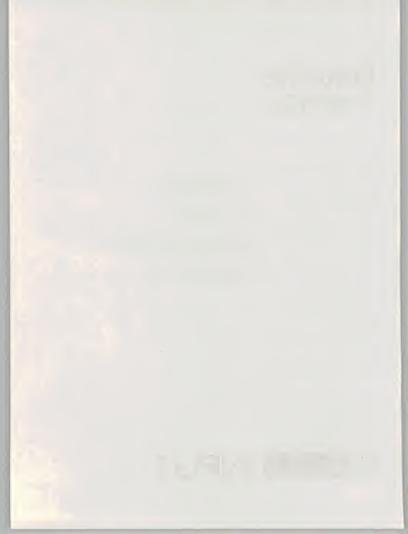
Executive Overview

Federal Office Information Systems

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To Our Clients:

This summary is an excerpt from a full research report, <u>Federal Office</u> <u>Information Systems</u> issued as part of INPUT's Federal Information Systems and Services Program (FISSP). A complete description of the program is provided at the end of this Executive Overview.

If you have questions or comments about this report, please call INPUT at (415) 960-3990 and ask for the Client Hotline.



REPORT ABSTRACT

Through the early 1980s federal agencies were faced with the apparent antithetical requirements of processing more data and information with smaller staffs. One early answer to the need for greater productivity among knowledge workers was found in the use of personal workstations. The rapid expansion of the end user coupled with the need for access to major data bases and users' requirements for "virtual desks" that support a variety of office functions has led to new requirements for office information systems (OIS). These new systems are being designed to link individual workstations to other workstations, minicomputers, and even mainframe computers for the purpose of administrative management, C2, and logistics operations. So pervasive is the need that nearly every ADP-related procurement carries with it a requirement which, in its broadest application, could be considered a component of an office information system.

This report, based on interviews with agencies on the leading edge of federal office information systems and with vendors who supply OIS hardware and services to the federal government, qualifies and quantifies the federal OIS market. Agency strategies and specific procurement opportunities are identified and explained as are vendor product and marketing strategies and vendor successes to date.

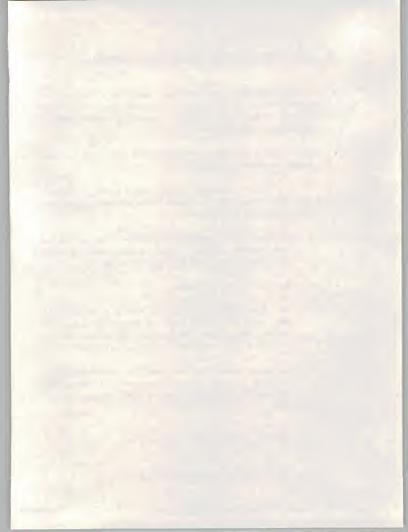
OVERVIEW CONTENTS

Conflicting Pressures Impact Federal OIS Market	1
Federal OIS Market Forecast	3
Extent of OIS Support Varies By Location	5
The "Ideal" OIS Structure	7
Strategic OIS Issues	9
Leading Federal OIS Vendors	п
Strategic Directions of OIS Vendors	13
Recommendations	15
Table of Report Contents	17
List of Report Exhibits	20
Program Description	

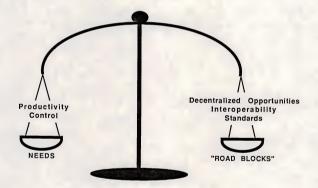


A. CONFLICTING PRESSURES IMPACT FEDERAL OIS MARKET

- As the nation's largest office, the federal government is faced with conflicting pressures that are impacting vendor opportunities. The outcome is decidedly positive, but the pace of OIS expenditures varies by individual agency and even individual offices.
- On the positive side, the need for improved office information systems is creating new vendor opportunities.
 - The need for productivity increases among knowledge workers is clearly evident. Not only more, but better information resource management is being required.
 - An uncontrolled proliferation of office support tools in the form of word processors, microcomputers, and other large systems applications has created opportunities for integrated OIS solutions.
- However, there are hurdles to overcome.
 - While some agencies have established positions on an agency-wide basis, others have fostered decentralization of both planning and investing. These latter agencies require vendors to invest heavily in market intelligence to ensure that opportunities are not missed.
 - Agencies are reluctant to impose standards that would unduly restrict contracting competition, but do require vendors to offer with solutions that permit the interoperability of systems in a multivendor environment.



CONFLICTING PRESSURES IMPACT FEDERAL OIS MARKET



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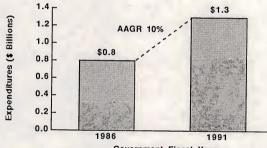
- INPUT estimates that the federal government office information systems market will increase from approximately \$.8 billion in GFY 1986 to \$1.3 billion by 1991, at an Average Annual Growth Rate (AAGR) of 10%. OIS is included in a variety of federal efforts that involve expenditures in excess of this forecast. This forecast includes only OIS-related expenditures while excluding that portion of planned initiatives that does not clearly satisfy the definitions of this report.
- Through the forecast period the expenditures will revolve around the hardware support tools required by office workers. As this base of hardware becomes established the emphasis will shift to professional services and the requirements will entail the establishment of integrated office information systems.
- Turnkey-type solutions will continue to grow at a rate based on the availability of integrated OIS and on the multifunctionality that such systems are now coming to have.





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FEDERAL OIS MARKET FORECAST



Government Fiscal Year



C. EXTENT OF OIS SUPPORT VARIES BY LOCATION

- While the targets of OIS activity are agency and/or office specific in most cases, they may be generally defined both by the office function to be performed and the location of support for that function.
- By function, storage and retrieval applications, particularly on-line data bases, appear most frequently in initiatives. A secondary grouping of text/document processing, distribution, and analysis highlights the finding that four of the five defined functions represent frequent targets of initiatives.
- The location of support is a function of the centralization of agency initiatives and the natural or logical location of the activity. Information analysis and data/text processing are more solitary kinds of activities and are generally supported on an individual or work unit basis. The storage, retrieval, and distribution of data/information more frequently involve larger audiences and find their support in shared resources. Some agencies have been successful in institutionalizing these functions, providing central facilities and end-user connectivity.
- Most opportunities will target work units or agency-wide groups through the forecast period as agencies seek control over and leverage from both their information resources and computing assets.

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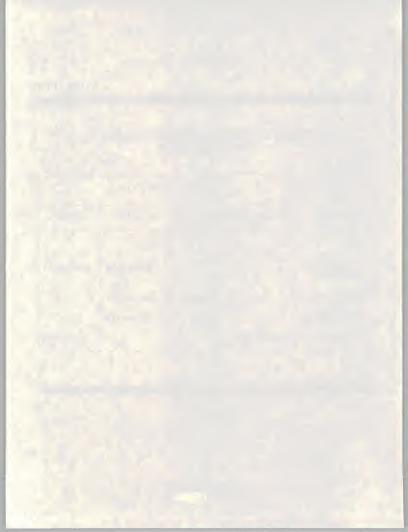
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EXTENT OF OIS SUPPORT VARIES BY LOCATION

	Location of Support			
Function	External	Standalone	Work Unit	Institution
Entry			High	
Storage/ Retrieval			Moderate	Moderate
Analysis		High	Moderate	
Processing		High	Moderate	
Distribution	Moderate		100	Moderate

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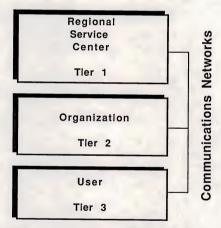


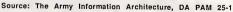
D. THE "IDEAL" OIS STRUCTURE

- The Army's three-tier OIS structure typifies the goal many agencies have for organizing OIS. The structure's key attributes include:
 - The duplication of certain capabilities (e.g., word processing) at each tier with varying degrees of function/capability depending on the specific needs at that tier.
 - The networking employed; that is, sub-LANs to connect individual users in Tier 3, LANs in Tier 2 to connect multiple groups of Tier 3 users, and wide area networks to connect multiple organizations at an agency level.
 - The capacity of the system(s) at each tier with respect to the number of users involved (Tier 3 has the most), processing speed (Tier 1), and storage (Tier 1).



THE "IDEAL" OIS STRUCTURE







E. STRATEGIC OIS ISSUES

- As agencies drive toward the ideal office information system, they face a host
 of issues that will impact future programs.
- While OIS development has been fairly autonomous within offices of each agency, management is now grappling with the viability of that autonomy. To allow offices to grow their OIS capabilities on an individual basis probably ensures a better "fit" in the short term, but perpetuates incompatibility in the long term. Centralized planning and implementation should eventually evolve as the norm.
- Related to this, some agencies have yet to decide what standards, if any, to
 follow and at what level in the organization each standard should be applied.
 Since agencies do not want to be in the business of telling vendors what technology they should follow and do not want to restrict competition, agencies
 have opted for "least common denominator" or "must be compatible with..."
 approaches.
 - Civil agencies will undoubtedly follow industry standards for connectivity and by default use open systems architecture and commercially available data/text interchange formats.
 - Defense agencies have developed their own interconnect standard and will employ DIF for document interchange.
- Rather than suffer the potential liabilities from insisting on system uniformity, agencies will require vendors to provide interoperable capabilities that permit file and document exchanges in a multivendor environment.



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STRATEGIC OIS ISSUES

- Centralization
- Standardization
 - Connectivity
 - Data/Text Interchange
 - Interoperability



F. LEADING FEDERAL OIS VENDORS

- Based on 1985 federal OIS-related revenue, INPUT estimates that much of the current market is controlled by hardware-oriented vendors. There are some vendors in the top ten who are "hardware independent" and known primarily for their integration capabilities.
 - Although Wang had reverses in this market in 1985, their large installed base and attractive integrated office solutions helped them achieve the number one status. Data General, with several recent wins, seems to have included federal OIS in their corporate focus as well.
 - IBM's microcomputer and Digital's minicomputers helped to carry them to leading roles in this market.
 - The integrators, PRC and CSC, have also been recipients of large, OISrelated awards. CSC in particular seems to have developed a capability for integrating OIS via off-the-shelf products from multiple vendors.
 - AT&T's recent co-venture agreement with CSC for the development of AT&T's OIS offerings could move them into a key market role in the coming years.
- While not on INPUT's "Top 10" for 1985 OIS revenue, Zenith Data Systems, with recent large awards from Air Force, IRS, and HHS, is certain to be a contender in future years.





LEADING FEDERAL OIS VENDORS

Rank	Vendor	
1	Wang	
2	IBM	
3	Digital	
4	Data General	
5	PRC	
6	NBI	
7	CSC	
8	Xerox	
9	SDC/Burroughs	
10	AT&T	



G. STRATEGIC DIRECTIONS OF OIS VENDORS

- Vendors have been actively developing their OIS offerings.
 - In some cases vendors are filling holes through in-house development or ventures with other companies. "Hole filling" strategies appear questionable, at least from the federal perspective, in that agencies seem less inclined to base awards on the completeness of the offering as on its integration.
 - Other vendors are integrating offerings in an attempt to produce a complete set of applications. But some vendors may have missed the mark. IBM's DISOSS architecture, for example, is unlikely to reward vendors who provide it; many agencies do not view it as a viable document interchange format.
- The more successful strategies appear on the marketing front.
 - Vendors who have presence in an agency are finding the argument of system uniformity a key benefit.
 - For different reasons, vendors with requirements contracts are realizing additional sales as other agencies piggyback on existing contracts.
 - Vendors are also winning with discounts. Software vendors in general and microcomputer software suppliers specifically are more frequently pricing on a commodity basis, lowering single copy prices in exchange for volume orders.

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STRATEGIC DIRECTIONS OF OIS VENDORS

- Product Line Extensions
- Product Integration
- Marketing Initiatives



H. RECOMMENDATIONS

- Vendor seeking to grow their federal OIS business must be responsive to both
 the short- and long-term directions of both the immediate buyer and the large
 organization of which the buyer is a part. This involves a great deal of
 market intelligence on such issues as centralization of OIS strategies and
 current and future standards as they are envisioned at different levels of the
 organization. Vendors who propose solutions to the specific opportunity
 without assessing the "fit" on the overall strategy are quite likely to be at a
 disadvantage.
- The solutions that vendors propose must also have a "natural" approach to
 interoperability both in terms of communications and data/text interchange.
 It will not be sufficient to bid system uniformity or patchwork protocols in the
 agency's multivendor environment.
- Related to interoperability, successful vendors will more likely offer approaches that not only solve the current problem but afford flexible approaches to the future OIS needs of the agency. Since for many vendors this could mean "giving away the store," vendors would be well advised to consider whether future business is to come from product or capability "lockins,"

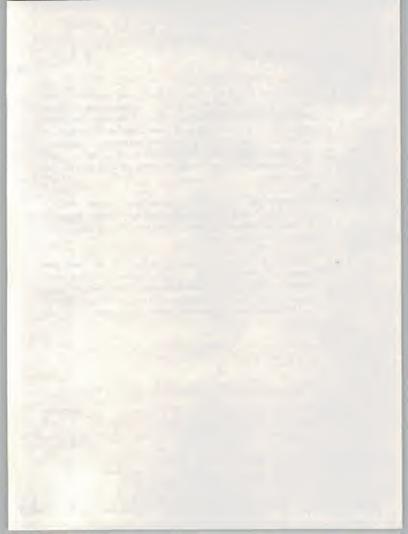


EXHIBIT II-8



RECOMMENDATIONS

- Understand the Buyer's Strategic Directions
- Propose Multi-Vendor Interoperability
- Bid "Open-Ended" Solutions



FEDERAL OFFICE INFORMATION SYSTEMS

CONTENTS

		rage
I	INTRODUCTION A. Scope B. Methodology C. Report Organization	- -2 -6 -7
11	EXECUTIVE SUMMARY	- -2 -4 -6 -8 -10 -12 -14 -16
111	MARKET ANALYSIS AND FORECAST A. Market Structure B. Market Forecast I. Mode Forecast 2. Agency Forecast 3. Application Forecast	- -2 -2 -4
	C. Federal Market Issues 1. Approach-Avoidance Conflicts 2. OIS Procurement Methods 3. Issues Summary D. Federal OIS Vendors	111-19 111-19 111-22 111-25 111-26
IV	OFFICE INFORMATION SYSTEMS ISSUES AND TRENDS A. The "Ideal" Office System B. Approaching the Ideal I. Planning the "Proper" Amount of Centralization a. ADP and 0IS? b. Centralized versus Decentralized Planning, Acquisition, and Management 2. Planning for Standards a. Employees/Computer Ratio b. Standards for Connectivity c. Standards for Connectivity d. Standards for Data/Text Interchange d. Standards for Data/Text Interchange	IV-1 IV-5 IV-5 IV-5 IV-8 IV-10 IV-12 IV-14 IV-18 IV-20
	C Engling Technology	IV-22

INPUT

Page



				Page
	D.	1. Rest 2. Lack 3. Shor	nical Impeding Factors trictive Funding Levels « of Standards tage of Skilled Personnel agement of Data/Information/Knowledge	IV-25 IV-25 IV-29 IV-30 IV-31
V	CON A. B.	Vendor Ma Vendor Str I. Proc a. b.	TRENDS arket Presence rategies luct Line Extensions In-House Developed Products Co-Ventures luct Integration Intra-Company Inter-Company	V-1 V-9 V-9 V-9 V-12 V-13 V-13 V-14
	C. D.	3. Pric Issues Recomme	ing	V-17 V-18 V-22
VI	KEY A. B. C.	B. Recent OIS Awards		VI-1 VI-1 VI-4 VI-6
VII		ENDICES endix A:	INTERVIEW PROFILES A. Federal Agency Respondent Profile I. Contact Summary 2. List of Agencies Interviewed B. Vendor Respondent Profile	A-1 A-1 A-1 A-1 A-3
	Арре	ndix B :	A. Vertor respondent Profile DEFINITIONS	A-3 B-1 B-1 B-4 B-6 B-6 B-8 B-12 B-15
	Appe	ndix C :	C. Other Considerations GLOSSARY OF FEDERAL ACRONYMS A. Acronyms	B-28 C-1 C-1
	Appe	ndix D:	 B. General and Industry POLICIES, REGULATIONS, AND STANDARDS A. OMB Circulars B. GSA Publications C. DoD Directives D. Standards 	C-15 D-1 D-1 D-2 D-3



		1 age
Appendix E:	RELATED INPUT REPORTS A. Annual Market Analyses B. Industry Surveys C. Office Information Systems Market Reports D. Office Information Systems Planning	E-1 E-1 E-1 E-2
Appendix F:	INTERVIEW QUESTIONNAIRES A. Office Information Systems – Agency B. Office Information Systems – Vendor	F-1 F-1 F-8
ABOUT INPUT.		VIII-I

VIII

- 19 -

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FEDERAL OFFICE INFORMATION SYSTEMS

EXHIBITS

			Page
T	-1	Levels of Office Information Systems	1-5
II	-1 -2 -3 -4 -5 -6 -7 -8	Conflicting Pressures Impact Federal OIS Market Federal OIS Market Forecast Extent of OIS Support Varies By Location The "Ideal" OIS Structure Strategic OIS Issues Leading Federal OIS Vendors Strategic Directions of OIS Vendors Recommendations	-3 -5 -7 -9 -11 -13 -15 -17
III	-1 -2 -3 -4 -5 -6 -7 -8 -9 -10 -11	Federal Government Market Forecast—Office Information Systems Federal Government OIS Forecast By Type of Agency OIS Initiatives By Type of Effort Number and Value of OIS-Related Initiatives Tools Supporting OIS-Related Activities in Selected Agencies Distribution of OIS Applications By Type of Activity Locus of Support By OIS Function Distribution of OIS Applications By Type of Processing Support Approach-Avoidance Conflicts Driving the OIS Market Dollar Volume of Selected ADP Contractors from Federal	-3 -5 -7 -8 -13 -15 -16 -18 -20
IV	-1 -2 -3 -4 -5 -6 -7 -8 -9	Supply Schedule, 1985 Work Group System Data/Services Architecture Strategic Directions of Federal OIS Activities Current and Projected Employees-to-Intelligent Workstations in Representative Civil Agencies Connectivity Standards At Selected Federal Agencies Data/Text Interchange Standards At Selected Federal Agencies Interoperability Standards At Selected Federal Agencies Enabling Technology Impacts Non-Technical Impeding Factors	III-24 IV-2 IV-3 IV-6 IV-15 IV-16 IV-19 IV-21 IV-23 IV-26



V	-1 -2 -3 -4	Federal OIS Vendors Categorized By OIS Focus Rank Order of Leading Federal OIS Vendors Strategic Directions of Federal OIS Vendors Vendor Recommendations	V-2 V-4 V-10 V-23
3	-1	Federal Information Systems & Services Program	
	-2	Procurement Analysis Report—Systems & Services Software Products	B-2 B-7

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