tool helps ensure fast and effective setup of wireless systems.

The enhanced TransTalk system will be available in the first quarter of 1996 for about $900 per station. The cellular system will be available in the second quarter of 1996 for about $1800 per station. The multizone DEFINITY Wireless System will be available in the fall for about $1800 per station.

AT&T GBCS's BusinessWorks solutions provides integrated solutions for customer sales and service, conferencing and collaboration, and distributed and mobile workforces, with an emphasis on private network infrastructure, industry partnerships and end-to-end sales and service support. GBCS has a highly trained sales force of more than 4,000 people nationwide.

Both AT&T GBCS and AT&T Network Systems will become part of a new company expected to be spun off from AT&T this year as a result of AT&T's recently announced restructuring.

If you are attending ComNet, stop by our Wireless booth (#1126).

About INPUT

Report Quality Evaluation

To our clients:
To ensure that the highest standards of report quality are maintained, INPUT would appreciate your assessment of this report. Please take a moment to provide your evaluation of the usefulness and quality of this study. When complete, simply fax to INPUT at (415) 961-3966 or fold, tape, and drop in the mail. Postage has been pre-paid by INPUT if mailed in the U.S.

Thank You.

1. Report title:
   Information Service Markets, 1995-2000, Retail and Wholesale Trade Forecast Update

2. Please indicate your reason for reading this report:
   - ☐ Required reading
   - ☐ Area of high interest
   - ☐ Area of general interest
   - ☐ New product development
   - ☐ Business/market planning
   - ☐ Product planning
   - ☐ Future purchase decision
   - ☐ Systems planning
   - ☐ Other _____

3. Please indicate extent report used and overall usefulness:

	Extent		Usefulness (1=Low, 5=High)				
	Read	Skimmed	1	2	3	4	5
Executive Overview	☐	☐	☐	☐	☐	☐	☐
Complete report	☐	☐	☐	☐	☐	☐	☐
Part of report (_____ %)	☐	☐	☐	☐	☐	☐	☐

4. How useful were:

Data presented	☐	☐	☐	☐	☐
Analyses	☐	☐	☐	☐	☐
Recommendations	☐	☐	☐	☐	☐

5. How useful was the report in these areas:

Alert you to new opportunities or approaches	☐	☐	☐	☐	☐
Cover new areas not covered elsewhere	☐	☐	☐	☐	☐
Confirm existing ideas	☐	☐	☐	☐	☐
Meet expectations	☐	☐	☐	☐	☐
Other _____	☐	☐	☐	☐	☐

6. Which topics in the report were the most useful? Why? _____

7. In what ways could the report have been improved? _____

8. Other comments or suggestions: _____

Name _____ Title _____

Department _____ Company _____

Address _____

Country _____

Telephone _____ Date completed _____

Thank you for your time and cooperation.

INPUT

INPUT EDITING CHECKLIST

Check program:

USA	IVA - VA	IEU - UK
☐ EDI	☐ MAR	☐ CSP
☐ MAP	☐ FTP	☐ MAP
☐ DSP	☐ YCU	☐ OSP
☐ SIP	☐ XMC	☐ SIP
☐ OSP	☐ OTHER	☐ YCU
☐ YCU		☐ XMC
☐ ZRE		☐ OTHER
☐ XMC		

JAPAN– ☐ _____

OTHER– ☐ _____

Project Code MVR5

1st Draft Editor Anna Reynolds Tabucco

Final Draft Editor _____

Final Corrections _____

Executive Overview _____

First Draft Editing

Not present

- ☐ Check TOC outline against text
- ☐ Check LOE against exhibit titles
- ☐ Check headers and footers
  - Correct name on top
  - Correct code on bottom
  - Correct © year—No copyright on custom reports
- ☑ Proofread and edit text—**always check against author draft if handwritten**
  - Correct grammar, diction, and punctuation problems
  - Check for correctness and consistency in company/product names and acronyms
  - Exhibits must have exhibit references in text
  - Textual description of exhibit must match exhibit contents
- ☑ Proofread and edit exhibits—**always check against author draft if handwritten**
  - Proofread and edit text and title—title must accurately describe exhibit content
  - Similar exhibits must have similar wording and punctuation
  - Check monetary units and labeling carefully—be sure labels match those in author's draft
  - Similar exhibits must have same numerical scale
  - Check for *x*- and *y*-axis labels
  - Check math unless you know it came from a spreadsheet
  - Changes to the numbers in exhibits must agree with text.
  - Changes to exhibit names must agree with LOE.
- ☑ Mark formatting problems (problems with bold or italic words, font size irregularities, chapter heading and subheading problems, etc.)

Queries on RR

- ☑ Discuss all queries with the author, either in person or over the phone, and make the necessary corrections to the text.
  - If any elements are missing, ask author to submit them ASAP. (Note: most reports start with an *Abstract*. Possible exceptions: U.S. MAP and Client/Server vertical-industry reports, some CSP reports, some custom reports). When the author specifies appendix(es) are *standard*, be sure that the author has specified the exact appendix. "Standard Appendix A" is insufficient. "Standard Appendix A from report MVT" is exact.
  - No unanswered questions should remain when you submit report to graphics. If the author cannot answer a query within a *reasonable* time, submit report to graphics with a note explaining that the author will respond shortly.

on side

- ☑ If the report has recurring errors, such as an incorrectly spelled company name, do a global change. Or on a query slip, indicate the incorrect word and how to change it, and place the slip on the blue sheet for graphics support to correct.

12/15

- ☑ Submit report to graphics.

916-273-4252

Final Draft

- ☐ Check implementation of first-draft text and exhibit changes.
- ☐ Do a light rereading of the text to catch errors previously overlooked.
- ☐ Make sure that exhibits appear appropriately in text.
- ☐ Make sure exhibit numbers in text are sequential by chapter (e.g., II-1, II-2, etc.).
- ☐ Recheck that TOC and LOE names match report/exhibit headings—change TOC or LOE if there is a discrepancy—not the report/exhibit heading.
- ☐ Check that page numbers in TOC and LOE correspond exactly to report pagination.
- ☐ Proofread title page—current month and year at top of page; cities of offices at bottom.
- ☐ Proof copyright page—(*Published by* instead of copyright page in custom reports)
  - Check report title, program name
  - U.K. reports say "Researched in the U.K." etc.
  - Check report code, author's employee number, program year (year written for) and copyright year (when actually published).
  - Check header.
- ☐ Make sure all elements of the report are present
  - Title page
  - About INPUT (back page for verticals)
  - Abstract (only a few reports don't require an Abstract).
  - Copyright page (or *Published by)*
  - TOC/LOE
  - All chapters
  - Appendix(es)
- ☐ Check pagination throughout the report. Each chapter starts with page 1 and ends on an even numbered page. The numbers begin with the Roman numeral of the chapter (i.e., page 3 of chapter 4 is IV-3).
- ☐ If you mark only a few corrections, flag these pages with query slips for the graphics staff.

Final Corrections

- ☐ Check implementation of all final-draft corrections.
- ☐ Use query slips to flag final changes. Flags are very important. Graphics staff will assume there are no additional corrections to be made if no pages are flagged.

Executive Overview

Most reports have an *Executive Overview* (chapter 2 of the report) printed as a separate document. The *Executive Overview* consists of the following elements:

- Cover
- "To our clients" page (inside cover)
- Abstract (from the report) Author's employee number and program year go above project code.
- Overview Contents
- Executive Overview chapter from the report (usually chapter 2)
- TOC (from the report)
- LOE (from the report)
- Program description
- About INPUT

What to proofread:

- ☐ Cover page—title.
- ☐ "To our clients" page—completely
  - U.K. reports read "Programme—Europe"
- ■ Abstract is pulled directly from the report
- ☐ Overview Contents—completely
  - U.K. overviews will read "Programme Description"
- ■ Report Table of Contents and Exhibit list are pulled directly from the report.
- ☐ Program description (from marketing brochure).
- ☐ About INPUT—U.S. or U.K. version as appropriate

About INPUT is a one-page description of INPUT and a list of INPUT offices. It is used in publications as follows;

- Hard-Velobound: inside front cover (done by bindery)
- Soft-Velobound: back of title page
- Softbound/Executive Overview: back cover
- Binders: back of title page

When Report is Done

- ☐ Return copy of edited files on disk to local administrator to be placed in project files.

January, 1996

Dear Colleague:

Enclosed is the 1995 forecast update for the Retail and Wholesale Trade market sectors, two of fifteen such markets or industries tracked by INPUT as part of its U.S. Market Analysis Program (MAP). Because the two markets share many common attributes, this year they have been consolidated into a single report for ease of reference.

The report examines the information services needs of these marketplaces, with special attention to the unique requirements of each industry and the technological and economic realities that are influencing them. The trends, events and issues driving the market are identified and expenditures are forecast for each of seven information services product/service categories.

Key topics discussed include retailers' use of alternative marketing channels, the continued importance of customer service and the impact of computer-based merchandising systems. For wholesalers, topics include the recent trend toward consolidation and the importance of Efficient Customer Response (ECR) systems. The analysis of the technology trends and other industry issues, together with other research, is used to project the growth in the retail and wholesale markets for information services over the next five years—markets that are growing, respectively, at 17% and 14% compound annual rates through the year 2000.

Your purchase of this report includes access to our consultants, who will be happy to answer any questions that you may have regarding this, or other INPUT reports you receive.

You should file this report in your MAP binder, behind the tab market Retail Trade. A note should be placed behind the Wholesale Trade tab noting that this year's report has been consolidated with the Retail report.

Sincerely,

Robert Goodwin

Robert L. Goodwin
Vice President

INPUT

– REPORT –
PRODUCTION QC SCHEDULE

PRINTING/BINDING SPECIFICATIONS

AUTHOR PLEASE COMPLETE:

Project Code: MURS

Cover: **GBC Soft Vinyl** ☐ — **Hot Strip Paper Cover** ☐ — **Binder** ☐ —

Soft Vinyl Window Cover ☒
80 lb. White Paper ☐
3-Hole Drill ☐

Color Cardstock ☐
Shrink Wrap ☐

Cover Title—Exactly how it is to appear on the report cover:

Front: INFORMATION SERVICES MARKET 1995 - 2000 RETAIL AND WHOLESALE TRADE INDUSTRIES

Spine: (1 Line) FORECAST UPDATE
(more than 67 pages only)

(Binder spine may have 2 lines)

Estimated number of pages: < 32 ☐ 1/16" spine
Please note: 1/16" spine is too small for title to be printed on it.

CLOSE NEED TO COUNT FINAL PAGES (TOTAL)

33-66 ☒ 1/8" spine
67-130 ☐ 1/4" spine
131-196 ☐ 3/8" spine
197-260 ☐ 1/2" spine
261-324 ☐ 5/8" spine

Executive Overviews:
No. required for Thank-You packages: —

Program Manager Approval: [signature] Date: 12/1/95

CENTRAL FULFILLMENT/PRINTING PLEASE COMPLETE:

1. REPORTS: Fulfillment 56
   Stock 20
   TOTAL 76

2. EXECUTIVE OVERVIEWS Fulfillment _____
   Stock _____
   for Thank-You packages _____
   TOTAL _____

3. Binding: Cover Color _____ Spine Size _____ Hot Strip Color _____

4. Date to print: _____

5. Date to be shipped: _____ Complete actual ship date on first side.

6. Fulfillment, **PLEASE PRINT:** ☐ labels ☐ packing slips

ADM400/02
10/94

INPUT

– REPORT –
PRODUCTION QC SCHEDULE

Program: MAP **Program Year:** 1995

Report: RETAIL AND WHOLESALE TRADE **Project Code:** MVRS

Author: DAVID JUNG **QC Performed By:** JM

Author I.D. or Employee No.: 134

		DATE REC.	DATE SENT	INITIAL
RESEARCH	1. Author—Write report, send to QC Officer		9/13	JM
	2. QC Officer—Review, discuss or return to Author			
	3. Author—Revise report, send to Local Administrator with ☒ Printed MS Word Draft/Exhibits ☒ MSWord Disk on Z:\LMMRA\TO-GRAPH\MVRS ☒ Transmittal Letter ☐ Thank-You Package Letter/Information ☐ Press Release Draft ☐ Brochure Draft/Direct Mail Purchase Order ☐ Exhibits tagged for slide library ☐ INPUT/Output Article Draft ☒ **Reverse Side of Form Completed**		12/8	JM
DESKTOP PUBLISHING	4. Local Administrator—Check items, log in	12/8		
	5. Desktop Publishing—Create/correct exhibits and formatting			
	6. Send art for cover to Central Printing			
	7. Editor*—Edit/proofread/note queries	12/12	12/15	AR
RES	8. Author—Final review, accept/reject edits			
DTP	9. Desktop Publishing—Finalize report 1/3	~~12/15~~	1/10	BOB
	10. Local Administrator—Check items, log out			
CENTRAL PRINTING	11. Central QC—QC print-ready status			
	12. Print, bind, ship		DATE SHIPPED	
	Thank You Package Shipped		DATE SHIPPED	

JM 1/18

* Complete proofreader form (ADM 450/01), and attach to QC Schedule

Dist: ORIG: Report Draft/Orig. File COPY: Fulfill./Shipping

ADM400/01
10/94

Information Services Markets 1995-2000

Retail and Wholesale Trade

Forecast Update
January 1996

INPUT®

Frankfurt • London • New York • Paris • San Francisco • Tokyo • Washington, D.C.

Table of Contents

List of Exhibits

I

Introduction

A

Purpose, Contents and Organization

This section identifies the purpose and scope of this forecast update, notes key issues affecting information services expenditures in the retail and wholesale trade market sector and explains how the document is organized.

1. Purpose

The purpose of this report is to update the information services market forecasts for the retail and wholesale trade market sectors, and identify the key trends and issues driving these markets.

2. Contents and Organization

In addition to this introductory chapter, the report contains analyses of the information services market and competitive environment as described below:

- Chapter II, Executive Overview, summarizes the report findings.
- Chapter III, *Retail and Wholesale Business Trends*, discusses changes, market issues and activities, along with competitive factors in the retail and wholesale trade sector that can impact current and future use of information systems (IS).
- Chapter IV, *Information Services Market Forecast,* presents an analysis of expenditures for information services, by product/service sector, for the U.S. retail and wholesale trade markets. It also offers profiles of selected vendors.
- Chapter V, *Conclusions and Recommendations*, offers suggestions and recommendations for participants in the retail and wholesale trade market.

- Appendix A, *Forecast Database*, presents a detailed forecast by product and service for the retail and wholesale trade vertical market. A reconciliation to the previous forecast is also provided.

B
Industry Structure

The scope of this analysis and forecast is limited to the retail and wholesale industry sectors.

The retail market as identified by INPUT is comprised of the SIC retail groups presented in Exhibit I-1.

Exhibit I-1

Retail Industry Sectors by SIC Code

Industry Sector (SIC)	Description
52	Building materials stores
53	General merchandise stores
54	Food stores
55	Automotive dealers, gas stations
56	Apparel and accessory stores
57	Home furniture, furnishings and accessory stores
58	Eating and drinking places
59	Miscellaneous retail

Source: INPUT

The wholesale market as defined by INPUT is composed of the SIC wholesale groups, presented in Exhibit I-2.

Exhibit I-2

Wholesale Industry Sectors by SIC Code

Industry Sector (SIC) Durable Goods	Description
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 supplies
508	Machinery and equipment
509	Miscellaneous durables

Exhibit I-2 (continued)

Wholesale Industry Sectors by SIC Code

Industry Sector (SIC) Nondurable Goods	Description
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

Source: INPUT

C
Research Methodology

Research—Much of the data on which this report is based was gathered during 1994 and 1995 as part of INPUT's ongoing market analysis program. Trends, market sizes and growth rates are based upon INPUT research and in-depth interviews with users in the retail and wholesale industries and the information services vendors serving those industries. INPUT maintains ongoing relationships with and a database of all users and vendors interviewed. Interviewees for the research portion of this report were selected from this database of contacts.

INPUT Library—In addition, extensive use was made of INPUT's corporate library in Mountain View, California. The resources in this library include on-line periodical databases, subscriptions to a broad range of computer and general business periodicals, continually updated files on more than 3,000 information services vendors and the most up-to-date U.S. Department of Commerce publications on industry statistics.

Financial Data—It must be noted that vendors may be unwilling to provide detailed revenue breakouts by product and service or industry. Also, vendors often use different categories of industries and industry segments or view their services as falling into different product and service categories than those used by INPUT. Thus, INPUT must estimate revenues for these categories on a best-effort basis. For this reason, the product and service individual segment forecasts should be viewed as indicators of general patterns and trends, rather than specific, detailed estimates for specific years.

Rounding—When displaying market forecast values in bar and column charts, INPUT rounds these amounts for ease of visual reference. Markets of $1 billion or more are rounded to the nearest $50 million; $100 million to $999 million to the nearest $10 million; and $50 to $99 million to the nearest $5 million. Actual values are shown in charts for markets of $49 million or less, in Appendix A tables and in chapter text.

D
Related INPUT Reports

The following INPUT reports may also be of interest:

- *Client/Server Application Trends—Retail Trade*
- *Electronic Commerce in Retail and Wholesale Distribution*
- *The Electronic Catalog Market*
- *European Software and Service Market*
- *U.S. Network Services Market*
- *U.S. Software Product/Support Strategies Market*
- *U.S. Systems Integration/Professional Services Market*
- *U.S. Business Process Reengineering Market—Impact on Systems Integration*
- *Outsourcing Market Forecast*

Published by
INPUT
1881 Landings Drive
Mountain View, CA 94043-0848
United States of America

U.S. Information Services Market Analysis Program

Information Services Opportunities and Trends, 1995-2000—Forecast Update

Retail and Wholesale Trade

MVR5 • 734 • 1996

(BLANK)

(BLANK)

January, 1996

Dear Colleague:

Enclosed is the 1995 forecast update for the Retail and Wholesale Trade market sectors, two of fifteen such markets or industries tracked by INPUT as part of its U.S. Market Analysis Program (MAP). Because the two markets share many common attributes, this year they have been consolidated into a single report for ease of reference.

The report examines the information services needs of these marketplaces, with special attention to the unique requirements of each industry and the technological and economic realities that are influencing them. The trends, events and issues driving the market are identified and expenditures are forecast for each of seven information services product/service categories.

Key topics discussed include retailers' use of alternative marketing channels, the continued importance of customer service and the impact of computer-based merchandising systems. For wholesalers, topics include the recent trend toward consolidation and the importance of Efficient Customer Response (ECR) systems. The analysis of the technology trends and other industry issues, together with other research, is used to project the growth in the retail and wholesale markets for information services over the next five years—markets that are growing, respectively, at 17% and 14% compound annual rates through the year 2000.

Your purchase of this report includes access to our consultants, who will be happy to answer any questions that you may have regarding this, or other INPUT reports you receive.

You should file this report in your MAP binder, behind the tab market Retail Trade. A note should be placed behind the Wholesale Trade tab noting that this year's report has been consolidated with the Retail report.

Sincerely,

Robert Goodwin

Robert L. Goodwin
Vice President

II

Executive Overview

A
Executive Overview—Retail

This forecast update describes the many retail business trends, technology trends, information systems concerns and anticipated changes that will occur in the retail industry in next few years. INPUT also calculates, projects, and reports the total information services market forecast and a forecast by product/service sector through the year 2000.

The retail market is experiencing significant business changes that are shaping the ways retailers conduct business in the 1990s. These trends indicate that the future of retailing will be driven by dramatic business changes that include the following:

- Large retailers are diminishing in number and consolidating.
- Retailers are aligning information systems (IS) and corporate goals through improved strategic planning and business process reengineering.
- Retailers must use alternative channels of merchandising (e.g. electronic shopping, kiosks, catalogs, telemarketing, and event planning, etc.) to survive, remain competitive, and grow.
- Customer service is still the key to successful retailing.
- Database marketing (e.g., frequent shopper programs), and consumer information will increase sales and market share.
- International expansion will offer new growth opportunities for mature retail companies.
- Efficient Consumer Response (ECR) techniques will cut margins and allow retailers (such as grocers) to compete against warehouse clubs and discount stores.

For many years, retailers have recognized information technology (IT) as one of the keys for improving sales and productivity performance, and for increasing speed and efficiency at corporate offices, distribution warehouse centers and at the store level. Now IT is facilitating new retail business processes and key technical trends, such as:

- More outsourcing will occur in the retail industry.
- There will be rapid growth in client/server technology.
- Computer-based merchandise systems using EDI and quick response technologies will continue to be implemented.
- Virtual home/electronic shopping will emerge as an alternative merchandising distribution channel.
- Virtual inventory will dramatically cut costs and increase sales.
- Executive decision-support systems for retail sales will abound.
- Retailers will cut communications costs by implementing LANs, WANs, and satellite communications, and by using the Internet
- As retailers go international, more importing systems will be installed.

As a result of these business and technical trends, the retail sales market for information services will grow from $3.6 billion in 1995 to almost $7.8 billion in 2000—a compound annual growth rate of 17%.

B
Executive Overview—Wholesale

This forecast update describes the many business trends, information systems concerns and anticipated changes that will occur in the wholesale industry over the next few years. INPUT also forecasts the total information services market and each product/service sector from 1995 through 2000.

The wholesale market is experiencing changes that are shaping and dramatically changing how wholesalers conduct business in the 1990s—including the following:

- Although 20-25% of national wholesalers have disappeared since 1985, the surviving companies are expanding by consolidating.
- Loss of wholesale business is occurring through alternative channels of distribution, such as direct manufacturer/supplier-to-retailer EC arrangements; mail order; catalog sales; and electronic shopping.

- Wholesale's retail customer base is evolving toward chains and larger retail stores.
- Wholesalers will continue to add alternative channels of distribution and value-added services to keep and increase existing customers.
- Wholesalers will grow by international expansion.
- Implementing Efficient Consumer Response (ECR) techniques is key to future wholesale growth and success.
- Aligning IS with corporate goals and business process re-engineering is becoming increasingly crucial.

For many years, wholesalers have recognized that information technology is critical for improved performance in sales and productivity, and for increased speed and efficiency. both at corporate offices and at the warehouse and distribution supply chain level.

Now, IT is enabling new wholesale business processes and key technical trends, which include:

- Revamping systems with a focus on ECR
- Helping retail customers upgrade their IS and supply chain operations
- Improving supplier and retail customer business operations by providing EDI services with information services
- Moving away from mainframe legacy systems to open systems and client/server technology
- Preparing for parallel processing technology
- Using EDI technology more extensively to eliminate paper and time, and speed up the transfer process of goods
- Using data warehousing for rapid customer decision support analysis and for implementing executive decision support systems

Successful wholesalers will evolve into information systems providers. Wholesalers that focus on total supply chain management and possess the infrastructure, systems and technology to deliver value-added services will be very successful. The wholesaler's role will evolve to become that of "network optimizer" and eventually "market maximizer."

In the network optimizer role, wholesalers will continue to focus on minimizing the delivered cost of products from the supplier to the retailer. Wholesalers will function as "optimizers" by coordinating the entire logistics process for their retailers, regardless of whether products move through the wholesaler's own warehouse.

In effect, wholesalers would generate fees based on their superior ability to select and coordinate the most efficient movement of goods from the shelf to the store.

To act as market maximizers, wholesalers will have to provide sophisticated services, such as retail strategy support, to help retail customers develop differential market strategies and customized category management services that focus on creating more effective promotions, pricing strategies, and state-of-the-art target marketing programs.

C

Electronic Commerce (EC)—Virtual Home/Electronic Shopping/Business Procurement

Virtual home/electronic shopping is a new frontier for retailers and wholesalers. Now generating only $5-10 billion in sales, this is an area that retailers expect will experience explosive growth. Through electronic shopping, department stores can reach a vast audience without the huge overhead of real estate, store fixtures and labor.

EC will accelerate retail "interactive" shopping and allow consumers to request information and place orders using TV sets, PCs, Fax machines,, telephones, and personal communication devices. Just as technology allowed banking via PC, telephone, or ATM machines in the 1980s, consumers in the 1990s are (or will be) able to shop anywhere and anytime.

EC also encourages development of mass customization and one-to-one marketing whereby customers can obtain products that meet their unique requirements and preferences.

EC is a major trend influencing the retail/wholesale trade sector and its requirements for use of information services.

III

Retail and Wholesale Business Trends

A

Retail and Wholesale Business—Market Overview

Sales and earning growth has been sluggish in the retail/wholesale industry in the last three years, but an increase of approximately 2%-4% is expected in 1995, due to continued consumer and business demand, as well as consolidation and restructuring of the wholesale industry. For example, the number of wholesalers dropped from 364,000 firms in 1987 to approximately 270,000 companies in 1994. This is largely due to mergers, acquisitions, and business failures, according to the U.S. Department of Commerce. Significant changes include:

- Increased use of alternative channels of distribution
- A changing mix of products offered
- An increase in the use of value-added services, which are expensive, but necessary to keep existing customers and to grow
- Greater use of advanced technologies at all retail and wholesale levels

The most important influences on spending for information services by retail and wholesale trade companies will be in the communications and network areas. Electronic commerce stands out as the most significant of these influences and involves significant threats as well as opportunities for cost savings and new business growth.

1. Electronic Commerce (EC)

a. Linkages

Electronic commerce (EC) will link buyers with manufacturers through private networks and the Internet. Thus, EC threatens the structure of the current retail/wholesale distribution industry. In fact, changes are already under way. By linking buyers with manufacturers, the need for wholesalers—in particular—is reduced, because the distribution and current shipment function of wholesalers is reduced or eliminated.

This connection leads to significant productivity improvements for businesses in conducting their supply parts and materials procurements. In addition, purchasing departments can be downsized and inventories can be reduced, because the time frame for receipt of goods is lessened.

From the consumer's point of view, EC offers a new channel of acquisition for retail goods and services. Retailers who understand the potential for home shopping, and other alternative procurement channels supported by EC, will find an opportunity for new growth and new ways to reach customers. In this way, retailers can benefit from both the supply side in reducing costs and from the consumer side with its increasing revenue opportunities.

Wholesalers can also benefit by improving the productivity of their own acquisition activities; however, the overall result for wholesalers is a loss of business opportunity.

The Internet has an important role in this changing marketplace. It becomes a facilitator for the expanding role of electronic commerce. Most EC systems will be initiated on or eventually transferred to the Internet due to its low operating costs, as well as the improved security that will exist as the inevitable improvements are made. For instance, EC increasingly will include the payment function. Banks and other third parties in financial services are already developing payment modules to complement EC service activities.

b. Wholesaler/Distributor Options

Wholesalers are faced with many threats because of EC. What can wholesalers and distributors do to protect their existing positions?

Wholesalers can focus future attention on those products and services to which they add value to the manufacturer's basic offering. This might include:

- Information services support to retailers for inventory management and order-triggering systems
- Combining various manufacturer products and services into proposal-driven packages sold to retailers, so that the retailer depends upon the wholesaler for product or system integration
- Capitalizing on any situation in which the wholesaler provides volume information, comparative industry statistics and competitive information to the retailer

Where appropriate, these types of value-added services will help wholesalers reduce losses and even grow business despite the overall impacts of EC.

2. What Happens To Electronic Data Interchange (EDI)?

For the last 10 years, EDI has been touted as the major network information service to bring significant productivity improvements to the entire retail/wholesale distribution marketplace. EDI is basically a set of standard protocols that are accepted by manufacturers, customers and, increasingly, banks to allow standard purchasing and payment documents to be exchanged on a routine basis. But EDI has had difficulty achieving the volume forecasts initially made for penetration into the transaction environment. The primary reason for the shortfall has been that business and business accounting systems have not been "EDI ready" and have had to be converted in order to meet the requirements of EDI formats.

INPUT believes that EC growth will absorb much of the existing and future EDI activity. The value to some users, and the standard documents and protocols, will continue to exist for many business sectors. However, the flexibility provided by EC on the Internet will cause these automated purchasing and procurement systems, of which EDI is a part, to grow much more rapidly and grow beyond the current trend volumes of EDI.

In the future, successful retailers/wholesalers will offer a range of EC services, from simple networks to full EDI.

3. Retailer Benefits

Retailers will benefit from EC payments and related electronic financial services (EFS) activity. Above, for instance, INPUT noted that retailers will profit from the new channels of distribution provided by electronic commerce. In addition, retailers will also benefit significantly from the payment side of EC.

Retailers will find that their existing customer contact plus their ubiquitous physical locations present an ideal platform for providing electronic financial services (EFS). The Internet enhances the value of retail locations as auxiliary branch sites or financial centers augmenting the banking industry.

Supermarkets already have leased space to banks to provide full branch services operating out of their retail locations. With Internet connectivity, consumers will be able to access emerging financial services, such as having their stored-value "smart cards" charged up with new funds while they are waiting in checkout lines. Similarly, gas stations will find new EFS-related revenue sources as the term "filling station" acquires a new meaning.

Specially equipped kiosks and pay phones in shopping malls will deliver many of the services now dispensed only through ATMs and will provide new revenues to mall operators based on meeting consumer financial service requirements.

General merchandisers also will find ways to develop financial service offerings for consumers who are visiting their stores. This means, of course, that retailers will be competing with banks, but this is not new. It started with credit cards and then debit cards, and will only achieve new levels as the result of the EC and related payments opportunities presented by network information services and smart cards.

4. Bank Interest in EC

Why are banks showing more interest in EC than many retail and wholesale distribution operators? It's true that banks—major banks in particular—are more enthusiastic about the potential that they see in EC for business growth and expansion than are many large retailers. Certainly one driver for banks is that EC payments are an area that they want to protect and keep as their own rather than let third parties, like General Motors and AT&T, take too much of the market—as has been done in the area of credit cards.

Furthermore, banks see that, in order to maintain strong payment relationships with their customers, they must help them become comfortable with EC. INPUT expects banks to work with software vendors and network information services firms to help their large customers, as well as small retailers and wholesalers, set up storefronts on the Internet and other computer information services. However, retailers can capitalize on EC as shown above. The customer relationships that currently exist between retailers and consumers can be leveraged with banks' cooperation.

5. Derived Marketing Information

Derived marketing information is a critical EC component for retailers and wholesalers to leverage. The processing of EC and related payments transactions can yield incredibly valuable merchandising information of benefit to retailers and wholesalers alike, as well as manufacturers. The information discloses who buys what and how much. Increasingly, in the future, processing of this information to yield marketing and merchandising tactics and strategies will provide revenues for retailers and wholesalers as a result of EC participation. It is not too early to start planning how to prepare, analyze and sell this information.

B
Retail Business Trends

Other business trends also will shape the retail industry for the next few years. These trends indicate that the future of retailing will revolve around improved business processes, better cooperation among partners and suppliers, and, most importantly, providing better customer service.

1. Large Retailers Are Consolidating

In North America, large retailers are diminishing in numbers, but the survivors, such as Wal-Mart, Price Club, Supervalue, and Kroeger are expanding. There is increasing consolidation of companies such as Price Club and Costco. It is estimated that fifty to seventy percent of the department store industry may not survive. However, those remaining will find alternative ways of merchandising in order to be successful (e.g., catalogs, telemarketing, electronic home shopping, etc.).

2. Aligning IT and Corporate Goals Through Business Process Reengineering

Retailers are taking a manufacturing-like "process view" of their business, rather than just focusing on cost centers and cost reduction. Today, a successful business process reengineering effort integrates processes, people, and technology and aligns them with consumer needs. Re-engineering has to do with survival. In the 1990s, U.S. retailers have hit the wall of a mature economy. Consumers are more selective in their buying, and retail specialty stores are increasing. Business process reengineering is designed to achieve two things in retailing: (1) lower operating costs, and (2) redeploy resources into services that will improve both sales and return on investment.

Merchandising is one of the most important reengineering targets in retailing. Technology is needed for decision making and planning, as well as

logistics and physical movement of merchandise. Led by supermarkets and convenience stores, most retail sectors are beginning to give shelf/floor space more attention as a high-value, diminishing asset like airline seats—where investment in usage information and decision-making tools will have a high yield. Nonstore merchandising (e.g., electronic shopping, virtual inventory, on-line catalogs, etc.) is also totally changing the cost structure in many retail segments.

Reengineering also leads to systems that provide for company-wide inventory management and customer services.

3. Employee Turnover

According to Andersen Consulting, CEOs of major retailing establishments are making every effort to reduce employee turnovers. Although most businesses seek to maintain a stable employee nucleus, retailing, especially at the entry-level clerk position, has traditionally experienced high turnover levels. With growing recognition of training and education costs, plus increased emphasis on service and product knowledge, reducing turnover (for non-seasonal core staff) is receiving greater attention from retailers.

4. Retail Entrepreneurs

With the growth of specialty stores that serve niche markets, consumers being selective with their buying dollars, and department stores diminishing in number, the 1990s is the time for retail entrepreneurs to enter the market. INPUT predicts that retail emerging will businesses will grow in numbers and prosper in the balance of this decade.

5. Retailing Through Alternative Channels

Retailers—especially department stores—may have to find alternative retail distribution channels through which to sell their products. INPUT believes that, in addition to electronic commerce discussed above, the following three retail channels of distribution will emerge as significant alternatives in the next few years.

a. Kiosks

Kiosks are springing up in public places, including malls and inside department stores. They are used by consumers to order, pay for and have specialized merchandise delivered. An example of this innovative approach to merchandising is Florsheim Shoes. Rather than shop at a shoe concession in a department store, or at a shoe store stocked with merchandise, a

consumer can browse through pages of merchandise, order shoes, and pay for merchandise directly through kiosks placed in strategic locations.

b. Event Merchandising

Retailers such as Carson, Pirie, Scott in Chicago and Lens Crafters are selling their merchandise at special events. For example, Carson, Pirie, Scott holds "Dress for Success" special events on college campuses for seniors getting ready to enter the job market, who are interviewing for positions. Lens Crafters sets up booths and tables to sell sunglasses at sporting events, such as tennis tournaments.

c. Catalogs and Telemarketing

Department store chains and specialty store chains are increasing their sales through heavy catalog and telemarketing efforts. They view this as an alternative merchandise channel for their chain. Carter, Hawley, Hale and Macy's have increased their catalog sales in the last year and will continue to expand this channel for optimal market penetration.

6. Customer Service—The Key to Successful Retailing

Retailers are making every attempt to get to know their customers' needs and wants. The successful retailers are already providing good customer service, but are now also using database marketing systems, capturing demographic information on customers, and developing customer loyalty programs in order to get to know their customers even better and target their needs.

Now, with EC, retailers can track what the individual customer has purchased, and target these customers with merchandise they most likely would buy, and provide discount incentives and special services that will bring the customer back into the store.

This has led to new merchandising concepts such as mass customization and one-to-one marketing, which link large-scale information systems with sources of individual customer needs and requirements.

Successful grocery/supermarket chains have always provided extra services to entice customers to remain in or use their stores. For instance, they provide services such as alternative methods of payment (debit, credit, check, and cash) utility payment services postal service; equipment rental, catering, international take-out foods, shopping bag loading service, and video rental.

Several department store chains are making "Preferred Customer Programs" the cornerstone of their customer services strategy to increase sales and capture more market share.

7. Private Labeling

Private labeling will continue to be a new source of revenue for retailers. It builds loyalty and a following of customers, increases margins, and provides another distribution channel for products. The Limited, The Gap, and Casual Corner all have been successful at pioneering private-label clothing. Loblaw, a Canadian supermarket chain, developed a private label of foods called "President's Choice" and has had great success with its private label "President's Choice Chocolate Cookies." Loblaw is now selling its President's Choice Chocolate Cookies in competing supermarket chains, due to consumer demand.

8. Catalog Retailing

Catalog retailers continue to grow and do well. Powerful industry trends continue to drive this growth for all catalogers. Catalog companies are well positioned for emerging "electronic" forms of retail distribution (e.g., electronic shopping, kiosks, etc.). Spiegel has announced a joint venture with Time Warner to develop a catalog/cable TV channel, though it may actually emerge as an Internet Web store front. Lands' End is a participant in the Sky-Mall mail order shopping system, using seat-back telephones in various commercial airlines.

Huge customer files and applicable database expertise, efficient fulfillment infrastructure and the ability to tap horizontal and vertical markets are defining characteristics of the most successful participants in the $150 billion catalog retailing industry.

9. Growing Enthusiasm for International Expansion

Major U.S. retailers (and wholesalers), such as Woolworth, Kmart, Toys R Us, and Wal-Mart, are each now operating in at least one other country. This trend appears to be growing, since many mature companies have recognized that they can no longer grow at an acceptable rate in their own countries and must look to foreign markets. The passing of the North American Free Trade Agreement (NAFTA) has removed investment barriers and liberalized trucking and data communications activities, thus allowing U.S. retailers to enter the Canadian and Mexican markets more easily. Retailers are also noting that consumer spending in the 1990s is not likely to see growth at the level it saw in the 1980s, and as a result, many more U.S.

retailers are looking for opportunities in other consumption-oriented markets.

Retailers are also getting technically ready with "importing systems" that provide paperwork reduction and the infrastructure to enable just-in-time (JIT) importing. Retailers who do not install importing systems are outsourcing the importing process to companies such as GE Information Services, which has the technology structure and people available to facilitate the importing business process in every major country, on every continent in the world.

10. Growing Interest in Efficient Consumer Response (ECR) Techniques

Efficient Consumer Response (ECR) uses improved techniques to enable retailers, wholesalers, suppliers and manufacturers to remove non-value processes and improve service to the consumer. It is basically a sharing of business information and technical practices, and is used for achieving just-in-time (JIT) techniques, to slash stock levels, and speed up distribution for greater efficiency. It also allows retail companies to access information both from within their own industry (suppliers, manufacturers, wholesalers, etc.) and from other industries. For example, a retailer of baby products would have access to birthrate statistics, and this information could be shared by car companies, for the design of new child-oriented car seats.

ECR was begun in early 1993 by five retailing and manufacturing associations. It is supported by supermarkets, including Kroeger, Safeway, and Shaws, and suppliers, including Coca-Cola, Kraft, General Foods and Procter and Gamble. The driving force is the U.S. supermarkets' growing alarm at losing business to discount chains such as Wal-Mart and warehouse clubs such as Price/Costco, which charge 10-15% less for many grocery lines.

Although U.S. supermarkets have installed electronic POS scanners and POS payment systems (debit, credit, check authorization), they have used them mainly to speed up checkout transactions, cut down on bad check losses, and provide service to their customers, rather than to generate information about their business or manage it better.

ECR's biggest obstacle is not technology, which is already widely used in other industries, but getting retailers, suppliers, and manufacturers to behave as partners, not adversaries. ECR empowers the retailers, suppliers, and manufacturers to change from a "push" approach to retailing, which relies on putting products in a warehouse and hoping they will sell, to one where the industry is “pulled” forward by consumer demand.

11. "Cross Selling" Can Now Occur With Personalized Shopper Databases

Computer-directed cross selling will take place at a personalized level, driven by a "personalized shopper database" containing sizes and a history of purchases. No more "one-size-fits-all" phrases such as "Would you like a tie to go along with that shirt?" The system would recommend a specific tie based on past purchases. If a customer bought socks six months ago, and has bought socks in six month cycles, the system would not overlook this fact. Whether at the checkout counter or through advanced checkout, "cross selling" has the potential to transform check-out workers into "sales assistants."

12. Retailing as Entertainment

With so many stores competing for the limited time, energy and spending power of customers, innovative retailers are finding ways to make the store fun to shop—The retail environment will be designed to entertain the customer—in fact, it will become a cheap place to entertain your children. Nike Town, Incredible Universe and Mall of America are examples of this trend. Retailing associated with Hollywood as a "brand" has been very popular, evidenced by the Disney Stores, Warner Brothers Studio Stores, and Planet Hollywood. These stores do not rely just on the merchandise (or food, in the case of Planet Hollywood) to draw crowds, but on the ambiance as well. Film clips on large screens, music, interactive games, play areas, virtual reality (e.g., golf and tennis simulators) and memorabilia all make for an environment that is "fun."

C
Wholesale Business Trends

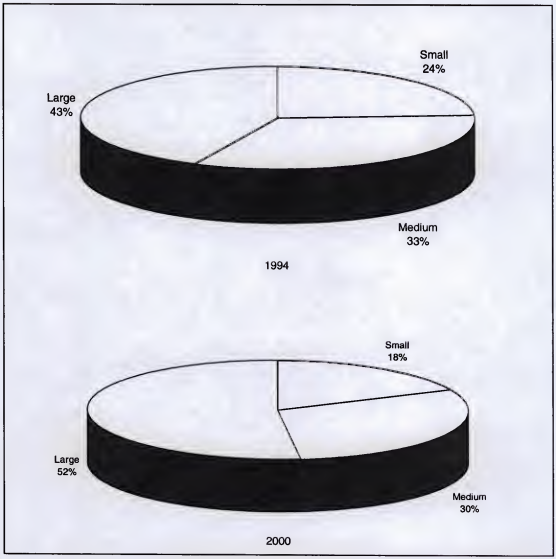
Other business trends will shape the wholesale industry over the next few years. These trends indicate that the future of the wholesale industry will revolve more around value-added services that include just-in-time (JIT) distribution techniques and closer relationships with suppliers and retailers.

1. Large Wholesalers Are Growing by Acquisition

More than 20% of the nation's wholesalers have disappeared since 1985, and the surviving wholesalers are expanding by consolidating the industry. The reasons for consolidation are to grow geographically, and to grow by product line expansion and diversity. Exhibit III-1 shows the current and projected splits in the wholesale market.

Exhibit III-1

Percentage of Market Share Among Small, Medium-Sized and Large Wholesalers



Source: Arthur Andersen & Co. New Realities in Wholesale Distribution.

2. Wholesale Customers Are Larger

The wholesale customer base will continue to evolve toward larger chains and larger retail stores. The needs of the independent retailer and the needs of larger chains will become increasingly diverse, requiring wholesalers to provide more sophisticated value-added services tailored to the large chains, and another set of value-added services for the independent retailer. (See section 8 below.)

3. Broader Distribution Methods

As the wholesale industry continues to rationalize its distribution methods, continuous replenishment, crossdock techniques, and direct-store deliveries will increase. These trends will change the way in which wholesalers add value and get compensation. Their key role will expand from moving a product through the warehouse to providing intelligent "distribution network optimization" functions.

4. Increased Use of Enabling Technology and Communications Infrastructure

The strategic implementation of information technology will be pivotal to supply chain success. As advanced information tools and communications systems become increasingly affordable and available through third-party vendors, this technology will become a requirement in the pursuit of more sophisticated operational and marketing programs.

5. Developing and Acquiring Skilled Employees

One of the most important issues facing the wholesale industry is the ability to attract and develop high-quality talent. Individuals with skills in marketing sales and strategy formulation will become increasingly valuable assets.

According to Arthur Andersen, as published in *New Realities in Wholesale Distribution*, actions wholesalers can take include:

- Defining the skills and technical requirements needed to perform various key functions
- Ensuring that compensation levels are adequate and consistent with business strategies
- Giving employees an understanding of the "big picture" of the industry and how they fit within the framework

6. Importing Systems Support International Growth

Wholesalers are implementing "importing systems," which provide paperwork reduction and the infrastructure to enable JIT importing. Major wholesalers who do not install importing systems are outsourcing the importing process to companies such as GE Information Services that have the technology structure and people available to handle the importing process in every major country in the world.

7. Effects of Alternative Channels of Distribution

A slower economy has tended to reinforce new alternative channels of goods distribution. The most damaging alternative channel to wholesalers is "direct supplier-to-retail" arrangements, usually made under strategic alliances with major retail chain stores, warehouse clubs, discount stores, and home center stores. Other alternative channels that have emerged include mail order, catalog sales, electronic shopping networks, and virtual inventory. Products distributed through these alternative channels are "lost" sales for wholesalers, which helps explain why 15%-20% of U.S. wholesalers have disappeared since 1985. According to industry specialists, about 25% of all merchandise usually handled by wholesalers is now being distributed through alternative channels, increasingly supported by electronic commerce and sophisticated telecommunications resources.

8. Value-Added Services

With wholesalers consolidating, and alternative channels of distribution taking away business, the surviving wholesalers are re-examining and readjusting their strategies for services support. The basic services traditionally offered by wholesalers include:

- In-stock inventory
- Small-order handling
- Credit terms
- Product training for employees and retail customers

These basic services are no longer sufficient. Successful wholesalers are now offering value-added services such as:

- Providing strategic alliances with suppliers
- Providing TQM (Total Quality Management) programs
- Providing more diversified product lines
- Expanding geographic coverage overseas

Wholesalers can reverse—or at least reduce—the move to alternative channels of distribution by becoming invaluable to their retail customers and by establishing closer partnerships with their manufacturers and suppliers. Ultimately, wholesalers must adopt an aggressive program to improve and expand value-added services by anticipating the needs of the retailer and

using current technologies to improve productivity, reliability, and service quality.

9. Aligning IS with Corporate Goals and Business Process Reengineering

Wholesalers are beginning to take a process view of their business rather than focus on cost centers and cost reduction. Today, the successful business process reengineering effort integrates processes, people, and technology, and aligns them with customer needs. For the wholesaler today, business process reengineering has to do with survival, since alternative distribution channels have eroded wholesale business. Business process reengineering is designed to achieve two things in the wholesale industry: (1) lower operating costs and (2) redeploy resources into value-added services that will improve sales and investment return. These services include:

- Free delivery
- Relabeling
- Repacking
- Applying bar codes
- Installing EDI systems to assure next-day delivery; product tracking; and comprehensive inventory controls
- Developing markets for manufacturers/suppliers
- Providing services for satisfying manufacturers' warranties
- Automating shipping and receiving activities through radio frequency technology

For the wholesaler to be successful in the 1990s, reengineering fundamental business processes and aligning technology with corporate goals will be necessary not for only survival, but also for growth and prosperity in a maturing economy.

D
Retail/Wholesale Technology Trends

Retailers and wholesalers have long recognized technology as one of the keys for improved performance in sales productivity, and for increasing speed and efficiency of planning and operational decisions in their corporate offices and at the store level. Most importantly, technology has facilitated such vital

inventory management activities as merchandise planning, allocation, and replenishment.

Technology is facilitating new retail business processes and new retail concepts of "alternate sources of merchandising," new approaches to product delivery, and new ways for providing customer payment alternatives. Wholesalers, for example, have recognized that technology is one of the keys to performance in sales and productivity, and to improved levels of retail customer and supplier satisfaction.

Today, wholesalers' technology priorities fall into three areas:

- Revamping their own systems with a focus on Efficient Consumer Response (ECR)
- Helping their retail customers upgrade their operations
- Improving suppliers' and retail customers' business operations by providing EDI capability with information services, including improved inventory control, delivery scheduling and marketing information

The following is a summary of some of the key technology trends that INPUT believes will be shaping retail and wholesale IT development and implementation over the next few years.

1. Outsourcing

Outsourcing continues to be a viable approach to retail and wholesale IT management. It is estimated that 35% of retailers are outsourcing at least one system function today, and plan to continue to outsource new development. INPUT feels that outsourcing will become increasingly popular as retailers and wholesalers find that they cannot develop innovative technology solutions on their own, and within the time requirements needed to be competitive.

2. Rapid Growth in Client/Server Technology

According to an INPUT survey, radical changes will occur in the retail and wholesale IT system development. Today, 75-85% of retail and wholesale IT systems are primarily implemented in a mainframe/mini-computer environment. It is estimated that in the next three to five years; approximately 50-60% of retailers and wholesalers will develop systems in a client/server, PC/workstation or client/server network environment; approximately 20-30% will continue to develop IT systems on a mainframe/minicomputer environment; and approximately 15-20% will develop client/server systems on PC-network environment.

Retailers and wholesalers are moving away from mainframe/mini-computer platforms due to many factors, including better and easier-to-use client/server software development tools; standard, cost-effective hardware; and the ease of adding numerous applications without replacing computer hardware.

3. POS Equipment and POS Payment Systems

POS terminals and devices presently account for about 50% of store IT expenditures in the retail industry, with supermarkets/grocery stores recording a survey high of 65%, and department stores 58%. Supermarkets/grocery stores will increase their installation of POS equipment, and many also plan to install check authorization and collection systems, direct debit and credit systems, ACH EFT debit systems, video rental systems, and frequent-shopper "electronic" coupon systems. Supermarket/grocery chains project a dramatic increase of 10% to 30% in spending for these POS systems over the next three years. Retailers also want to provide multiple methods for customers to pay for goods, cut down on bad check losses, and provide incentives for customers to shop in their stores.

4. Computer-Based Integrated Merchandise Systems

More than 50% of retailers are using computer-based merchandise allocation systems and have aggressively integrated quick response technologies (e.g., EDI) with computer-based merchandise allocation systems. INPUT anticipates at least another 30-35% increase in integrated merchandise allocation systems over the next few years. The reason for this increase is that retailers who are using this technology are reporting a dramatic increase in inventory turns, sales, and customer satisfaction, and reduction in inventory levels, operating costs, interstore transfers, and markdowns. Obviously, failure to use such systems will place a retailer at a competitive disadvantage.

Most retailers interviewed are integrating, or are planning to integrate, the Quick Response technology applications noted in Exhibit III-2 with their merchandise allocation systems within the next two years.

Exhibit III-2

Popular Quick Response Applications

- SKU-level transaction processing system
- POS scanning
- Shipping container marking
- Automated receiving systems
- Advanced replenishment systems
- Shelf space allocation systems
- Automated price look-up at POS

Source: INPUT

Wholesalers increasingly need to have IT systems, EDI, QRS and on-line systems ready in order to add value to their traditional servicing.

5. Virtual Home/Electronic Shopping

Virtual home/electronic shopping constitutes retailing's new frontier. It is now more than a $5 billion business and retailers expect it to grow much larger. Macy's has announced "TV Macy's," a 24-hour channel. Other retailers are taking advantage of such existing channels as the QVC Network and Informercials. Saks Fifth Avenue, Marshall Fields, and Bloomingdale's recently have sold merchandise on "NBC Direct." Nordstrom has announced plans to develop an "interactive shopping" service using digital technology. Time Warner and US West, the regional telephone company, have formed a joint venture to develop an interactive television system. It will allow consumers to request information and place orders using their TV sets.

6. Virtual Inventory

Virtual inventory is the elimination of physical inventory through the use of electronic storage and delivery. Egghead Software has developed a new virtual inventory service called Egghead Express, which is designed to cut the costs of order processing and better serve the company's corporate customers. Egghead's corporate customers can order software through an electronic catalog in which they can simply "point and click" to place an order. It is an environment in which there is no human intervention until a pick list is generated in the warehouse. By doing away with paper purchase orders, this system dramatically cuts the cost of preparing a purchase order transaction.

Blockbuster Entertainment also has developed a virtual inventory system called "Soundsational." This system was jointly developed by Blockbuster and IBM. It allows network distribution of electronic entertainment products, such as CDs, videotapes, and audiotapes, directly to Blockbuster's stores, eliminating the need for stores to carry physical inventory. The customer will have access to almost any entertainment product desired.

With the Blockbuster system, customers use a touch screen at an in-store kiosk. They can both identify and preview products (CDs, video tapes, and audio tapes). After a customer makes a choice, he or she will tell a clerk, who will then order the product from a central computer using a PC. The host system will then transmit the audio and visual product to the store, where it will be "manufactured" (with packaging art work) in a few minutes. The system is currently being tested, but will not be fully implemented until the technology is faster, licensing agreements are complete, and in-store equipment can manufacture and assemble products rapidly and economically. But the signs are there to see—such approaches to product delivery and sales virtually eliminate the need for the retailer to stock inventory.

7. Decision Support Systems

New client/server and open systems with easy-to-use "Windows-like" user interfaces are increasingly being used by senior management. These easy-to-use ad hoc tools are now readily available. Senior executives at large companies (like Kmart, Dayton-Hudson, Circuit City and Wal-Mart) are implementing and using decision support systems to do the following:

- Ad-Hoc Reporting Analysis - collect data from retail transactions, calculate profitability, analyze promotions, analyze and calculate pricing,
- Automated Analysis - use outside software and databases to analyze various business, merchandising, and promotional strategies
- Automated Decision Making - permits event-driven decision making (e.g., detects an advertising campaign without a product to ship, and flags actions that must be taken for this business activity to be profitable and successful)

Large retailers and wholesalers run thousands of business experiments a day. For example, a large retailer can run an advertisement for one store that targets a specific ethnic group. If the advertising works, it can be used in 20 stores. Senior retail executives are now demanding and using this kind of enterprise decision support system to do analyses for inventory and merchandising, pricing decisions, and labor scheduling for retail operations.

8. Reducing Communications Costs

More and more retailers are providing sophisticated integrated network communications between stores and headquarters locations with new single leased-line digital WAN telecommunications technology. This multiplexing technology transmits not only data, but voice, images, E-mail and fax simultaneously.

Melville Corporation, the Rye, New York-based parent company of Peoples Drug and Marshall's, is distributing information across multistore chains by employing satellite networks. As a parent company for several disparate chains, Melville turned to satellite links because they could put one VSAT on the roof of a mall in which it has 10 stores. (The company averages 3.5 stores per mall.) Each store has a fiber-optic connection to the uplink, which relays data to a communications hub in Woonsocket, R.I., and provides video feeds, credit checks, video-conferencing, and even in-store music.

The Home Depot chose frame relay because it provides high speed with client/server applications; it reduces cost by aggregating data and voice traffic; it enhances host-centric asynchronous and synchronous customer service applications (e.g., credit, debit, etc.) with the use of one telephone line; and it does away with networkwide outages related to satellite hub equipment failure or adverse weather conditions.

Why not ATM (asynchronous transfer mode) communications? Most retailers feel that ATM will not be suitable for the retail environment because of three factors:

- ATM is too expensive. An ATM adapter still costs about $1,000 or more.
- There is a lack of programming standards.
- ATM applications in different stores, warehouse centers, or corporate headquarters would be incompatible with each other.

Therefore, most retailers feel ATM will not be suitable for the retail enterprise until around 1997 or later.

9. Powerful, Low-Cost Store Platforms

As store platforms become more open and powerful with UNIX or NT-based technology, retailers are adding more and more systems to manage the operations of each store. Price look-up, verification, and changing systems are now integrated into register POS systems and the store platform computer, which is often networked to the host computer at corporate headquarters. Systems such as POS payment systems (debit, credit, check authorization), shelf planning, energy monitoring systems, video rental systems, electronic shelf labeling systems, customer traffic management systems, direct store delivery systems, and automated checkout systems (to name a few) are now all helping retailers to be cost efficient and more profitable.

New products include *Shopper Trak*—a radar-like system that counts incoming store traffic and calculates the number of checkstands needed to be open for efficient and fast customer movement. The system also takes data

from the store's POS system, creates a conversion rate that helps retailers figure out how well they did turning browsers into buyers, and enables retailers to determine optimum staff-to-consumer ratios. Estimates are that with its labor-saving potential the system can pay for itself within a year.

10. Data Warehousing

Data warehousing, data mining, data surfing—the words vary, but the concept is the same and is becoming critical to retail success. In the next few years, data warehousing will become commonplace in all areas of the retail organization. It will be used at corporate headquarters for executive information decision support systems. Merchandising will use it for merchandising planning, category management, market basket analysis, and trend analysis. In the warehouse distribution center it will be used for keeping inventories low and minimizing out-of-stocks. In the store it will be used for prudent allocation of shelf space and just-in-time inventory and replenishment, product mix optimization, and analysis of promotions.

11. Mass Customization

Mass customization is the ability of retailers to establish a learning relationship with each customer via a system that "remembers" and "learns" from every transaction, with the customer. In order to establish mass customization techniques, retailers must have parallel hardware and a parallel database architecture capable of managing large amounts of data. Today, with inexpensive SMP and MPP hardware available, retailers can have a mass customization system to keep track of every transaction with every customer. These systems can now provide customers exactly what they want and need, when and where they want it. This enables retailers both to keep existing customers and to win new ones.

12. Category Management Systems

Category management systems enable managers to analyze item and category performance and to determine the effectiveness of various sales methods, shelf planning, pricing, promotions, and assortment. A category management system enables all levels of management (senior management, merchandising management, store management, warehouse management, etc.) to review, analyze and evaluate supplier performance, sales history, store performance and market trends for each category of merchandise over a specific period of time.

Category management provides the retailer with the ability to interactively ask questions and find answers through manipulating data and viewing information from different perspectives. In order to provide an effective

category management system, retailers must have parallel architecture and a data warehouse established to manipulate the data. Nielsen of North America, Micro Strategy, Inc., and others are examples of software vendors who have developed and implemented category management applications very successfully.

13. Smart Cards

As transactions shift more toward becoming all electronic-based, the information needed to execute transactions will shift to the microchip, or "smart card." A single chip in a "smart card" can contain the account numbers and particulars of dozens of plastic cards—credit, debit, ATM, phone, and so on—and in fact replace these cards. The idea is that the single chip (which is truly a database on a card) is a replacement for all payment cards and cash. For retailers, the consumer use of "smart cards" will create opportunities to serve customers with traditionally "unattended" retail outlets such as vending machines, kiosks, and telephones. Other opportunities exist in attended environments such as fast food restaurants, gas stations, and movie theaters. The smart card also solves one of the problems encountered with the recent introduction of handheld, portable POS devices, where clerks could not process cash transactions because there was no cash drawer. Thus, retailers will be able to offer "advanced checkout" for all kinds of payment transactions (credit, debit, and cash).

14. Advanced Checkout

Advances in computing power coupled with reduced costs, have made very powerful POS handheld devices economically feasible for most retailers. Retailers can now develop and provide advanced checkout with these devices. These handheld POS devices are enabling retailers to transform checkout from "point-of-sale" to "point-of-service."

According to Tom Blischok of Coopers & Lybrand, "advanced checkout today is headed towards convenience, timeliness, and accuracy for the customer." He notes that it will provide:

- Touch-pad data entry capabilities that reflect human factors in their design and will displace traditional keyboards in many environments to provide productivity gains and shorter training cycles
- Wireless checkout, which will "checkout" the customer anywhere inside or outside the store
- Self-checkout will continue to grow as another wireless application in the store

- Product information, recipes, care instruction, and so on, which will be available through the POS device or at a kiosk
- Computer-directed cross-selling, which will become an important source of incremental sales

E
Impact on the Information Systems (IS) Environment

When asked by INPUT to identify the major issues relevant to IS over the next several years, the retailers and wholesalers cited the following issues, in approximate order of importance:

- Networking
- User Interface/Training
- Technical Expertise
- Business Improvement
- Accurate Information
- Open Systems Migration

1. Networking

Retailers need networks, WANs and LANs that work easily and reliably. Retailers expressed concern that some POS systems can be unreliable and hard to use. Networking is also a prime concern of accounting departments and merchandising or buying departments, where EDI is being added to their systems.

Linking corporate headquarters to stores using a WAN is also a key priority for retailers. Several large chains also use satellite transmission between sites.

Retailers are also concerned with LANs. These are used to connect store floors to back offices where store platforms and store systems are located. They must be simple to administer, reliable and must provide fast response when linked to POS equipment.

2. User Interface and Training

About one-third of the retailers interviewed mentioned that they either need better user interfaces to their systems or better user training. A key concern of retailers is high personnel turnover among stores and lack of money to

train personnel. Hence, any store system must be as easy to use as a cash register.

Retailers also want simple interfaces to inventory systems and merchandising systems. Many are requesting Windows-like interfaces.

Customer databases that show customer demographics, purchase patterns and buyer histories (frequent shopper systems) are another area in which user interfaces can be improved. Shelf-planning systems also require a simple interface.

3. Technical Expertise

More than 25% of respondents are concerned about keeping up with technology. This concern is becoming more prevalent among retailers than among other market segments. Being aware of *how* competitors and others in the industry use technology is another concern.

4. Business Improvement

Many respondents are interested in using systems to improve their business. They want:

- Merchandise information systems using EDI
- Human resource systems to manage employee information and benefits
- Direct Store Delivery systems (DSD)
- Shelf-planning systems
- Price look-up, verification and price-changing systems integrated into the cash register
- Senior-level decision support systems

5. Accurate Information

Accurate information is required for most store functions. In particular:

- Orders must be correctly entered into a data entry system.
- Pricing must be accurate (in POS systems).
- Store managers and corporate executives need accurate reports from the finance, inventory, and merchandising departments.

- Human resources data must be available to those who need it. One company is decentralizing its human resources database so job applicants can enter data at its local store.

- Consumer research database information is required to support marketing strategies.

Time and attendance tracking is another area where accurate information is essential. Some stores are interested in improving their time recording, along with tracking other employee-related performance factors, in order to create incentive pay schemes.

6. Open Systems Migration

Over half of the retailers and wholesalers interviewed mentioned migrating to open systems as a concern. They are worried about moving large legacy mainframe data to client/server platforms. They hope the migration software tools for this effort are available, so they will not have to reengineer or replace all or part of their existing systems.

IV

Information Services Market Forecast

A

IS Market Will Be Heavily Influenced by EC

Retail and wholesale trade expenditures on information services will be heavily influenced over the next five years and beyond by the forces related to electronic commerce (EC) and automated payments discussed in Chapter III.

Retailers and wholesalers will increase expenditures on network service, including Internet access and storefronts. They will also increase expenditures on professional services and systems integration services to update storefronts, which will include multimedia-type services.

Wholesalers trying to expand value-added services for customers will increase expenditures on professional services and application software packages to acquire capabilities that facilitate involvement with customer business and operational planning activities, including setting up databases to identify market and merchandising trends. Retailers and wholesalers seeking to expand electronic commerce will employ outside processing services to support activities such as billing, database access and EDI services.

For retailers and wholesalers that lack extensive IT capability in-house, or for those that wish to deploy more rapidly, outsourcing will provide the needed capabilities.

Overall, the growth of electronic commerce and related activities will produce substantial increases in spending in almost every information services sector.

B
Total IS Market Forecast

1. Total Retail and Wholesale Trade

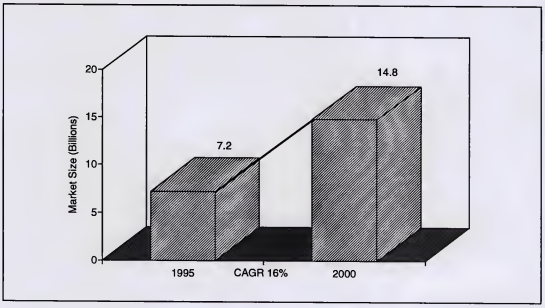
For the majority of U.S. retailers, INPUT estimates the IT expenditures for the retail and wholesale market varies between 0.5% and 1.5% of total sales. These estimates have been derived through interviews with retailers and vendors and by using data obtained from various industry reports.

Combined IS expenditures for the retail and wholesale sector will advance from almost $7.2 billion in 1995 to $14.8 billion in 2000.

As shown in Exhibit IV-1, these expenditures will grow at an cumulative annual growth rate (CAGR) of 16% between 1995 and 2000.

Exhibit IV-1

Retail and Wholesale Market Information Services Market, 1995-2000



Source: INPUT

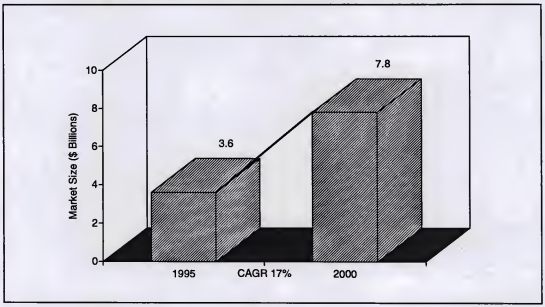
2. Retail Market

IS expenditures for the retail market will grow from $3.6 billion in 1995 to $7.8 billion in 2000.

As shown in Exhibit IV-2, these expenditures will increase at a compound annual growth rate (CAGR) of 17% between 1995 and 2000.

Exhibit IV-2

Retail Trade Information Services Market, 1995-2000



Source: INPUT

This spurt in growth is due to the fact that the retail market is using information services resources to drive business growth, including the use of alternative retailing channels (e.g., electronic shopping, catalog/telemarketing, virtual inventory), EDI, and merchandising "Quick Response" systems. These resources offer or facilitate cost reduction and improved consumer services, while reengineering is used to improve business processes.

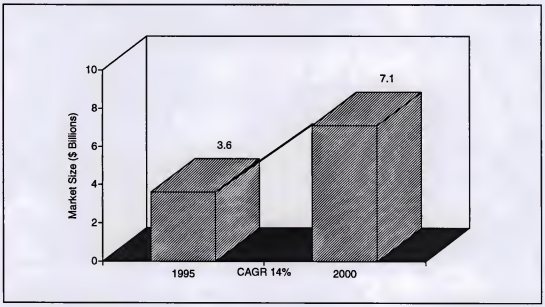
3. Wholesale Market

Expenditures for information services in the U.S. wholesale market will grow at a 14% CAGR as automation trends and competitive pressures on both U.S. and global markets drive the need for increased automation. In addition, efficient control and tracking methods will be delivered cost effectively by the use of information services.

The market for information services in the U.S. wholesale industry in 1995 and 2000 is shown graphically in Exhibit IV-3.

Exhibit IV-3

Wholesale Trade Information Services Market
1995-2000



Source: INPUT

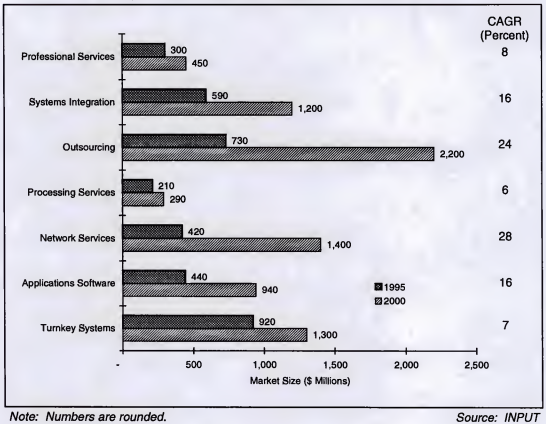
C
Forecast By Product/Service Sector

1. Retail

The 1995-2000 market forecast by product/service category in the retail sector is shown in Exhibit IV-4. Values in the chart are rounded. Actual amounts are shown in Appendix A. Discussion of the individual forecasts for each product/service sector follows.

Exhibit IV-4

Retail Trade Information Services Market by Product/Service Category, 1995-2000



Note: Numbers are rounded. *Source: INPUT*

a. Professional Services

The rate of growth for professional services will be slightly up (at 8%) due to actions taken as a result of requirements to implement EC services. The previous (lower) forecast was based upon surveys that indicated a significant portion of the IT activity in retail sales is solution-oriented and doesn't emphasize the use of independent professional services. Recent interviews indicate increased use of professional services to support the many technical and process analyses and implementations necessary to take advantage of improved information technology capabilities.

b. Systems Integration

Systems integration expenditures will grow at a CAGR of 16%, from $590 million in 1995 to more than $1.2 billion in 2000, due primarily to re-engineering internal inventory management systems and the new requirements of EC.

Several major vendors offer retail systems integration services. For example, Andersen Consulting, Ernst & Young and Deloitte Touche offer SI services, while GEIS and EDS offer systems integration and processing capabilities. There are numerous other systems integrators, and systems integration is the vehicle for retailers to bring processing services in-house as they grow. Systems integration also offers the single-source relationship favored by retailers. Integrators provide the sophisticated skills to help retailers optimize their IT/IS expenditures, and to hold or improve slender profit margins.

c. Outsourcing

Along with network services, outsourcing is the fastest growing product/service category in the retail market. It will increase at a CAGR of 24%, from $730 million in 1995 to almost $2.2 billion in 2000.

The use of outsourcing for major (or all) parts of the IT function offers retailers the attractive option of fixing costs and having a single point of responsibility. This traditionally long-term commitment is threatened during recessions, but improving retail sales will help to maintain the aggressive growth forecast. There is some risk to spending for outsourcing from IT consolidations due to mergers.

d. Processing Services

Work conducted as part of this product/service category includes:

- Inventory tracking and general accounting
- Debit, credit, check authorization, and check guarantee processing
- Capturing and processing customer sales and product data, including large database marketing and frequent shopper programs
- Store-front setup and maintenance to support EC programs

Processing services expenditures will continue to grow at a moderate 6% CAGR for the next five years, from almost $211 million in 1995 to more than $290 million in 2000.

Some larger stores and chains are moving processing services in-house. Services retained will be primarily for credit card processing and, in the future, EC. Defecting larger retailers will be replaced by smaller stores and chains expanding in the retail market, thus maintaining the moderate 6% growth rate.

e. Network Services

Network services expenditures will grow from just over $420 million in 1995 to in excess of $1.4 billion in 2000—a CAGR of 28%.

This very aggressive growth forecast for network services is driven by the expanding use of the Internet, LANs, WANs, EDI, and electronic mail in the retail market. In addition, EC, the "information superhighway", and the growth of efficient consumer response (ECR) business information sharing, database marketing and consumer loyalty program information systems will all drive the growth of network applications. The majority of growth in this product/service category will continue to be in network applications, as retailers use private networks to link multiple locations for key business information transfers. Internet growth will occur in electronic information services (EIS) as this resource offers new opportunities for sales via electronic storefronts and malls.

f. Application Software

Expenditures for applications software products will grow from nearly $440 million in 1995 to $940 million in 2000—a CAGR of 16%. Most retailers are moving from large mainframe legacy systems to client/server workstations and networked PCs. The development and implementation of client/server applications and new client/server software tools are the primary drivers for the applications software market segments. Minis, as standalone systems or servers, are well suited to the retail market and will grow at 9% over the forecast period. Mainframe growth will be a modest 3%, as many of these devices become enterprise servers.

g. Turnkey Systems

There is a logical limit to the growth of turnkey (integrated) systems as client/server and high-performance, low-cost systems become more common. This limit is not yet in sight, however, and the market for turnkey systems will continue to grow at a moderate but steady 7%. Especially for smaller retailers, this option will continue to be attractive for some time to come.

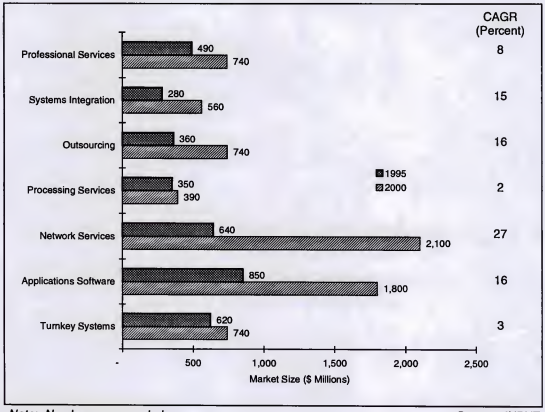
At more than $920 million in 1995, INPUT projects that turnkey systems expenditures will grow to almost $1.3 billion in 2000.

2. Wholesale

The five-year market forecast by product/service category in the wholesale sector is shown in Exhibit IV-5. Discussion of the individual forecasts for the product/service categories follows this exhibit.

Exhibit IV-5

Wholesale Trade Information Services Market by Product/Service Category, 1995-2000



Note: Numbers are rounded. *Source: INPUT*

a. Professional Services

Overall growth will increase slightly to 8%, due to increased interest in defining improved IS solutions in an era of consolidations and acquisitions. Professional services will also be needed to modify and enhance internal systems to meet customer EDI and EC requirements.

b. Systems Integration

SI growth is driven, as is professional services growth, by changes in the wholesale industry that require restructuring of the IS function to gain or maintain competitiveness. The systems integrator, however, assumes project responsibility and is a single point of contact, attributes favored by both wholesalers and retailers, and this preference will drive the growth of this product/service sector at the more aggressive CAGR of 15%.

c. Outsourcing

Outsourcing in the wholesale industry will increase from almost $360 million in 1995 to over $740 million in 2000. Growth will be at a steady 16%, as many wholesalers find it easier to meet customer IT demands via outside vendors rather than internal upgrades. The most aggressive growth areas will be network management (18% CAGR), application management (20%), desktop services (21%) and business operations (31%). Part of the growth in these four areas is the result of the relatively small bases from which they start. However, their growth also reflects the growing importance of resource management and desktop services to the wholesale industry.

d. Processing Services

Processing services continues its moderate downward trend, as better central and distributed IT/IS solutions or outsourcing offer cost-effective alternatives.

e. Network Services

Increasing volumes of shared information between wholesalers, retailers, and suppliers, and expenditures on EC services will drive the growth of databases and data networks in the wholesale market of the future. EDI-enhancing delivery efficiencies and open systems controlling inventory costs will also drive the use of network services. As a result, this product/service category will grow from $640 million in 1995 to almost $2.1 billion in 2000, at a very aggressive CAGR of 27%. Network applications represent the bulk of expenditures and the highest growth rate—an indication of the importance placed on network access and telecommunications resources by the revitalized wholesale industry.

f. Applications Software

As processing services and turnkey solutions diminish, industry and function-specific applications software will be used to conduct, monitor and control all aspects of wholesale activity. Mainframes will become less important, as client/server systems assume responsibility for the enormous volumes of information exchange that will be necessary for EC and other value-added services offered by wholesalers. As with most other U.S. industries, the most rapid growth will occur in expenditures for workstation/PC applications software products, which, in many cases, will be for desktop devices that act as the clients in a client/server environment.

g. Turnkey Systems

There will probably always be a place for application/industry-specific platforms in the wholesale industry, but their number will diminish, as will the moneys spent for them. There will still be some growth in this market, but it will almost certainly turn negative in the first decade of the next millennium.

D
Competitive Environment

1. Retailers and Wholesalers

Retailers are boldly, and wholesalers slightly less purposefully, adopting aggressive measures to build competitive advantage and increase their sales and market share. These competitive actions include the following:

- Large retailers, such as Wal-Mart, Kroeger and wholesalers of all sizes, are consolidating and expanding.
- Large department stores are downsizing and consolidating, changing their merchandise mix, providing more consumer services, embracing greater use of advanced technologies (e.g., Quick Response merchandising and EDI), and focusing on EC and alternative methods of retailing (e.g., catalogs and telemarketing, kiosks, electronic shopping) in order to both stay competitive and grow.
- Wholesalers are developing value-added information services to attract customers, as well as responding to customer EDI and marketing information demands.
- Some mature retail companies are growing through international expansion, since they can no longer grow at an acceptable rate in the U.S.
- Retailers and wholesalers are outsourcing IT, because they are finding it difficult to develop innovative technology solutions on their own and within the time requirements needed to be competitive.

2. Vendors

In 1995, as in 1994, vendors providing services in the retail and wholesale IT arena are facing many challenges in order to remain competitive. For instance:

- Large database companies (such as Oracle and Sybase) have formed industry consulting groups through which they provide vertical industry applications development, systems integration, and specialized software for various vertical sector markets, including retail and wholesale.

- Oracle not only has an industry consulting group, but has formed a very large Business Process Reengineering group to provide strategic planning and business process reengineering services for all industries (horizontal markets) and across all vertical markets. These business process reengineering services directly complete with those of companies such as Andersen Consulting, SHL Systemhouse, Ernst & Young, EDS, Computer Sciences Corporation and Price Waterhouse.

- Major computer hardware companies (e.g., IBM, DEC, HP, NCR) are now providing systems integration, software development, and a variety of consulting IT services to the retail and wholesale industries. These computer hardware companies directly compete with Andersen Consulting, Ernst & Young, SHL Systemhouse, EDS and CSC.

- Vendors marketing IT services in the retail and wholesale markets are hastening to become client/server experts, and systems integrators are seeking to become the vendors of choice.

- Systems integrators that can provide WAN-integrated technologies, both as systems integrators and developers, will have a competitive edge in winning retail business.

- Companies such as GEIS, Deluxe Data Systems, NYNEX, MCI, ISSC, and others are well positioned to support electronic commerce.

3. Vendor Profiles

Brief profiles of selected vendors interviewed by INPUT are presented below. They illustrate the range of information service vendor competition in the retail and wholesale sectors.

a. Andersen Consulting
69 West Washington Street
Chicago, Illinois, 60602 (312) 580-0033

Company Strategy

In the last few years, Andersen Consulting has found that more and more clients have been focusing on a broader, fundamental "reengineering" or rethinking of their business activities, as opposed to narrow change. Andersen's consulting model for delivering solutions is "business

integration"—the linkage of core business components. The components for business process reengineering are an organization's people, process strategy, and technology. Andersen has supported its belief in "business integration" by developing service lines that holistically address the client's organization. Those service lines include strategic services, systems integration, change management services and business process management.

Company Background

Andersen Consulting was organized by Arthur Andersen & Co., as a separate firm in 1988 to address its rapidly growing information services business. Estimated worldwide revenues in 1994 were $3.5 billion—a 20% increase over 1993.

Products and Services

Over 70% of its work involves the use of client/server technology, and Andersen Consulting continues to commit major resources to its six industry practice groups, including retail sales. Andersen Consulting is positioned to meet the multinational needs of clients with operations in 47 countries. Over half of Andersen's revenue is derived from outside the U.S.

b. Deloitte Touche
Ten Westport Road
Wilton, Connecticut 06897 (203) 761-3000

Company Strategy

In response to today's complex business environment, Deloitte Touche provides a broad range of services. The company provides accounting, auditing, tax, merger and acquisitions, and other specialized services; management consulting and information technology consulting; and it is targeting specific industries such as health care, retail and wholesale distribution services, real estate, public utilities, and financial services.

Company Background

The Deloitte Touche consulting organization was founded in 1947. This arm of the company was intended to be a general management consultancys with implementation oriented in areas of advanced technology, operations and strategic planning. Today, Deloitte Touche Consulting brings in revenues of over $100 million and has a staff of over 1,000 employees.

Products and Services

The management consulting practice offers services that range from strategy development through the implementation of information system and systems integration. The retail and wholesale market services industry consulting group is the largest specialty practice. Deloitte Touche serves the 10 largest general merchandisers, seven of the top 10 grocers, six of the top 10 retail drug chains, 16 of the 50 largest wholesalers, and nine of the top 10 department store chains.

c. Micro Strategy, Inc.
One Christina Center
Wilmington, DE 19801 (302) 427-8806

Company Strategy

Micro Strategy, Inc. provides high-level executive retail decision support systems, systems integration and software development services for the retail industry. The company's strategy is to provide a new level of decision support information that can be accessed easily by senior executive decision makers. The goal of this technology is to avoid costly retail operations failures, and make accurate retail operations decisions.

Company Background

Micro Strategy, Inc. was founded in 1990. It has doubled its sales every year it has been in business, and presently is doing between $25-30 million in the retail industry. The company has five offices in the U.S. and Canada, and also has offices in Spain, the United Kingdom, and France. Clients include large retailers such as Kmart, Dayton-Hudson, Circuit City, and Wal-Mart.

Products and Services

Micro Strategy provides decision support systems thatare customized for specific retail company needs, to do ad hoc reporting, ad hoc analysis automated analysis, and automated decision making. The systems are ported to client/server platforms with a Windows-like user interface and integrated into major database products.

d. Informix Software, Inc.
4100 Bohannon Drive
Menlo Park, CA 94025 (415) 926-6300

Company Strategy

Informix is a leading supplier of high-performance, parallel database technology for open systems. With more than 15 years of experience in open systems computing, Informix is a major provider of UNIX client/server DBMS's to the retail industry. Clients include Wal Mart, Kmart, Sears Roebuck, Home Depot and Kroeger.

In the retail/wholesale distribution marketplace, industry sources have indicated that their surveys show that Informix has close to a 75% market share, as measured by the number of sites installed with a database system of any kind. This accounts for well over 10,000 separate site installations.

Company Background

Informix was founded in 1980. It set out to establish itself as a leader in the relational database marketplace. However, there were several diversions, including an aborted acquisition of desktop application maker Innovative Software, but in 1989, with the hiring of Phillip White, currently chairman and CEO, it has succeeded in establishing a winning marketing program, perhaps no more evident than in the way the retail marketplace has been managed and penetrated.

Overall, revenues have grown from $284 million in 1992 to $353 million in 1993, and close to $500 million in 1994.

Products and Services

Informix understands the challenges facing the retail industry today. This is confirmed by the large number of software partners and systems integration partners that are providing retail applications and systems integration services in the retail marketplace. Informix is experienced in data warehousing, ECR, category management, corporate in-store systems, and logistics and distribution applications.

In addition to the basic database, Informix offers 4GL and New Era, designed specifically for creating mission-critical client/server applications.

V

Conclusions and Recommendations

A
Conclusions

The retail and wholesale industries are radically changing. The down-turn of the economy during the early 1990s caused retailers and wholesalers to adopt new competitive strategies and progressive technical programs which are now driving business opportunities. These actions and programs include: downsizing and consolidation; implementing EC and other alternative retail "nonstore" merchandising channels; changing merchandise mix; and developing the technological processes needed to work effectively with wholesale suppliers and manufactures as partners rather than as adversaries. Retailers and wholesalers are, in addition, developing more and varied "customer services" to attract new, and keep existing, customers.

The most significant change in the last few years is the fact that retailers and wholesalers, more than ever before, are embracing information technology as an agent of change; and they are committed to using technology to advance and grow their businesses. In effect, retailers are entering a time of accelerated change. Retail and wholesale trade have always been about managing change—changing seasons, changing fashions, and changing customers. Today, retailers and wholesalers are embracing technology not just to keep up with these changes, but also to help drive change and facilitate growth.

B
Recommendations

Following are INPUT's recommendations for both retailers and wholesalers.

1. Retailers

- Get comfortable with technology. As the result of the application of technology, the pace of change in the retail business is getting faster, and retailers need to respond rapidly in order to complete effectively in the retail industry in the 1990s.

- Align corporate goals with "business processes" rather than concentrate on cost centers and cost reduction, and learn to redeploy resources in services that will improve both sales and return on investment.

- Implement at least one alternative channel of "nonstore" merchandising (e.g., electronic shopping, kiosks, event planning, or catalog merchandising).

- For mature retailers, recognize that you may no longer be able to grow at an acceptable rate in your own country. Consider foreign international markets for growth. Consumer spending is lower in the 1990s, and you must look for consumption-oriented markets overseas.

- Start preparing to be on the Internet and the information superhigh-way. View this technology as a future distribution channel. As mentioned earlier in this report, some companies are willing to be pioneers (e.g., Macy's Winn Dixie, Nordstrom) and are boldly embracing this new distribution channel.

- Put together an ongoing plan to get to know your customers. Plan to provide "extra" services so that customer service is the number-one priority, not only for survival, but to gain new customers and keep your existing customer base.

- Use IS to develop customer databases to track and profile customers, analyze and monitor shopping patterns of customers in different demographic groups, and target customers with incentives.

- Plan to outsource much of your IT to stay competitive. Most retailers generally can't develop innovative technology solutions on their own within the time requirements needed to be competitive.

- Migrate your mainframe/legacy systems to client/server PC or workstation environments. Become more software solutions-oriented, rather than hardware dependent.

2. Wholesalers

Growth and market share are at risk due to EC, which will increase the influence of direct-buying retailers and warehouse clubs, as well as the acquisition and consolidation of wholesalers in the U.S. Steps wholesalers can take to protect their market position, and in the long term fuel growth, include:

- Strategically evaluate current competition, including each competitor's strengths and weaknesses versus the wholesaler's strengths and weaknesses.
- Evaluate the nature, scope and volume of retail customers' purchasing from alternative channels and the wholesaler's vulnerability to encroachment by these competitors.
- Develop a specific action plan to combat major competition in major customer segments, including pricing, marketing, and "service" strategies.
- Evaluate and align corporate goals with "business processes" rather than concentrate on cost centers, and learn to redeploy resources in value-added services that will improve sales and return on investment.
- Develop an acquisition strategy—both as a purchaser and as a possible target.
- Interview key customers to better understand their business objectives, needs and expectations of the wholesaler.
- Address key areas in which the company is not meeting service expectations and reinforce existing positive customer/retailer perceptions.
- Analyze the types of marketing functions performed for suppliers and retailers; quantify the cost of each; and discuss this with suppliers and retailers to ensure their continued satisfaction and the wholesaler's continued profitability.
- Evaluate relationships with top suppliers in terms of needs and expectations, and work to create relationships that are mutually satisfactory.
- Change product mix to accommodate the different demographics of retail customers in areas served.

(BLANK)

A

Forecast Database

This appendix contains the forecast data bases for the retail and wholesale trade sectors for the period 1994-2000, and the 1995 Market Analysis Program database reconciliation for both markets.

A
Forecast Database—Retail

Exhibit A-1 presents the detailed 1995-2000 forecast for the retail trade market sector.

Exhibit A-1

Retail Trade, Market Size by Product/Service Category, 1995-2000

Product/Service Markets	1994 ($M)	Growth 94-95 (%)	1995 ($M)	1996 ($M)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	CAGR 95-00 (%)
Industry Total	3,159	14	3,610	4,176	4,857	5,649	6,610	7,780	17
Professional Services	269	12	301	330	364	393	422	452	8
- IS Consulting	76	13	86	96	107	116	127	138	10
- Education & Training	39	5	41	43	46	50	53	57	7
- Software Development	154	13	174	191	211	227	242	257	8
Systems Integration	501	17	586	680	789	916	1,059	1,218	16
- Equipment	290	16	336	383	435	488	541	595	12
- Software Products	35	17	41	48	56	67	79	93	18
- Professional Services	162	19	193	230	276	335	408	494	21
- Other	14	14	16	19	22	26	31	36	18
Outsourcing	600	22	730	912	1,136	1,397	1,739	2,170	24
- Platform Operations	245	20	295	360	440	520	621	742	20
- Applications Operations	175	18	207	263	327	400	499	622	25
- Desktop Services	80	25	100	128	166	216	281	366	30
- Network Management	54	28	69	86	108	139	183	242	29
- Application Management	24	25	30	38	47	59	73	92	25
- Business Operations	22	32	29	37	48	63	82	106	30
Processing Services	200	6	211	223	236	251	267	286	6
- Transaction Processing	200	6	211	223	236	251	267	286	6
Network Services	340	24	420	535	682	874	1,120	1,434	28
- Electronic Information Svcs	210	20	252	309	379	464	570	698	23
- Network Applications	130	29	168	226	303	410	550	736	34
Applications Software	389	14	442	515	599	696	805	943	16
- Mainframe	52	6	55	57	59	61	63	65	3
- Minicomputer	167	12	187	210	230	250	270	290	9
- Workstation/PC	170	18	200	248	310	385	472	588	24
Turnkey Systems	860	7	920	981	1,051	1,122	1,198	1,277	7
- Equipment	367	4	382	397	413	430	446	460	4
- Software Products	329	7	353	377	4058	432	462	495	7
- Professional Services	164	13	185	207	233	260	290	322	12

Source: INPUT

Exhibit A-2 offers a reconciliation of the 1994 and 1995 forecasts for the retail market sector.

Exhibit A-2

Retail Trade, 1995 MAP Database Reconciliation

Product/ Service Market	1994 Market				1999 Market				94-99 CAGR	94-99 CAGR
	1994 Market (Forecast) ($M)	1995 Report (Actual) ($M)	Variance From 1994 Forecast ($M)	Variance From 1994 Forecast (%)	1994 Market (Forecast) ($M)	1995 Report (Forecast) ($M)	Variance From 1994 Forecast ($M)	Variance From 1994 Forecast (%)	per data '94 Rpt (%)	per data '95 Rpt (%)
Total	3,071	3,159	88	3	6,356	6,610	254	4	16	16
Professional Services	277	269	-8	-3	396	422	26	7	7	9
Systems Integration	493	501	8	2	1,268	1,059	-209	-16	21	16
Outsourcing	534	600	66	12	1,569	1,739	170	11	24	24
Processing Services	197	200	3	2	264	267	3	1	6	6
Network Services	331	340	9	3	963	1,120	157	16	24	27
Applications Software	387	389	2	1	710	805	95	13	13	16
Turnkey Systems	852	860	8	1	1,186	1,198	12	1	7	7

Source: INPUT

1994 Market - Variances in the market projections for 1994 ran from a 12% increase in outsourcing as more retailers use this resource to fix information systems costs, to a 3% overstatement of estimated spending for professional services, resulting from a slight drop in education and training and software development spending.

1999 Market - The long-range variances reflect the diminishing emphasis on dedicated systems in favor of outsourcing (11% variance), and the growing importance of network delivery systems and services (16% variance), such as the Internet, to the retail market. Systems Integration spending for 1999 has decreased by 16% in this report due to a reduction in the equipment component of SI contracts through that period, as equipment prices for PCs and the client component of client/server systems continue to be driven down by competitive pressures and technological innovation. Applications

software growth is 13% higher in the 1995 forecast for 1999, as more retailers embrace information services solutions to industry applications areas. Also driving this area is the movement toward client/server architecture..

The five-year growth projections varied no more than 3%, except for the systems integration market growth adjusted as noted above.

B
Forecast Database—Wholesale

Exhibit A-3 presents the detailed 1995-2000 forecast for the wholesale trade market sector.

Exhibit A-3

Wholesale Trade, Market Size by Product/Service Category, 1995-2000

Product/Service Markets	1994 ($M)	Growth 94-95 (%)	1995 ($M)	1996 ($M)	1997 ($M)	1998 ($M)	1999 ($M)	2000 ($M)	CAGR 95-00 (%)
Industry Total	3,190	13	3,594	4,058	4,602	5,264	6,064	7,052	14
Professional Services	448	10	494	543	595	644	691	738	8
- IS Consulting	105	15	121	138	153	167	181	196	10
- Education & Training	63	5	66	70	73	77	81	85	5
- Software Development	280	10	307	335	369	400	429	457	8
Systems Integration	246	15	284	326	373	426	488	560	15
- Equipment	76	13	86	96	106	117	128	140	10
- Software Products	18	22	22	26	31	37	43	51	18
- Professional Services	145	16	168	195	226	260	302	352	16
- Other	7	14	8	9	10	12	15	17	16
Outsourcing	311	15	358	415	479	553	639	741	16
- Platform Operations	126	12	141	160	180	203	223	245	12
- Applications Operations	91	14	104	119	135	153	173	197	14
- Desktop Services	41	22	50	60	72	87	107	130	21
- Network Management	30	17	35	41	48	56	67	81	18
- Application Management	13	15	15	18	21	25	31	38	20
- Business Operations	10	30	13	17	23	29	38	50	31
Processing Services	340	4	352	362	372	380	386	392	2
- Transaction Processing	340	4	352	362	372	380	386	392	2
Network Services	512	25	639	801	1,004	1,273	1,628	2,094	27
- Electronic Information Svcs	92	13	104	116	129	143	158	174	11
- Network Applications	420	27	535	685	875	1,130	1,470	1,920	29
Applications Software	748	13	847	970	1,115	1,300	1,518	1,791	16
- Mainframe	275	4	285	295	305	315	325	335	3
- Minicomputer	163	9	177	190	200	210	223	236	6
- Workstation/PC	310	24	385	485	610	775	970	1,220	26
Turnkey Systems	585	6	620	641	664	688	714	736	3
- Equipment	247	2	253	256	260	264	269	274	2
- Software Products	227	8	245	255	267	280	294	305	4
- Professional Services	111	10	122	130	137	144	151	157	5

Source: INPUT

Exhibit A-4 provides a reconciliation of the 1994 and 1995 forecasts for the wholesale trade market sector.

1994 Market - Variances in the forecast of the 1994 market ran from 1% to 10%. As with retail trade, the largest change (+10%) was in outsourcing as that market continues to grow at a faster rate than anticipated.

Exhibit A-4

Wholesale Trade, 1995 MAP Database Reconciliation

Product/ Service Market	1994 Market				1999 Market				94-99 CAGR	94-99 CAGR
	1994 Market (Forecast) ($M)	1995 Report (Actual) ($M)	Variance From 1994 Forecast ($M)	Variance From 1994 Forecast (%)	1994 Market (Forecast) ($M)	1995 Report (Forecast) ($M)	Variance From 1994 Forecast ($M)	Variance From 1994 Forecast (%)	per data '94 Rpt (%)	per data '95 Rpt (%)
Total	3,134	3,190	56	2	5,788	6,064	276	5	13	14
Professional Services	439	448	9	2	616	691	75	12	7	9
Systems Integration	245	246	1	0	509	488	-21	-4	16	15
Outsourcing	282	311	29	10	556	639	83	15	15	15
Processing Services	337	340	3	1	382	386	4	1	3	3
Network Services	507	512	5	1	1,521	1,628	107	7	25	26
Applications Software	741	748	7	1	1,499	1,518	19	1	15	15
Turnkey Systems	583	585	2	0	705	714	9	1	4	4

Source: INPUT

1999 Market - Both professional services and outsourcing are forecast this year to be at higher levels in 1999—12% and 15%, respectively. Professional services is being driven by strong increases in spending forecast for IS consulting and software development. Outsourcing is seeing increased spending for desktop services. Network services spending for 1999 is up 7% over INPUT's prior forecast—a reflection of the increased importance of networks and the Internet to the wholesale industry.

Five-year compound annual growth rates (CAGRs) varied no more than 2% for the two report forecasts.