

August 11, 1986

M-SPA-PA
Letter
Original

NO ITEM TO INSERT

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Dear
NO ITEM TO INSERT
:

Enclosed is a report from the 1986 Market Analysis and Planning Service (MAPS) program entitled U.S. Information Services, Vertical Markets, 1986-1991, Planning and Analysis Sector. This report is part of the series entitled Information Services Vertical Markets and should be placed alphabetically in Section IV in the binder with the same name.

If you should have any questions, please feel free to call me.

Sincerely,

Michael Orsak
Senior Research Analyst

MO:ml

Enclosure



December 18, 1986

File with M-SPR
This letter was
sent with corrected
information

NO ITEM TO INSERT

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Dear

NO ITEM TO INSERT

Please find enclosed new and corrected information for the organization of your Information Services Industry-Specific and Cross-Industry Markets binder from INPUT's Market Analysis and Planning Service (MAPS).

1. One (1) additional binder; this will prepare you for additional sections which will be issued shortly.
2. One (1) set of cover and spine inserts for each of volumes 1 and 2.
3. One (1) set of title pages for each of volumes 1 and 2. Please remove the title page from the binder you currently have and replace it with the title page designated for Volume 1. Also, remove the cover and spine inserts from the binder you currently have and replace them with the cover and spine inserts designated for Volume 1.
4. A Table of Contents listing the sections and subsections that have been shipped year to date. The Table of Contents should be placed after the Title Page in Volume 1.
5. A replacement title page, contents page, and list of exhibits page for "Planning and Analysis." These had been incorrectly issued with a "Vertical Market" designation as opposed to a "Cross-Industry Market" designation. "Planning and Analysis" should be placed in Section IV of your binders.
6. The section entitled "Engineering and Scientific" has been reissued to change the designation from "Vertical Market" to "Cross-Industry Market" and has been repaginated. "Engineering and Scientific" should be placed in Section IV of your binders.
7. A replacement tab for Section V, Appendixes.

If you have any questions or comments concerning the MAPS program, please let us know.

Sincerely,

Gill R. Macmillan
Director, Research

GRM:ml

Enclosures



Page 1 of 1

Date: 10/10/2010

Time: 10:10:10

IP: 192.168.1.1

The following information was obtained from the system logs on 10/10/2010 at 10:10:10. The logs show a successful login attempt for user 'admin' from IP address 192.168.1.1. The user's last login was on 10/10/2010 at 10:05:00. The system administrator should be notified of this activity.

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System Administrator

Report generated on 10/10/2010 at 10:10:10.

Page 1 of 1

Date: 10/10/2010

Time: 10:10:10

IP: 192.168.1.1

U.S. INFORMATION SERVICES
VERTICAL MARKETS, 1986-1991
PLANNING AND ANALYSIS SECTOR

JULY 1986



U.S. INFORMATION SERVICES
 CROSS-INDUSTRY MARKETS, 1986-1991
 PLANNING AND ANALYSIS SECTOR

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U.S. INFORMATION SERVICES
CROSS-INDUSTRY MARKETS, 1986-1991
PLANNING AND ANALYSIS SECTOR

EXHIBITS

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I ISSUES, TRENDS, AND EVENTS

A. INTRODUCTION

- The applications included in the Planning and Analysis sector forecasts are:
 - Spreadsheets (e.g., Lotus 1-2-3, Supercalc, Excel).
 - Decision support systems (DSS) (e.g., System W).
 - Financial modeling tools.
 - Budgeting and forecasting tools.
 - Project management.
 - All-in-one integrated software (e.g., Symphony and Framework).
 - Operations research.

- Decision support systems (DSS) is a somewhat flexible term that can mean a number of different things. For the purposes of this report, decision support systems include:
 - Spreadsheets, such as Lotus 1-2-3 and Supercalc.
 - Financial modeling and analysis tools.



- All-in-one integrated software; i.e., Symphony and Framework.
- "Traditional" DSS tools, such as IFPS and System W, that include all or most of the following: data base capabilities, report generator, graphics, query facility, programming language, "what-if" capability, and statistical analysis capability.
- Clarifications to the planning and analysis applications included in this sector's forecasts are as follows:
 - Cross-industry DSS tools are included while industry-specific DSS tools are not, as those are contained in each vertical market sector forecast of user expenditures.
 - Excluded from the analysis and forecasts are analysis systems related to CAD/CAM/CAE.
 - The majority of expert systems and expert system generators are excluded from the forecasts and analysis in this section. The great majority of expert systems will be developed for industry-specific applications or for specific cross-industry applications, such as accounting or human resources, and, as such, are included in each relevant section. In addition, expert system generators are considered to be application development tools and are included in that sector.
 - On-line data bases are not included in either the forecasts or analysis for this sector. Rather, they are forecast in their own section.
- A number of factors are contributing to the health of the Planning and Analysis sector:
 - Technology advances in both hardware and software are enabling previously simple planning/analysis systems to evolve into not only



decision support systems, but also decision-making systems. Continued advances in artificial intelligence techniques will enable both knowledge-based and expert systems to become increasingly commonplace by the late 1980s.

- The overwhelming success of Lotus 1-2-3 has introduced over two million users to the power of microcomputing, with the attendant market potential for selling add-on products and services.
- User demand for micro-mainframe links has resulted in numerous hardware and software offerings that make it easier to extract data from a central data base and download it to a PC for local analysis.
- For a more in-depth analysis of the market for DSS, please refer to the 1985 INPUT report titled Decision Support Systems: Experience and Outlook.

B. DECISION SUPPORT SYSTEMS

- The marketplace for decision support systems is becoming increasingly crowded.
- Traditional DSS products are for computer users who have outgrown their spreadsheets or need ready access to mainframe data files. Although DSS packages and financial modeling programs have a very solid niche in the Fortune 1000, these sophisticated products will never take over the market because although they may provide greater performance and functionality, the majority of computer users have become very attached to products such as Lotus 1-2-3.
- An area that continues to intrigue vendors, but so far has not developed into a major market, is "executive information systems." This market has been held



back by the reluctance of executives to embrace computer technology, a situation partially due to the lack of systems that truly address their needs. These needs include:

- Timely access to data from a variety of sources.
 - Data manipulation and reporting capabilities.
 - Customized graphics.
 - Timely distribution of information.
 - Convenient and personalized access.
 - Pushbutton access to analysis, "what-if," and ad hoc reporting.
- The main trends in traditional DSS include:
 - The merger of DSS and data bases which will provide greater access to information contained in various corporate data bases. This greater integration will allow DSS to become more widely used, as opposed to the relatively isolated usage it has found to date. Traditional DSSs handle importing data from data bases much more easily and capably than spreadsheets.
 - The movement from the mainframe to the PC continues with the most successful products being those well-designed implementations of a mainframe version that allow the PC and mainframe to share data and processing load easily.
 - Mainframe systems are enjoying a resurgence in popularity, spurred by the need to tie in to large data bases, the need for more graphics, and easier-to-use interfaces for mainframe products.



- The ease-of-use and user interface of DSS products has been improving.
- In the spreadsheet market, a number of new products have been released, but none has successfully challenged Lotus' hegemony in the market. In fact, the sales of 1-2-3 were the highest ever in 1985, with over 500,000 copies sold. The pretenders to the throne include:
 - Low-cost "clones" of 1-2-3, such as VP-Planner from Paperback Software. These work-alikes have had a negligible impact on sales of 1-2-3. Priced in the \$100-150 range, they have been beset with bugs, sloppy implementations, and a genuine concern on the part of customers about the financial viability of the companies supplying these products.
 - Microsoft's Excel, developed for the Macintosh. This has been widely touted as the "best" spreadsheet available (with some validity) for any personal computer, including the IBM PC. While it quickly developed into the best selling spreadsheet for the Macintosh (easily leaving Jazz and Crunch in its wake), it still only maintains sales that are a fraction of 1-2-3's.
 - Javelin, which while generating a great deal of excitement for its elegant and innovative design, has failed to generate a commensurate level of sales. As of June 1986, the company had sold "only" 10,000 units totally. This product, which the company describes as a "business analysis and reporting tool," has carved out a strong niche among certain segments of the spreadsheet market, such as financial analysts and other sophisticated users who are involved with developing complex financial models. There is no danger that Javelin will displace Lotus 1-2-3 in the market for general purpose spreadsheets.



- So-called "three-dimensional" spreadsheets from such vendors as Boeing Computer Services and Martin Marietta Data Systems. These products allow multiple spreadsheets to be linked easily and efficiently. While these products definitely fulfill a need among a number of users in large corporations, such as for consolidating spreadsheets from a number of divisions or product lines, the market they address has been slow to respond.
- While it is inevitable that Lotus will lose some market share, the decline will be gradual at most. In fact, Lotus has a rock-solid hold on the spreadsheet market for at least the remainder of the decade. While the reasons for the success of Lotus have been much discussed, the reasons that Lotus 1-2-3 will maintain the position of being the most entrenched product in the history of microcomputing (with the possible exception of MS-DOS) include:
 - The recently released and upcoming products and services from Lotus that are designed to support the use of 1-2-3. (See the profile on Lotus Development Corporation.)
 - A historically strong management team that has been recently made even stronger and deeper.
 - The support of hundreds of third-party developers who develop useful add-on products for 1-2-3.
 - The reluctance of users to convert to another product, primarily due to the critical mass of Lotus 1-2-3 usage that has been developed in corporations. Users have made very sizeable investments in training, the creation of data files, and the creation of worksheets and templates.
 - Most intriguingly, the introduction of HAL. HAL, a natural language interface for 1-2-3 to be released by Lotus in the fall of 1986, has the



potential to lock out the majority of competing spreadsheet vendors from the market completely. HAL provides Lotus 1-2-3 with an interface that offers a combination of functionality and ease of use that will remain unmatched by any microcomputer software product for at least the next year.

- For an in-depth discussion of trends in spreadsheets, including a discussion of HAL, please refer to the 1985 report entitled Analysis of Corporate User Needs.

C. PROJECT MANAGEMENT

- Trends that favor the growth of project management systems include:
 - A broadening awareness of project management techniques brought about by the recent availability of micro-based project management software.
 - Relatively low penetration of project management systems in some key user industries.
 - Project management techniques that are beginning to spread to organizations which have not historically been managed under a project-oriented structure and that are being applied to smaller scale projects. This widening of applications can be attributed to the availability of powerful micro-based project management software.
 - A few years after the first limited-function microcomputer project management packages were introduced, more sophisticated, higher-cost microcomputer packages were introduced by vendors such as Primavera and Strategic Software Planning Corporation. These higher



performance microcomputer packages have attracted many users away from mainframe and minicomputer solutions.

- One of the biggest problems with using micro-based project management has been the inability to get data from applications such as dBase III and Lotus 1-2-3. Consequently, a number of microcomputer software project management vendors are providing a direct interface with these applications. Examples of programs that have recently added this capability include Timeline, Primavera, and the Harvard Total Project Manager.
- Trends that will slow the growth of the market include:
 - One of the problems in selling project management is that it requires a face-to-face selling effort to sell the package effectively.
 - There are few new applications that have large projects to make up for the growing saturation in the aerospace/defense and other large-project markets.
 - The need to educate customers on project management techniques.
 - Long selling cycles--six to eight months for large systems; several months for micro-based systems.
- A more detailed analysis of the project management market can be found in the 1985 INPUT report titled Market Analysis: Project Management Systems.



II MARKET FORECASTS

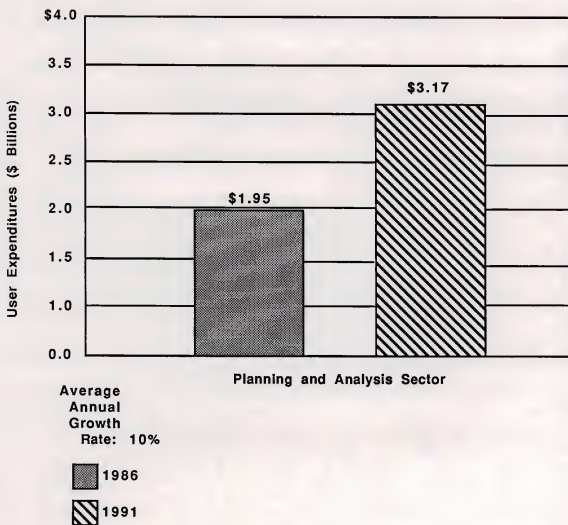
A. INTRODUCTION

- User expenditures for cross-industry planning and analysis applications will grow at a moderate 10% average annual growth rate through 1991, increasing from \$1.9 billion in 1986 to \$3.17 billion in 1991, as shown in Exhibit II-1.
- Forecasts for user expenditures by delivery mode are shown in Exhibit II-2.
- Appendix PA-A contains the forecast data base for each year from 1985 through 1991 by delivery mode.
- Exhibit II-3 lists the revenues of major vendors in the Planning and Analysis sector.
- Positive factors impacting this market include:
 - More powerful microcomputer hardware.
 - Improved micro-mainframe links for easier access to large data bases and for faster dissemination of results.
 - Improved integration of planning and analysis systems with transaction processing systems.



EXHIBIT II-1

PLANNING AND ANALYSIS SECTOR
INFORMATION SERVICES MARKETS, 1986-1991



IV-PA-10



EXHIBIT II-2

PLANNING AND ANALYSIS SECTOR
 INFORMATION SERVICES MARKETS BY DELIVERY MODE, 1986-1991

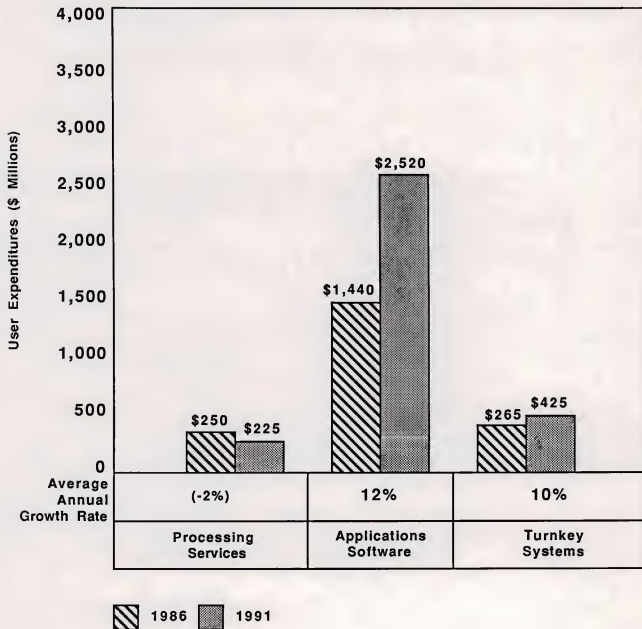




EXHIBIT II-3

**PLANNING AND ANALYSIS SECTOR
REVENUES OF LEADING INFORMATION SERVICES VENDORS, 1985**

VENDOR NAME	U.S. 1985 REVENUES (\$ Millions)				
	PRIMARY MARKET/ APPLICATION	PROCESS- ING AND NETWORK SERVICES	APPLICA- TIONS SOFTWARE	TURNKEY SYSTEMS	TOTAL
Lotus Development Corp.	Spreadsheets	-	\$197	-	\$197
Metler	Project Mgt.	-	10	\$30	40
Comshare	DSS	\$20	12	-	32
Microsoft	Spreadsheets	-	25	-	25
IBM	DSS	\$10	15	-	25
Execucom	DSS	-	20	-	20
PSDI	Project Mgt.	-	16	\$4	20
Computer Associates	Project Mgt.	-	18	-	18
AGS Management Systems	Spreadsheets, Project Mgt.	-	14	-	14
Ashton-Tate	Integrated SW	-	13	-	13
Management Decision Systems	DSS	-	11	-	11
Software Publishing Corp.	Project Mgt.	-	6	-	6
Total		\$30	\$357	\$34	\$421



- Negative factors influencing this market are:
 - Users are unwilling to learn new systems if their current system is believed to be adequate.
 - The increased "verticalization" of most general purpose planning and analysis applications, such as DSS and project management, while certainly a positive trend for vendors, has a negative implication for INPUT's cross-industry planning and analysis forecasts. The move to industry-specific applications means that the growth areas in the market will not appear in the forecasts for planning and analysis; rather, they will be shifted to the appropriate vertical market.

B. PROCESSING SERVICES

- The proliferation of fully featured, competitively priced, PC-based DSS packages has had a dramatic impact on remote computing services. PC-based DSSs have provided a ready alternative to remote computing services for small firms or new users just entering the market for a DSS. It's easier than ever before for a small- to medium-sized company to buy a small decision support system.
- Processing service vendors are moving increasingly to provide on-line data base services in conjunction with their DSS services. Note: The growth in the market for on-line data bases is part of a separate forecast and is not included in the Planning and Analysis RCS market forecast.
- About 10 remote processing service companies offer project management services, but most have de-emphasized this service in the wake of declining sales.



C. SPREADSHEETS

- The factors contributing to the growth of user expenditures for spreadsheets include:
 - New users who will be attracted by the HAL natural language interface.
 - Templates, add-ons, custom consulting services, and other services for 1-2-3 that will extend its life.
 - The ability of "clone" vendors to sell to users who desire their own copy of a spreadsheet rather than being forced to "share" a copy of 1-2-3.
 - Micro-mainframe links that increase the usefulness of PC-based spreadsheets.

- The factors that negatively impact user expenditures for spreadsheets include:
 - Saturation in the market.
 - Downward pricing pressures from low-priced clones (however, the "street" price of Lotus 1-2-3 has actually gone up \$20-30 in the past year due to Lotus imposing order on its distribution channels).
 - Site licensing plans which lower the per-unit price of software (however, there may be a corresponding increase in volume to compensate. In addition, Lotus has successfully resisted site licensing).
 - Increased sales of all-in-one integrated software which reduces the need to buy a separate spreadsheet.



- Consequently, the net result will be flat sales for spreadsheets in the U.S. with the only growth coming from overseas markets. However, related add-on products and services for spreadsheets (primarily Lotus 1-2-3) offered by either Lotus or other firms will continue to show strong growth.

D. DECISION SUPPORT SYSTEMS

- The main factor spurring growth of traditional DSS software is the increased development of connected computing systems in the form of micro-mainframe links, LANs, and distributed processing networks. Greater access to data will drive greater demands for tools to analyze the data.
- Other factors positively impacting the market for traditional decision support systems include:
 - Artificial intelligence technologies to improve the power and ease of use, and consequently the attractiveness, of current DSS applications. Most of the current product development in DSS with respect to artificial intelligence is taking place in the user interface area with natural language interfaces, particularly in ad hoc data retrieval applications.
 - Improved networking and micro-mainframe communications, which will stimulate the growth to larger scale, organization-wide DSS applications.
- The main factor slowing growth of traditional DSS software is that users are reluctant to learn new systems.
- Other factors negatively impacting the market for traditional decision support systems include:



- Because of constantly improving price/performance of all ranges of hardware and increased power of applications software, remote computing services and batch processing will continue to lose ground to in-house solutions. However, market opportunities still exist for the processing of very large data bases with their attendant retrieval and analysis requirements.
- The market is becoming mature.

E. PROJECT MANAGEMENT

- The aerospace and defense industries have been behind much of the brisk growth of project management turnkey systems growth. However, this market is reaching saturation. Areas where there is still room for growth include contract construction, high technology manufacturing, and management of R&D labs. These untapped opportunities exist because micro-based project management systems make the use of project management techniques in smaller projects more feasible.
- The growth in traditional turnkey systems, as well as mainframe and minicomputer software, has slowed while growth in micro-based project management continues to grow rapidly.
- U.S. sales of project management software for mainframe and minicomputers in 1985 were \$95 million. The forecasted growth rate over the next five years will be between 12-15% as new high-end applications somewhat offset the impact of micro-based products.
- User expenditures of micro-based project management software were \$28 million in 1985. The five-year growth forecast is 24%.



III COMPETITIVE DEVELOPMENTS

A. VENDOR PROFILES

I. AGS MANAGEMENT SYSTEMS

a. Products/Services

- The company designs and markets project management and system development products for monitoring the planning and control of complex projects. These products provide simulation, scheduling, resource allocation, network evaluation, and target scheduling. AGS Management Systems is a subsidiary of AGS Computers, Inc. The comprehensive product line of AGS Management includes the following project management packages;
 - PAC I: A network scheduler and cost control system designed for scheduling single projects.
 - PAC II: A resource scheduling and cost processing system.
 - PAC III: A more sophisticated scheduler and cost control system. The product was designed for larger engineering and construction projects.
 - PAC EV: A performance measurement system that assists in performing detailed cost analysis and performance trend analysis on projects.



- PAC MICRO: A microcomputer-based critical path scheduler.

b. Company Strategy

- The company leverages the expertise of AGS Computers in custom programming to provide extensive support services, including integrated installation planning, product specific and skills development training, and consulting.

2. ASHTON-TATE

a. Products/Services

- The company's primary products are dBase II and III, the leading data base management programs for microcomputers. The company's product for the Planning and Analysis sector is Framework, an all-in-one integrated software product for IBM PCs and compatibles that includes word processing, spreadsheet, data base management, business graphics, and telecommunications.

b. Company Strategy

- AGS Management Systems is emphasizing sales and support to large corporations.

c. Recent Activities

- In September 1985, Framework II was released, containing a larger, faster, more powerful spreadsheet, an improved word processor, and more tightly integrated telecommunications. In addition, the company introduced an add-on financial modeling package which is the third package in the Decision Maker series for Framework II, the other two being Project Analysis and Decision Modeling modules.



- The company signed a marketing pact with Javelin, the developer of an innovative financial modeling tool, giving Ashton-Tate exclusive international marketing rights for the product. Ashton-Tate plans to take advantage of its strong presence overseas in software marketing.

d. Future Direction

- Under the direction of president Ed Esber, the company plans to transform itself from a microcomputer software company to a computer products and services company. It will do this by offering consulting services, micro-mainframe links, training services, and minicomputer and mainframe versions of its products.

3. COMPUTER ASSOCIATES

a. Products/Services

- Computer Associates designs, develops, markets, and supports systems software, data base management, and applications software products for mainframes, minicomputers, and microcomputers. Its Planning and Analysis sector products include:
 - CA-Financial Planner, a financial forecasting and modeling system for IBM mainframe computers.
 - Supercalc 4.0, an integrated spreadsheet for MS-DOS-based microcomputers, which includes spreadsheets, graphics, and data management.
 - Superproject Plus, a project management package for MS-DOS-based microcomputers.



b. Company Strategy

- CA is expected to concentrate on niche applications with high profit margins while trying to maximize its advantage in the micro-mainframe link area.
- The company will continue to concentrate on sales to Fortune 1000 corporations.

c. Recent Activities

- Computer Associates Micro Products Division introduced two updates in 1985 for its microcomputer software line--Supercalc 4.0 and Superproject Plus.
 - Supercalc 4.0 added improved macro capabilities and expanded data file exchange capability, including the ability to read and write Lotus 1-2-3 files.
 - Superproject Plus, announced in 1985 and shipped in January 1986, added the following capabilities: the ability to handle the scheduling and allocation of resources, resource leveling, the maintenance of planned versus actual schedules and costs incurred, and the ability to review multiple projects.
- In January 1986, the company announced the release of CA-Financial Planner/PC, a PC-based counterpart for CA-Financial Planner. CA-Financial Planner/PC will give organizations the capability of distributing the process of financial modeling and report development to individual users of microcomputers.
- CA introduced a very aggressive site licensing program that offers customers great flexibility in pricing and delivery as well as better control over the distribution of micro software. In conjunction with its Corporate License Program, it signed a site license agreement with GE, a company with over



20,000 microcomputers. The agreement gives GE the right to make an unlimited number of copies of Supercalc for an undisclosed sum.

d. Future Direction

- It is likely that CA will de-emphasize new applications software development for microcomputers and instead focus more on product enhancements.

4. COMSHARE

a. Products/Services

- Comshare is a leading vendor of IBM-based decision support and business modeling software and services. It offers software for mainframes, minis, and microcomputers as well as remote computing services. The DSS products offered include:

- System W, a decision support system used for financial and strategic planning to investigate, analyze, model, forecast, and graphically display information residing on a corporate data base.
- Micro W, the microcomputer version of System W.
- Commander EIS, an executive information system.

b. Company Strategy

- Comshare continues to focus on distributed decision support systems, which allow users to harness the power of both microcomputers and mainframes.



c. Recent Activities

- In September 1985, Comshare announced an OEM agreement with Electronic Data Systems Corporation (EDS). The agreement provides EDS with a license to Comshare's entire product line of System W decision support software for end-user computing. EDS will use System W for internal EDS needs as well as for customers for whom System W is the appropriate answer to applications needs.
- In January 1986, Comshare announced a version of System W called Personal W for the IBM RT. The product offers three-dimensional analyses and consolidations, enabling easy manipulation of multiple spreadsheets.
- In September 1985, the company introduced Commander EIS, an executive information system software product line for mainframes and micro-computers. The product offers easier access to information contained in mainframe data bases.

d. Future Direction

- The company continues to make the transition from remote computing services into a full service decision support software and services company. It is concentrating on becoming a leading supplier of software and services for DSS and placing less emphasis on its other product lines.

5. EXECUCOM

a. Products/Services

- Execucom designs, manufactures, and markets DSS software for nontechnical business professionals. Its primary product is IFPS (Interactive Financial Planning System), designed to run on mainframe computers. IFPS is a financial modeling and business planning system that allows the user to do "what-



if" analysis, optimization, sensitivity analysis, report writing, consolidations, and trend analysis. IFPS is the most popular financial modeling tool in business use today.

b. Company Strategy

- The company strategy is to:
 - Maintain its leadership position by continuing to enhance IFPS.
 - Leverage its current technology for other markets; e.g., Mindsight for the Macintosh.
 - Acquire related technology to move into new markets; i.e., PC to mini to mainframe connections.

c. Recent Activities

- In March 1986, Execucom was acquired by Travelers/Diebold Technology Company, a venture of the Travelers Corporation (insurance) and John Diebold who heads the Diebold Group, a management consulting firm.
- In July 1985, the company released several new products, of which the most important in the Planning and Analysis sector are:
 - IFPS/Plus, which is essentially an enhanced version of IFPS. The new release includes greater integration features and distributed processing capabilities between mainframes, minis, and micros. The package also includes a micro-mainframe link to IFPS/Personal, Execucom's micro-based DSS product.
 - Corporate Decision Support System, which is a mainframe- and minicomputer-based product features data modeling, micro-mainframe networking, data transfer, optimization, and presentation graphics.



- Mindsight, which is a business planning software package designed to take advantage of the Macintosh's user interface. The program features many of the same capabilities as IFPS/Personal.

6. LOTUS DEVELOPMENT CORPORATION

a. Products/Services

- The Planning and Analysis software packages that Lotus provides include:

- Lotus 1-2-3, an integrated spreadsheet.
- Symphony, an all-in-one integrated software package.
- Jazz, an all-in-one integrated software package for the Macintosh.

- The key revenue-producing products for Lotus are Lotus 1-2-3 and Symphony.

b. Company Strategy

- Lotus' product strategy for the near term is to build around 1-2-3 by offering value-adding upgrades, enhancements, companion products, and product extensions rather than introducing completely different applications. Lotus will wait for the next generation of hardware to be established before departing from this strategy and attacking completely new markets.

c. Recent Activities

- Lotus has been extremely active over the past year in releasing new products and acquiring new companies and products, acquiring a total of five companies. The most significant developments over the past year that relate to the Planning and Analysis sector include:



- In May 1985, Jazz was introduced.
- In September 1985, 1-2-3 Release 2 was released. The update added a larger worksheet, improved memory management, a new macro command language, and several other improvements.
- In May 1986, Lotus acquired Graphic Communications, Inc., a presentations graphics vendor.
- In February 1986, Lotus acquired GNP Development Corporation, the developer of HAL.

d. Future Direction

- The products that will likely be introduced in 1986 include:
 - HAL.
 - Engineering and scientific word processor.
 - Financial planning extensions to 1-2-3.
 - Engineering and scientific extensions to 1-2-3.
 - Added functionality for Signal, the stock quote transmission service.
- Products that are currently under development that may be released in the 1987-1988 timeframe include:
 - Free-form data base/idea processor.
 - Group productivity tool.



- Messaging/electronic mail product.
- Business word processor.
- Data base management system.
- New generation spreadsheet with a graphical interface.

7. MANAGEMENT DECISION SYSTEMS

a. Products/Services

- Management Decision Systems is a leader in the design and implementation of decision support systems. Its primary product is Express, an integrated decision support system noted for its powerful relational data base.

b. Company Strategy

- The company will continue to strive to provide the most complete range of decision support services, including research, consulting, and software.

c. Recent Activities

- Information Resources, Inc. (IRI) acquired MDS in April 1985. Information Resources is a marketing information company noted for its use of UPC scanners to track in detail the buying characteristics of approximately 35,000 households.
- In June of 1985, the company released PCexpress, a decision support system for the IBM PC and compatibles. The program is designed for applications in marketing and finance and combines data base management, query, modeling, statistical reporting, and graphics capabilities.



- In February of 1985, the company released two financial software packages built on the firm's Express decision support system: Express Easyscan and the Financial Consolidation and Reporting System (FCRS). Express Easyscan allows a user to analyze Standard and Poor's Compustat II data bases of corporate financial data. FCRS is a menu-driven, interactive system for the consolidation and reporting of general-ledger data such as that from multiple divisions from a large corporation.

d. Future Direction

- Express will continue to be the major software product sold by IRI/MDS. The company will continue to develop marketing applications with Express, but with a special emphasis on products that use IRI data. The financial application products will receive lesser priority. The biggest change after the acquisition will be to focus on development of special application products that utilize IRI consumer data.

8. MICROSOFT

a. Products/Services

- Microsoft designs, develops, markets, and supports over 40 different micro-computer software products, a complete line of operating systems, applications for business and professional markets, and microcomputer programming languages. Its Planning and Analysis sector applications include three software packages: Microsoft Project, Multiplan, and Excel.
 - Multiplan, with versions for both MS-DOS computers and the Macintosh, has an installed base of one million units as of the end of 1985.



- Excel, introduced in October 1985, is a spreadsheet integrated with data base and business graphics modules for use on the Apple Macintosh computer. Excel is now both the highest regarded and best-selling spreadsheet for the Macintosh.

- Microsoft Project is a critical path method (CPM) project scheduling and resource allocation program designed for use on MS-DOS-based computers. Microsoft introduced this product in April 1984 for the IBM PC and enhanced it in December 1985 to include PERT charting and computer-based training among other new features.

b. Company Strategy

- Microsoft will focus on developing for the IBM market and will curtail new applications development for the Macintosh. The company feels that as the leading seller of software for the Macintosh it is sufficiently represented in that market. Microsoft has shunned the all-in-one product direction in favor of single applications products. The foundation of the company's product strategy is the belief that users are primarily task-oriented and prefer the in-depth capability of that application package. Microsoft will provide integration of its standalone packages through Microsoft Window, a graphical operating environment which runs on MS-DOS computers.

c. Recent Activities

- Microsoft went public in the first quarter of 1986. Its stock offering was received very favorably.

d. Future Direction

- Microsoft plans to release a version of Excel for the IBM PC, designed to run under its Windows operating environment. With this product, the company hopes to be one of the first software vendors to release a product that takes



advantage of the greater processing power of the 80286-based PC-AT. It is also working on adapting its other application products to run under Windows.

9. PROJECT SOFTWARE DEVELOPMENT, INC.

a. Products/Services

- Project Software and Development, Inc. (PSDI) develops and markets project management software and related services. The company offers project management solutions for mainframe, mini, and microcomputers. Its products include:
 - Project/2 for mainframes and minis is a software system which integrates project planning, scheduling, and cost control functions with graphics and relational data base capabilities. This package is offered in turnkey configurations and as a remote computing service.
 - QWIKNET is a project management software package for personal computers that allows management of schedules, costs, and resources.
 - Personal PROJECT/2 is a turnkey project management system for the IBM PC/370.

b. Company Strategy

- PSDI is dedicated to developing the highest quality, full-functionality project management software whether for mainframes or personal computers. It is the largest independent project management software company, with revenues of approximately \$25 million in 1985.

c. Recent Activities

- Personal PROJECT/2 was released in July 1985.



10. SOFTWARE PUBLISHING CORPORATION

a. Products/Services

- The products that Software Publishing offers in the Planning and Analysis sector are:
 - pfs: Plan, an easy-to-use spreadsheet product which sold approximately 75,000 units in 1985.
 - Harvard Total Project Manager, a micro-based project management system which sold approximately 11,000 units in 1985.

b. Company Strategy

- Software Publishing is presently undergoing a major transition from a company that caters exclusively to the low end of the micro software marketplace to a company that develops and markets higher performance software to more sophisticated users in large corporations. As the key thrust to this strategy, the company plans to introduce in August 1986 a host of new products and enhancements to current products under the Harvard product family. This will be a higher-end product line which will offer greater performance and functionality as compared to the pfs: product family.

c. Recent Activities

- In the second quarter of calendar 1986, Software Publishing reported a quarterly loss. The company attributes its recent decline in performance to two important changes in the market: a shift in the retail channel toward corporate selling and a shift in end-user demand toward high performance software.



d. Future Direction

- Software Publishing intends to continue dominating the low end of the market comprised of first-time users and small businesses. In addition, with the Harvard product family, it plans to increase its penetration among more sophisticated users and large corporate customers. However, the higher-end Harvard line will be slow to develop momentum in the market, primarily because of the longer selling cycles involved with higher-end software.
- The company is presently increasing its outside sales force to better serve the corporate market; however, all sales leads are still referred to a dealer.





APPENDIX PA-A: FORECAST DATA BASE: PLANNING AND ANALYSIS SECTOR

- This appendix contains the following forecast information, as shown in Exhibit PA-A-1.
 - Market size by delivery mode for each year from 1985 through 1991.
 - Market growth rates for 1985-1986.
 - Average annual growth rate (AAGR) for each delivery mode for the five-year period 1986-1991.



EXHIBIT PA-A-1

**CROSS-INDUSTRY SERVICES MARKET
PLANNING AND ANALYSIS SEGMENT
USER EXPENDITURE FORECASTS, 1986-1991**

SEGMENTATION BY DELIVERY MODE	(\$M) 1985	85/86 GROWTH	(\$M) 1986	(\$M) 1987	(\$M) 1988	(\$M) 1989	(\$M) 1990	(\$M) 1991	AGR 86-91
PROCESSING SERVICES	250	0	250	246	241	237	231	225	-2
APPLICATIONS SOFTWARE									
MAINFRAME/MINI	683	10	663	710	785	864	961	1076	10
MICRO	686	13	775	890	992	1104	1276	1445	13
TOTAL APPLICATIONS SOFTWARE	1289	12	1438	1600	1777	1968	2237	2521	12
TURNKEY SYSTEMS	242	10	266	297	346	374	401	425	10
SECTOR TOTAL	1781	10	1954	2143	2364	2579	2869	3171	10

APPENDIX PA-B: FORECAST RECONCILIATION

- This appendix contains the following information:
 - Exhibit PA-B-1 which indicates the changes made in this year's forecast as compared to last year's.
 - An explanation of any changes that were made to the forecasts.
- The remote computing services and batch processing market size and growth rates has been reduced significantly for the following reasons:
 - The largest part of the market for cross-industry remote computing services for DSS applications are on-line data bases, and these services are forecast separately and are not included in the Planning and Analysis forecasts.
 - As the cross-industry Planning and Analysis applications become increasingly oriented to industry-specialized applications, those user expenditures are included in the appropriate vertical sector and not in Planning and Analysis.
 - A saturation in the market for DSS products in the U.S. Much of the current and future growth is anticipated to come from overseas markets that are not included in the forecasts.



EXHIBIT PA-B-1

PLANNING AND ANALYSIS SECTOR
DATA BASE RECONCILIATION OF MARKET FORECAST
CROSS-INDUSTRY, BY DELIVERY MODE

DELIVERY MODE	1985 MARKET			1991 MARKET			85-90 AAGR	86-91 AAGR
	1985 FORECAST (\$M)	1986 REPORT (\$M)	VARIANCE AS % OF '86 RPT	1985 FORECAST (\$M)	1986 FORECAST (\$M)	VARIANCE AS % OF '86 FCST	FORECAST IN '85 REPORT (%)	FORECAST IN '86 REPORT (%)
PROCESSING SERVICES	829	250	232%	1854	225	724%	14%	-2%
APPLICATIONS SOFTWARE								
MAINFRAME/MINI	603	603	0%	1931	1076	79%	21%	10%
MICRO	686	686	0%	1452	1445	1%	14%	13%
TOTAL APPLICATIONS SOFTWARE	1289	1289	0%	3384	2521	34%	18%	12%
TURNKEY SYSTEMS	242	242	0%	722	425	70%	20%	10%
SECTOR TOTAL	2360	1781	33%	5960	3171	86%	17%	10%

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- The negative factors cited in the market forecast section.
- The forecasts for turnkey systems were reduced for the reasons cited in the market forecast section.

