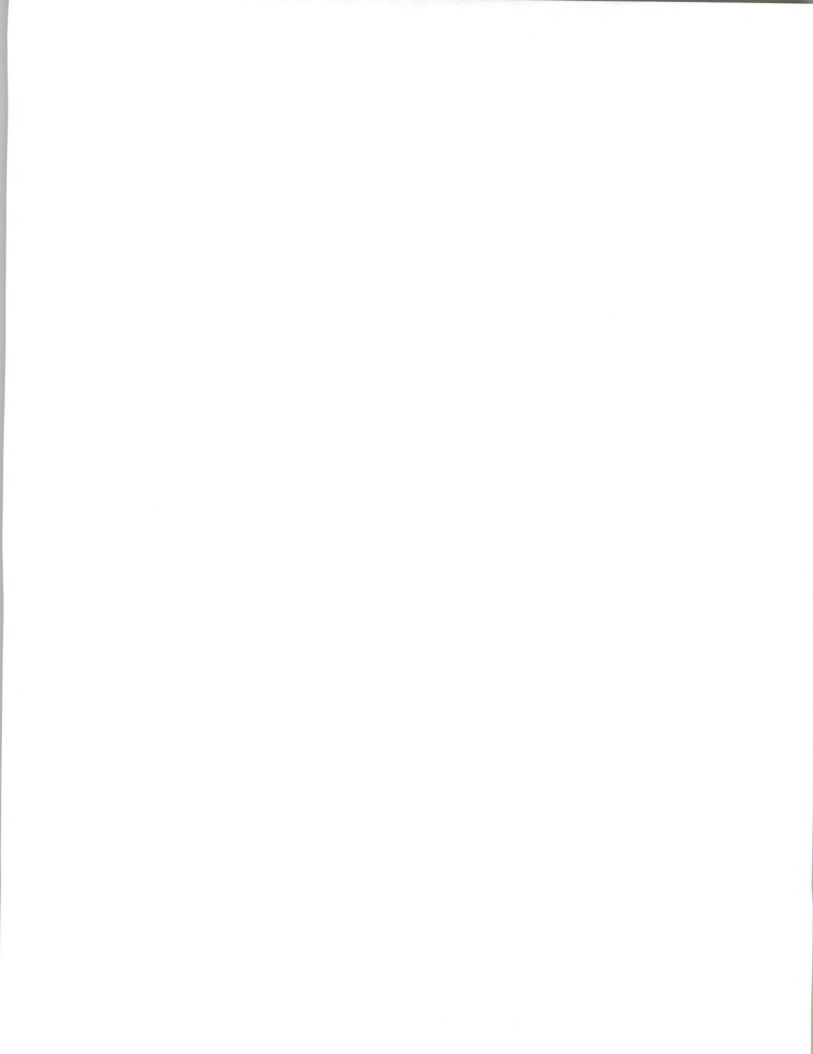
For example, the vendor may not offer automatic purchasing and purchase order creation. The distributor has a purchasing agent review a suggested order report with selected items going to data entry clerks for purchase order entry.

The suggested order report can be moved to a PC. The PC data base will automatically select those items that obviously should be ordered, then display the items that need the purchasing agent's expertise, to either accept or reject. When the review is complete, the PC will format and write a purchase order entry transaction file. Using the transaction file, automatic data entry will add the purchase orders. These transactions are performed without operator involvement.

This example can be applied to other areas. Virtually all data contained in the system can be moved to a PC. Most of this data can be altered via on-line transactions. Whether it be on a regular basis or one-time alterations, this concept will enhance any system while reducing manual entry.

#### **d. Automatic Data Entry Systems**

Automatic data entry systems are relatively new. INPUT is aware of one such system which is provided by Schow & Associates, based in San Francisco. This product replicates an operator's function, keystroke for keystroke.



The product transforms a PC into a terminal and an operator. The PC signs into the mainframe and performs any existing on-line transaction. The transactions are driven by an ASCII file on the PC's hard disk or in conjunction with another device, such as a scale on a manifest system.

Transactions are processed with complete accuracy and at a speed 6 to 12 times faster than an operator. System response messages are logged for review or action.

These systems do not require changes to the mainframe application programs; in fact, the mainframe cannot distinguish them from human operators.

Other methods of electronic commerce require programs to capture the incoming data and take subsequent action. Automatic data entry takes advantage of the partially completed standardized transactions already in place.

Using this technology the user can create a file to drive thousands of on-line transactions in minutes. This is especially useful when mass file changes are required or an emergency fix must be performed.

Transaction driver files can be created from any data base, most commonly downloaded mainframe reports or files.

Given these circumstances, automatic data entry systems can be used to enhance existing systems and software packages.

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## B

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### Major Trends In the Use of Information Systems

#### 1. Users' Needs

To thoroughly understand the users' needs and how they can be achieved through information technology, it is important to explore those issues that form the foundation of a distribution company.

Distributors are traders. They view all transactions from the perspective of "how much will it cost and how much can it be sold for?" They strive to achieve a perfect balance among quality merchandise, good marketing skills, and optimum inventory levels, coupled with the highest possible level of customer service, while keeping operating expenses at a minimum. Major information service trends reacting to these needs are shown in Exhibit III-1.

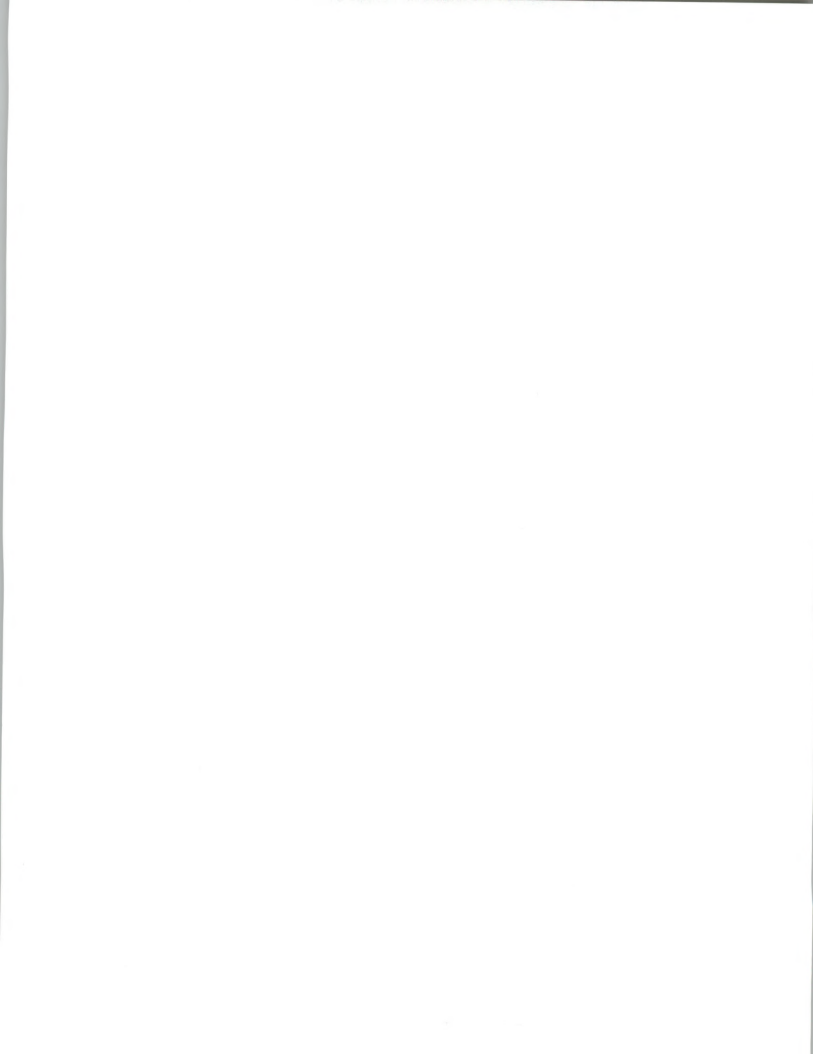


EXHIBIT III-1

**Wholesale Distribution****Major Trends in Information Systems**

- Investment in customer service systems
- Improved inventory systems
- Automatic purchase order creation
- Addition of electronic commerce
- Automated receiving
- POS equipment becoming standard
- Logistics and shipping systems

**a. Customer Service**

Distributors know that the key to their business is customer service. The definition of customer service is broad but can be defined as satisfying all of the customer's needs, with ease and no problems. High levels of service will tend to create an unbreakable bond between the distributor and the customer.

One element of customer service is maintaining sufficient levels of inventory to avoid out-of-stock situations, which make the customer unhappy and can lead to a lost order. If the customer can purchase the out-of-stock item from another distributor, it may become a permanent change; too many such occurrences can end the relationship. The distributor often reacts by carrying excessive inventories and accepts the cost in the name of customer service.

**b. Inventory and Purchasing**

Information technology has offered the distributor considerable relief in the purchasing and maintenance of inventories. In fact, distribution was one of the first industries to embrace these systems. Inventory management systems are critical to the operation of these companies.

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Despite past successes in implementing these systems, distributors can still make considerable improvements. The distributor needs improved reorder point calculations, automatic purchase order creation, complete electronic commerce including purchase order transmission, supplier purchase order confirmation, and packing list confirmation upon shipment. These improvements will not only improve inventory flow, but will minimize data entry, resulting in reduced operating expenses.

Reorder point calculation, the level at which a purchase order can be created, generally works well with existing systems if the item has an established history and level sales. The reorder point is calculated based on prior sales and seasonality factors, if applicable.

Many systems fall short in dealing with exceptions. The exceptions are primarily new product lines, promotional items, extraordinary one-time sales, and items being closed out.

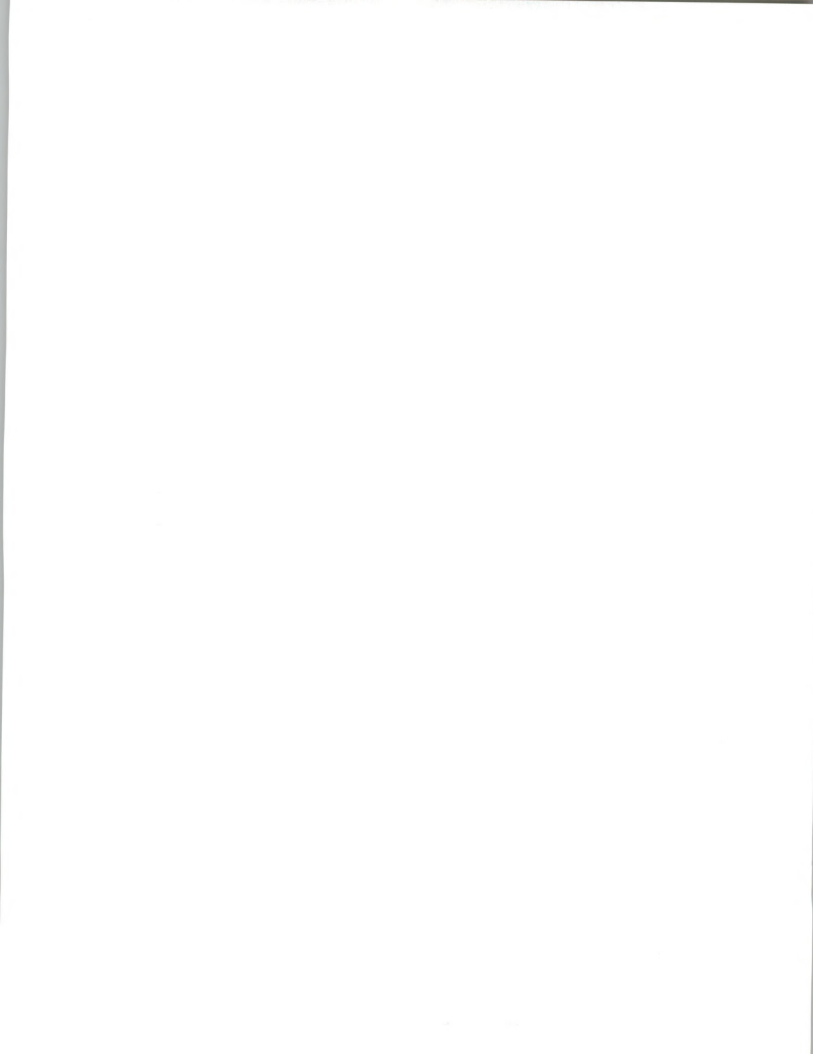
New product lines do not have sufficient sales history to satisfy the typical reorder point calculation. Some systems require as much as six months of history. However, new items do start building sales history beginning with the first shipment. This daily activity can be used to forecast monthly usage. The forecast should be adjusted frequently until the item is established within the rules of the applications package in use.

Promotional items are generally sold at prices reduced sufficiently to encourage the customer to buy larger quantities. For example, a distributor offers an item at deep discount to reduce an overstocked item only to find that the purchasing system reacts by recommending replenishment.

To correct these exceptions, the distributor needs to have user-defined reorder rules. These rules, no matter how complex and varied, are necessary. The purchasing agent should be able to add or alter and create these rules at will.

Automatic purchase order generation, as opposed to manual creation, is primarily a vehicle to reduce operating expenses. It has, however, some other important benefits, including improved accuracy, shorter reorder cycles, and accelerated order placement with the supplier.

A complete purchase order generation system will identify items in a reorder position and create the purchase order both on the system and for submission to the vendor. Submission will preferably be via electronic commerce. All purchases would be visible to the purchasing agent, as well as exception reports for unusual activity. Of course the purchasing agent will require veto and alteration capabilities prior to submission to the vendor. The manual task of reviewing and altering the purchasing cycle will be enhanced if the data is downloaded to a PC or a workstation



with exceptions highlighted. This allows the purchasing agent to review and alter the data with minimum effort. Upon completion, purchase orders are released for transmission via electronic commerce or printed for mailing or FAX.

### **c. Electronic Commerce**

Electronic commerce, when introduced, was viewed by distributors as an inconvenient function that had to be performed to retain their relationships with major manufacturers and chain stores. This attitude is quickly changing as distributors are discovering real benefits to their companies.

The alert distributor will recognize that electronic commerce has tremendous potential to reduce his operating expenses.

The primary advantage of electronic commerce is to reduce data entry. Distributors using electronic commerce are now starting to receive confirmation of order acceptance, dates for out-of-stock items, and advance packing slips.

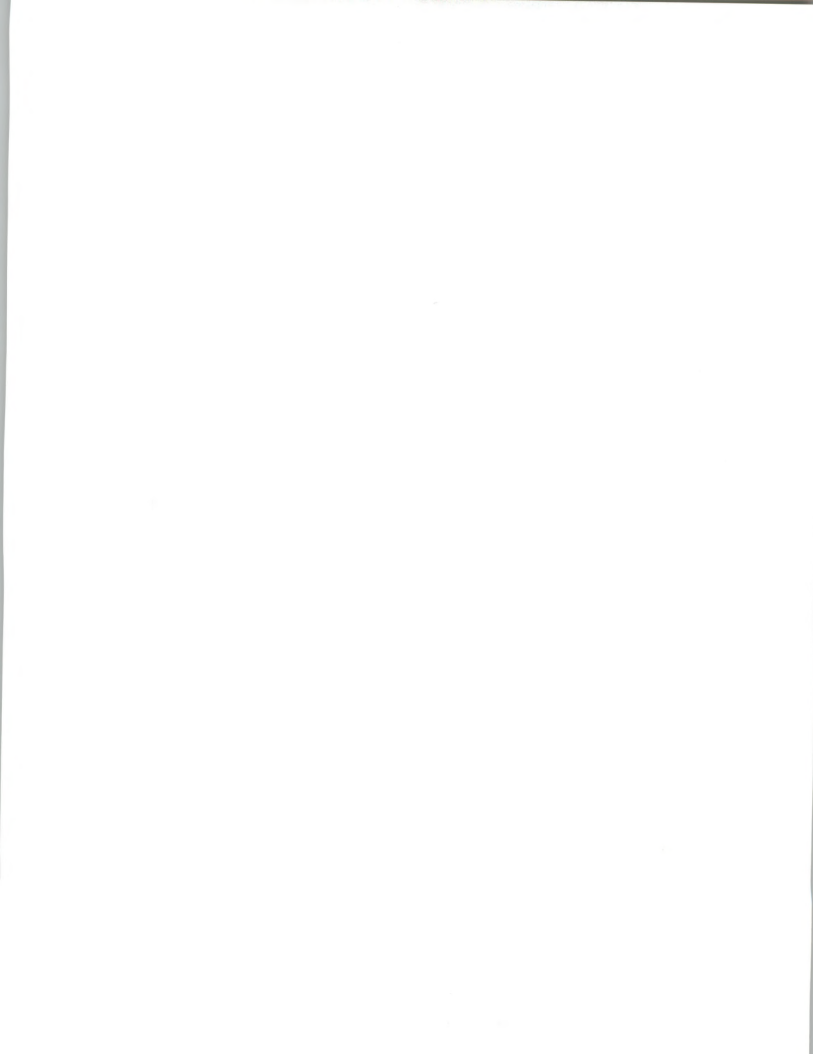
Distributors need to take advantage of this data by updating their systems without data entry. New promise dates can update the purchase orders and backorders and send new confirmation to their customers. Advance packing slips can be used to set up automatic receiving through radio-controlled units or bar code systems.

Progressive distributors recognize the potential of accepting orders from retailers' point-of-sale computers. This reduces the order entry effort, which is the most expensive office function. With the wide acceptance of point-of-sale equipment, it seems no retailer is too small to consider. This area is relatively untapped for the small-to-medium distributor, but has been very successful for the very large distributor.

### **d. Order Processing**

Order processing varies with the type of distribution. Chain stores may order exclusively through electronic commerce. Catalog and home shopping companies have high mail order and telephone processing. Most distributors accept mail or telephone orders from customers and salespeople in the field.

Recognizing that in-office order processing is a major part of their operating expense, distributors are continually searching for the balance between cost and service. Where electronic commerce is possible, it should be actively pursued.



Where electronic commerce is not possible, the order processing systems must be fast, accurate, and informative. With the advent of on-line order processing, many companies have moved the customer service duties to the order desk. The order desk is now a full-service department.

Progressive distributors will accommodate all of the customer's needs with a single call. It is important, in the name of customer service, that a strong image is projected during the transaction. Many customers have more contact with the order desk than any other person in the company.

#### **e. Shipping and Billing**

Shipping requirements vary based on the type of distributor and product. Some will use their own fleet of trucks while others depend on common carriers, both surface and air. Small package delivery companies have become major players.

The distributor needs timely and efficient systems to insure rapid delivery while keeping the warehouse staff to a minimum. Information technology has made a strong impact in this area and has even greater potential.

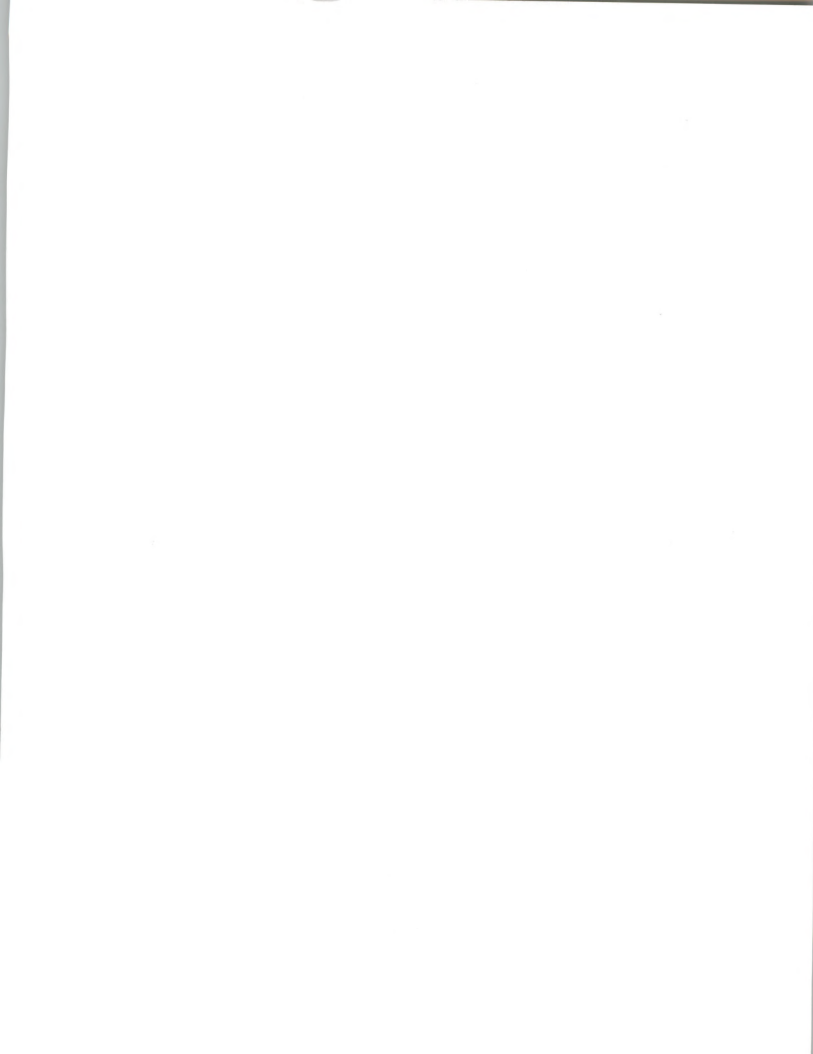
Those distributors that have their own fleets of trucks need shipping logistic systems that will plan the delivery routes and schedule warehouse picking and staging. A strong system will schedule and dispense the orders while providing the warehouse with sufficient information for manpower and equipment planning.

The distributor that uses common carriers and small package delivery services most likely will pick and ship orders as they are received. Many distributors strive for same-day or next-day shipment. Small package delivery companies have become quite sophisticated and offer the distributor good on-line tracking tools.

Many distributors are using manifest systems that create a file for subsequent mainframe update, changing the status of the order to shipped. At least one system exists that will access, validate, and update the mainframe in interactive mode. This offers the distributor the option of canceling or changing the order while it is being processed in the warehouse.

Both of the above-mentioned manifest systems eliminate the need for data entry, thereby reducing manpower. They also increase accuracy and expedite the billing process.

Regardless of the shipping method used, the distributor needs sophisticated systems that insure a proper and accurate flow of orders while keeping manpower to a minimum.



## f. Receiving

This function consists of the physical receipt of goods into the warehouse and transmitting the receipt into the computer system.

For many distributors, this is a time-consuming and labor-intensive function. Consider the steps involved:

- Compare the physical goods to the packing slip.
- Move the goods to the designated warehouse location.
- Receive the packing slip into the systems inventory.
- Release backorders if applicable.
- Authorize the receipt for payment.

The distributor needs to automate these functions by using electronic commerce in conjunction with sophisticated application programs.

Systems of this type will improve accuracy, reduce turnaround time, and have a positive impact on operating expenses.

The key to automating this function is to have an advance packing slip loaded into the computer. The advance packing slip is a record of shipment and a duplicate of the packing slip presented by the delivery person.

The advance packing slip can be added to the computer via electronic commerce. If received by fax, E-mail, or mail, data entry is required.

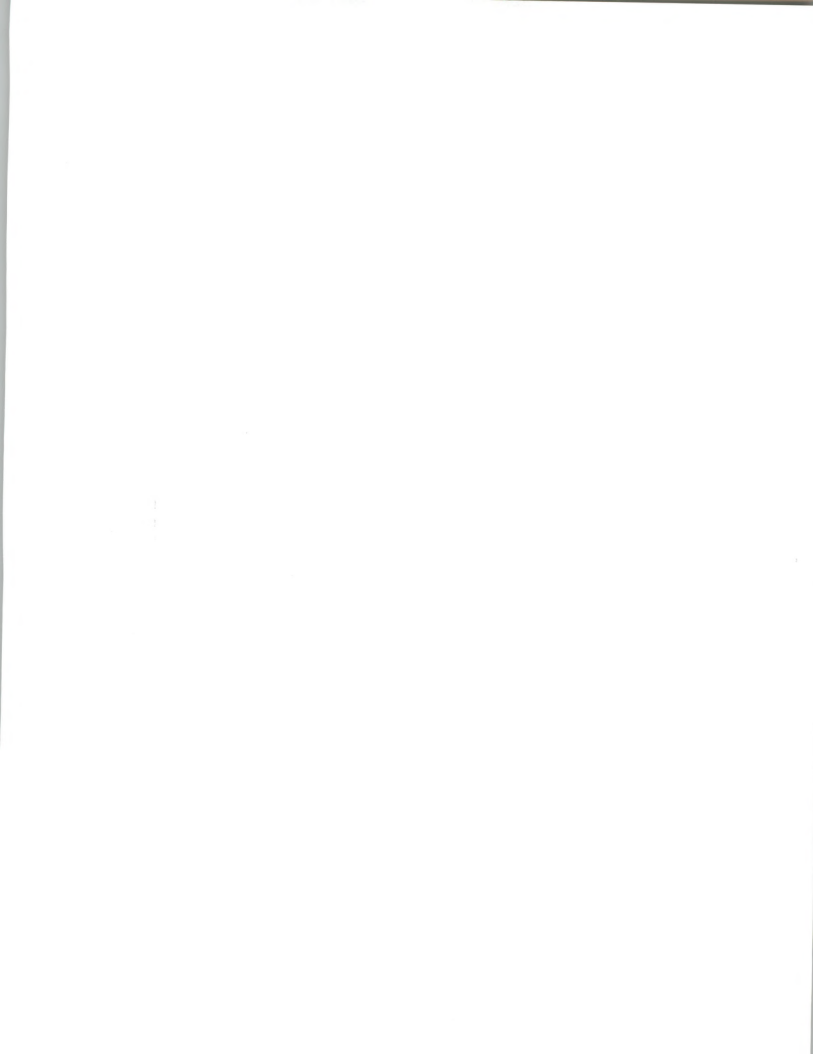
Once the advance packing slip is recorded, several informative items can be added, such as re-sorting the item numbers, adding the bin location, and identifying items in a back-order position.

Upon arrival of the stock, the receiving department will access the packing slip, then proceed with receiving. The ideal system will allow each item to be recorded with a bar code reader. Where bar coding is not possible, items can be entered into a PC or any radio-controlled device. Where none of these is possible a printed copy, reformatted with additional information, can be used.

As each item is recorded the advance packing slip will be updated. Upon completion, the receiving clerk will be advised of and resolve any discrepancies.

Once the advance packing slip is validated, the goods can be moved to the designated warehouse location.

The receipt into the computer system, release of backorders, and authorization for payment can then be performed without data entry. If manual recording is used, a minimum amount of additional data entry will be necessary.





## 2. Users' Concerns

Although the backbone of any economy is its ability to distribute goods, the wholesale distribution industry is faced with threats from several areas.

The uncertainty of the economy and the lack of consumer confidence have impacted some but not all companies in the distribution sector. This is reviewed in detail in Chapter II.

Coupled with current economic pressures, the wholesale distributor is facing competition from manufacturing companies that have chosen, or are being pressured by large retailers, to sell directly to the retail and consumer markets.

This growing trend is caused by the manufacturer's desire to improve profits and is made possible by improved information technology systems.

The recent popularity of home shopping television channels is also a threat. Transactions of this type usually eliminate the distributor. This will become a larger threat as Interactive TV is introduced. Some large retailers such as Macy's have announced their entry into this market.

Interactive TV will be more lucrative than the traditional home TV markets since it eliminates the order entry function. Consumer orders can be placed through on-screen prompts using the remote controller.

Except for those companies in a niche market, distributors are watching their volume erode and are forced to reduce operating expenses in order to survive.

The distributor is faced with the dilemma of how to reduce operating costs without impacting customer service. Downsizing, or rightsizing, has become popular. However, this approach may involve considerable up-front expense and a lengthy payback.

The distributor is also concerned with the high cost of data entry operators and labor-intensive manual operations caused by less than optimum systems.

INPUT believes that the industry is ripe for supplemental systems that will address these high cost areas. See Chapter VI, Conclusions and Recommendations.

## 3. Use of Information Systems as Competitive Advantage

Distributors have an excellent opportunity to provide services that make it easier for the customer to do business. Primarily, these systems assist the customer in the preparation of an order.



One notable example was announced in April 1993, when McKesson Drug Co. signed a three-year agreement worth \$100 million in sales with Franciscan Health System. The agreement provides a link between their computer systems to provide inventory and ordering services. This agreement replaces four other distributors and will represent a savings of \$1 million to Franciscan.

This example is not much different from the systems used by large retail chains. These retailers warehouse the merchandise in strategically located sites. Through point-of-sale systems, orders are created based on current consumption.

Following these concepts, distributors can replicate the same system, since many small retailers are using point-of-sale equipment to control their inventory.

Other methods, such as providing order placement capabilities via PC or terminal entry, can provide an alliance with a positive competitive edge.

As an example of competitive advantage, consider Dell computer. In 9 years, Dell computer has risen from a college dormitory operation to a company with annual sales of \$3 billion. Although other computer makers may have better machines or lower prices, Dell offers customer service that stands alone in the industry.

Fielding 35,000 sales and service calls a day, Dell uses sophisticated telephone and computer systems to quickly resolve service problems or accept orders.

Orders are transmitted directly to the assembly line, where the computer is assembled and shipped very rapidly.

Prompted by Dell's success, larger companies are adopting the same methods. When asked about this looming competition, Dell replied, "The system is key to the operation; it will take the competition years to catch up."

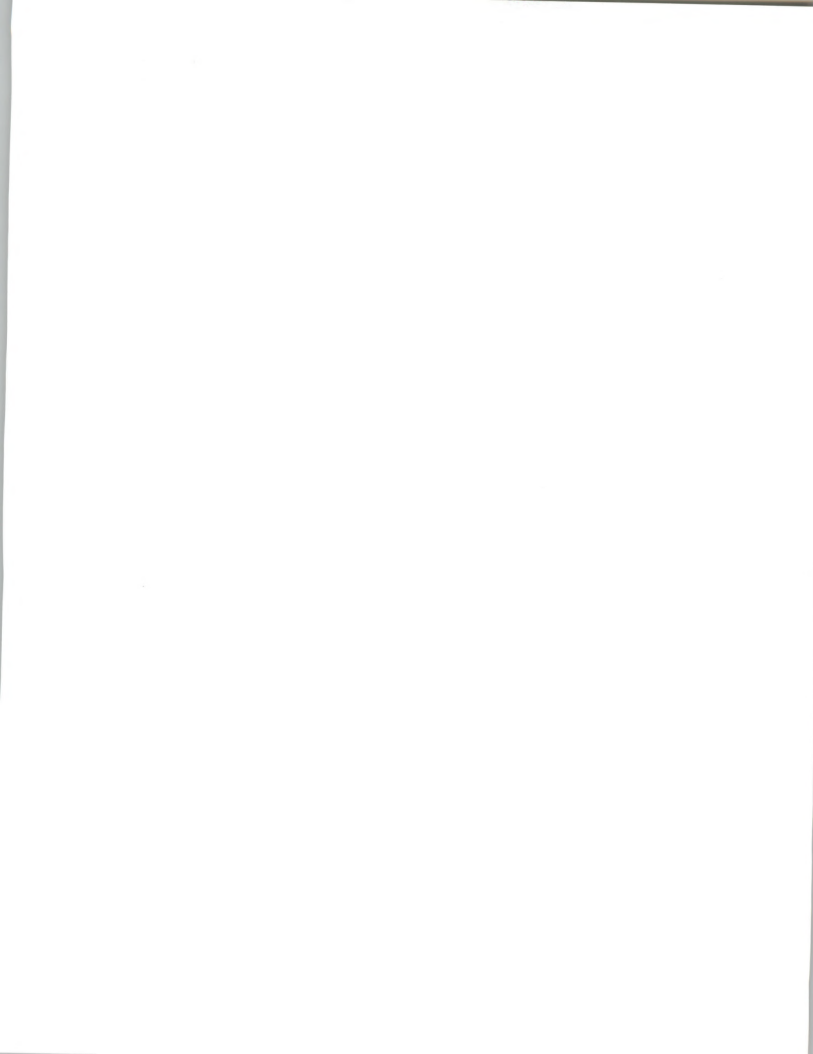
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## C

### Key Applications

The key applications to a wholesale distributor are in four basic categories: order processing, inventory control, sales management, and accounting functions.

These applications generally interact, although to what degree depends on the sophistication of the distributor's system.



## 1. Order Processing

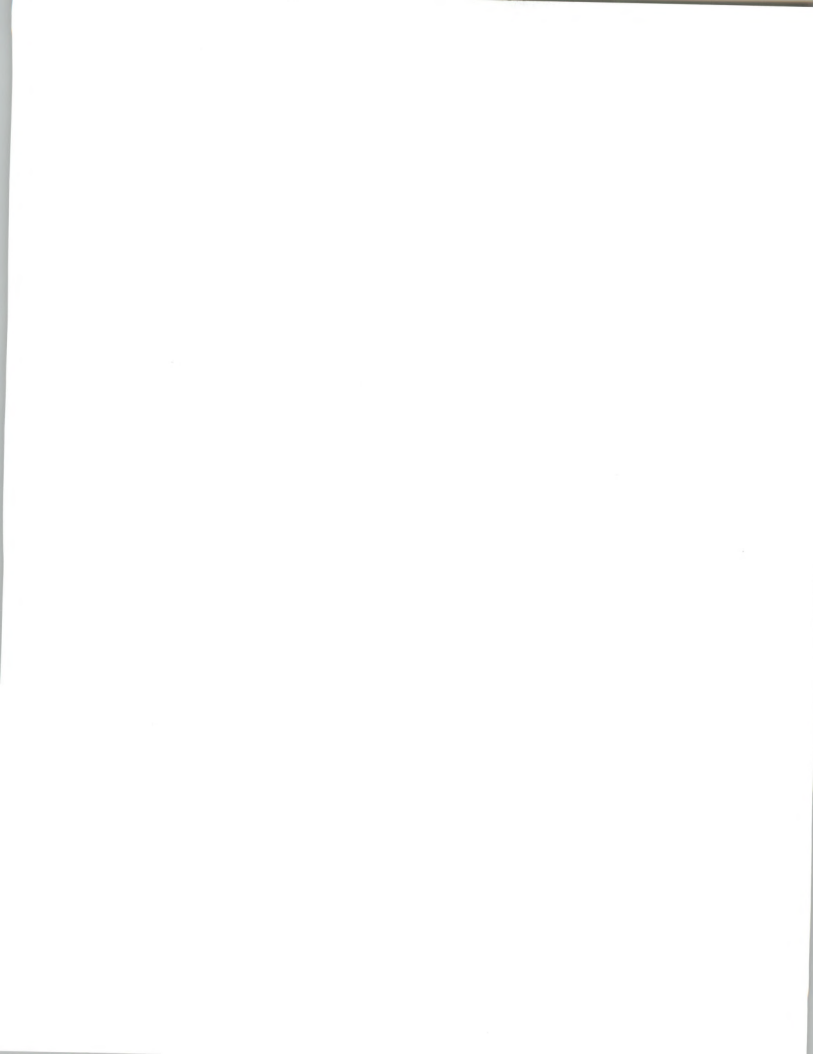
This category involves the creation of an order either by order entry or by using some type of electronic processing. Most systems perform the following functions:

- Customer validation with access to the required data elements
- Credit checking
- Part number validation with access to pricing and inventory availability
- Access to various tables related to discounting, freight, or other special items
- Confirming and updating of inventory availability
- Calculation of prices with discounting
- Back-order processing with expected delivery dates
- Future orders or hold orders
- Shipments directly from the manufacturer (drop shipments)
- Packing slip processing: immediate, consolidated pick list, or radio-controlled
- Alteration or cancellation of packing slips in process
- Updating shipped orders to change status and capture shipping information
- Invoicing with updating of accounts receivable, sales files, etc.
- Processing of call tags or other documents to pick up unwanted goods
- Credit memo processing

## 2. Inventory Control

This category involves maintaining a perpetual inventory. Inventory is updated in an interactive mode:

- Decrementation as orders are entered
- Suggested or automatic purchasing



- Purchase order control, including past-due follow-up
- Receiving of purchase orders
- Receiving of returned goods
- Adjustments for error conditions with capture of historical activity
- Physical inventory

### **3. Accounting**

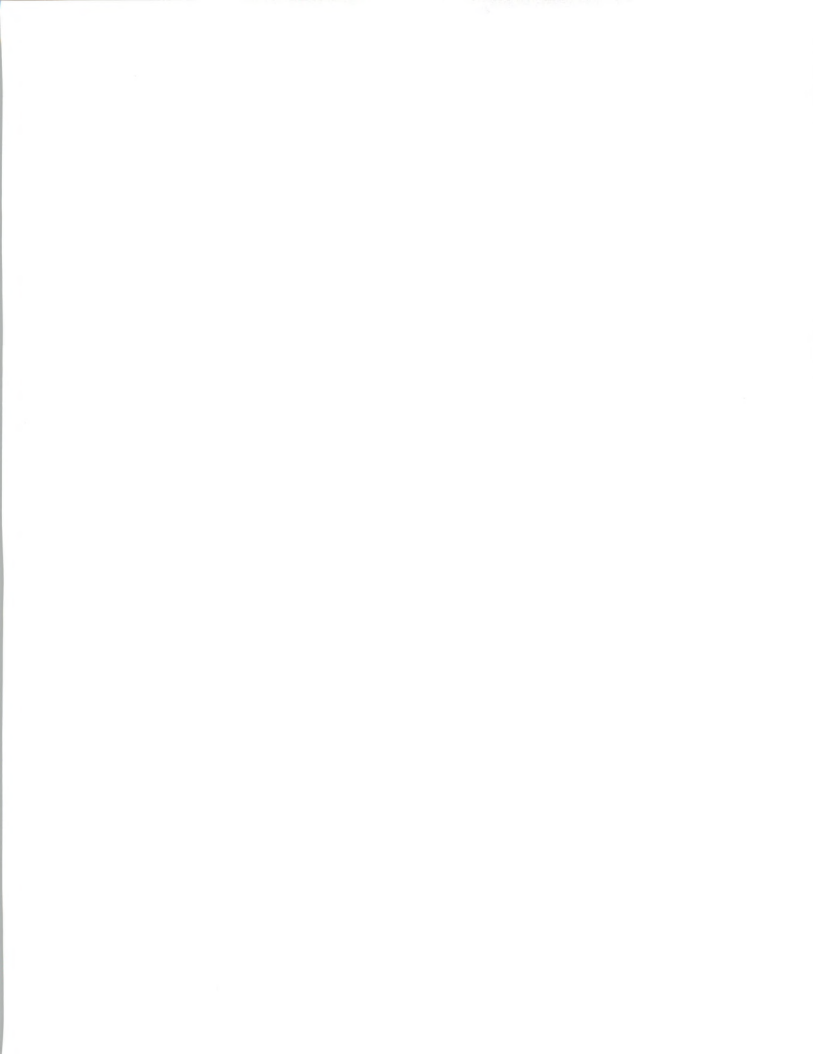
Accounting functions include general capture and reporting:

- Accounts receivable
- Accounts payable with interaction to inventory receiving
- General ledger

### **4. Sales Management**

Sales management consists of capturing the raw data from invoice processing and producing sales reports for analysis. Reports generally show the data by sales region, salesperson, and geographic location.

- Traditionally sales reporting is quite extensive with a wide variety of reports being produced.
- The current trend is to move the basic sales data into a PC for manipulation by both managers and sales personnel.





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## IV

## Information Services Market Forecast

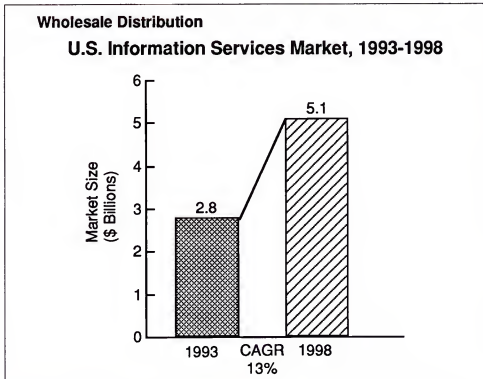
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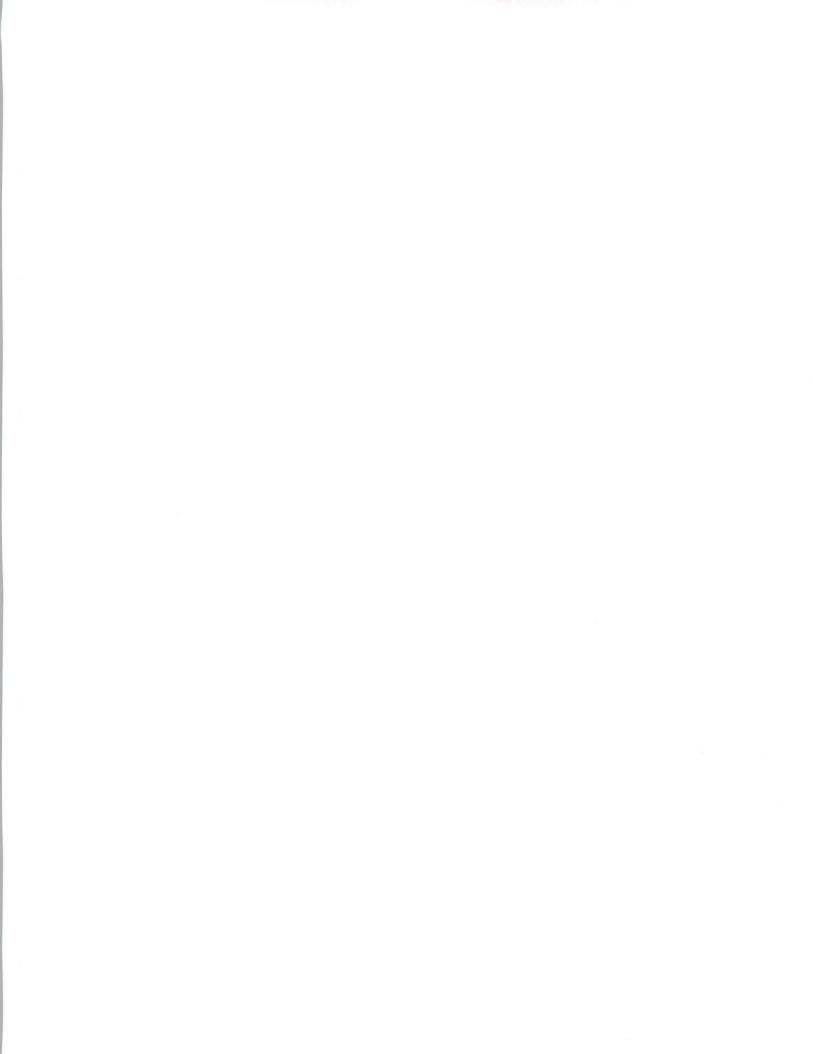
## Total Market Forecast, 1993-1998

In preparing this forecast, INPUT has concluded that while expenditures for wholesale distribution functions will increase, these expenditures will not necessarily be made by the wholesale industry. A good portion of these expenditures will be made by manufacturers and retailers as they move into distribution functions. The absolute growth in this market will be driven by aggressive information services investments made by wholesalers seeking to keep a competitive edge in what may be a shrinking industry.

The total growth of information services expenditures in the U.S. wholesale distribution sector between 1993 and 1998 is shown in Exhibit IV-1.

EXHIBIT IV-1



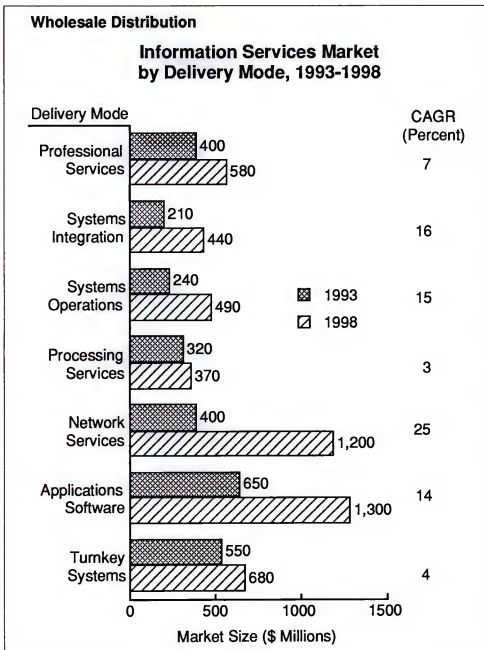


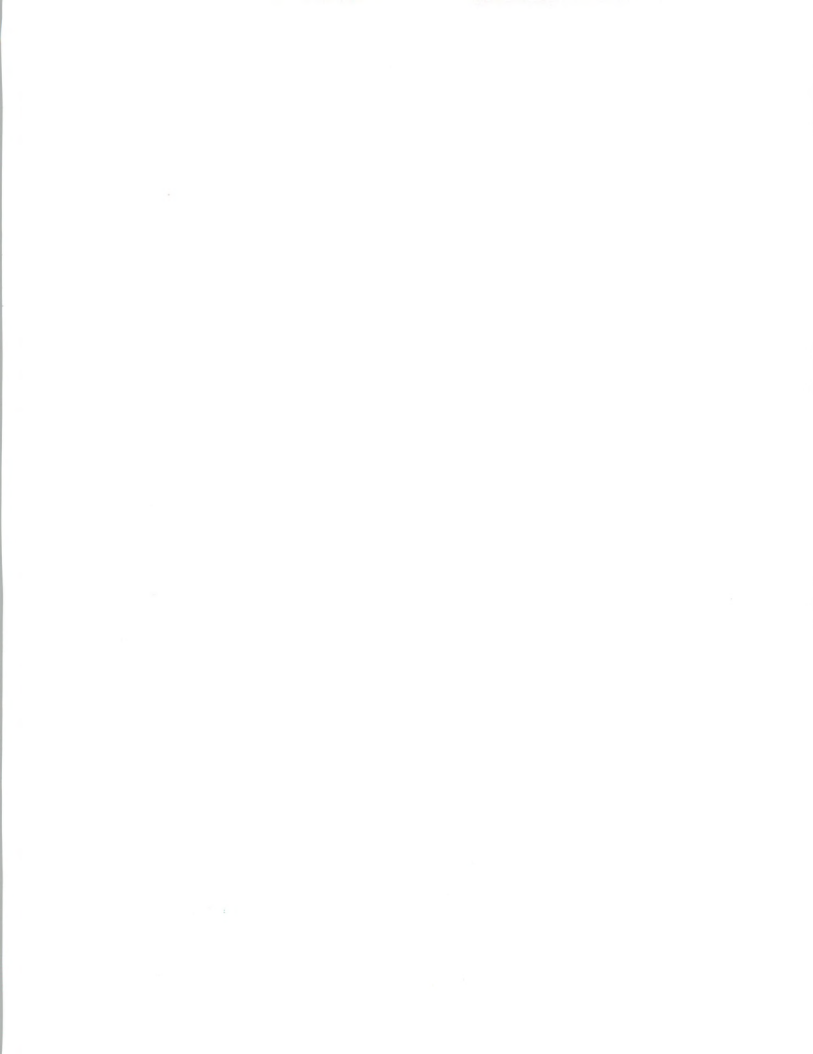
- Growth in this vertical market was held to a rate of 11% in 1992. Expenditures advanced from \$2.5 billion in 1992 to about \$2.8 billion in 1993.
- Between 1993 and 1998, demand for increased capabilities will increase the compound annual growth rate to 13%. Total expenditures in wholesale distributions will reach approximately \$5.1 billion in 1998.

**B****Forecast by Mode**

Growth in this sector, by information services delivery mode, is shown in Exhibit IV-2 below.

EXHIBIT IV-2





### 1. Processing Services

User expenditures for processing services grew at a rate of 4% between 1992 and 1993, rising from \$300 million to \$320 million. They will grow at a compound annual rate of 3% for the next five years, to reach \$370 million in 1998.

Processing services include accounting, mailing, order recording, and inventory as well as systems for specific functions needed by dealers in such industries as automobiles, tractors, boats, and planes. Many of the wholesalers using processing services are firms with few employees.

### 2. Turnkey Systems

Turnkey systems are waning in popularity because distributors are more inclined to buy PCs and use off-the-shelf software packages. Turnkey systems still retain their appeal in the point-of-sale market, especially for small retailers.

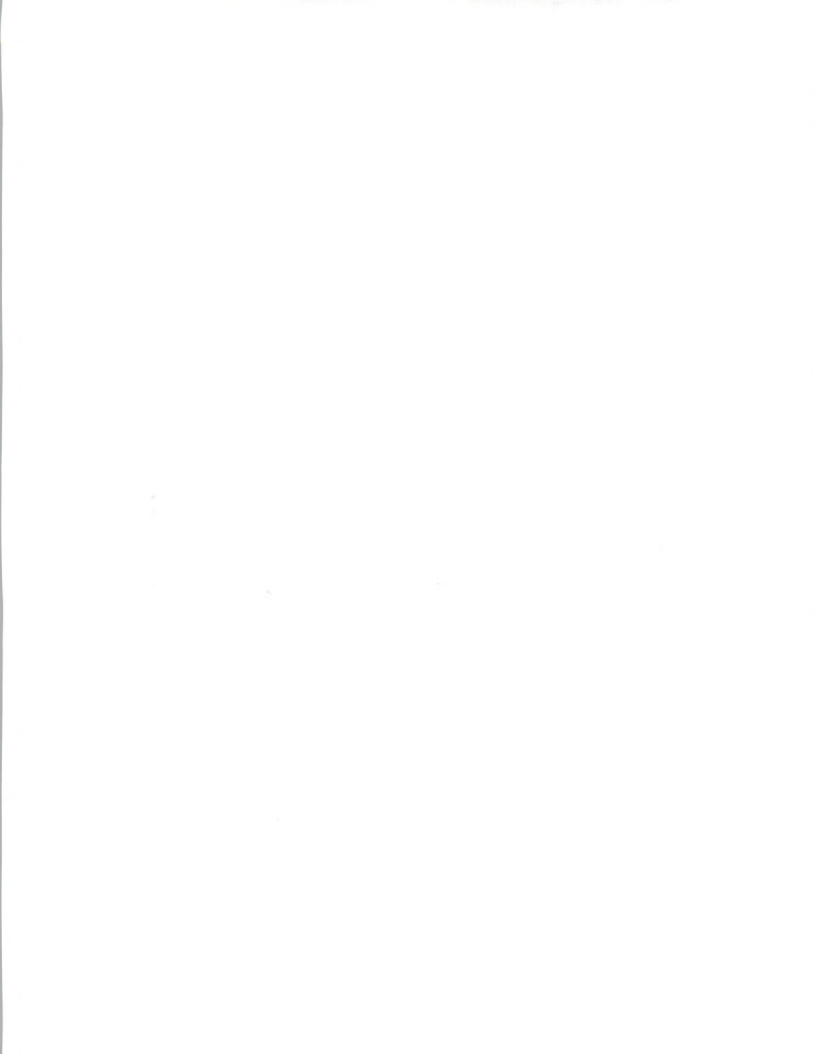
- Expenditures for turnkey systems in the wholesale distribution industry increased from \$520 million in 1992 to \$550 million in 1993.
- The growth rate was 6% between 1992 and 1993 and will continue at a lower rate of 4% through 1998.
- Expenditures will reach a level of \$680 million in 1998.

Turnkey systems, such as those that Imrex provides in various wholesale markets or that Global Turnkey provides in the wholesale electrical and building industry, characterize the focus on submarkets that turnkeys have shown in wholesale distribution.

- The solution to an information systems need is provided by one vendor who also may take care of the maintenance, software support, and leasing. This is appealing to many small wholesale establishments where there is a small staff handling orders, inventory, and other functions.
- Turnkey systems provided by VARs had been attractive to wholesale as well as retail firms, but the trend by many smaller wholesalers during the last few years to buy workstation/PC products, application software products, and network capabilities through stores or equipment dealers has affected the volume of turnkey sales.

### 3. Applications Software Products

Sales of application software products grew at a rate of 12% during 1992 as expenditures increased from \$590 million in 1992 to \$650 million in 1993, making this the largest delivery mode in wholesale distribution.





- The growth rate of expenditures will increase to 14% for the period between 1993 and 1998, driven by a high rate of growth (26%) for PC/workstation products.
- The growth of expenditures for PC/workstation software is generally in response to the need of productivity. There also has been an increasing tendency for wholesalers to buy separate hardware and software products for a solution, rather than use turnkey systems (see item 2 above).
- Application software for minicomputers will grow at a faster rate than application software for mainframe computers. This is primarily due to the recent trend of downsizing computer operations and the large population of small and medium-sized firms in this market.
- Expenditures for application software products in the wholesale market will reach \$1.3 billion in 1998, and it will continue to be the largest delivery mode in wholesale distribution.

#### 4. Systems Operations

Expenditures for systems operations in the wholesale distribution industry increased from \$210 million in 1992 to \$240 million in 1993. Expenditures will grow at a compound annual rate of 15% between 1993 and 1998, advancing to \$490 million in 1998.

This is essentially a fragmented market with no leading vendor with acknowledged industry expertise. However, the demand for platform systems operations, especially at the high end of the market, should keep growth at the current rates.

Both systems operations and systems integration possess the attraction of a single point of vendor responsibility that has become more appealing to wholesale industry prospects as a substitute for turnkey systems.

#### 5. Systems Integration

Expenditures for systems integration grew at a rate of 15%, from \$180 million in 1992 to \$210 million in 1993. Growth will continue at a compound annual rate of 16% through 1998, when expenditures will reach \$440 million.

The relatively low value of CSI programs to date, and the widespread nature of this industry, create a market not dominated by any particular vendor. IBM provides most of the platforms and has managed a number of small projects. EDS has also ventured into this market. Smaller firms with some interesting assignments include Innovative Teletronics, TSC, Sentinel Computer Corporation, Systems Unlimited, and CRT Distribution Systems, Inc.



Similar to the retail sector, software development will be the most significant SI component, with a correspondingly smaller growth of software products resulting from the wide diversity of submarket needs. Although computer hardware will be the second largest SI component, it reflects the industry's interest in employing newer but less expensive equipment. Networking will become a more important component in wholesale distribution SI engagements in the latter years of the forecast.

## 6. Professional Services

The rate of growth for professional services activity in 1992 was 7%, resulting in an increase in expenditures from \$380 million in 1992 to \$400 million in 1993.

- During the forecast period, professional services will continue to grow at a compound annual rate of 7% and reach \$580 million in 1998.

The low growth rate of professional services in wholesale as well as retail distribution, compared to growth in other industries, is due to the preference for solution-oriented approaches: turnkey systems, application software products, systems integration, or systems operations that can use experience acquired elsewhere to help generate a solution more rapidly than a full custom development project might be able to deliver.

## 7. Network Services

Network services will continue to be the fastest growing delivery mode in the wholesale sector in the next five years.

- Expenditures for network services have grown from \$330 million in 1992 to \$400 million in 1993, at a rate of 23%.
- Strong growth will continue at a rate of 25% through 1998, as expenditures for network services grow to \$1.2 billion.

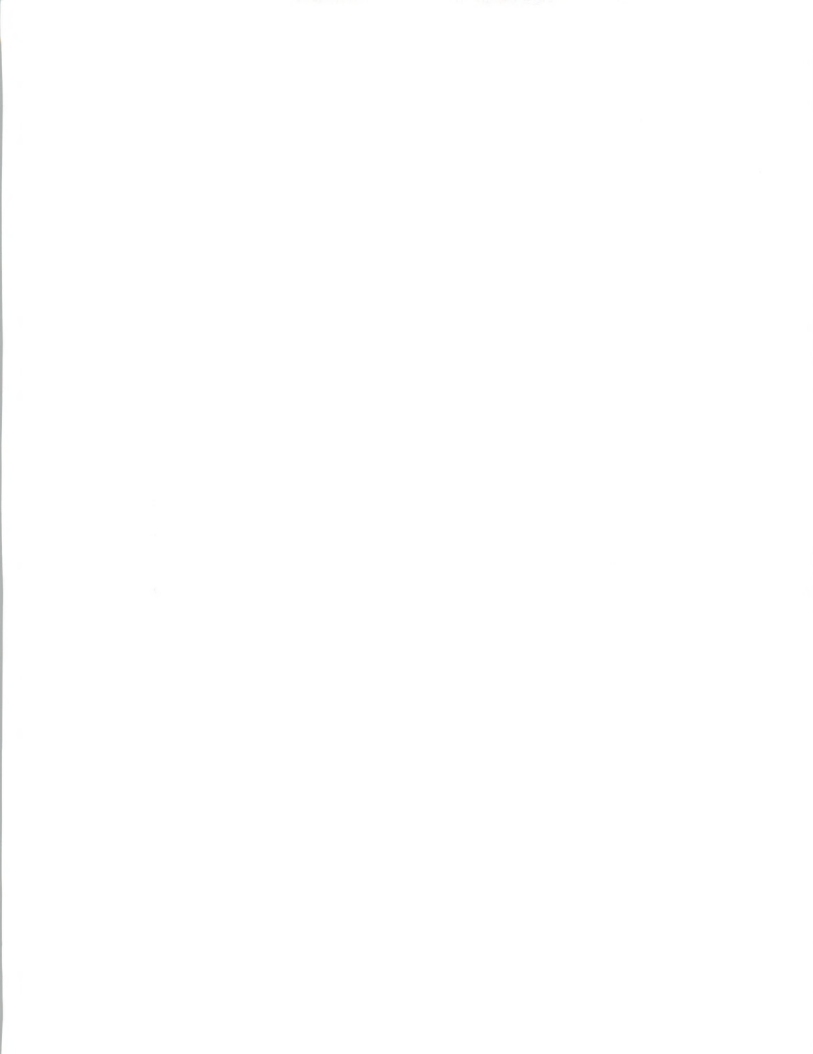
The growth of network services will be driven by the rapidly increasing use of network applications, including electronic commerce and electronic mail.

- Major retailers are insisting on the use of EDI by suppliers.
- Manufacturers and retail establishments expect wholesalers to use electronic means of sending them information of various kinds.

The use of network services is also due to the fact that many wholesalers are seeking improved productivity by gaining easier access to current information while still reducing data entry expenses.



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## Competitive Environment

### A

#### Recent Information Services Events

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The traditional role of the wholesale distributor is changing. Through the growing use of information services and technologies such as electronic data interchange/electronic commerce, more large and midsize manufacturers are able to forego using the wholesale distributor in the long-established "middle man" role by using new software and telecommunications technologies to perform this function themselves. Wholesale distributors are finding themselves in a fragmented market, which typically generates only 1%-2% of the total revenues for this market's largest information services vendors.

Electronic commerce has been particularly beneficial to this trend. Corporate trade payments via electronic means reached \$22 million in 1992, and INPUT estimates this figure will grow to nearly \$30 million in 1993. Wholesalers have come under increasing pressure from large retail chains and discrete manufacturing companies to use electronic methods for information exchange. Wal-Mart, for example, is currently electronically linked with all of its 5,000 suppliers. J.C. Penney is in the midst of a program that will eventually link the company's corporate headquarters to its 5,000 suppliers.

Manufacturers and distributors have begun to share information more effectively with each other, as both industry groups believe this will give them a strategic marketing advantage that will generate greater sales and customer satisfaction. Recent INPUT research indicates that electronic data interchange (EDI) will be the primary communication mode amongst wholesale distributors and manufacturers by the year 2000.

The trend toward client/server computing, including platforms and applications, continues to grow in the wholesale distribution sector. For example, American Software, J.D. Edwards, and Lawson have all developed client/server configurations of their respective distribution software products. Andersen Consulting has successfully migrated its DCS/Logistics





system down to the workstation level. Other companies implementing client/server or distributed applications include manufacturers such as General Motors, which runs its distribution system on Hewlett-Packard hardware, and Motorola, which has developed an open systems architecture using heterogeneous client/server technology to run its distribution systems.

## B

### Vendor Profiles

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Profiles of a number of different types of information services vendors active in the wholesale distribution industry are presented in this section. The strategies, background, products, and services of these vendors are reviewed to illustrate the range of competition in the industry.

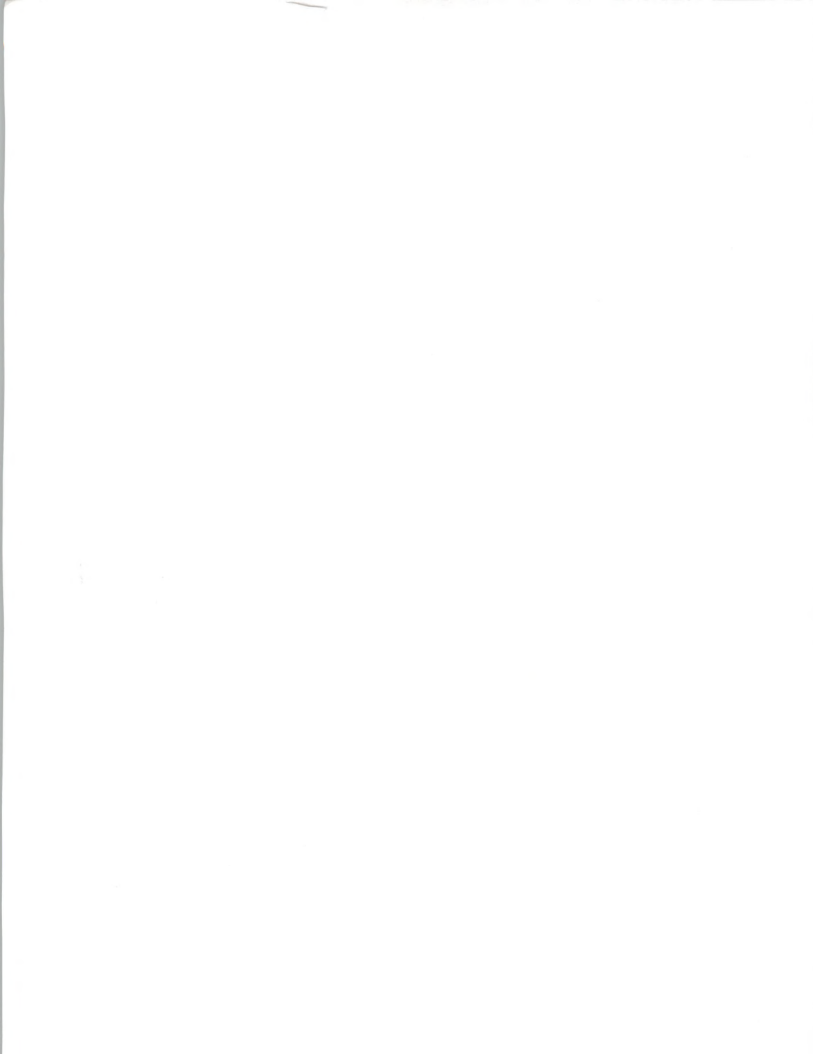
Vendors are further differentiated by the fact that many concentrate on specific wholesale distribution submarkets. Triad Systems Corporation, for example, primarily does business in wholesale auto supplies and hardgoods, while Unisol has carved its niche in the wholesale jewelry submarket. Other vendors are focusing on one or several specific information services modes and are addressing industries in which that mode is likely to sell, as GEIS does with network services and American Software with applications software products.

In addition to the companies that are profiled, many other information services vendors serve the wholesale market, including IBM, NCR, DEC, ADP, Ultimate, Bull, Ernst & Young and CSC.

Companies profiled here include:

- Andersen Consulting
- American Software
- BT Tymnet
- Cambar Software, Inc.
- Dun & Bradstreet Software Services, Inc.
- Sterling Software, Inc.

Additional information about these companies or other companies active in wholesale distribution can be found in the VAP Program of INPUT.



**1. Andersen Consulting, 69 West Washington Street, Chicago, IL 60602 (312) 580-0033**

**a. Company Strategy**

Andersen Consulting offers systems integration (SI), professional services, and software products for the wholesale distribution market. The company can discuss or demonstrate solutions to distribution problems as a way to gain business from solution-oriented prospects. In the past, Andersen has focused more attention on manufacturing, but presently has extensive experience in wholesale and retail distribution, as well as banking, utilities, and other markets.

**b. Company Background**

Andersen Consulting was set up by Arthur Andersen & Co. as a separate firm in 1988 to address its rapidly growing and large volume of information services business. Worldwide revenues in 1992 for Andersen Consulting were \$2.7 billion, 16% above the revenue for 1991. U.S. revenues comprised 46% of 1992 revenues, and grew 13% from 1991.

**c. Key Products and Services**

Andersen Consulting offers consulting, SI, professional services, and software products to the wholesale distribution market through its Consumer Products operating unit within its Products practice. The company reorganized the Products practice in early 1993 in order to better reflect its presence in numerous worldwide markets. The software products Andersen offers in wholesale distribution include Foundation for Cooperative Processing (FCP), the company's premiere client/server applications development system, and DCS/Logistics, a client/server-based logistical distribution system.

**2. American Software, Inc., 470 East Paces Ferry Rd., Atlanta, GA 30305 (404) 261-4381**

**a. Company Strategy**

American Software has distribution software products that are available on IBM mainframes, AS/400s, and MS-DOS workstations. Having products that run on multiple platforms allows the company to offer software solutions tailored to the hardware environments of its clients. American Software's distribution products form an integrated line of standardized modules that can run alone or in combination to meet customer requirements. The company also offers professional services to clients requiring customized solutions.



Wholesale distributors are using the following applications software products from American Software:

- Forecasting and inventory management software products that provide users with accurate sales forecasts to minimize and distribute investments in inventory
- Purchasing and materials control software products that provide information on the status of purchasing activities
- Financial and accounting software products

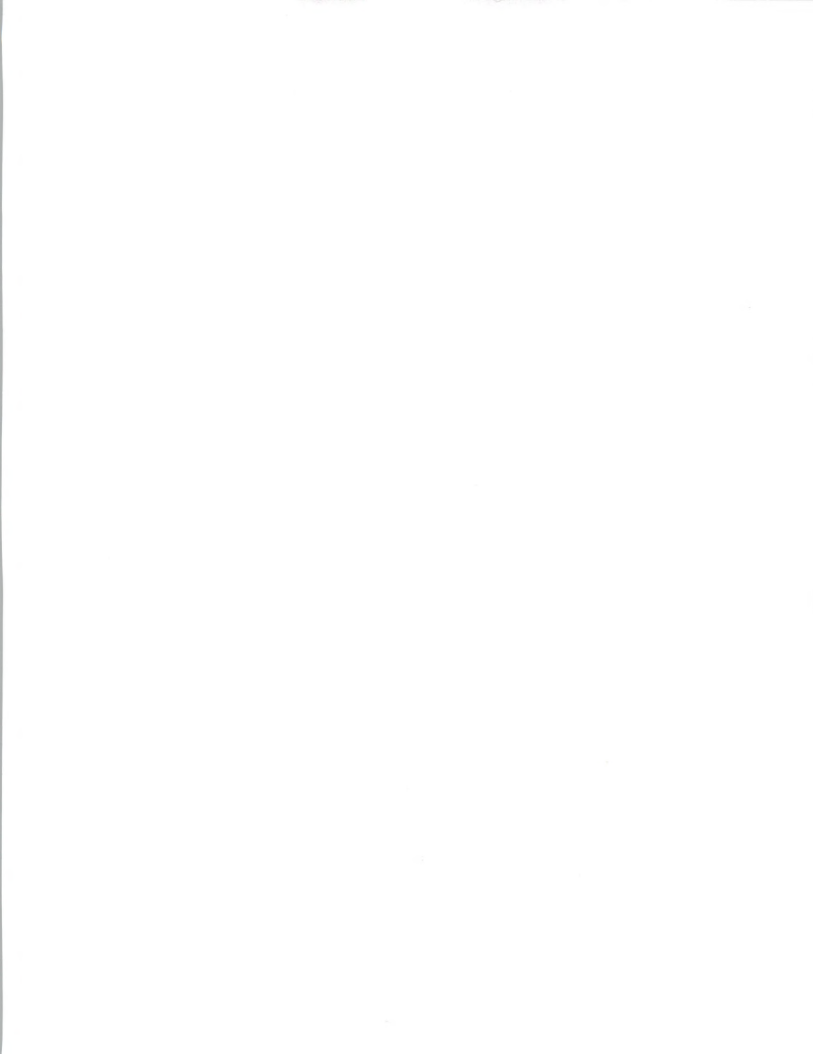
#### **b. Company Background**

American Software was founded in 1970. The company grew to approximately 950 full-time employees in 1992, and its calendar-year revenues for 1992 reached \$113 million. The company provides both applications software products and professional services to manufacturing, distribution, utilities, banking and finance, health care, education, transportation, and government clients.

#### **c. Products and Services**

Distribution Resource Planning (DRP-8) is an extension of the company's Manufacturing Resource Planning (MRP-8) product and is designed for companies involved in distribution. DRP-8 converts sales forecasts at each shipment location into requirements that are placed on a specific item's source of supply. All individual warehouse replenishment requirements are aggregated to produce total network requirements. Modules of the DRP-8 product include:

- Demand forecasting
- Inventory planning
- Distribution requirements planning
- Inventory deployment
- Vehicle scheduling and loading
- Customer order processing
- Purchasing
- Inventory control and accounting
- Accounts payable
- Material request



**3. BT Tymnet, Inc. 2560 North First St., San Jose, CA 95131  
(408) 922-0250**

**a. Company Strategy**

BT Tymnet's mission is to be one of the world's largest providers of shared, dedicated, and hybrid network solutions. The company operates the TYMNET public packet data communications network and provides access to dial-up services, major on-line data bases, EDI services, card authorization/electronic data capture, and other services in support of its strategy.

**b. Company Background**

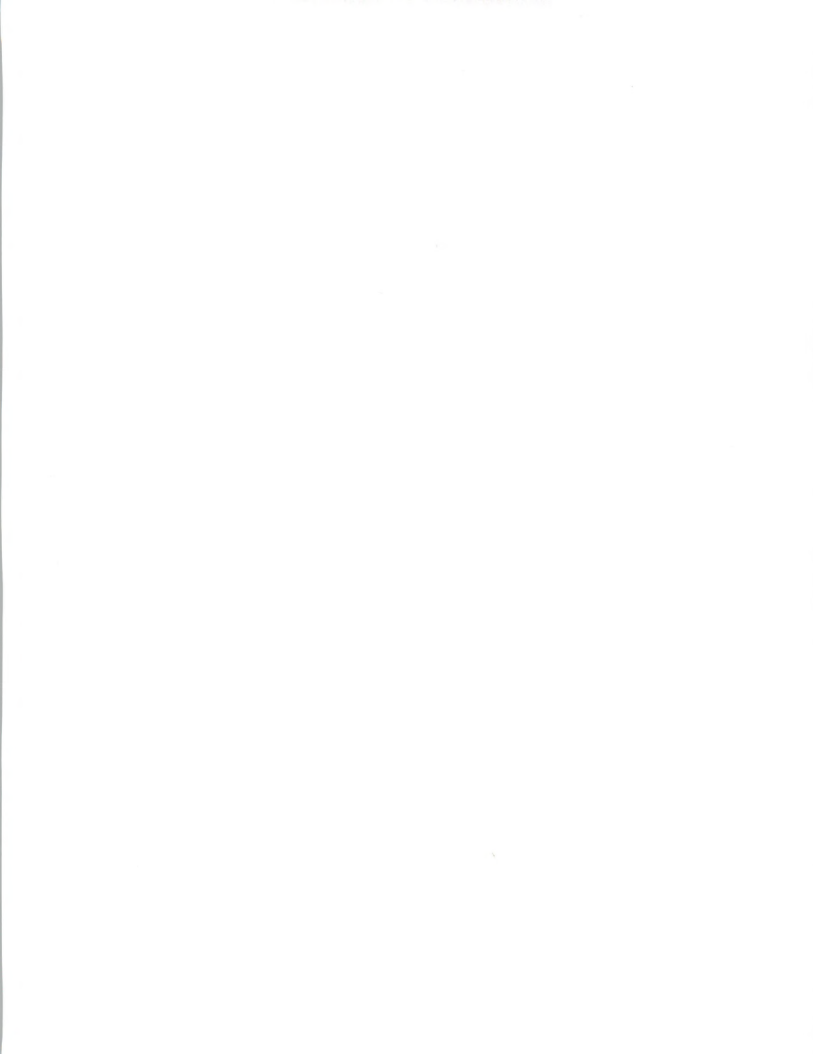
The TYMNET data network was initiated in 1969 to support remote processing services to timesharing clients. In 1977, it became an FCC-regulated specialized common carrier and was acquired by McDonnell Douglas in 1984. In 1989, it was acquired by British Telecom plc, together with a value-added service provider active in Japan. These acquisitions, together with Dialcom—which was acquired in 1986—were organized as BT Tymnet, a subsidiary of British Telecom, in 1989.

**c. Products and Services**

The TYMNET network consists of intelligent communications processors and network capabilities. These allow clients to communicate between attended or unattended terminals and their own or other computers in a variety of different locations. A number of different protocols, error correction, protocol conversion, data corection, and other services are provided by the network. Access to major on-line data bases is also provided through this network.

EDI\*Net is the principal EDI service of BT Tymnet, providing third-party value-added communications services for automated exchange of business documents such as purchase orders, invoices and bills of lading. There are over 1,000 clients, mostly in the transportation, grocery, electronics, telecommunications, aerospace, oil and warehousing industries.

Credit card and electronic data capture are provided for all major credit cards as well as private-label programs. The company formed a joint venture in February 1993 with Electronic Merchant Services, which will provide one of the first totally electronic merchant-issued debit card services in the U.S. The service, known as ECHECK, will gain access to the national electronic debit card market through BT's Electronic Transaction Services.





**4. Cambar Software, Inc., 4975 La Cross Road, Charleston, SC  
29411 (803) 747-4539**

**a. Company Strategy**

The company develops and sells software products for wholesale distribution and manufacturing companies that support customer order processing and inventory management. A standalone warehouse management product with bar coding capabilities is also available. This product will run on workstation or mainframe platforms, giving Cambar the ability to meet growing customer demands for client/server-based applications solutions.

**b. Company Background**

Cambar was formed in 1981 specifically to develop products for wholesale distributors and manufacturers. Currently the company is privately held, and generated nearly \$10 million in sales in 1992.

**c. Products and Services**

The company's revenues are generated exclusively by applications software products and related support services. Most of the company's revenues derive from sales of its CONTROL System, which is made up of modules for customer order processing and inventory management, and runs on IBM mainframes. Cambar's more recent Distributed Warehouse Management System is a scalable, client/server application that incorporates RF bar code scanner technology to minimize paperwork for warehouse distributors. Features of this system include cycle count generation, bin replenishment activity, 24-hour processing ability, lot and serial number control, expiration date checking, and productivity tracking.

**5. Dun & Bradstreet Software Services, Inc., 3445 Peachtree Road,  
NE, Atlanta, GA 30326 (404) 239-2000**

**a. Company Strategy**

The company develops, markets and supports a wide range of industry and cross-industry software products on multiple vendor platforms that provide it the opportunity to deliver to a number of industry markets. Applications software products are available for financial and accounting, human resources, administrative, purchasing, inventory, manufacturing, education and health industry functions.

Wholesale distributors use Dun & Bradstreet software products for inventory control, order management and processing, sales forecasting, human resources, accounting and financial reporting applications. Dun & Bradstreet also provides professional services for planning, using and customizing software products.



**b. Company Background**

This company is a subsidiary of the Dun & Bradstreet Corporation. It was formed in 1990 as a result of the merger of Management Science America, acquired in 1990, and McCormack & Dodge, which had been acquired in 1983. The former had been founded in 1963 and had over 24,500 product installations. The latter, founded in 1969, had over 10,000 product installations.

**c. Products and Services**

This vendor's software addresses a number of functions, described in the following material:

- The Millennium Series supports human resource, accounting, and support functions, chiefly on IBM and compatible mainframes; some products are also available for DEC VAX computers.
- The AMAPS manufacturing software products, which can also use intelligent workstations, are available for IBM mainframes and minis and HP computers.
- The Remote Inventory Control (RIC) system utilizes hand-held bar code recognition technology for materials management and inventory tracking.

In July 1993, Dun & Bradstreet released the first two modules in its SmartStream product series of client/server-based, integrated business applications for decision support and work flow analysis. Financial Stream provides a core of integrated financial applications that allow the execution and monitoring of critical financial information. SmartStream Decision Support 2.0 automates client/server distribution of information for decision making. The company will add Distribution Stream, a work flow analysis and decision support module for wholesale distribution and manufacturing, by the end of 1993.

**6. Sterling Software, Inc., 8080 North Central Expressway, Suite 1100, Dallas, TX 75206 (214) 891-8600**

**a. Company Strategy**

Sterling's Electronic Commerce Group has developed and acquired a comprehensive set of EDI services and related software and services that have established the company as a major competitor and source of expertise in EDI. As part of its strategy, the Electronic Commerce Group



focuses on maintaining a close relationship with clients and supplying their needs as their use of EDI expands. This strategy is supported with education and participation in the largest user group activity in the EDI market.

Markets that the Electronic Commerce Group has penetrated include wholesale and retail distribution, including grocery, hardware and housewares, as well as pharmaceutical, medical/surgical distribution, and service merchandising.

#### **b. Company History**

The Electronic Commerce Group is the new name for Sterling's former EDI Group. The unit's name was changed in mid-1993 when Sterling expanded it to include four new divisions created to cover the rapid growth of the electronic commerce market. Sterling expects the Electronic Commerce Group to generate nearly \$120 million in revenues worldwide during 1993. Currently, the unit has over 11,000 customers worldwide.

#### **c. Products and Services**

The Electronic Commerce Group consists of the following four divisions:

- The Interchange Software Division supplies the GENTRAN product family of electronic data interchange (EDI) translation and enabling software.
- The Network Services Division provides the COMMERCE line of EDI network service products.
- The Communications Software Division produces file transfer data communications software sold under the CONNECT name.
- The Banking Systems Division supplies item processing and financial EDI operations software to the banking industry.





## Conclusions and Recommendations

### A

#### Conclusions

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The wholesale distribution report for 1993 indicates that dramatic changes are taking place within the industry. The clear-cut guidelines that separated the wholesale distributor from the manufacturer and retailer are beginning to erode. INPUT believes that this erosion will continue for many segments of the industry.

The future is clear. Products will move from the manufacturer to the retailer via electronic commerce. The only human interaction will be when the sale is recorded by the retailer's point-of-sale equipment.

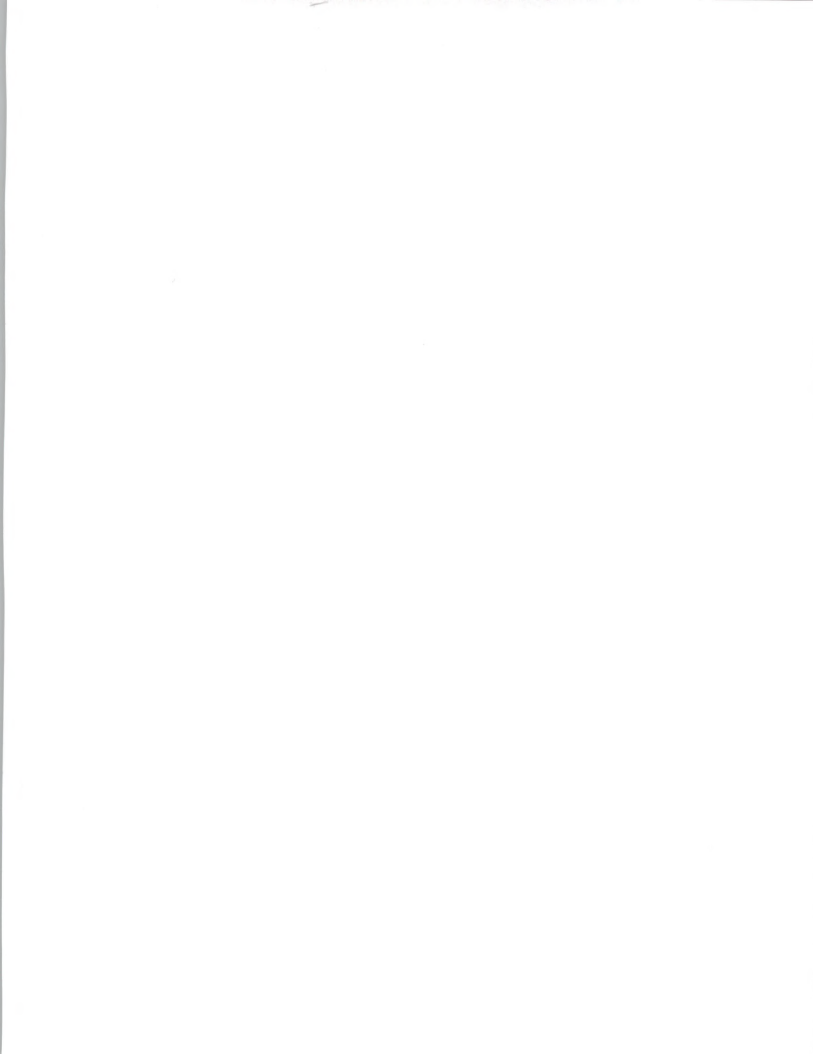
The advantages of eliminating data entry, coupled with the ability to forecast manufacturing requirements based on consumer demand, are very attractive.

- Although distribution will continue to rise at a rate equal to economic growth and inflation, this function is no longer performed exclusively by the wholesaler.

#### 1. Threat from Manufacturers

Manufacturers will continue to sell direct to the retailer or consumer for several reasons:

- Improvements in information technology, especially with electronic commerce, have given the manufacturer the technological ability to bypass the wholesaler.
- Small package delivery services have allowed the manufacturer to transport stock to retailers in any geographical region.
- Wholesale brokers can perform the marketing requirements at a fixed cost, usually a percentage of sales.





With these added capabilities, the manufacturer is more inclined to form alliances directly with the retailer. These alliances, especially those that communicate with the retailer's point-of-sale equipment, will provide excellent service at a lower cost to both parties.

## 2. Threat from Retailers

Large retail chains will continue to chip away at the wholesaler. Possibly a greater threat is from the super stores, such as the new alliance between Costco and the Price Club. These stores operate much like a wholesaler that has opened its doors to the public. In fact, at least one of the super stores will accept phone orders and deliver the merchandise.

## B

### Recommendations

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The wholesaler must act quickly to survive in today's business climate. The key to survival is in the proper use of information technology. The wholesaler must concentrate on system enhancements that are justified by productivity.

The word "productivity" is emerging as the business strategy of the 1990s. Productivity, getting more done with fewer people, may be the savior of the wholesale distribution industry.

For wholesale distributors, "circling the wagons" is not good enough; they will only watch their volume shrink. They must take an offensive position without delay.

- Wholesalers must concentrate on implementing electronic commerce with their suppliers. In fact, they should commit to electronic commerce as quickly as possible. They should then use this decision to solidify their alliances with suppliers. In doing so, it is possible that suppliers will be less inclined to implement their own systems. It is also possible that the supplier will participate in the implementation of the system.
- Alliances between the wholesaler and retailer, using point-of-sale equipment as the link, are also vital. Such an alliance enhances customer service and reduces costs for both parties. A successful alliance will insure continued sales, increase productivity, and reduce inventory investment.
- In the quest for productivity, the wholesaler must reduce data entry to an absolute minimum by using electronic commerce and automatic data entry systems.

There is no question that the industry needs a technological jump start. Expenditures must be carefully considered and balanced with a rapid return on investment. Electronic commerce, in all forms, will insure lower operating costs and could well be the savior of this shrinking industry.





## Forecast Data Base and Reconciliation

This appendix contains the forecast data base for the period 1993-1998 and the 1993 MAP data base reconciliation.

### A

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#### Forecast Data Base

Exhibit A-1 presents the detailed 1992 actual and 1993-1998 forecast for the wholesale distribution market sector.

### B

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#### Forecast Reconciliation

Exhibit A-2 offers a reconciliation of the 1992 and 1993 forecasts for the wholesale distribution sector.

The 1997 market for processing services is forecast in the 1993 report to reach \$363 million, a reduction of 13% from the 1992 forecast for the same period. This is due to INPUT's estimates that erosion of the processing services markets will accelerate, due to rapidly maturing applications software products solutions at affordable prices becoming available on PC/workstation platforms. INPUT's forecast of the wholesale applications software market does not receive a comparable upward adjustment, as price competition will compensate for increased volumes of applications software packages.

Turnkey systems are now forecast to achieve 1997 revenues that are 10% below the 1992 forecast. As in other vertical markets, turnkey systems growth is being constrained in wholesale distribution by the trend toward independent purchases of PC or workstation equipment, and separate contracting for applications software products. Both these trends work to reduce turnkey systems' market size and growth.

The 1993 report shows systems operations as a \$423 million market, 16% below the 1992 forecast. The variance is attributable to the fact that systems operations contracts tend to be implemented by large scale organizations, and there are a limited number of these in the wholesale sector, some of which have already committed to the systems operations path. Nonetheless, the forecast 15% growth rate is a vigorous one.

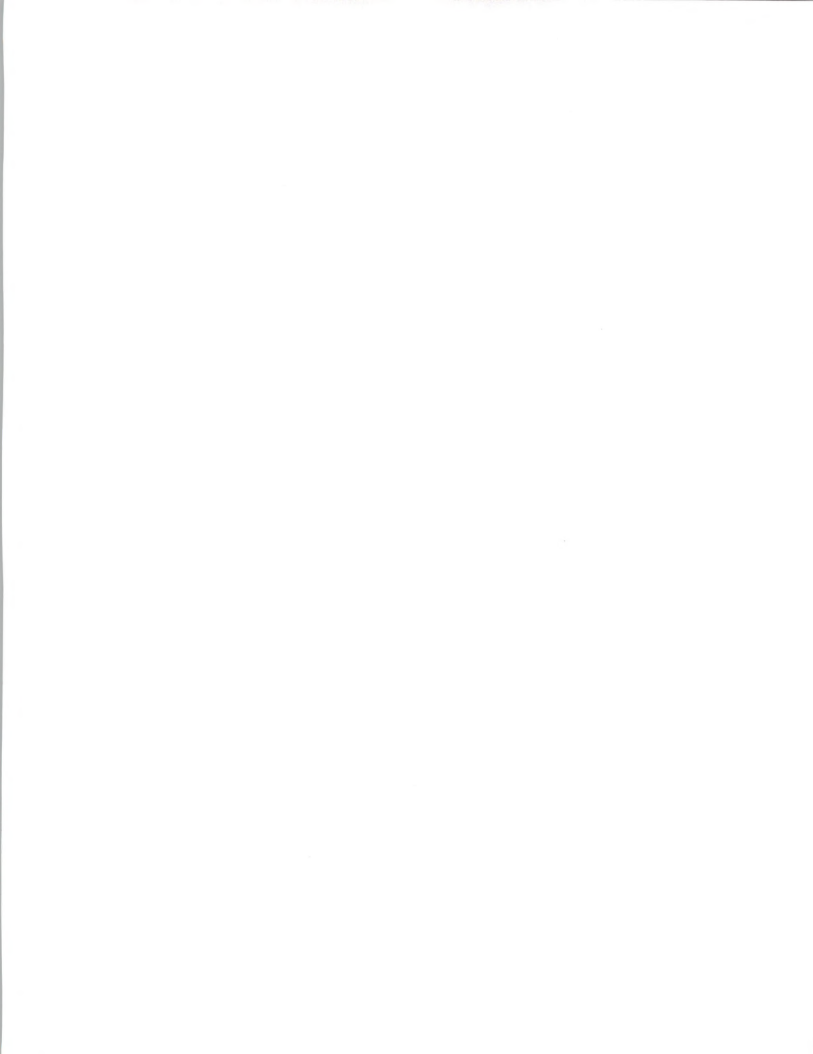


EXHIBIT A-1

### Wholesale Distribution Sector Information Services Market by Delivery Mode, 1992-1998

Delivery Modes	1992 (\$M)	Growth 92-93 (%)	1993 (\$M)	1994 (\$M)	1995 (\$M)	1996 (\$M)	1997 (\$M)	1998 (\$M)	CAGR 93-98 (%)
<b>Sector Total</b>	<b>2,508</b>	<b>11</b>	<b>2,776</b>	<b>3,098</b>	<b>3,473</b>	<b>3,911</b>	<b>4,433</b>	<b>5,058</b>	<b>13</b>
<i>Professional Services</i>	378	7	403	434	466	500	538	578	7
- IS Consulting	85	6	90	99	109	120	132	145	10
- Education & Training	56	5	59	63	66	70	74	78	6
- Software Development	237	7	254	272	291	310	332	355	7
<i>Systems Integration</i>	182	15	209	243	281	325	378	439	16
- Equipment	58	14	66	76	87	100	115	133	15
- Software Products	13	15	15	18	22	26	32	38	20
- Applications Software	7	14	8	9	11	12	14	16	15
- Systems Software	6	17	7	9	11	14	18	22	26
- Professional Services	106	15	122	142	164	190	221	256	16
- Other	5	20	6	7	8	9	10	12	15
<i>Systems Operations</i>	214	14	244	280	321	369	423	486	15
- Platform Operations	98	12	110	124	140	159	179	203	13
- Applications Operations	66	14	75	86	97	111	127	144	14
- Desktop Services	29	17	34	41	49	58	69	83	20
- Network Management	21	19	25	29	35	41	48	56	18
<i>Processing Services</i>	305	4	317	330	343	353	363	373	3
- Transaction Processing	305	4	317	330	343	353	363	373	3
<i>Network Services</i>	327	23	403	502	625	779	977	1217	25
- Electronic Information Svcs	69	13	78	89	100	112	127	142	13
- Network Applications	258	26	325	413	525	667	850	1,075	27
<i>Applications Software</i>	585	12	653	733	832	954	1,098	1,284	14
- Mainframe	252	4	262	271	280	288	296	304	3
- Minicomputer	135	10	149	163	177	191	204	215	8
- Workstation/PC	198	22	242	299	375	475	598	765	26
<i>Turnkey Systems</i>	517	6	547	576	605	631	656	681	4
- Equipment	233	3	240	246	252	257	262	267	2
- Software Products	196	7	209	223	237	250	262	274	6
- Applications Software	171	6	182	194	206	218	229	240	6
- Systems Software	25	8	27	29	31	32	33	34	5
- Professional Services	88	11	98	107	116	124	132	140	7

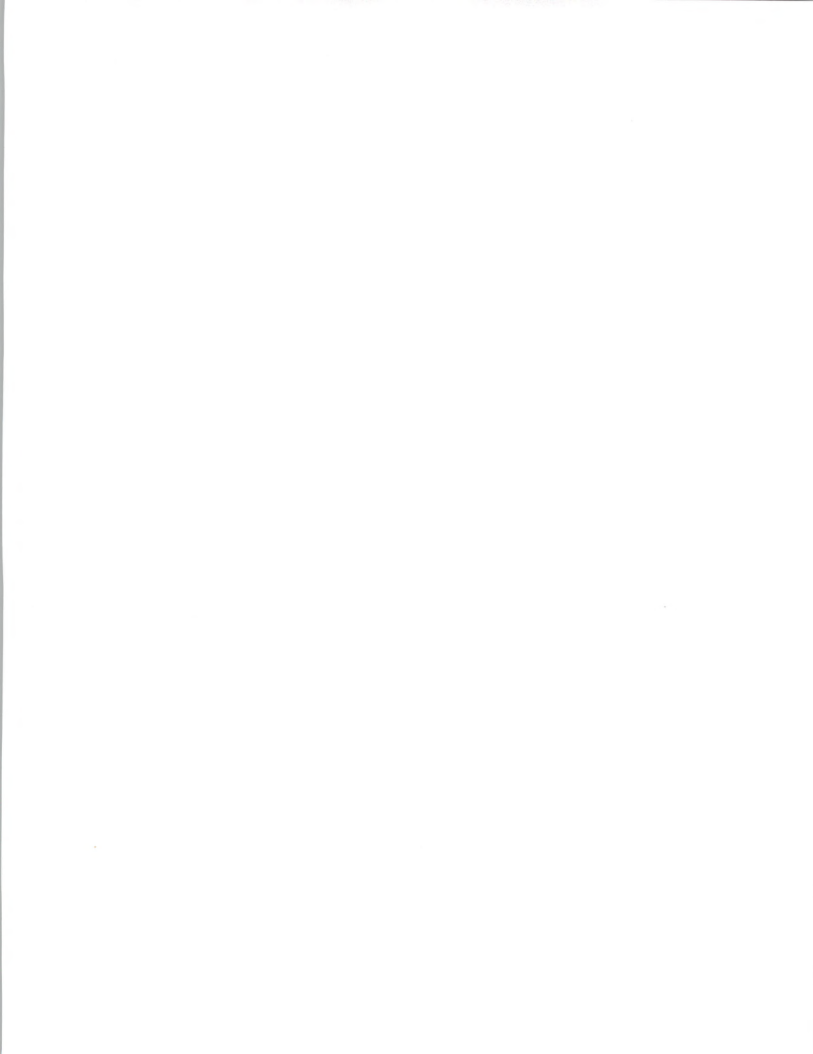


EXHIBIT A-2

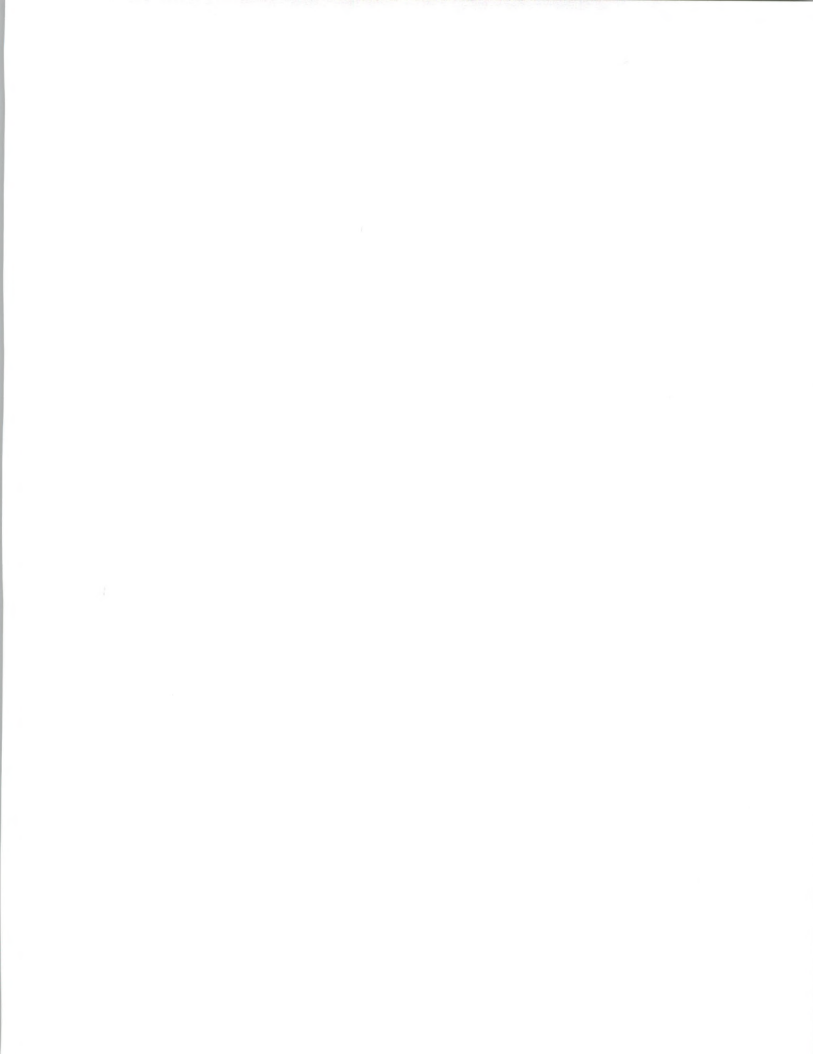
**Wholesale Distribution Sector,  
1993 MAP Data Base Reconciliation**

Delivery Modes	1992 Market				1997 Market				92-97 CAGR per data 92 Rpt (%)	92-97 CAGR per data 93 Rpt (%)
	1992 Report (Fcst) (\$M)	1993 Report (Actual) (\$M)	Variance from 1992 Report		1992 Report (Fcst) (\$M)	1993 Report (Fcst) (\$M)	Variance from 1992 Report			
			(\$M)	(%)			(\$M)	(%)		
<b>Total</b>	<b>2,532</b>	<b>2,508</b>	<b>-24</b>	<b>-1</b>	<b>4,573</b>	<b>4,433</b>	<b>-140</b>	<b>-3</b>	<b>13</b>	<b>12</b>
Professional Services	380	378	-2	-0	542	538	-4	-0	7	7
Systems Integration	181	182	1	0	384	378	-6	-2	16	16
Systems Operations	229	214	-15	-7	502	423	-79	-16	17	15
Processing Services	307	305	-2	-0	418	363	-55	-13	6	4
Network Services	326	327	1	0	913	977	64	7	23	24
Applications Software	587	585	-2	-0	1,083	1,098	15	1	13	1
Turnkey Systems	522	517	-5	-0	731	656	-75	-10	7	5





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## ABOUT INPUT

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Since 1974, information technology (IT) users and vendors throughout the world have relied on INPUT for data, objective analysis, and insightful opinions to support their plans, market assessments and technology directions particularly in computer software and services. Clients make informed decisions more quickly and save on the cost of internal research by using INPUT's services.

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- IT Procurements

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- Outsourcing
- Systems Integration
- Customer Services

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Many vendors leverage INPUT's proprietary data and industry knowledge by contracting for custom consulting projects to address questions about their specific market strategies, new product/service ideas, customer satisfaction levels, competitive positions and merger/acquisition options.

INPUT advises users on a variety of IT planning and implementation issues. Clients retain INPUT to assess the effectiveness of outsourcing their IT operations, assist in the vendor selection process and in contract negotiation/implementation. INPUT has also evaluated users' plans for systems and applications downsizing.

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