Market
Analysis and
Planning
Services
(MAPS)

U.S. Information Services Industry-Specific Markets 1987-1992

State and Local Government

INPUT®

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

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U.S. INFORMATION SERVICES INDUSTRY-SPECIFIC MARKETS 1987-1992

STATE AND LOCAL GOVERNMENT

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State and Local Government

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Issues, Trends, and Events

I

Issues, Trends, and Events

A

Introduction

State and local government is a broad sector of the market which encompasses counties, municipalities, townships, school districts, and numerous special districts, in addition to agencies and departments of state governments. During the last census, over 82,000 of these types of government organizations were identified by the Census of Governments.

Factors driving the state and local government information services market include the current administration, funding, increased demand for information services, changing information services requirements, and government bureaucracy. (See Exhibit I-1.)

EXHIBIT I-1

STATE AND LOCAL GOVERNMENT DRIVING FOCUS

- Changing Emphasis of Current Administration
- Funding Availability/Cutbacks
- Rising Demand for Information Services
- Legislated Changes in Requirements
- Bureaucracy Resistant to Technological Advancement

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The overall direction of the current administration affects the information services departments of state and local government organizations. Depending on the administration, the emphasis shifts from law enforcement to education to social welfare programs and other areas over the years.

Most state and local governments can impose taxes; however, many special districts such as independent housing authorities, the New York Port Authority, and local power districts are financed by rentals, charges for services, benefit assessments, grants from other governments, toll charges, and other non-tax sources.

Funding for state and local government information services is affected by many factors including availability of funds from federal, state, county, and city government; approval of information services budgets; and cutbacks in planned expenditures. Some cities have worked with each funding for the past several years.

Typically, a county data center handles such applications as the county's payroll, financial and retirement systems, voter registration, public works utilities, food stamps, personal property, parking tickets and the library systems.

Although small local governments have tended to lag behind larger governments and businesses in acquiring computer technology, a trend is emerging towards increased use of computers and computer services by smaller municipalities and other governmental departments and agencies.

In the mid-1970s, costs generally precluded small governments from computer usage. Due to the availability of low-cost microcomputers and "user-friendly" software, computer systems usage by state and local government organizations has been on the rise in recent years. In fact, state and local government is becoming a substantial market for information services.

Microcomputers allow users to decentralize data processing into a whole range of areas and applications not previously reached by the mainframe and supplement the work of the mainframe by downloading data for manipulative and statistical purposes.

Consistent with larger governments and commercial businesses, smaller governments are using computer systems for functions such as financial management, word processing, and record keeping. In addition to these cross-industry applications, software is being developed to provide a wide range of local government functions such as governmental accounting, payroll, utility billing, police records, and equipment management.

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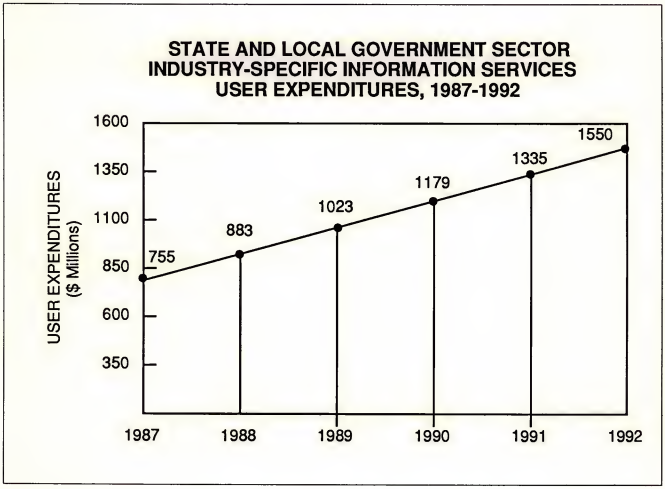
EXHIBIT I-2



Small cities have reported that industry-specific application software is not always suitable to their needs. For example, budgeting software is often not flexible enough to accomodate a continually changing budget document. Many have found a more economical alternative in a cross-industry application–electronic spreadsheets, which automatically post any changes to all appropriate areas of the budget.

Application products such as spreadsheets are becoming widely used by all levels of state and local governments. The Bellevue (NE) Police Department reported using spreadsheets to monitor costs and determine the status of its fiscal budget. The costs for all budget items, such as utilities, building maintenance, and radio repair and service, are projected using spreadsheets of the previous year's actual costs and adding for factors such as inflation. This report, however, will deal more with software and services developed specifically for state and local government.

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Information services managers are concerned that the growing number of state and local government employees are outgrowing current software and systems capabilities. INPUT found that some respondents planned to increase information services budgets for only one year in order to acquire hardware and develop applications, for example, and then cut back to previous levels.

I.S. managers must also deal with legislated changes in requirements. The following are examples of how information services requirements continually change for state and local governments:

- Changes in tax laws require modifications in assessment and taxation software.
- Florida state legislature recently changed building requirements and, through a comprehensive planning act, city planning requirements.
- In the past year, there have been state-mandated data base management systems, accounting systems, and personnel systems put into effect.

Information services managers in state and local government deal with governmental bureaucracy, which serves to slow the advancement of technology.

Functionally, state and local governments can be categorized into the following areas:

- Executive, Legislative, and General Government
- Justice, Public Order and Safety
- Public Finance, Taxation, and Monetary Policy
- Administration of Human Resources Programs
- Administration of Environmental Quality Programs
- Administration of Economic Programs

B

Executive, Legislative, and General Government

Executive branches of government includes city managers' offices, mayors' offices, county supervisors' offices, governors' offices, and executive advisory commissions.

Legislative bodies include boards of supervisors, city councils, county commissioners, and legislative assemblies and advisory commissions.

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General government includes general accounting offices, government personnel agencies and boards, purchasing and supply agencies, and more.

Applications used by executive, legislative, and general government include the following:

- Government Personnel
- Applicant Tracking
- Employee Management and Compensation
- Government Payroll
- Purchasing
- Inventory Management
- Voter Registration
- Election Returns
- Integrated Municipal System

C

Justice, Public Order, and Safety

On the state and local government level, the justice system includes traffic courts, district courts, family courts, superior courts, and many other types of courts.

Public order and safety includes state police and highway patrols, city police departments, and sheriff's offices; fire protection; legal counsel and protection, such as public defenders' offices and public prosecutors' offices; and correctional institutions.

Applications used by the justice system and public order and safety organizations include the following:

- Remittance Control for Courts
- Correctional Institutions Control
- Information Management Systems for Law Enforcement
- Computer Aided Dispatch for Public Safety
- Police Systems
- Crime Analysis
- Crime Reporting and Criminal Information
- Traffic Ticketing and Enforcement
- Equipment Control
- Fire Systems
- Automatic Vehicle Locating Systems

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D

Public Finance, Taxation, and Monetary Policy

This group includes organizations primarily engaged in financial administration and taxation, such as budget agencies, controllers' offices, property tax assessors' offices, state tax commissions, tax departments, and treasurers' offices.

Applications used in public finance, taxation and monetary policy include the following:

- Tax Collection
- Budgetary Accounting
- Central Cashiering
- Fund Accounting Management Information Systems
- Financial Control
- Fiscal Management and Reporting
- Government Costing
- Municipals Controls Systems
- On-Line Appraisal and Statistical Information
- Real Property Tax
- Tax Management
- Revenue Data Collection
- Treasurers' General Ledger and Warrant Reconciliation
- Tax Assessment and Management

E

Public Administration

Administration of Human Resources includes the administration of educational programs, public health programs, and social, manpower and income maintenance programs. Within this group are county supervisors of education, state education departments, teacher certification bureaus, health statistics centers, immunization program administration, maternity and child health program administration, mental health agencies, public health agencies, equal employment opportunities offices, medical assistance program administration, unemployment insurance offices, workman's compensation offices, and more.

Administration of Environmental Quality and Housing Programs includes administration of environmental programs and administration of housing and urban development programs. Within this group are environmental protection agencies, environmental quality and control agencies, sanitary engineering agencies, water control and quality agencies, conservation agencies, land management agencies, building standards agencies, housing agencies, community development agencies, county development agencies, urban planning commissions, and zoning boards and commissions.

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Administration of Economic Programs includes administration of general economic programs, regulation and administration of transportation programs, regulation and administration of communication, electric, gas, and other utilities, and regulation, licensing, and inspection of miscellaneous commercial sectors. Although this group includes many federal agencies, it also includes consumer protection offices, motor vehicle licensing and inspection offices, port authorities and districts, railroad and warehouse commissions, transit systems and authorities, transportation departments, irrigation districts, licensing and inspection of utilities, alchoholic beverage control boards, labor management negotiation boards, licensing and permit for retail trade, rent control agencies, work safety administration, and more.

Applications developed for public administration are abundant; listed below are some of those.

- Financial Accounting Systems for Education
- Welfare and Public Assistance Control and Licensing
- Animal Control and Licensing
- Building Permit
- Business License
- Land Parcel Data Base
- Building and Zoning
- Highway Impact Model
- Housing Authority Tenant Accounting
- Truck Trailer Scale System
- Title System

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II

Market Forecasts

A

Introduction

INPUT forecasts that user expenditures for state and local government information services will grow from $638 million in 1986 to $755 million in 1987 at a rate of 18%.

User expenditures will then grow at an average annual rate of 15% during 1987-1992, reaching $1.55 billion in 1992.

For details, see Exhibits II-1 through II-4 and Appendix SL-A. Appendix SL-A contains the forecast data base for each year 1986 to 1992 for the state and local government sector.

B

Processing/Network Services

Processing/network services make up the largest part of information services for state and local government. INPUT expects that state and local government users will continue to rely on processing/network services for much of their information services needs well into the future.

INPUT predicts that user expenditures for processing/network services will increase from $481 million in 1986 to $570 million in 1987 at a rate of 19%. Average annual growth during 1987-1992 is projected to be 15%, with 1992 expenditures reaching over $1.1 billion.

Although state and local government information services users are moving some processing in-house, due to the availability of low cost hardware and "user friendly" software, the move is often on a small scale.

State and local government lags behind the federal government and the commercial sector in the use of information services. In the commercial sector, users rely more on in-house systems and purchased software products than in the state and local government sector. The software

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product segment of the commercial information services market is becoming close in size to the processing/network services sector, although processing/network still remains the largest segment of the information services market.

Remote computing and batch processing represent a smaller part of the processing/network services used by state and local government than facilities management processing services. However, facilities management processing services represent a much larger part of state and local government processing/network services than in the commercial sector.

In 1986, remote computing/batch processing user expenditures by state and local government were $134 million; in 1987, these expenditures are expected to reach $164 million.

Facilities management processing services user expenditures were $347 million in 1986 and are expected to reach $406 in 1987.

State and local government users are more likely to have a vendor manage all or part of their information processing needs under a long-term contract of a year or more than users in the commercial sector.

Facilities management processing services vendors directly plan, control, operate, and own the systems whether provided on-site, via communications lines or a mixed mode. This arrangement serves the purposes of state and local government departments and agencies that do not have the internal staff, the expertise, or the funding required to handle the information processing entirely on their own.

User expenditures for remote computing and batch processing services are projected to grow faster over the next five years than facilities management processing services. (See Exhibit II-2).

- Remote computing and batch processing services are forecasted to an average annual rate of 21% during 1987-1992, reaching $424 million in 1992.
- Facilities management processing services are forecasted to grow 12% per year during the same period reaching $722 million in 1992.

Although some of the larger state and local government users are handling more information processing in-house, which would otherwise be facilities management processing business, the majority of smaller state and local government organizations will continue to rely on batch processing and remote computing for much of their information processing needs.

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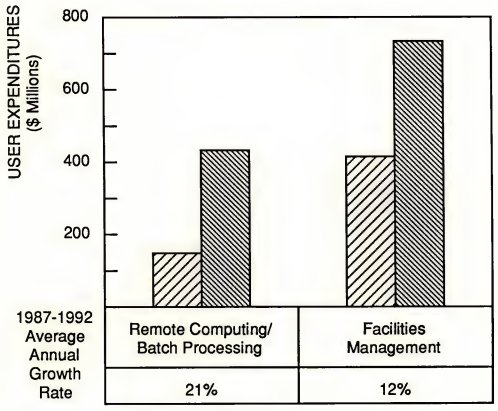
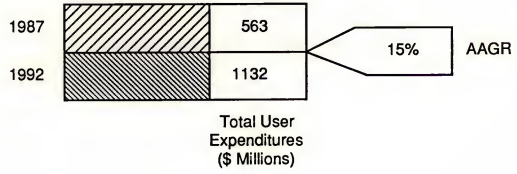
EXHIBIT II-1

STATE AND LOCAL GOVERNMENT SECTOR INDUSTRY-SPECIFIC PROCESSING SERVICES USER EXPENDITURE FORECASTS





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C

Application Software Products

The application software products segment of the state and local government information services market is growing faster than either the processing/network services segment or turnkey systems segment.

INPUT predicts that state and local government expenditures for application software products will increase from $55 million in 1986 to $68 million in 1987 at a rate of 24%.

Average annual growth during 1987-1992 is projected to be 20% with 1992 expenditures reaching $159 million. (See Exhibit II-3).

Most of these application software products will address very specific vertical markets within state and local government, such as those outlined in section I of this report.

In addition, most of these application software products will be three or minicomputer products. INPUT expects state and local government expenditures for mainframe/minicomputer application software products to grow from $41 million in 1986 to $50 million in 1987 at a rate of 22%. The average annual growth rate expected during 1987-1992 for this segment is 18%, with expenditures for mainframe/minicomputer applications reaching $115 million in 1992 (See Exhibit II-4).

The larger mainframe/minicomputer market is primarily due to the move toward in-house processing by some of the larger state and local government organizations mentioned earlier.

User expenditures for microcomputer application software are growing faster than those for mainframe/minicomputer application software. The 1986 user expenditure level of $14 million is expected to increase 29% in 1987 to $18 million, which is still a relatively small market compared to the other delivery modes. Average annual growth projected for 1987-1992 is 24%, bringing expenditures to $53 million by 1992.

Many small cities and counties, police departments, fire departments, and administrative agencies are computerizing for the first time with the use of microcomputers. On an individual department or agency level, computerization is often small-scale; however, there are many state and local organizations involved in the process.

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EXHIBIT II-2

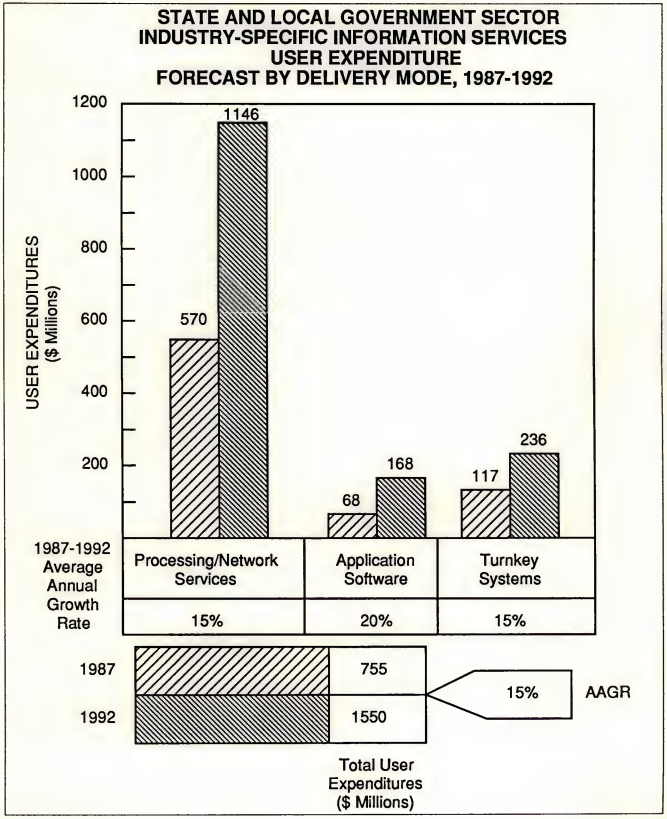

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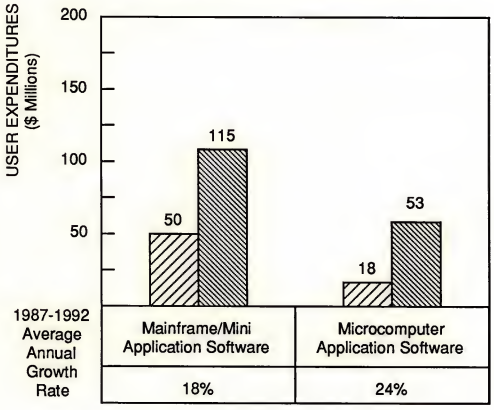
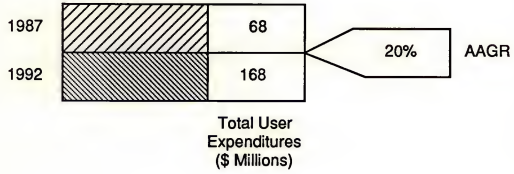
EXHIBIT II-3

STATE AND LOCAL GOVERNMENT SECTOR INDUSTRY-SPECIFIC APPLICATION SOFTWARE USER EXPENDITURE FORECASTS





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D

Turnkey Systems

INPUT predicts that user expenditures for turnkey systems will increase from $102 million in 1986 to $117 million in 1987 at a rate of 15%.

Average annual growth during 1987-1992 is projected to be 15%, with 1992 expenditures reaching $236 million. (See Exhibit II-3).

Turnkey systems provide a solution to the information services requirements of state and local government users for at least two reasons. Processing can be handled in-house, which is beneficial for reasons such as confidentiality. The expertise to develop a system or integrate components of a system is not required of internal staff. However, up until now, there has been a lack of turnkey systems available to meet state and local government users' specific requirements.

Growth for the turnkey systems market in general has been erratic and, as yet, limited. The growth rate projected for turnkey systems in this sector exceeds the growth rate for turnkey systems in the commercial sector.

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III

Competitive Developments

A

Introduction

The state and local government information systems market is characterized by a widely diversified group of vendors: relatively large firms concentrating on state and local government; large firms with only a very small protion of revenues generated from this sector; and hundreds of small, often regional, firms, some of which also provide services to other industries.

Market share information for some of the vendors providing information services to state and local government is provided in Exhibit III-1.

B

Vendor Profiles

1. Business Records Corp. (7800 Stemmons Freeway, Suite 340, Dallas, Texas 75247)
Revenue (FYE 12/86): $80 million

a. Products/Services

Business Records Corporation, a wholly-owned subsidiary of Cronus Industries, has three divisions. The election services division provides mainframe application software and equipment used for voting and tabulating results, and printed ballots and other materials.

The land records division provides equipment, application software, and facilities management services for indexing courthouse documents such as deeds, leins, and divorces. The division also provides image processing, copies of documents, microfilm and microfiche, and cameras used for disaster protection.

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EXHIBIT III-1

VENDOR SHARES OF STATE AND LOCAL GOVERNMENT SECTOR INFORMATION SERVICES IN 1986 ($ Millions)*

COMPANY NAME	Processing/ Network Services	Software Products	Turnkey Systems	Total Industry-Specific I.S. Rev.	Market Share (Percent)
Business Records Corp.		15.00	15.00	30.00	4.70
GTECH	20.00			20.00	3.13
Atek Information Services		4.00	7.00	11.00	1.72
American Management Systems	3.00	6.00		9.00	1.41
Command Data Systems		3.60		3.60	0.56
Datex		1.00	1.20	2.20	0.35
Automation Counselors		0.30	1.00	1.30	0.20
Kent Russ & Associates			1.00	1.00	0.16
Computer Assistance	0.07	0.02	0.01	0.10	0.02
Cape Data		0.10		0.10	0.02
J&J Software Services		0.10		0.10	0.02
Digital Solutions		0.04	0.04	0.08	0.01
TOTAL	23.07	30.16	25.25	78.48	12.30

*Vendor shares based on INPUT and vendor estimates of calendar year 1986 revenue generated from state and local government information services.

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The information services division provides software and hardware, as well as professional services such as custom software development, systems consulting, training and education, and facilities management, for networks.

b. Markets Served

Business records provides all of its products and services to state and local governments.

c. Company Strategy

Cronus Industries has acted as a holding company since 1985, when it divested all businesses except Business Records. The company has demonstrated its committment to serving state and local government by concentrating on this sector alone and by expanding services to this sector.

d. Recent Activities

In 1986, the company acquired CCSI "The Software People" (MN), providing application software to state and local governments. Products include systems for accounting/finance, payroll, utility billing, law enforcement costing, elections, jury selection, real estate tax billing, and more.

e. Future Directions

Business Records sees increasing opportunities in the areas of network services and image processing for state and local government.

2. GTECH (101 Dyer Street, Providence, RI 02903)
Revenue (FYE 2/22/86): $81.3 million

a. Products/Services

GTECH provides computer-based on-line lottery networks for government sponsored or licensed lotteries in the U.S., Canada, Australia, and Singapore. The company also provides consulting services for gaming authorities.

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b. Markets Served

GTECH provides services to state government-sponsored lotteries, as well as other licensed lottery operations and gaming authorities. Customers include: California State Lottery, New York State Lottery, Singapore Pools (Private) Ltd., Oregon State Lottery, Ohio State Lottery, British Columbia Lottery Corporation, Lotteries Commission of South Australia, New Jersey State Lottery, Arizona State Lottery, District of Columbia State Lottery, Tattersall Survey Consultation, Atlantic Lottery Corporation, Western State Lottery Corporation, Connecticut State Lottery, Loto-Quebec, Ontario Lottery Corporation and Rhode Island Lottery.

c. Company Strategy

In order to remain a leader in providing on-line lottery networks, GTECH's strategy is to enhance existing business through new technology (described below) and gain new business through continued industry growth and expansion.

d. Recent Activities

During fiscal 1986, GTECH introduced the player-operated sales terminal (POST) and installed approximately 150 POST units as part of the new lottery network in Oregon.
GTECH also introduced the GT-101/TF, the newest member of the GT-101 family of retailer-operated terminals. The terminal is used in the Rhode Island and Singapore networks, and 5,000 will be installed to serve the California network.

e. Future Directions

GTECH plans to maintain its leadership position through its advanced telecommunications systems and other products for both gaming and non-gaming applications.

3. Atek Information Services (630 30th Street, N.W., Canton, Ohio 44707)
Revenue (FYE 12/86): $30 million

a. Products/Services

Atek Information Services, a subsidiary of AmeriTrust, provides applications software, professional services, and turnkey systems available on

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DEC hardware. Systems include the following:

- Budgetary/Appropriation Accounting
- Domestic Relations
- Common Pleas Court Administration
- Dog License
- Engineer's Inventory
- Income Tax
- Jury Management
- Payroll
- Real Estate Tax
- Recorder's Indexing
- Titles (Auto, Watercraft, Salvage)
- Trailer Tax
- Treasurer's Investment Management
- Treasurer's G/L & Warrant Reconciliation
- Utility Billing
- Voter Registration/Jury Selection
- Personal Property
- Appraisal
- General Relief
- Law Enforcement

b. Markets Served

As shown by the systems offered, Atek sells its services to many types of state and local governments. The company does not provide services for any other industries.

c. Company Strategy

Atek offers what it calls a "one vendor solution" to handle all of the information management needs of the state and local government, including hardware, installation planning, conversion assistance, software and related support services, site preparation, training, and field service.

d. Recent Activities

Atek reported that it continuously introduces new products and services. Recently, much interest has been shown in their court administration system.

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e. Future Directions

The company plans to expand nationwide. Geographic coverage now includes Illinois, Indiana, Ohio, Pennsylvania, Tennessee, Georgia, and Florida.

4. American Management Systems (1777 North Kent Street, Arlington, Virginia 22209)
Revenue (FYE 12/86): $135.5 million

a. Products/Services

American Management Systems (AMS) provides remote computing and facilities management processing services, applications software products, and turnkey systems, as well as custom software development, consulting, and facilities management professional services.

b. Markets Served

AMS targets financial services institutions; federal government agencies; state and local governments, school districts, and universities; energy companies; telecommunications firms; and other industries. Approximately 23% of the company's 1986 revenues were derived from state and local governments, school districts and universities.

c. Company Strategy

AMS provides an integrated family of applications software products designed to meet a range of accounting, financial management, and human resource needs in state, city, and county governments.

AMS attributes its market leadership to its ability to build complete systems, modify versions of existing packages, and implement turnkey solutions that involve little or no software modification. For example, the government Financial System (GFS) can be easily modified for governments that need a customized system. The Local Government Financial System (LGFS) provides the flexibility to meet the needs of many governments without changing the software.

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d. Recent Activities

In 1986, AMS introduced a financial system for local school districts. The system, called Local Education Agency Financial System (LEAFS), provides a range of integrated applications similar to those in the LGFS family. Four large school districts acquired LEAFS during its first year.

e. Future Directions

Planned for introduction in late 1987 is an addition to the company's integrated family of applications called the Government Human Resource System.

The company also plans to offer services to jurisdictions throughout the U.S. to process parking tickets and other summonses.

The On-Line Appraisal and Statistical Information System (OASIS) and the Computer Assisted Collection System (CACS) provide the foundation for American Management Systems' revenue-oriented governmental systems offerings; the company is targeting this area for significant growth in 1987 and beyond.

5. Command Data Systems (6250 Village Parkway, Dublin, California 94568)
Revenue (FYE 10/86): $3.6 million

a. Products/Services

Command Data Systems provides the following applications software products:

- Law Enforcement Automated Data Entry and Retreival (LEADER) System
- Computer Aided Dispatch (CAD) Module
- Crime Analysis Module
- Managing Criminal Investigations (MCI) Module
- Integrated Case Narrative (ICN) Module

b. Markets Served

Command Data Systems provides computer services to state and local government, specifically fire and police departments.

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c. Company Strategy

Command Data Systems strategy is to provide cost-effective solutions to public safety agencies.

d. Recent Activities

In 1986, Command Data Systems introduced an alternative to expensive mobile data terminals with its voice-activated dispatch system, Voice Command.

e. Future Directions

In 1987, Command Data Systems plans to introduce Voice Records offering an advancement in the way police records are processed.

Developments in software will include expert systems, voice recognition, networking, and natural agency language systems.

6. Datex, Inc. (2411 Belmont Avenue, Youngstown, Ohio 44504) Revenue (FYE 12/86): $4.0 million

a. Products/Services

Datex provides processing services, application software products, turnkey systems, and professional services to state and local government and/or industries in the commercial sector. Datex has developed government payroll systems, accounts payable systems, and financial accounting systems. Turnkey systems run on IBM Systems 36 and 38.

b. Markets Served

Approximately 65% of the company's revenue is derived from applications software products, turnkey systems, and professional services sold to state and local governments. The remainder is derived from application software products and processing services provided to other industries.

c. Company Strategy

Datex provides computer services to those in state and local government that may not have the expertise to develop computer systems themselves.

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d. Recent Activities

Datex has been able to successfully market some of its government systems that were originally developed as custom projects to other state and local government organizations in the form of applications products and turnkey systems.

e. Future Directions

Utilizing applications they have already developed which meet the specific requirements of state and local government functions, Datex plans to increase sales of turnkey systems.

7. Automation Counselors, Inc. (5728 Industry Lane, Frederick, Maryland 21701)
Revenue (FYE 12/86): $2.0 million*

a. Products/Services

Approximately 75% of Automation Counselors' revenue is derived from computer services, including applications software, turnkey systems, and professional services.
Professional services include custom software development, modification of applications, systems consulting, and facilities management.

The company's accounting package for municipalities, municiPAL, contains modules for the following departments: payroll, executive office, accounting/purchasing, taxing, public works, and police. The integrated multi-user system runs on IBM's Systems 34, 36, 38, and 36PC as well as the HP-3000. Functions include budgeting, accounting, financial reporting, receivables, project tracking, tax billing and receiving, payroll, personnel, police support, and health department patient management.

b. Markets Served

Automation Counselors provides computer services solely to the state and local government sector.

*INPUT estimate

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c. Company Strategy

Automation Counselors provides a broad range of products and services specifically developed for state and local governments.

d. Recent Activities

The company was recently awarded a contract by the state of Maryland to develop a waste management system.

e. Future Directions

Automation Counselors plans to develop a national distribution network to market its products and services.

8. Kent Russ & Associates (213 Patton Drive, Shelby, North Carolina 28150)
Revenue (FYE 12/86): $1.0 million*

a. Products/Services

Kent Russ & Associates provides turnkey systems running on PC ATs and compatibles, Datapoint minis, and Burroughs mainframes, for state and local government and other industries. State and local government systems include those for the county clerk office, courthouse records indexing for counties, utilities billing, and budgeting fund accounting. Approximately 40% of these systems involve customization or modification.

b. Markets Served

Kent Russ & Associates derives approximately 70% of its revenues from state and local government. The remainder is derived from the health care industry and the fine and industrial paper manufacturing industry.

c. Company Strategy

Kent Russ & Associates targets those markets it has served in the past

*INPUT estimate of this group's revenue while part of Morrison Services, Inc.

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and relies on referrals and industry association contacts for much of its new business.

d. Recent Activities

Formerly a division of Morrison Associates, Inc. (MSI), Kent Russ & Associates broke off and formed a new company when in late 1986 MSI went public.

e. Future Directions

Kent Russ, president of Kent Russ & Associates, reported that a new product for the state and local government sector is planned for release in late 1987.

9. Computer Assistance, Inc. (200 Park Road, West Hartford, Connecticut 06119)
Revenue (FYE 11/86): $30.0 million

a. Products/Services

Computer Assistance provides turnkey systems, application and system software products, remote and batch processing services, and professional services industry custom software development, consulting, systems integration, and education and training.

Application software packages for local governments, colleges, and universities include:

- COMTROL™ - Financial Management System
- TAX-IS™ - Tax Administration and Collection System
- PAYDAY™ - Payroll Personnel System
- WEL-PACS™ - Public Assistance System
- AUTO-TAG™ - Parking Ticket/Collection System
- Water and Sewer Utility Billing System
- Human Resources System
- Financial Management System for Colleges and Universities

b. Markets Served

Computer Assistance provides computer services to the federal govern-

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ment, state and local governments, education, and commercial businesses.

c. Company Strategy

Computer Assistance markets to a local base of industries to counter the possibility of one major customer going out of business or one industry experiencing a slump.

d. Recent Activities

Prompted by the new federal tax law, offices of Computer Assistance took the company private by offering $2 million in cash for outstanding shares and warrants.

e. Future Directions

Computer Assistance plans to acquire businesses such as DB2 and 4GLS formatted for education and training, in addition to providing specialized consulting services.

Within the next five-year time frame, the company will offer an array of services for medium-to-large system users.

10. Digital Solutions, Inc. Software Division (1122 9th Street, Altoona, Pennsylvania 16602)
Revenue (FYE 12/86): $680,000

a. Products/Services

Digital Solutions provides applications software products, turnkey systems and professional services including custom software development and modification of applications.

Digital Solutions provides water and sewer systems, ambulance management systems, nursing home management systems, integrated and accounting systems to state and local governments.

b. Target Markets

Digital Solutions provides computer services to municipalities, townships, and other state and local governments in addition to the private

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sector including hardware stores, private ambulance companies, nursing homes, and funeral homes.

c. Company Strategy

Digital Solutions' strategy is to select products and markets with longevity. For example, state and local governments, funeral homes, nursing homes and ambulance companies are expected to continue operating well into the future.

d. Recent Activities

Digital Solutions continuously updates its applications software and provides these updates to its customers on-line via modem.

e. Future Directions

Digital Solutions is developing a sophisticated budgeting program to integrate with its current software for state and local government.

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IV

Information Systems Department Issues

A

Major Issues

1. Issues and Objectives

State and local government information systems organizations reported that the key issue
confronting them was connectivity. Information services managers want integrated software as well as more capability to connect hardware of different architectures.

There are rising concerns about the volume of data being handled. Information services managers reported that existing data base management systems are frequently incapable of dealing with the massive volume of information they must manage.

Demands for more sophisticated technology to process and store images, such as fingerprints, are cost prohibitive.

Lack of standards on such tools as fourth generation languages, both inter- and intra-agency, create significant inefficiencies in the ability of state and local government systems organizations to meet increasing demands for rapid response.

For a summary of these key issues, see Exhibit IV-1.

The primary objective of state and local government information services managers is to meet user needs through new systems development and enhancement of existing applications and tools. Projects include computerizing state and local government end user departments for data base access and data sharing. California's Department of Motor Vehicles plans to complete automating all field offices for access to its data base in 1987 (five year project). Other projects include the following:

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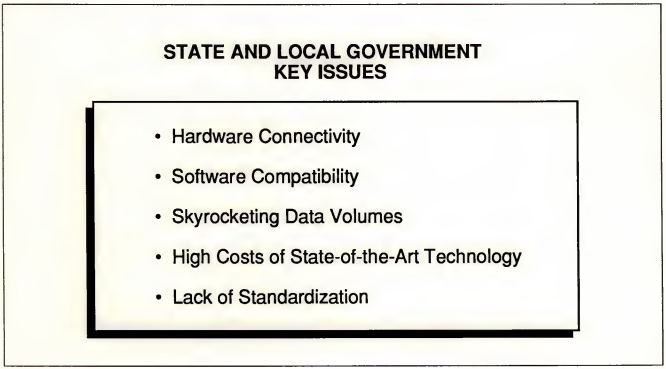
EXHIBIT IV-1



- Acquiring or developing management decision support systems and tools.
- Converting to internal data bases from outside agencies.
- Managing departmental taxation/assessment systems.
- Installing law enforcement systems.

Other objectives include placating users during one-to-two year application development periods; determining hardware requirements for current and future projects; stabilizing or reducing costs; and completing documentation.

A summary of the major objectives of state and local governments is shown in Exhibit IV-2.

2. Impact of New Technology

Development and implementation of new technology will initially require higher levels of funding for state and local government organizations. From a staffing standpoint, new technology will effect changes in the types of employees that will be needed and will generally raise skill requirements and costs.

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EXHIBIT IV-2

STATE AND LOCAL GOVERNMENT OBJECTIVES

- Computerization of End-User Departments
- Conversion from External to Internal Data Bases
- Shortening the Development Cycle
- Determining New Hardware Requirements
- Completing the Documentation Backlog

New technology will enable state and local government organizations to provide better levels of service and allow for a reduction of paper flow, but only if the issue can be resolved.

Networks will provide statewide communication and data transfer, while allowing diversified end-user departments to gather and maintain information for themselves that does not involve other departments.

New technology creates an opportunity for municipal government to become more entrepreneurial by being on the leading edge in providing services and by finding new ways to generate revenue. State and local governments may also form joint ventures with private companies to bring in new technologies.

The impact of new technology is summarized in Exhibit IV-3.

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EXHIBIT IV-3

STATE AND LOCAL GOVERNMENT
IMPACT OF NEW TECHNOLOGY

- New Staffing Requirements
- Better Levels of Service
- Reduction in Paper Flow
- Network Communication on a State Level
- Entrepreneurial Municipal Governments
- Joint Ventures with I.S. Companies in Private Sector

B

New Applications

Of the new applications projects planned by respondents, 44% will utilize internal development staff without the help of outside professional services or off-the-shelf applications software products (see Exhibit IV-4). In other words, the new application will be developed from scratch.

An additional 11% of the new projects will involve the use of internal development staff as off-the-shelf applications software products. The software product will be used as a starting point for the group's particular needs.

Seventeen percent of the projects planned by respondents will involve internal development staff in combination with external professional services people and applications software products.

Significant is the fact that none of the new projects identified by respondents involve the purchase of an application software product alone with no customization or modification.
Respondents expressed a concern that not much software was currently available for their specific needs. The following were identified as areas of interest:

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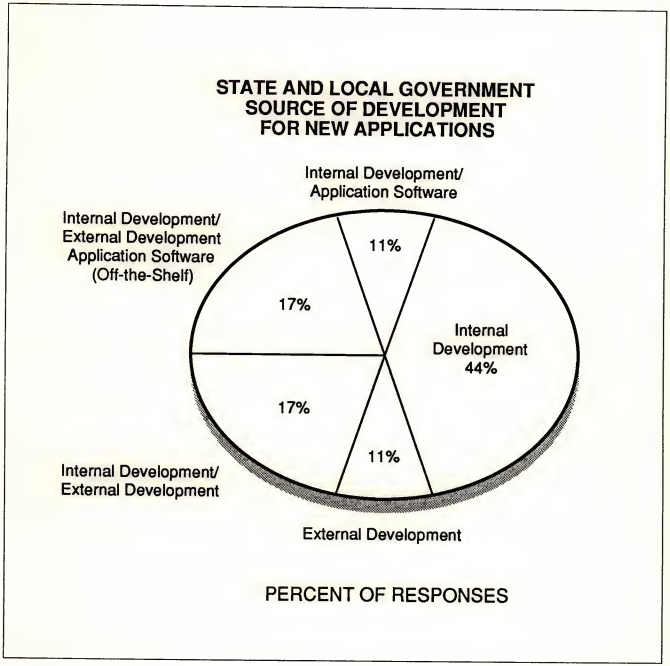

- Integrated systems that include financial and business planning functions.
- Integrated fixed assets, purchasing, financial, and payroll systems.
- Financial budgeting and accounting systems for state departments.

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- Better accounting and managment reporting systems.
- Law enforcement systems.
- On-line fingerprint systems (costs currently prohibitive in many cases).
- District attorney and case tracking systems.
- Public works systems.
- Vehicle and building maintenance systems.
- Inventory management systems.
- Project management systems for tracking state and local government workers.
- Data base management systems that can handle massive amounts of information.

Industry-specific external products and services purchased in the past year included the following professional services and applications software products:

- State accounting systems.
- Custom software development for utilities applications.
- Public safety systems for fire and police departments.
- Human resources packages for specific city, county, and state departments.
- Custom software development of integrated systems for city governements, including general ledger, purchasing, payroll, real estate, personal property tax, utilities, motor vehicle excise tax, and other applications.

Applications respondents will be implementing in 1987 are shown in Exhibit IV-5.

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EXHIBIT IV-5

STATE AND LOCAL GOVERNMENT
NEW APPLICATIONS FOR 1987-1988

- Replacement of Personal and Payroll Systems
- Fourth Generation Data Base Management Systems
- On-Line Quality Control Systems
- New and Enhanced Financial Systems
- Felony Processing
- Dependent Tracking Systems
- Permit Issuance and Tracking Systems
- Election Systems
- Integrated Systems for Financial and Project Management

C

Budget Analysis

Expected growth for information services budgets in 1987 averaged 4.2% for the state and local government respondents. Seventy percent of the respondents are increasing information services budgets in 1987; 30% are decreasing budgets in 1987.

Increases in 1987 were attributed to the following: personnel, reflecting additional personnel and/or salary increases; hardware, especially mainframes and mass storage devices; data communications; and applications and systems software for mainframes. (See Exhibit IV-6).

Budget decreases for this sector are related to hardware and professional services expenditures: 1986 budgets had been increased to include expenditures for computer systems, mass storage devices, terminals, and peripherals as well as for consulting and custom software development.

In some cases, respondents reported that total information services budg-

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EXHIBIT IV-6

STATE AND LOCAL GOVERNMENT INCREASING IS BUDGETS

- Personnel
- Mainframes and Mass Storage Devices
- Data Communications
- Mainframe Application and Systems Software

ets include information services expenditures as well as end-user department expenditures. Response showed that information services expenditures represent, on an average, 86% of the total information services budget, while end-user departments represent the remaining 14%.

Exhibit IV-7 shows the 1986 budget distribution and projects the growth of budget categories in 1987.

The largest projected growth categories in 1987 are mainframe applications and systems software, mass storage devices, and data communications.

- Mainframes are being purchased so that data processing can be provided in-house.
- Mass storage devices are required to handle the enormous volume of data associated with state and local government operations.
- Data communications are used to connect hardware and bring applications to the end user level.

Also increasing are budgets for the following:

- Personnel to support new application development and the maintenance/enhancement of existing systems. According to respondents,

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EXHIBIT IV-7

1986 BUDGET DISTRIBUTION AND 1986/1987 CHANGES IN STATE AND LOCAL GOVERNMENT

BUDGET CATEGORY	1986 I.S. BUDGET (Percent)	1986-1987 EXPECTED BUDGET GROWTH (Percent)
PERSONNEL SALARIES AND FRINGES	29.5	2.9
Mainframe Processors	10.0	5.0
Minicomputers	8.9	-0.6
Microcomputers	18.7	1.3
Mass Storage Devices	5.5	19.2
Other Hardware	.2	65.6
TOTAL HARDWARE	43.3	4.3
Data Communications	6.1	8.0
Voice Communications (If Part of I.S. Budget)	3.8	0
TOTAL COMMUNICATIONS	9.9	5.0
Professional Services	1.1	-9.1
Processing Services	.4	0
Mainframe/Minicomputer Application Software	2.6	9.7
Microcomputer Application Software	.5	2.1
Systems Software	2.6	8.6
Hardware Maintenance	1.2	2.6
Software Maintenance	.3	3.2
TOTAL EXTERNAL SERVICES/PRODUCTS	8.7	4.8
Other	8.6	6.5
TOTAL ALL CATEGORIES	100.0	4.2

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35% of application development staff are assigned to the development of new systems, 41% are assigned to the maintenance of exisiting systems and 24% are assigned to the enhancement of exisiting systems. (See Exhibit IV-8).

- Microcomputers that have been purchased over the last few years and that will be purchased in 1987 to be used for office automation and to extend applications to end-user departments.

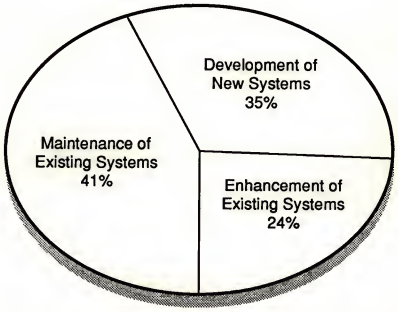
- Hardware maintenance, due in part to new acquisitions of hardware.

None of the state and local government respondents surveyed reported purchasing turnkey systems in 1986, nor do they plan to purchase any in 1987.

Approximately 30% of the respondents stated that hardware and/or software maintenance expenditures were bundled into the purchase price of the software or hardware; therefore, overall percentages shown for these expenditures are slightly lower than actual.

EXHIBIT IV-8

STATE AND LOCAL GOVERNMENT IS PERSONNEL ASSIGNED TO DEVELOPMENT, MAINTENANCE, AND ENHANCEMENT OF SYSTEMS



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New Opportunities

V

New Opportunities

Outlined below are areas of opportunity for information services vendors targeting state and local government. (See Exhibit V-1).

- Financial management systems required for the successful operation of city or county governments.
- Statewide networks that provide an integrated computing environment tying the state's central facility to multiple state and local government departments.
- Transportation management systems that provide scheduling, time keeping, route optimization, vehicle maintenance, and materials management for public transportation systems.
- Public safety systems that provide solutions for the dispatching and records management problems of public safety officials, including police and fire.
- Court management systems that provide integrated management and services for court systems in local and county governments.
- Utility management systems that provide financial and engineering management solutions within municipal utility departments.
- Geobase systems for utility and transportation departments, police and fire departments, and emergency medical services.

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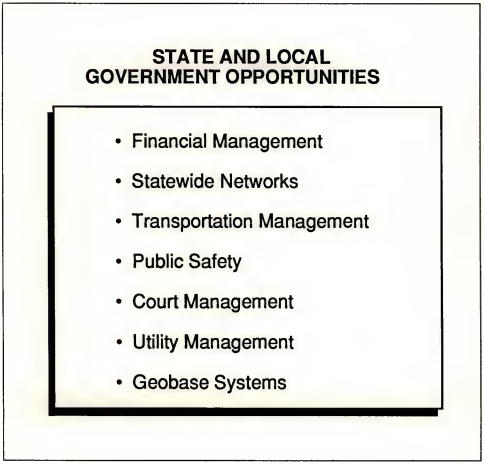
EXHIBIT V-1



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VI

Conclusions and Recommendations

VI

Conclusions and Recommendations

Much opportunity exists for information services vendors in all segments of state and local government. However, information services vendors need to develop and maintain expertise in their targeted segment of the state and local government market and address the specific requirements of that market.

State and local government information services users require systems that are justifiable from a cost/benefit viewpoint. While faced with rising costs and federal budget cuts that filter down to the programs at local level, these users must find ways to increase services to their constituents.

Information services users in this sector emphasized the following requirements:

- Networks and integrated systems that allow for the dissemination of information and data sharing, including external data sharing.
- Standardization of hardware and software.
- Data base management systems developed specifically for the user that can handle the type and volume of data involved.
- Systems that incorporate security restrictions.

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Appendix: Forecast Data Base: State and Local Government Sector

A

Appendix: Forecast Data Base: State and Local Government Sector

This appendix contains the following forecast information, as shown in Exhibit SL-A-1.

- State and local government sector market size by delivery modes for each year 1986-1992.
- State and local government sector market growth rates by delivery modes for 1986-1987.
- State and local government sector average annual growth rates (AAGR) for each delivery mode for the five year period, 1987-1992.

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EXHIBIT SL-A-1

STATE AND LOCAL GOVERNMENT
INDUSTRY SECTOR
INDUSTRY SPECIFIC USER EXPENDITURE FORECAST
1987-1992

SEGMENTATION BY DELIVERY MODE	($M)	86-87 GROWTH	($M)						AAGR 87-92
	1986	(Percent)	1987	1988	1989	1990	1991	1992	(Percent)
PROCESSING SERVICES									
Remote Comp/Batch	134	23	164	198	240	291	352	424	21
Facility Management	347	17	406	467	528	591	656	722	12
TOTAL PROCESSING SERVICES	481	19	570	665	768	882	1008	1146	15
APPLICATION SOFTWARE									
Mainframe/Mini	41	22	50	60	71	84	99	115	18
Micro	14	29	18	23	29	35	43	53	24
TOTAL APPLICATION SOFTWARE	55	24	68	83	100	119	142	168	20
TURNKEY SYSTEMS	102	15	117	135	155	178	205	236	15
SECTOR TOTAL	638	18	755	883	1023	1179	1355	1550	15

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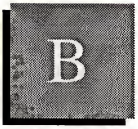

Appendix: 1986/1987 Forecast Reconciliation

B

Appendix: 1986/1987 Forecast Reconciliation

- This appendix contains the reconciliation of INPUT's 1986 state and local government sector forecasts for the period 1987-1992 and the 1987 forecasts shown in this report. See appendix Exhibit SL-B-1.

- The primary discrepency between 1986 and 1987 forecasts is in the AAGR during 1987-1992 for turnkey systems. The average growth rate has changed from 20% per year during the period 1986-1991 to 15% per year during 1987-1992. Reasons for the change include the following:

  - Growth in the turnkey systems market overall is erratic and has slowed.

  - Growth in the application software market for state and local government users, particularly the microcomputer applications market, has spurted.

- In addition, growth in remote and batch processing services remains strong and, in fact, is projected to be slightly higher at 21% per year during 1987-1992 than was projected in the 1986 report.

- Note that the turnkey systems market for the state and local government sector is forecasted to reach $194 million by 1992, representing a significant portion of state and local governement information services at that time. Much opportunity exists for all information services vendors targeting the state and local government sector. Overall growth for this sector has been adjusted from 18% per year to 15% per year. This adjustment reflects federal budget cuts which have filtered down to the state and local levels.

An adjustment was also made to indicate the slowdown in growth for

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EXHIBIT SL-B-1

STATE AND LOCAL GOVERNMENT
DATABASE RECONCILIATION OF MARKET FORECAST
BY DELIVERY MODE

DELIVERY MODE	1986 MARKET			1991 MARKET			86-91 AAGR	87-92 AAGR
	1986 Forecast ($M)	1987 Report ($M)	Variance As Of 87 Report (Percent)	1986 Forecast ($M)	1987 Report ($M)	Variance As Of 87 Report (Percent)	Forecast In 86 Report (Percent)	Forecast In 87 Report (Percent)
PROCESSING/ NETWORK SERVICES								
Remote/Batch	132	132	0	328	348	6	20	21
Facility	343	343	0	710	668	-6	16	12
TOTAL PROCESSING/ NETWORK SERVICES	475	475	0	1038	1016	-2	17	15
APPLICATION SOFTWARE								
Mainframe/Mini	39	39	0	82	95	14	16	18
Micro	13	13	0	38	42	10	24	24
TOTAL APPLICATION SOFTWARE	52	52	0	120	137	12	18	20
Turnkey Systems	110	110	0	272	178	-53	20	10
SECTOR TOTAL	637	637	0	1430	1331	7	18	15

state and local government facilities management processing services. The slowdown is due to more in-house processing being done by state and local government users. (INPUT defines facilities management as part of processing services when the processing equipment is owned by the facilities management vendor.)

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INPUT provides planning information, analysis, and recommendations to managers and executives in the information processing industries. Through market research, technology forecasting, and competitive analysis, INPUT supports client management in making informed decisions. Continuing services are provided to users and vendors of computers, and communications and office products and services.

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Many of INPUT's professional staff members have nearly 20 years of experience in their areas of specialization. Most have held senior management positions in operations, marketing, or planning. This expertise enables INPUT to supply practical solutions to complex business problems.

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