Market
Analysis
Program
(MAP)

# Industry Sector Markets 1991-1996

# Miscellaneous Industries Sector

# Forecast Update

INPUT®

1280 Villa Street, Mountain View, CA 94041, (415) 961-3300

DECEMBER 1991

# INDUSTRY SECTOR MARKETS 1991-1996

# MISCELLANEOUS INDUSTRIES SECTOR

# FORECAST UPDATE

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Published by
INPUT
1280 Villa Street
Mountain View, CA 94041-1194
U.S.A.

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MAPMI • 523 • 1991

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# Introduction

# Introduction

## A
## Purpose

The purpose of this Forecast Update is to provide the 1991 INPUT forecasts for the miscellaneous industries sector, which includes the agriculture and construction industries. Included is a discussion of recent market issues and competitive factors that are influencing this sector.

A more comprehensive analysis of this industry was presented in the 1990 report and should be used as a reference.

## B
## Industry Structure

This report concentrates on information services provided to the agricultural production and construction industries.

The agricultural production industry is identified by the two-digit SIC classifications 01 and 02. Also included within the agricultural production classification are the forestry and fishing industries. However, from the perspective of this report, which analyzes information services provided to the various industry-specific markets, there is not a sufficiently large revenue base of third-party information services from the forestry and fishing markets to justify an emphasis within this report.

The agricultural services industry is identified under SIC code number 07. This includes such subcategories as soil preparation services, crop services, veterinary services, and farm labor management services. Again, the size of the information services industry which address the agricultural services markets is not large enough to provide substantive analytical conclusions.

Agricultural producers (SIC code 01) include establishments primarily engaged in the production of crops, plants, vines and trees (excluding forestry operations).

Agricultural producers (SIC code 02) include establishments such as farms, ranches, dairies, feedlots, egg production facilities, broiler facilities, poultry hatcheries, and apiaries, which are primarily engaged in the keeping, grazing, or feeding of livestock for the sale of livestock or livestock products. Livestock, as used here, includes cattle, hogs, sheep, goats, and poultry of all kinds.

The construction industry as classified by the Standard Industrial Classification codes covers three broad types of construction activity: 1) building construction by general contractors or by operative builders; 2) heavy construction other than building by general contractors and special trade contractors; and 3) construction activity by other special trade contractors. Special trade contractors are primarily engaged in specialized construction activities, such as plumbing, painting, and electrical work, and work for general contractors under subcontract or directly for property owners. General contractors usually assume responsibility for an entire construction project, but may subcontract to others all of the actual construction work or those portions of the project that require special skills or equipment. General contractors thus may or may not have construction workers on their payroll.

Specific SIC codes for the construction industry are:

- 15 - Building Construction—General Contractors and Operative Builders
- 16 - Heavy Construction other than Building Construction Contractors
- 17 - Construction—Special Trade Contractors

The analysis of the information services industry in this report covers all three of the above industry segments.

## C
## Organization and Contents of Report

The remainder of this report is organized as follows:

Chapter II—Information Services Market—looks at the agricultural production and construction industries from two viewpoints:

- By delivery mode: How are these services delivered? INPUT's major categories of delivery modes are:

  - Processing services
  - Network services
  - Software products
  - Turnkey systems
  - Systems integration
  - Systems operation
  - Professional services

- By industry segment: *Who* is buying information services? In other words, what segments within the agricultural production and construction industries are buying what delivery modes?

Overall market forecasts are provided by delivery mode and industry segment.

- Chapter III—Competitive Environment—identifies leading IS vendors in the industry, and discusses some of the factors that affect the competitive dynamics of the industry.

- Appendix A presents industry-specific definitions used throughout the report.

- Appendix B presents the forecast data bases. The forecast data bases contain yearly (1991-1996) forecasts of user expenditures by delivery mode for the agricultural production and construction industries.


# Information Services Market


# Information Services Market

This chapter discusses the markets for information services in the agricultural production and construction industries.

User expenditure (market) forecasts are provided for the agricultural production and construction industries by industry sector and by delivery mode. Assumptions driving the forecasts are presented. Note that these forecasts do not include functional general-purpose information services, such as for human resources, accounting or generic planning and analysis. The markets for these types of information services are presented in the Cross-Industry Market Analysis Program reports rather than the industry-specific reports.

Section A—Overview—discusses the overall size and growth rate of the agricultural production and construction industries' expenditures for information services.

Section B—Delivery Mode Analysis—breaks out the overall data into INPUT's seven standard delivery modes.

A reconciliation with the 1990 forecast is presented in Appendix B.

## A
## Overview

### 1. Demographic Forecast

#### a. Agricultural Producers

The long-term trend of a steady decline in the number of farms will continue. Government subsidies to farms will also continue to lessen or change significantly due in large part to the political trend toward industry deregulation and free-market economics. Changing economies of scale will continue to force consolidation of some small farms and medium-

sized enterprises. The consolidated farms will be located near one another to share expensive tools and equipment. The impact of strong international competition, particularly on pricing of agricultural commodities, will likely lead to a modestly slower growth rate for U.S. agricultural producers than for the total U.S. economy over the next five years, as measured by the GNP growth rate.

In addition, the 1991 recession and slow, troubled recovery have continued to place pressure on the agricultural sector. Growth has slowed further, and consolidation continues.

### b. Construction Industry

The number of companies in the construction industry should remain approximately the same over the next decade. Although there is likely be a decline in the number of companies in the near term (industry sources suggest that as many as 30% of the total companies leave the business in cyclical downturns), they are usually replaced during periods of economic recovery. The 1991 recession has greatly increased the pressure on the construction industry and caused further reduction in the number of companies.

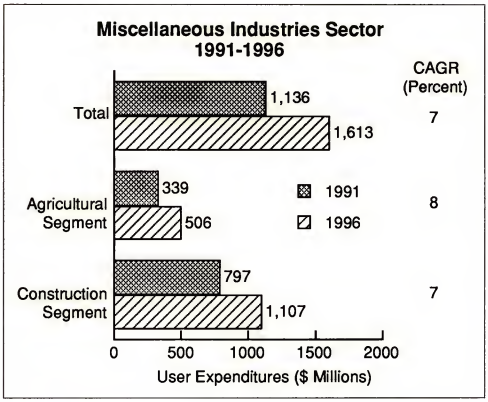
- Overbuilding in the late 1980s remains a factor
- Residential real estate remains a negative factor
- The lack of a strong recovery will slow growth in the number of companies

## 2. Information Services Market Size

The overall size and growth of the miscellaneous industries market is depicted in Exhibit II-1.

The construction segment accounts for 70% of the total combined market. Both segments are growing more slowly than the overall information systems market at 12% CAGR.

EXHIBIT II-1




### a. Agricultural Production

The total (third-party-provided) information services market for agricultural producer applications in 1991 is estimated to be approximately $339 million. However, a large portion of the "potential" agricultural production market is represented by internally developed solutions. Thus, the real challenge for third-party providers is to penetrate this market. INPUT estimates that information services spending by the 100 largest agricultural producers represents approximately two-thirds of total agricultural producer expenditures (combined internal and external applications). The larger accounting software companies, with customizable solutions, appear to be achieving more success than suppliers of vertical applications to this larger company base. A requirement for vendor selection cited in INPUT's 1990 survey of the larger end users was company size and long-range stability.

Growth over the 1991-1996 period is projected at 8%, resulting in a $500 million market in 1996.

### b. Construction Industry

The total computer-based information services market in 1991 was approximately $797 million. The largest portion of the market remains turnkey systems. This is larger than the software products portion, which

reflects the preference of midsized construction firms (the principal targeted market segments) to purchase a relatively high percentage of their solutions in a bundled hardware-software mode.

INPUT's 1990 survey of midsized to large end users indicated an approximately 60% level of external purchases. However, a substantial portion of these purchases appear be from non construction-industry-specific accounting software products firms, such as Dun & Bradstreet Software.

Although the growth outlook for the U.S. construction industry is poor in the near term, growth in sales of computer-based information services to this industry is projected to expand at a CAGR of 7%. It is estimated that only 40-45% of U.S. builders have automated their construction functions, a relatively low level of market penetration for computer-based information services. Thus market opportunity remains.

Industry sources indicated that there are an estimated 80,000 construction companies in the U.S., with perhaps up to half of these representing subcontractors and remodelers. The 40,000 general contractors (construction management firms) represent the primary targeted market of computer-based information services companies.

## B
## Delivery Mode Analysis

Both segments are seeing slow decline in demand for processing services.

### 1. Processing Services

Exhibits II-2 and II-3 show the size and growth rates of each delivery mode within the agricultural production and construction segments. Since these two markets are so distinctly different, they will be discussed separately throughout this chapter.

EXHIBIT II-2

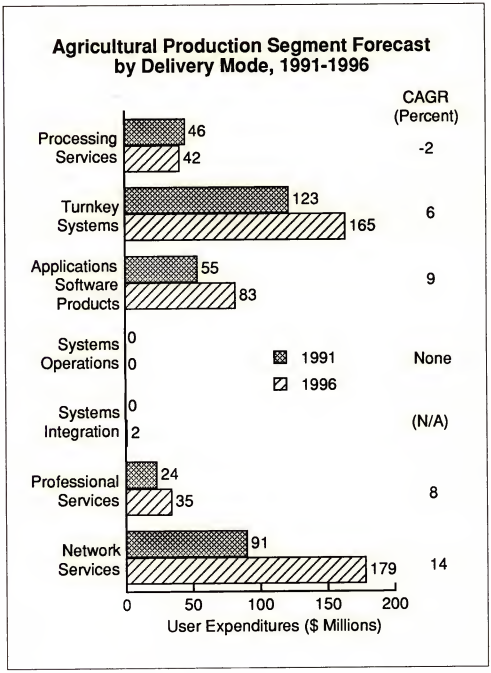
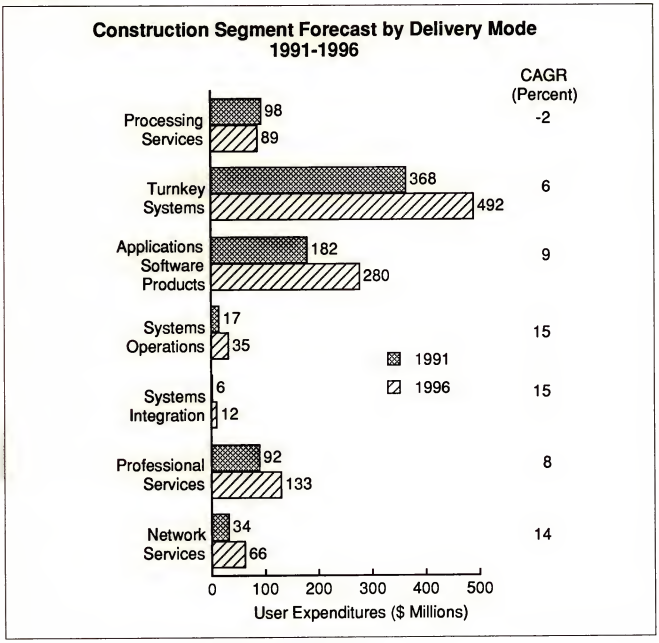


EXHIBIT II-3




### a. Agricultural Production

Processing services in the agricultural production market is primarily a service bureau (remote processing) application for payroll processing and accounting services for small to midsized farms. These types of services are provided by the traditional payroll processing companies, banks, and consultants/accountants. This market is experiencing decreasing growth as the rate of computer installations on farms expands. The estimated size

of the remote processing services market for agricultural producers in 1991 was $46 million, which includes the 8-year $35 million processing services contract Martin Marietta has with the USDA.

### b. Construction Industry

In the 1970s, many of the forerunners of current industry-specific software companies provided processing services-based products to the construction industry. For some of these companies, an estimated 10% or more of their revenues are still from this delivery mode. The second transition was to the turnkey systems delivery mode as construction companies became first-time computer purchasers. Since the mid-1980s, the trend appears to be toward unbundling of software and hardware sales.

The processing services delivery mode will continue to show declining growth, related to the ever-decreasing entry level costs for purchasing computer systems. This is primarily a turnkey systems market with minicomputer and PC-based solutions.

The market for processing services to the construction industry is estimated at $98 million in 1991. This is projected to decline at a 2% compound annual rate over the next five years.

## 2. Network Services

### a. Agricultural Production

Network services expenditures in 1991 are estimated to be about $90 million. This delivery mode addresses a broad size range of farm operations with needs for an expanding number and variety of data bases and other types of network applications (E-mail, purchasing, etc.). Growth in this market is projected to expand at a 14% CAGR, reflecting a modestly slower growth rate forecast for agricultural production than for the total U.S. network services market. This is to be expected, given the slower growth rate outlook for agricultural production than for the total U.S. GNP.

### b. Construction Industry

The principal network service for the construction industry is the on-line data base market for construction cost estimating data. A small number of companies represent the principal vendors of such services. The largest is R.S. Means, with an estimated two-thirds of the total market. These companies also market software products with their services, such as estimating systems which can utilize the current data base information. Other companies also provided linkages to these data bases for estimating software applications.

The other emerging network service for 1991 is the EDI (electronic data interchange) market for providing on-line structured document delivery amongst suppliers, vendors and customers. An industry group for EDI has developed, but the current market remains small.

The total construction market for network services is estimated at $34 million in 1991. It is projected to expand at a 14% CAGR over the next five years. The rate could accelerate with the greater use of EDI in the second half of the 1990s.

### 3. Software Products

#### a. Agricultural Production

There are approximately 150 companies producing agricultural segment applications software products. Most of these companies represent small operations with less than 5 employees. The five to seven leading companies (as measured by installed base) average revenues of only $1.5 to $3.0 million, with 10-15 employees. This indicates the fragmented nature of the market and also the fact that software applications tend to be used on PCs. This is generally a market in which it is difficult to sell directly on a profitable basis (Doane Information Services being one of the exceptions), and thus most sales are made through VARS and VADs, supplemented with telemarketing resources.

Approximately 70% of software solutions sold to the agricultural production market in 1990 was estimated to have been sold on a turnkey systems basis, primarily on personal computers. The turnkey sale is made almost exclusively through VARs and VADs to small to medium-sized agricultural producers. VARs and VADS selling to the agricultural producers' market tend to be accountant/consultants, computer retailers, or dealers of small business systems for one or more vertical markets.

The unbundled software products (nonturnkey systems-related) portion of the agricultural producers' market in 1990 was estimated at approximately $55 million, and is projected to grow at a CAGR of 9% over the next five years. It is essentially all PC-based.

#### b. Construction Industry

There are a number of companies that provide software products to the construction industry whose history goes back to the early to mid-1970s. Several of these companies have revenues in the $8 million to $10 million range. IBM is a also a leading supplier to the industry, with its CMAS II family of industry-specific software products.

A product trend over the past few years has been toward microcomputer-based solutions versus minicomputers. This has resulted in a mixed pattern of revenue growth for industry participants. Growth in software products applications in 1991 is estimated at 8%. Much of this growth is from new products for the subcontractor and home remodeling markets, and from microcomputer-based solutions.

One type of industry product segmentation is between applications for the general contractor (commercial/public works, including highway construction and homebuilders), and subcontractor markets. Some software products vendors supply only to one of these segments and others address several segments.

For the next five years, the construction-specific software products market is projected to show a CAGR of 9%. This could accelerate in the mid-1990s, if the construction industry enters a period of recovery. The software products portion of the total construction information services market is estimated at $182 million in 1991.

### 4. Professional Services

#### a. Agricultural Production

The professional services portion of the agricultural production market consists of consulting, custom application development and education and training support programs. The combination of user and vendor surveys indicates that less than 10% of total expenditures are for professional services. Of this, approximately one-third is provided by independent software products vendors, and turnkey systems suppliers, leaving a market of approximately $24 million for directly purchased professional services.

Future market opportunities for agricultural software and turnkey systems suppliers lie in providing more easily customizable solutions and more education and training services. The market growth for professional services in the agricultural production market will expand at a modest 8% CAGR over the next five years.

#### b. Construction Industry

The professional services market (custom application development, education and training and other support services) has been experiencing a relatively high growth rate in recent years of 15-20% among the larger information services vendors to the construction industry. However, the current economic situation and its significant impact on construction has reduced market growth measurably.

The current size of the professional services market is estimated at $92 million in 1991. Growth in this area will slow to an 8% CAGR as some of the previously directly purchased consulting support is provided through other channels, such as turnkey vendors.

### 5. Systems Integration

#### a. Agricultural Production

INPUT continues to find little evidence of current use of systems integration applications among agricultural producers. However, a number of the larger users surveyed indicated a need for distributed computing solutions. Although none of them currently showed an interest in outside systems integrators, the need may develop over time as they discover the difficulty of developing such applications internally.

#### b. Construction Industry

A modest amount of systems integrator use exists in the construction segment. Construction software products vendors surveyed indicated that a future growth trend will be to relational data base technology with the need to provide more multiplatform/multivendor connectivity. With the exception of Bechtel, very few users were currently working with relational data base management/4GL application development technology.

New technology will lead to modest, steady growth in systems integration activity among the larger construction companies.

### 6. Turnkey Systems

Turnkey systems are closely related to applications software products. Both these alternatives generally provide the least flexibility for the user, and place the user most strongly at the mercy of the vendor. They are most frequently used by the smaller firms, which have simple operations and cannot afford the overhead of application development. Turnkey systems represent the largest delivery mode for both industries.

#### a. Agricultural Production

Current sales of turnkey systems are primarily through VARs specializing in the agricultural production market. Users who purchase turnkey solutions represent initial users and users upgrading to a more powerful solution, the latter which is cited as a trend by many vendors.

The general turnkey systems market, as segmented by INPUT for all vertical applications, includes approximately 50% hardware, 50% software and support services. The estimated agricultural production turnkey systems market in 1991 was $123 million. This market is expanding at a

slower rate than the software products market due to declining prices in micro-based computer hardware. The agricultural turnkey systems market is projected to expand at a compound annual rate of 6% over the next five years. Products are primarily PC-based.

### b. Construction Industry

Approximately 60% of the vendors surveyed sell directly to the construction industry. The remainder sell through VARs. The VARs tend to provide turnkey system solutions. However, there is a much higher penetration of computer systems in the construction industry than in the agricultural industry, and thus a higher portion of software revenues, which represent sales to an existing installed base.

Bidtek is one company for which the turnkey system delivery mode represents 100% of total revenues. A major change in product direction for Bidtek in recent years has been a migration to the UNIX environment to provide for more hardware platform independence. The company targets construction firms with revenues in the $5 to $100 million range, of which there are an estimated 25,000.

The turnkey systems market for the construction industry will grow at a modest rate in 1991, with 6% growth coming primarily from VARs addressing the small-to-midsized firms. A 6% overall CAGR is projected for the next five years, reflecting the declining prices for hardware and the generally difficult business environment for the construction industry.

In 1991, the turnkey systems market for construction industry applications totaled an estimated $368 million. Approximately 50% represented hardware (CPU and peripherals); 40% software, and 10% professional services.

## 7. Systems Operations

### a. Agricultural Production

INPUT's end-user survey of the IS directors of the larger agricultural producers showed virtually no interest in systems operations programs.

### b. Construction Industry

INPUT has identified a small market for systems operations among the largest construction firms.

## C
## Industry Segment Analysis

### 1. Agricultural Production

The principal segmentation of the agricultural production market is by size of producers. Generally speaking, the larger producers—representing 65-70% of total agricultural production—tend to develop their computer applications internally. The midsized producers, with revenues in the range of $100,000 to $1,000,000, represent the principal targeted agricultural production market for independent information services vendors. The smaller farmers tend not to use computers, or if they do use a particular application, it tends to be more of a cross-industry application, like a spreadsheet program.

Other divisions are between the larger, labor-intensive farms of California, Oregon, Texas, and Florida versus more capital-intensive farming approaches: grains, dairy farms, poultry farms, and livestock farms/ranches. The labor-intensive farms are addressed by a unique set of applications. Poultry farms also have unique application requirements which are not addressed by more general agricultural production packages. The other farm types are addressed by a more common group of applications.

### 2. Construction Industry

As previously indicated, the principal market segments addressed by the construction industry include: the commercial, public works (with defense contracting more specialized), homebuilding, and subcontractor sectors. There tends to be some segmentation among information services providers addressing either the residential/subcontractor or commercial/public works markets.


# Competitive Environment

# Competitive Environment

## A
## Leading and Emerging Vendors

This section discusses the competitive environment for information services within the agricultural production and construction industries. Leading vendors in each market segment and delivery mode are identified and profiled.

The companies profiled are generally the same as in the 1990 report.

### 1. Agricultural Production

Approximately eight independent vendors are the leading suppliers of software products to the agricultural production industry. These include: Farm Management, Inc. (FMS); RedWing Business Systems, Inc., Doane Information Systems (a division of Control Data); FBS Systems; Harvest Computer System, Inc.; Pioneer Hi-Bred Business Information Services; AgData; and Holm Dietz Computer Systems, Inc. The principal operating system supported by these companies is MS/PC-DOS. The total number of companies providing software packages to the agricultural industry is estimated to be in excess of 150. They market primarily on a regional basis through a combination of telemarketing programs and dealers. For many vendors, the telemarketing programs are lead generators for their dealers.

The other principal delivery mode in the agricultural information services market is network services. These vendors include broad-based electronic data base publishers such as Dialog Information Services (Commodity News Service) and OCLC, the major network news services such as Reuters and Dow Jones, agriculture-specific electronic data base publishers, such as AgriData Resources, Inc., and Ag-Line, provided by Doane Information Systems. Other network service suppliers are Commodity Systems, Inc. (CSI), Instant Update from Pro Farmer, Data Transmission Network Corp. (DTN), the PIONEER information network, and Farm

Bureau ACRES. There are also numerous other resellers of electronic services to agricultural producers and ranchers who bundle the agricultural data with their proprietary analytical software packages for price, unit cost and sales forecastings and other related applications. (See Exhibit III-1.)

EXHIBIT III-1

**Selected Leading Vendors**
**Agricultural-Specific Information Services**

- Farm Management, Inc. (FMS)
- RedWing Business Systems, Inc.
- Doane Information Systems
- FBS Systems
- Harvest Computer System, Inc.
- Pioneer Hi-Bred Business Information Services
- AgData
- Holm Dietz Computer Systems, Inc.
- AgriData Resources

Martin Marietta Information Systems has two contracts with the USDA. One is an eight-year contract worth approximately $34 million to provide processing services for the National Agricultural Statistics Service of the USDA. The Martin Marietta data network links 45 USDA offices that collect and analyze information on crop and livestock production, weather, and other related data. The other contract, known as the CID program, provides wholesale distribution of USDA data bases to data base retailers, an estimated 75 customers.

### 2. Construction Industry

Principal construction industry subsegments addressed by information services vendors are the general contractor—commercial, home builder, government—and subcontractor markets. Several of the leading suppliers to the construction industry address the commercial, home builder and subcontractor markets with a broad-based product line, while others tend to specialize with products and services for one of the commercial, home builder, or subcontractor markets. The government construction/defense contractors market appears to be more specialized, with a few leading vendors specializing in this industry subsegment.

There is a higher percentage of utilization of minicomputer and mainframe-based third-party-provided software products in the construction industry than in the agricultural sector. The longer-term trend, however, appears to be toward distributed computing applications, which could be PC/client-based with the utilizaton of a minicomputer, or mainframe-based servers for data base storage and retrieval and network applications and management.

Approximately nine or ten companies represent the leading suppliers of applications software products to the construction industry. Several are independent suppliers that specialize in the construction market. These include: Jonas and Erickson Software Technology; Timberline Software Corporation; DELTEK Systems (government contracts); Bidtek, Inc.; Construction Data Control, Inc. (CDCI), an affiliate of Weyerhaeuser; Concord Management Systems; and the McCosker Corporation. Others are: Bechtel Information Technology; IBM; Primavera (construction is the largest market segment for its project management software, with specialized packages like job cost accounting and subcontracting in addition to its cross-industry accounting programs); Enterprise Computer Systems; Software Shop Systems, Inc.; MC$^2$ Engineering Software; and Computer Associates International, which provides software products tailored for government contract cost accounting. In addition, many vendors have a regional marketing focus.

Leading providers of network services to the construction industry are R. S. Means Company, Inc. and Marshall & Swift. These companies provide on-line data bases (as well as printed media) of current costs for various types of building materials. Such services are used by contractors, tax assessors, appraisers, and real estate agents to track construction costs, in particular to know what it will cost to replace various types of structures in various regions. A source of such data provided to Marshall and Swift, for example, as a data base publisher, is the F.W. Dodge subsidiary of McGraw-Hill.

Processing services are also provided by some of these companies. One of the largest industry specialists in construction-specific processing services is System 5-Construction Computer Corporation. (See Exhibit III-2.)

Providers of specialized solutions such as image processing applications to the construction industry include companies such as Formtek/Lockheed and Combustion Engineering/ABB.

EXHIBIT III-2

**Selected Leading Vendors**
**Construction Industry-Specific**
**Information Services**

- Jonas and Erickson Software Technology
- Timberline Software Corporation
- DELTEK Systems
- Construction Data Control, Inc. (CDCI)
- Concord Management Systems
- Bechtel Information Technology
- International Business Machines (IBM)
- Enterprise Computer Systems
- Software Shop Systems, Inc.
- $MC^2$ Engineering Software
- Computer Associates International
- R.S. Means Company, Inc.
- Marshall and Smith
- System 5 Construction Computer Corporation

## B

## Vendor Characteristics and Trends

### 1. Agricultural Production

The leading vendors mentioned above market nationwide through dealer networks, many of which represent various types of agricultural VAR specialists, such as accountants/consultants who market as part of their related services to farmers, and general computer retailers. AgData and Holm Dietz have a West Coast regional focus. A key factor for success in this industry is the ability to establish a strong dealer network. It also represents a formidable barrier to entry for smaller software developers. Most of these software vendors also have in-house telemarketing programs.

Very few are direct marketers, with Doane Information Systems being one exception. A larger captive supplier is Pioneer Hi-Bred International, Inc., Business Information Services.

The typical size for even the larger agricultural software products vendors is in the $1 to $5 million revenue range, which indicates the relatively small current size of the agricultural software products market as well as the fragmentation of the market.

Many of the large agricultural cooperatives also provide information services to their individual members. For example, the Land O'Lakes Cooperative in Arden Hills, Minnesota, sells a CROP Plan package that it has developed, and also provides accounting services (on a service bureau/processing services basis) to its members.

Many of the independent software vendors do not appear to have been particularly successful in marketing through the major cooperatives. An example of one such product, distributed through Land O'Lakes, is Doane Information Systems' DairyTRAK software product.

Agricultural VARs/dealers tend to sell on a bundled/turnkey systems basis, particularly to first-time customers. The turnkey systems portion of sales for software products suppliers tends to be quite minimal, typically in the 5-10% range.

The professional services portion of vendor revenues also tends to be quite minimal—under 10%. Principal services include education and training and product customization.

Processing services, which include full-time record keeping/accounting for smaller farmers, are provided by a few of the leading software vendors, and also by banks and accountants who tend to purchase such packages from the agricultural software vendors.

### 2. Construction Industry

Leading companies specializing in the commercial (general contracting, building construction and heavy construction) construction software products market include: Bechtel Information Technology; Jonas and Erickson; Concord Management Systems; and MC² Engineering Software (AKA: McClintock Corp.).

Leading companies specializing in the home builders' market include: Construction Data Control, Inc., Enterprise Computer Systems, Inc., and Software Shop Systems, Inc.

Principal software product categories include: accounting and construction management/project management systems, cost estimating products, and sales and marketing systems specifically tailored for the construction industry.

Other companies previously mentioned tend to address the broader construction market, often with separate sets of solutions.

For several of these companies, professional services (application development and education and training) are a significant part of total revenues (typically in the range of 20-25%).

## C
## Vendor Profiles

### 1. Agricultural Production

#### a. Farm Management Systems (FMS)

FMS has been developing and marketing agricultural software for eight years. Estimated revenues for 1991 are under $2 million.

The principal software packages of Farm Management Systems include:

FMS ACCOUNTING PLUS, which includes the following modules: FMS ACCOUNTING ($495); FMS ENTERPRISE ANALYSIS ($195); FMS DEPRECIATION MANAGER ($250); and FMS S-LINK (4245).

FMS ACCOUNTING - EXPERT SYSTEM (specially designed for banks, accounting, bookkeepers and university extensions), which includes: FMS ACCOUNTING ($495); and FMS RATIO/INDEX ANALYSIS ($295). This program allows banks, accountants, bookkeepers, and extension agents to enter their clients' account totals and produce the following reports for each client: yearly cash flows, income statements and balance sheets; cash flow budgets; ten-year cash flows, income statements and balance sheets; and ten-year ratios and indexes in report or graph form. All of these reports can be produced by entering a client's account totals into the FMS ACCOUNTING program and transferring the data to the FMS RATIO/INDEX ANALYSIS program.

FMS ACCOUNTING-PROFESSIONAL SYSTEM, including FMS ACCOUNTING PLUS ($995); FMS RATIO/INDEX ANALYSIS ($295); and CLOSE-UP ($295).

The FMS ACCOUNTING program provides both cash reports for income tax and accrual reports for financial decision making. Ease of use is stressed, and the client does not have to know debits and credits in order to operate the FMS ACCOUNTING program.

All programs are available for MS-DOS-compatible computers.

Consulting services are also provided on-site, in-house, and through telephone support.

Particular capabilities of FMS accounting systems include the generation of reports that bankers require for loan renewal, planning capabilities for future profits based on actual history, assistance in asset purchase decision by helping to determine whether profits can be improved with a new asset, and the pinpointing and elimination of unprofitable enterprises.

The FMS accounting programs also address the issue that GAAP standards are not really specific to agricultural producers. Bank requirements of agricultural producers are becoming much more specific. The company is working with The American Bankers Association (ABA) to develop more specific GAAP standards for agricultural producers. The FMS accounting features built into the Financial Manager program provide the capability to conform to GAAP rules, which enhances reporting relations with bankers, for example.

Other software programs include:

FMS PAYROLL MANAGER, which calculates wages for piecework, hourly, commissioned and salaried employees; handles federal and state tax withholding as well as local payroll deductions; prints W-2 forms, employee histories and quarterly information for reports; and batch prints payroll checks.

EASi CROP RECORDS, which provides harvest, summary, complete field records, storage location reports, and income over direct costs for each field and for each crop. Detailed production records also enhance product planning.

FMS distributes through resellers and also maintains a telemarketing department. The telemarketing department contacts the leads FMS receives and passes on qualified prospects to the resellers. Twice a year the company holds regional seminars for its clients and resellers. The seminars emphasize the setup, maintenance and use of the company's software.

The reseller structure includes FMS Reseller (which requires sales of at least $1,000 over a 12-month period); Master Reseller (which requires sales in excess of $5,000 over a 12-month period); and Distributor (which requires sales in excess of $12,000 over a 12-month period) agreements.

Discount rates and the level of promotional material support vary amongst the various types of resellers. Dealers can also arrange for an FMS representative to come to their area to hold sales/client seminars.

The company also publishes the FMS Newsletter, which is mailed periodically to its resellers and clients. The newsletter contains information on product usage, updates, technical questions, sales, and upcoming seminars.

Clients get support from both the dealer and FMS. With a modem and CLOSE-UP software, the client has on-line linkage with FMS support. With on-line support, the FMS client receives hands-on help with both computer and software tasks, such as setting up a chart of accounts or entering a complex transaction. CLOSE-UP Remote Software also provides access to other electronic services, such as E-mail and commodity data bases.

Principal competitors of FMS include: Harvest Computer System, Inc., Doane Information Systems; and FBS Systems.

**b. Harvest Computer System, Inc.**

INPUT's 1990 revenue estimate for Harvest Computer System is in the $1.5 to $2.0 million range.

The company markets nationwide to all sizes of farmers, with emphasis on the medium-to-large producer.

Its principal software products groups include:

The HORIZON ACCOUNTING SERIES, a double-entry farm management program, which includes the following modules:

- Horizon Accounting, which is designed for both farmers and ranchers. A distinguishing feature is that it automatically handles debits and credits and postings, so financial reports are always current. This greatly reduces the need for the user to understand the details of double-entry bookkeeping.

- Horizon Farm Inventory, which monitors the quantities and market values of farm inventories. It tracks grain, livestock, and supply inventories; figures resale deductions; and prints management reports.

- Horizon Payroll, which is a complete employee management program. It keeps detailed employee information, calculates payroll deductions, and prints payroll checks, monthly, quarterly, and year-to-date reports, and W-2s. It can pay employees on salary, salary plus incentive payments, piece rates, hourly wages with overtime, double-time and commissions.

- Horizon Profit Center, which adds profit center analysis to the Horizon Accounting records. It builds on the enterprise analysis of Horizon Accounting to provide true cost accounting. It can calculate actual cost of production per head or bushel for each enterprise, farm, or field, and monitor profitability and financial position for each partner.

- Horizon Report Plus, which is a collection of expansion reports and utilities to be used with the Horizon Accounting data. It adds trending to cross multiple years and allows for combining multiple sets of books.

- Horizon CFS* Analyst and Horizon CFS* Planner, which produce Coordinated Financial Statements (required by many lenders) from Horizon Accounting data.

- Depreciation Log, which calculates depreciation deductions.

FARM LEDGER PRO: Single Entry Bookkeeping. The Report Expansion Pak module expands Farm Ledger Pro with actual cashflows, subcategory reports, spreadsheet exporting, and check writing with a vendor file.

MANAGEMENT PROGRAMS, which include:

- Hog Manager, which monitors and analyzes production of the hog herd. Analysis includes a sow productivity index, parity, farrowing intervals, boar analysis and self-created statistics. Detailed schedules keep one current on which jobs must be done each day and each sow's status. Feed records and other expenses are analyzed to pinpoint cost of production.

- Field Manager, which keeps detailed records of each field's production history, including soil tests, yields, and costs. Field Manger helps plan crops' input needs and compares profitability by crop, field, or landlord.

- TechniChart, which is a charting and analysis program. Commodities can be analyzed through trend lines, moving averages, basis charts, spreads and retracements. TechniChart can use data from the most popular and professional market data services with the addition of a modem and access program.

- DataBridge, which brings information from the DTN services into a computer. DTN screens can be saved as files for future reference or loaded into a word processor.

- Harvest Profit Tools, a decision-making program that doesn't require a spreadsheet, which reduces the difficulty of learning. Harvest Profit Tools for Crops include Cash Rent/Share Rent Analysis and Crop Comparison. Harvest Profit Tools for Livestock include Feeder Pig Finishing and Livestock Bid Analysis. Profit Tools for Finance include Cashflow and Amortized Loan Calculator.

- Machinery Manager, which provides a maintenance schedule. It also tracks the downtime and maintenance and repair costs of each major piece of equipment and can be used to determine which pieces of equipment are costing too much and need to be replaced.

- Harvest Solutions for Agri-Business, an extended version of Horizon Accounting, which is designed for agribusinesses and farmers with expanded accounts receivable needs.

All packages support the MS/PC-DOS operating system environment, and several also support the Apple II systems.

Individual packages/modules range in price from $95 for Harvest Profit Tools for Livestock to $625 for Horizon Accounting.

The company sells nationwide, with many sales going through dealers. A telephone support hookup can be developed through a modem for remote diagnostics and repair.

Nearly all packages are integrated; those that aren't share information.

Professional services provided include custom modifications and education and training. Ongoing training is provided with annual training conferences in five regions.

**c. Pioneer Hi-Bred Business Information Services**

Pioneer Hi-Bred Business Information Services provides a variety of information services to complement the company's other services to the agricultural producers' community.

INPUT estimates 1990 revenues to be in the $20-$25 million range.

The three principal agricultural software product lines include: a complete line of accounting packages, from entry-level to very sophisticated large operations; crop record-keeping programs to determine product costs, soil moisture content, etc; and a field mapping program, along with a number of decision aid templates that work with Lotus 1-2-3, and a Dairy Herd Manager and Swine Production record management programs. Also provided are enterprise analysis (cost accounting modules) for applying comparative analysis among different crops, fertilizers, herbicides, and pesticides.

The company is also an IBM value-added reseller of the IBM PC family.

The company provides a number computer and software training programs. The most popular program is Computer Basics, which teaches the fundamentals of personal computer use.

The operating system supported is MS/PC-DOS.

Its field mapping product (it is estimated that there are only two other vendors of this new agriculture-specific product category) has received a very strong reception.

A major product emphasis is ease of use.

The other major agricultural information services from Pioneer Hi-Bred Business Information Services is the PIONEER Information Network. Reports available from this electronic publisher/network company include agricultural news commentaries detailing what is happening in Congress and with the USDA; market quotes, updates and hot news from the grain and livestock futures and options markets; daily cash grain quotes from major interior grain trade locations; the Pro Farmer Today market advisory report; Bill Helming's daily market advisory report covering the grain and livestock trade; agronomic update reports featuring the expertise of Pioneer agronomists and the advice of agronomy staffs from 12 state universities; weather information; and electronic mail capabilities. This includes the ability to question Pioneer's agronomists on various agriculture-related issues. The cost includes a $9.95 monthly service fee, a $0.21 per minute communications fee, and a $75 setup fee.

**d. Data Transmission Network Corporation (DTN)**

INPUT estimates DTN's 1990 revenues at approximately $5-$10 million.

DTN is a data base publisher/electronic network company that provides farmers with information on grain bids, futures and options quotes, and other farm-related data through the unused portions of the FM broadcast spectrum. This is a lower-cost technology which reduces the subscription price to $20 per month for the service and a $150 setup fee for the receiver and monitor. Competitors use dial-up telephone lines and VANs. Recently published sources indicate that DTN has approximately 45,000 customers, whereas the Commodity News Services (Knight Ridder/ Dialog) has an estimated 6,500 to 7,000 subscribers.

**e. Agridata Resources, Inc. (ARI)**

ARI is a leading value-added, electronic business information and network communication services company providing agriculture-specific electronic data bases and other network services. INPUT estimates that its revenues for 1990 are in the $30 million+ range. ARI also provides an electronic mailbox service.

ARI's principal activity is the operation of AgiData Network, which utilizes proprietary, value-added network technology to deliver computer-based information to agricultural companies and commercial farmers.

The network can link mainframe and minicomputers for access to network services and communications; it is also fully compatible with all personal computers, word processors, and other terminal devices equipped to communicate over standard telephone lines.

Among the network services provided are: 1) intracompany network services, including computer-to-computer communications links with branch offices and field personnel; private information data bases; sales reporting; other field data reporting utilities; and 2) interindustry network services, including links to suppliers (EDI), distributors, warehouses, customers and external sources of business decision information. Its PROMOTE electronic agricultural marketing medium connects agricultural manufacturers (agricultural chemicals, animal health products, equipment and feed) and farmers for product information and promotion.

A few years ago, AgriData Resources entered into a joint development agreement with IBM for the development and marketing of networking services for the agricultural industry.

ARI also operates private information and communications networks for several agricultural organizations, including the American Soybean Association, National Association of Wheat Growers, National Corn Growers Association, National Dairy Herd Improvement Association, National Council of Farmer Cooperatives, the National Grange, and the National FFA, among others.

ARI is also a leading business publisher with print publications serving over 200,000 farmers and ranchers with gross sales of $100,000+. The company publishes *Farm Futures* magazine and Top Farmers of America's "Top Farmer Intelligence" and "Market Insight" newsletters.

The client base includes several thousand agribusiness manufacturers, distributors and dealers; food processors and wholesalers; agricultural bankers, consultants, publishers, broadcasters and educators; commercial farmers and ranchers; and government agencies and executives.

Principal publishers of on-line information used by ARI include the AgriData News Service; the Associated Press; Brock Reports; Chicago Board of Trade; Chicago Mercantile Exchange; Commodity News Service; Des Moines Register; Doane's Agricultural Report; Farm Futures; Foreign Agricultural Service; Holming Outlook and Advisory; House Agricultural Committee; Kansas City Board of Trade; Knight-Ridder Financial; Minneapolis Grain Exchange; National Weather Service; Purdue University; Senate Agricultural Committee; Top Farmers of America; the USDA, and University of Illinois.

The monthly membership fee is $10.00 per person; a one-time start-up fee is $20.00 per person, and the monthly dial connect-time is $0.47 per minute on a 300-baud modem and $0.66 per minute at a 1200-baud rate.

### f. AgData

AgData provides accounting software packages to both the agricultural and construction industries. Approximately 90% of the company's revenues come from the agricultural sector. The reason for the combined vertical industry groupings is because of many similarities in the industry-specific accounting requirements. Accounting software is provided to the trucking and logging industries as well as the general business environment. Packages are also available in Spanish.

INPUT estimates 1990 AgData revenues to be in the $1.25-$1.50 million range. AgData was founded in 1969, as a continuation of a Bank of America grant to the University of California at Davis in 1963 to research computer usage for farms.

AgData's principal geographic markets are in California, Oregon, Texas, and Florida, since its products are tailored to the highly labor-intensive/large farm environment. Accounting solutions address the requirements of crops, orchards, and vineyards as well as cattle, sheep, hog, chicken and dairy accounting. The maintenance needs of heavy equipment operators are also addressed.

The company's other principal product category is payroll. The AgData Payroll will handle most specialized payrolls and all agricultural reporting requirements.

Individual packages are priced from $349 to $799.

Ease of use is a distinguishing feature.

Approximately 5% of total company revenues come from processing services. AgData provides a full-line record-keeping service for smaller companies.

Approximately 10% of the company's products are sold on a turnkey systems basis, primarily for new customers. Products are based on the Leading Edge A/T platform.

Another 5% of revenues come from such professional services as custom software development and classroom training services provided to a variety of universities.

The company sells through dealers, which include ComputerLand as well as consulting/accounting firms.

### g. Doane Information Systems

Doane is one of the largest providers of information services to the agricultural producers market. It views its major competitors as RedWing Business Systems, Inc.; FBS Systems; Harvest Computer System; Holm Dietz Computer Systems; AgData; and Farm Management Systems (FMS).

Total company revenues in 1990 are estimated by INPUT to be in the $5 million to $10 million range. Doane is a division of Control Data, which was in the process of being sold when this report was written.

The company is divided into three principal divisions, located in Arden Hills, Minnesota; Portland, Oregon; and St. Louis, Missouri.

The Oregon division (Data Sphere) addresses the nursery and landscaping market. In addition, it addresses the special payroll requirements for migrant crop workers with its Tera System Package, a full-blown accounting system—accounts payable, inventory, enterprise systems, general ledger, depreciation/niche accounting—for commercial producers of asparagus, lettuce, and fruit. In particular, it addresses California and Texas product regulations and requirements.

The principal product of its St. Louis division, which accounts for 10-15% of Doane's revenues, is Ag-Line, which provides for the electronic delivery of agricultural information. Emphasis is on pork belly commodities for futures trading and hedging.

Doane does more direct marketing than its competitors, who deal more with networks. Land O'Lakes is a distributor of its DairyTRAK product.

AgCHECK IV General Ledger; AgCHECK IV Corp and Livestock Modules; the Tera System, which keeps track of cost of product among different enterprises; the Doane Payroll Manager; and the AgDisk Farm Accounting package (for Apple II computers) are Doane's principal software packages sold through its Arden Hills, Minnesota, division.

The AgCHEK IV Crop and Livestock Modules manage the details of crop and livestock production, regardless of fiscal year boundaries. It allows for the allocation of expenses and income to a specific crop planting or livestock group, then analyzes their profitability. Many other accounting programs keep records only by fiscal year. Packages range in price from $500 to $1000. Hardware supported is the IBM-compatible microcomputer.

### h. Farm Business Software (FBS)

FBS markets its agricultural accounting packages nationwide, as well as in Canada and Mexico. It provides accounting software for agricultural producers and agriculturally related banking software for banks. The banks then use the software for service bureau/record-keeping processing services for farmers.

INPUT estimates FBS' 1990 revenues to be in the $1.5 to $2.0 million range.

FBS' packages, which are highly integrated, provide for most farm management accounting and record-keeping needs. One system simultaneously provides: cash records for taxes and cash flows; accrual financial analysis; crop, livestock, and material inventories; field and feedlot production histories; accurate enterprise cost analysis including overhead; and landlord and partner ownership records. The financial packages range from $99.00 to $349.00.

Support is a major marketing focus. This includes unlimited, toll-free priority phone support, evening and Saturday service November through March, answers on accounting and DOS questions, immediate on-line help through computer-to-computer modem hookups, and personal, on-site training and consultation. Ease of use is also stressed.

Another of its principal software packages is Farm Trust Manager, targeted for absentee landlords.

FBS also has its own newsletter, with an estimated 30,000 subscribers.

FBS markets through retail dealers with agricultural representatives.

A newer product introduction is an expert system product, developed at Texas A&M, which is used by banks as a rating system for farm loans.

## 2. Construction Industry

### a. Construction Data Control, Inc. (CDCI)

CDCI develops and supports a full range of computer-based applications for the construction and real estate industries. Its products, however, are primarily for the home builder construction industry. CDCI is a Weyerhaeuser affiliate.

The company's estimated 1990 revenues from the construction industry are $7 million. CDCI has one of the largest installed bases in the industry—an estimated 7,000-8,000 packages. It also provides the widest variety of software products to the construction industry.

A key competitive strength of CDCI is its large dealer base (approximately 350), which includes CPAs, consultants, and VARs (who may serve up to 1 or 2 other specific industries as well). CDCI spends a great deal of time on training its dealers and provides maintenance support to the dealers' customer base.

Its three principal software product groups (based on PC-MS/DOS) include:

- Construction Management Systems (both integrated and standalone choices)
  - Profit Builder is its high-end networked product for small-to-midsized companies. The fully integrated core system includes job costing, general ledger, and accounts payable. Optional modules include: accounts receivable, standard or variable rate payroll, purchase order, subcontract control, draw request, and estimating. Also available is a report write/spreadsheet interface (Profit IQ).
  - Basic Builder II, its low-end bookkeeping and cost control solution for the remodeling market, includes job costing, accounting, and estimating, in standalone and integrated delivery modes.
  - Professional Sub-Contractor, an estimating, inventory, and billing module for time and materials.
- Estimating Products
  - Profit Bid Estimating Product, a new estimating product. Profit Bid also links with Profit Builder to create purchase orders and track costs from project start to finish.
  - ProfitCAD, which integrates CAD and estimating applications. It allows for the drawing and modifying of buildings while ProfitCAD simultaneously tracks building costs, item quantities, labor and markups. ProfitCAD can also be linked to Profit Builder to provide full control from project start to finish.
- Sales and Marketing System for Builders

This program provides marketing support to help sell houses, with demographic analysis, sources of lending, and warranty work support.

### b. Bechtel Information Technology

Bechtel Corporation provides an array of third-party products and services to the construction industry. The company is also a major user of such technology as a leading international fully-integrated engineering, construction and project management organization. The company builds cities, power plants, factories, pipelines, mining facilities, bridges, dams, airports, highways, and rapid transit systems.

Revenues from third-party (industry-specific) products and services provided to the construction industry are estimated to be in the $30 million range for 1990. Much of the revenue for its construction-related software and services is in the design and engineering markets, which are covered under the architecture and engineering subsectors of INPUT's *Business Services Vertical Industry* report.

Bechtel's principal software products, which address the architectural design and construction industries, include:

- 3DM, which is a three-dimensional computer modeling system designed for the needs of the engineering and construction industries. It was originally developed by Bechtel in response to its own needs for an effective computerized plant design modeling system.

The software is PC/workstation-based. It includes a data base of construction components, creates construction drawings, and fabricates drawings and bills of materials. It also provides for interactive design working directly in 3D, has direct interfacing to engineering analysis programs, and has linkage to other project data bases.

3DM addresses all of the disciplines involved in processing plant and power plant engineering and construction.

- PANORAMA Plans & Schedules, which is a project management solution for the construction industry, is designed around ORACLE data base management software. This is an enhancement to Bechtel's SYNERGY project control system software product. PANORAMA can be used as a standalone project management system, or combined with other SYNERGY modules, such as Cost and Performance, Budget Control, or Contracts Administration, for advanced project control.

- WALKTHRU, which is an animation and visualization (3D solid modeling) application for visualizing construction designs. It allows for an interactive walkthrough of a facility before it is built. (This application is more applicable to the architecture and engineering software products market.)

A Bechtel company, Technology Applications, Inc., company, provides a broad range of professional services which can be utilized by the construction (primarily power generation-related) industry. This includes support from the Bechtel Artificial Intelligence (AI) Institute, which resells NEXpert OBJECT expert system development tools bundled with its application development support.

**c. Marshall & Swift**

Marshall & Swift is one of the largest suppliers of construction data in various media (including software programs and both on-line and handbook-based delivery).

The 1990 on-line construction cost data base portion of its revenues is estimated at $5-$10 million, and the software portion of its sales is also estimated to be in the $5-$10 million range. The total employee count is approximately 100.

Marshall & Swift construction data is used by contractors, tax assessors, appraisers, real estate agents, and insurance companies to determine current valuations and replacement values of buildings based on a variety of formulas utilizing current cost data.

Its principal publications include: the Residential Cost Handbook; the Valuation Quarterly for both commercial and residential properties; and the Repair and Remodel Quarterly; and the Digest of Building Contract Awards.

A computerized version of the Calculator (Square Foot) Method of the Marshall Valuation Service is also available in a PC software program. It combines the Marshall & Swift data base on real estate/building unit costs for particular areas with an automated version of the Square Foot Method for development of reconstruction costs and estimates of the unit costs of residential and commercial replacement.

The company also has an on-line service which provides linkage to building cost data accepted as the standard throughout the U.S. and Canada.

The company collects its own data as well as obtaining data from F.W. Dodge. Its three principal on-line services include:

- Segregated Cost Program (SEG), which provides costs for major construction components of a wide variety of residential and commercial buildings. Detailed listings of all the major components of a building are listed. It also includes the necessary quantities and local costs for each component and also lists depreciated costs by component.

- Residential Cost Program (RE2), which is based on the company's Square Foot Method for determining replacement costs for single family residences, townhouses, duplexes, and low-rise apartments.

- Calculator Cost Program (CAL), which produces replacement cost reports for most types of commercial buildings, based on the company's Square Foot Method of valuation. The cost section of the report displays the square footage of the building, the cost per square foot, and the total estimated replacement cost. If appropriate, depreciation and insurance exclusions are displayed and deducted.

On-line membership also includes the On-line News Network which has information about the service and about the construction and real estate industries.

Other products and services include seminars on cost information programs and custom-designed products.

**d. R.S. Means Company, Inc.**

R. S. Means is the largest factor in the on-line data base market for construction cost estimating data. The company has an estimated 70% of this market with more than 275,000 customers in the United States and Canada.

Estimated employee count is 100, with on-line data base revenue in 1990 estimated to be in the $10-$15 million range, and software product revenues estimated at $5-$10 million.

R. S. Means was an industry pioneer in creating data bases covering all facets of construction materials, labor; and equipment. The company has provided construction cost data in an electronic delivery format since 1975.

The company's Building Construction Cost Data (BCCD) is an industry standard for construction cost information. It is now one of the company's over 60 construction cost data and professional reference publications.

The company has a team of engineers who are in constant contact with manufacturers, dealers, distributors, and construction firms throughout the country. They evaluate and analyze data, and then organize it into formats that are really usable.

Its comprehensive construction programs and services include: software estimating programs, electronic data, cost data and reference books, seminars, training, and consulting.

R. S. Means also provides the Means Software System for construction cost estimating which combines access to all of the company's on-line construction cost data bases. Elements of cost estimating addressed include material costs, crews, man-hours, daily output, equipment costs, overhead, profit, etc.

This computerized estimating system is particularly dynamic, which means that when costs change, complex estimates can be rapidly adjusted. With the entry of a new figure, the software automatically changes all dependent calculations. It also provides for the development of standardized estimates for communicating with outside vendors.

Exporting of estimate data to a variety of spreadsheets, data bases and graphics packages is also supported.

**e. Primavera Systems, Inc.**

Primavera Systems is one of the leading independent suppliers of project management and control software. Revenues for 1990 are estimated to be in the $12-$15 million range.

Primavera software addresses the full spectrum of project management applications: planning and scheduling, resource management, cost control, graphics, performance, measure, and document control.

The largest portion of Primavera's project management business by vertical sector is construction. It is a leading independent supplier of project management software to the construction industry.

Its principal package, which specifically addresses the construction industry, is Expedition. Expedition controls the paperwork/documents associated with a construction contract. It prepares and organizes transmittals, submittals, change orders, bid summaries, subcontracts, purchase orders, and material delivery paperwork. It also generates dunning letters and requisition applications for payments. Its takes care of meeting minutes and helps with the preparation of daily reports at the job site.

One of Expedition's most important features is its ability to remember all of the paperwork relevant to any particular issue. It then links those documents for easy access and review. This facilitates the development of job-site meetings and claims meetings. Ease of use is emphasized.

Expedition runs on a PC under MS-DOS.

### f. Softouch Software, Inc.

Softouch Software is one of the leading independent suppliers of Macintosh-based construction management software to the construction industry. Particular applications include unit cost estimating and job cost tracking for small to medium-sized firms. The programs allow users to build a personal data base of equipment and services unit costs and to access that information in designing and cost estimating. The job costing capability also allows for variance analysis with updates as a project proceeds.

Principal software packages provided for the construction industry include:

- Constructimator II, for developing project cost estimates and unit price estimates at the task level prior to construction, utilizing unit costing techniques for material, labor and suppliers. In addition, Constructimator II has the capacity to estimate equipment costs, subcontract costs, indirect costs, contractor's fees and company overhead. The Unit Pricing Worksheet Generator provides an alternative format for developing price or cost estimates by automatically building summary price report, detailed unit price estimate and request for payment worksheets for a user-defined number of divisions.

- CPMS II, a construction project cost management system, which helps contractors plan and control costs. It allows the user to establish bids and schedules at the task level by subcontractor, compare invoices to bids and task percent completion, and also to compare payments to invoices and task percent completion at a detail task level and at summary levels.

- The Cost Management System is its newest and most powerful cost management software package, offering estimating and job costing for project managers and builders. It includes cost estimating, job costing, purchase order handling, volume and price cost variance reporting, budget-to-date and profitability reporting, change order reporting and G/L export. Cost estimating is based on unit costing techniques at the detail tasks level, with cost summaries at major division levels to determine potential project profitability. Unlike Constructimator II and CPMS II, the Cost Management System is a standalone product, and does not require the user to own Microsoft's Excel spreadsheet program.

The programs do not provide a complete accounting system; however, records can be imported to a general ledger system.

Principal competition for the Macintosh solution is from the HyperEstimator software product from Turtle Creek Corp.

Revenue for 1990 is estimated at approximately $2-$3 million.

### g. Concord Management Systems

Concord Management Systems is a leading value-added reseller of integrated construction management software products for IBM midrange computers and IBM PCs and compatibles operating under DOS and SCO XENIX. The company is also working with the OSF UNIX programming model and is implementing SAA standards in design and programming.

Revenue for 1990 is estimated at $12 million, and the company has an estimated 1400 installations.

Its principal software product applications, which are available in single-user and multiuser solutions, include:

- Project Management (job cost, contract status, AIA billing, punch list control, tool control, expediting, and change order)
- Financial Management (payroll, accounts payable, purchase order, accounts receivable, general ledger, depreciation, item transfer, T&M billing, bonding report, overhead rate formula, PC data entry)
- Service Management (work order billing, service history, service contract, employee profitability)
- Estimating
- Inventory Management
- Equipment Maintenance
- Property Management
- Office Management
- Decision Support

Estimating software applications address the general building, electrical, mechanical and heavy/highway construction markets.

Considerable emphasis is put on customer support services, including:

- Education in implementation, financial management, project management, inventory management, hardware operations
- On-site assistance
- Phone support center
- Newsletters
- National conferences
- Regional seminars

The training programs address not only the systems operators but also the executives of construction companies to help them understand how the Concord Construction Software System can be used as a tool to improve their management ability.

**h. Profitool, Inc.**

Profitool has provided software products for the construction industry for over sixteen years. The Profitool software family (Contractor Management Information System-CMIS) is a fully integrated group of programs designed to perform general accounting and cost control functions. Specific applications include: payroll; equipment management; fixed asset accounting, accounts payable and receivable; commitment accounting (purchase order, subcontracting and contract administration and status); material control; job costing; general ledger; billing; scheduling; estimating; and report writing.

Estimated revenues for 1990 are in the $3 million range.

The company sells directly to large construction firms.

Approximately 40% of total sales are turnkey system-based; 40% of sales are for software products; and 20% for professional services. Key competitive features include product flexibility, functionality, industry knowledge, and customization capability.

Profitool runs on the 50 Series of Prime 32-bit super minicomputers.

**i. Deltek Systems, Inc.**

Deltek Systems is the leading supplier of government contractor software for government contractors of all sizes. Systems supported included DEC/VMS, Micro VMS, PC-MS/DOS and Unisys. General product categories include integrated accounting and project management. Particular applications include time sheet generation, construction management, billing, decision support, and specialized job cost accounting for the defense construction-related industry. Also provided is a VAX/VMS-based real-time estimating system.

The installed based of clients is currently about 800.

Strategic software interfaces are provided to 4GLs, Lotus, Symphony, ASCI files, and a number of project management software packages.

Approximately 65% of final sales are software products; processing services constitute 10% of total revenues, and professional services an estimated 25%. The company maintains a full staff of consultants who conduct formal training programs.

The company is moving toward a distributed product mode with microcomputers integrated on a LAN with a NetFrame file server connecting mainframes to LANs.

**j. Bidtek, Inc.**

Bidtek provides fully integrated job costing, accounting, project control, scheduling, and estimating software solutions for general contractors, on a turnkey system basis. Also included are word processors and other types of general office software applications.

The company was formerly part of Convergent Business Systems (Unisys).

Particular industry sectors addressed include road construction and other types of commercial contracting.

Revenues in 1990 are estimated to be in the $8-$10 million range.

The company has recently migrated to the UNIX operating system environment, which makes it much more hardware independent—its products are now available across a variety of hardware platforms. The company is also in the process of moving toward a systems integration product.

Bidtek sells directly to commercial construction companies in the $5 million to $100 million range—of which it estimates the market at approximately 25,000 companies.

Service and support are stressed as key to success.

**k. Construction Technologies**

Construction Technologies is a value-added reseller specializing in the commercial and home building construction industry segments, with an easily customizable product line based on TOM Software's Speed I and Speed II 4GL tools.

With the Speed application development tools, customers can develop their own application extensions.

Revenues for 1990 are estimated to be in the $1-$2 million range.

Its principal products include such accounting applications as: job costing, estimating, and purchase ordering. Two different systems are provided to address the different needs of the commercial and home builders' markets.

For the commercial contractor market, the company also provides a complete module for subcontractor controls, with built-in accounts payable for subcontractors.

Systems supported include MS-DOS, Novell, and the entire line of Wang 2200 computers.

**l. Timberline Software Corp.**

Timberline is a leading provider of integrated accounting and construction management software for both microcomputer and minicomputer systems. Principal industry sectors addressed include construction, property management, and architecture/engineering.

It is the only publicly traded company in its particular industry sector.

The company has been providing software to the construction industry since 1973.

Estimated revenues for 1990 are $13 million.

The company's Management Accounting for Construction package (MACs) can be used by construction firms in every segment of the construction industry.

The company's Property Management Accounting package, PROMT, is used by managers of residential and commercial properties. An adoption of this package, REALTRUST, is specifically designed to meet the needs of real estate divisions of bank trust departments. These software packages are sized in INPUT's *Business Services Industry* report.

During the earlier years of the company's operations, sales of software for minicomputer systems was the primary source of revenue for Timberline. However, in recent years, the sale of software for microcomputer systems has become the primary source of revenue.

Its key microcomputer software accounting-oriented software for the construction industry is its Medallion Collection, which operates under the DOS operating system. The Medallion Collection of software includes:

- Medallion Builder - a complete information management system to meet the specific requirements of the small home builder or remodeler
- Medallion/General - a complete information management system to meet the specific requirements of general contractors
- Medallion/Specialty - a complete information management system for the specialty contractor

- AEPEX - an automated project management and accounting system specifically designed for use by architects and engineers

- TenanTrac - an information management system to meet the needs of residential property managers

- AEasy - a less sophisticated version of AEPEX designed for use by individual architects and engineers and small architectural and engineering firms

- HomeBuilder - a low-cost, entry level information management system designed for small home builders and remodelers

In 1987, the company introduced Precision Collection, which is a fully integrated estimating software application. It is fully integrated with Timberline's Medallion Collection of accounting software products.

The company is pioneering computer-integrated construction (CIC) applications (analogous to the manufacturing model)—with CAD integration into estimating, scheduling, cost estimating, project management and property and facilities management. Timberline has established a number of strategic alliances to achieve this. A scheduler, for example, can include all previous cost estimating from design level to construction schedule—which allows for developing more sophisticated what-if scenarios.

In 1989, the company released software which linked the Precision Estimating software with that of Autodesk, the leader in desktop computer-aided drafting. This allows a user to do estimating directly from a design made by Autodesk's AutoCAD system. Also, in 1989, Timberline introduced software which linked Precision Estimating to project scheduling software developed by Microsoft and by Primavera Systems.

In November 1988, Timberline introduced a new generation of software for the OS/2 platform. Called Property Management Gold, the software is an information management system for medium-sized and large property managers. The company is also developing Construction Gold software.

For a maintenance fee, users can obtain program or government dictated changes and enhancements to the Timberline software program.

Key competitive product features include ease of use, flexibility, and a concentration on customer support service.

# Appendixes

# Definitions

## A
## Industry-Specific Definitions

### 1. Agricultural Production

*Enterprise Analysis Accounting Module* - This newer cost accounting module assists farmers in applying comparative analysis between different crops, fertilizers, herbicides, and pesticides, and then analyzing each field by labor and equipment to determine the cost of producing a certain product.

*Crop Management Software* - Such applications help a farmer to weigh the complexity of the short-term use of such variables as different types of pesticides and herbicides versus the long-term impact of environmental consequences. A key element is an extensive data base of current prices, etc. Such programs also help determine whether land should be taken out of production.

*Crop and Livestock Record-keeping Software* - Such applications provide harvest summary, complete field records, storage location reports, and income over direct costs information for each field and each crop, and monitor and analyze various livestock production characteristics.

*Field Mapping Software*- Such systems graphically display a farmer's operations. Maps show locations of crops in different fields (many of which provide for digital scanning of pictures used to create topographical maps). They also help track various types of underground structures.

### 2. Construction Industry

*Cost Estimating Software* - For project bidding, applications which calculate such elements of cost as: amounts of materials, labor costs, equipment costs, hours, contingencies, and engineering costs

*Job Cost Accounting Software* - An application which records costs as they occur on a building contract. Job cost accounting software is also sometimes classified as part of a project management software solution.

*Construction Management/Project Management Software* - Applications which help ensure that a building project's incurred costs and timetable are in line with projected costs and scheduling. Many new project management products support the Cost/Schedule Control Systems Criteria (C/SCSC) format, which is designed to meet the requirements of certain government contracts. This standard, which incorporates the methodology of earned value, is increasingly being integrated into new generations of project management software product releases. The construction industry is one of the larger market segments for project management software products and services.


# Forecast Data Base

## A

## Market Structure and Forecast Data Base

Miscellaneous Industries is defined as including the following segments:

- Agricultural production
- Construction

As part of an INPUT market redefinition, the agricultural and construction segments were reanalyzed from the ground up in 1990 to develop new constituent forecasts for the Miscellaneous Industries sector. Exhibit B-1 presents the consolidated forecast for the sector.

EXHIBIT B-1

**Miscellaneous Sector**
**User Expenditure Forecast by Delivery Mode, 1990-1996**
**($ Millions)**

| Delivery Modes | 1990 ($M) | Growth 90-91 (%) | 1991 ($M) | 1992 ($M) | 1993 ($M) | 1994 ($M) | 1995 ($M) | 1996 ($M) | CAGR 91-96 (%) |
|---|---|---|---|---|---|---|---|---|---|
| Sector Total | 1,068 | - | 1,136 | 1,212 | 1,301 | 1,398 | 1,508 | 1,613 | 7 |
| *Processing Services* | 148 | -3 | 144 | 139 | 137 | 134 | 132 | 131 | -2 |
| - Transaction Processing | 148 | -3 | 144 | 139 | 137 | 134 | 132 | 131 | -2 |
| *Turnkey Systems* | 462 | 6 | 491 | 522 | 556 | 593 | 632 | 657 | 6 |
| *Applications Software* | 219 | 8 | 237 | 257 | 280 | 305 | 332 | 363 | 9 |
| - Mainframe | 17 | -6 | 16 | 15 | 15 | 14 | 13 | 13 | -4 |
| - Minicomputer | 82 | 6 | 87 | 92 | 98 | 104 | 110 | 116 | 6 |
| - Workstation/PC | 120 | 12 | 134 | 150 | 167 | 187 | 209 | 234 | 12 |
| *Systems Operations* | 15 | 15 | 17 | 20 | 23 | 26 | 30 | 35 | 15 |
| *Systems Integration* | 6 | 0 | 6 | 6 | 7 | 8 | 11 | 14 | 18 |
| *Professional Services* | 108 | 7 | 116 | 125 | 134 | 144 | 155 | 168 | 8 |
| *Network Services* | 110 | 14 | 125 | 143 | 164 | 188 | 216 | 245 | 14 |
| - Electronic Info. Svcs. | 104 | 13 | 118 | 135 | 154 | 175 | 201 | 227 | 14 |
| - Network Applications | 6 | 17 | 7 | 9 | 10 | 13 | 15 | 18 | 21 |

Exhibits B-2 and B-3 present the forecasts for the agricultural and construction segments that constitute the sector.

EXHIBIT B-2

## Agricultural Segment
## User Expenditure Forecast by Delivery Mode, 1990-1996
## ($ Millions)

| Delivery Modes | 1990 ($M) | Growth 90-91 (%) | 1991 ($M) | 1992 ($M) | 1993 ($M) | 1994 ($M) | 1995 ($M) | 1996 ($M) | CAGR 91-96 (%) |
|---|---|---|---|---|---|---|---|---|---|
| Sector Total | 317 | 7 | 339 | 365 | 397 | 431 | 470 | 506 | 8 |
| *Processing Services* | 48 | -3 | 46 | 44 | 44 | 43 | 42 | 42 | -2 |
| - Transaction Processing | 48 | -3 | 46 | 44 | 44 | 43 | 42 | 42 | -2 |
| *Turnkey Systems* | 116 | 6 | 123 | 131 | 139 | 148 | 158 | 165 | 6 |
| *Applications Software* | 50 | 5 | 55 | 59 | 64 | 70 | 76 | 83 | 9 |
| - Mainframe | - | - | - | - | - | - | - | - | - |
| - Minicomputer | 2 | - | 2 | 2 | 1 | 1 | 1 | 1 | -13 |
| - Workstation/PC | 48 | - | 53 | 57 | 63 | 69 | 75 | 82 | 10 |
| *Systems Operations* | - | - | - | - | - | - | - | - | - |
| *Systems Integration* | - | - | - | - | 1 | 1 | 2 | 2 | - |
| *Professional Services* | 23 | 4 | 24 | 26 | 28 | 30 | 33 | 35 | 8 |
| *Network Services* | 80 | 14 | 91 | 105 | 121 | 139 | 159 | 179 | 14 |
| - Electronic Info. Svcs. | 75 | 15 | 86 | 99 | 114 | 131 | 150 | 169 | 14 |
| - Network Applications | 5 | - | 5 | 6 | 7 | 8 | 9 | 10 | 12 |

EXHIBIT B-3

**Construction Segment**
**User Expenditure Forecast by Delivery Mode, 1990-1996**
**($ Millions)**

| Delivery Modes | 1990 ($M) | Growth 90-91 (%) | 1991 ($M) | 1992 ($M) | 1993 ($M) | 1994 ($M) | 1995 ($M) | 1996 ($M) | CAGR 91-96 (%) |
|---|---|---|---|---|---|---|---|---|---|
| Sector Total | 751 | 6 | 797 | 847 | 904 | 967 | 1,038 | 1,107 | 7 |
| *Processing Services* | 100 | -2 | 98 | 95 | 93 | 91 | 90 | 89 | -2 |
| - Transaction Processing | 100 | -2 | 98 | 95 | 93 | 91 | 90 | 89 | -2 |
| *Turnkey Systems* | 346 | 6 | 368 | 391 | 417 | 445 | 474 | 492 | 6 |
| *Applications Software* | 169 | 8 | 182 | 198 | 216 | 235 | 256 | 280 | 9 |
| - Mainframe | 17 | -6 | 16 | 15 | 15 | 14 | 13 | 13 | -4 |
| - Minicomputer | 80 | 6 | 85 | 91 | 97 | 103 | 109 | 115 | 6 |
| - Workstation/PC | 72 | 13 | 81 | 93 | 104 | 118 | 134 | 152 | 13 |
| *Systems Operations* | 15 | 13 | 17 | 20 | 23 | 26 | 30 | 35 | 15 |
| *Systems Integration* | 6 | - | 6 | 6 | 6 | 7 | 9 | 12 | 15 |
| *Professional Services* | 85 | 8 | 92 | 99 | 106 | 114 | 122 | 133 | 8 |
| *Network Services* | 30 | 12 | 34 | 38 | 43 | 49 | 57 | 66 | 14 |
| - Electronic Info. Svcs. | 29 | - | 32 | 35 | 40 | 44 | 51 | 58 | 13 |
| - Network Applications | 1 | - | 2 | 3 | 3 | 5 | 6 | 8 | 32 |

## B
## Forecast Reconciliation

Exhibit B-4 presents the forecast reconciliation for the Miscellaneous Industries sector.

The differences from the 1990 report are:

- Identification of a modest systems operations market
- Somewhat slower growth in professional services and systems integration

EXHIBIT B-4

## Miscellaneous Sector
## 1991 MAP Data Base Reconciliation

| Delivery Modes | 1990 Market | | | | 1995 Market | | | | 90-95 CAGR per data 90 rpt (%) | 90-95 CAGR per data 91 rpt (%) |
|---|---|---|---|---|---|---|---|---|---|---|
| | 1990 Report (Fcst) ($M) | 1991 Report (Actual) ($M) | Variance from 1990 Report ($M) | Variance from 1990 Report (%) | 1990 Report (Fcst) ($M) | 1991 Report (Fcst) ($M) | Variance from 1990 Report ($M) | Variance from 1990 Report (%) | | |
| Total | 1,054 | 1,068 | 14 | 1 | 1,563 | 1,508 | -55 | 3.5 | 8 | 7 |
| Processing Services | 148 | 148 | - | - | 134 | 132 | -2 | -1 | -2 | -2 |
| Turnkey Systems | 461 | 462 | 1 | - | 663 | 632 | -31 | -5 | 7 | 6 |
| Applications Software | 226 | 219 | -7 | -3 | 340 | 332 | -8 | -2 | 9 | 9 |
| Systems Operations | - | 15 | 15 | N/A | - | 30 | 30 | N/A | - | 15 |
| Systems Integration | 5 | 6 | 1 | 20 | 26 | 11 | -15 | -58 | 39 | 18 |
| Professional Services | 104 | 108 | 4 | 4 | 185 | 155 | -30 | -19 | 12 | 8 |
| Network Services | 110 | 110 | - | - | 215 | 216 | 1 | - | 14 | 14 |

# About INPUT

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## INPUT OFFICES


**North America**

**San Francisco**
1280 Villa Street
Mountain View, CA 94041-1194
Tel. (415) 961-3300 Fax (415) 961-3966

**New York**
Atrium at Glenpointe
400 Frank W. Burr Blvd.
Teaneck, NJ 07666
Tel. (201) 801-0050 Fax (201) 801-0441

**Washington, D.C.**
INPUT, INC.
1953 Gallows Road, Suite 560
Vienna, VA 22182
Tel. (703) 847-6870 Fax (703) 847-6872

**International**

**London**
INPUT LTD.
Piccadilly House
33/37 Regent Street
London SW1Y 4NF, England
Tel. (071) 493-9335 Fax (071) 629-0179

**Paris**
INPUT SARL
24, avenue du Recteur Poincaré
75016 Paris, France
Tel. (33-1) 46 47 65 65 Fax (33-1) 46 47 69 50

**Frankfurt**
INPUT LTD.
Sudetenstrasse 9
D-6306 Langgöns-Niederkleen, Germany
Tel. (0) 6447-7229 Fax (0) 6447-7327

**Tokyo**
INPUT KK
Saida Building, 4-6
Kanda Sakuma-cho, Chiyoda-ku
Tokyo 101, Japan
Tel. (03) 3864-0531 Fax (03) 3864-4114