

FEDERAL CIM INFORMATION SERVICES MARKET

INPUT

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Federal CIM Information Services Market

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Abstract

Direct funding for the federal CIM information services market is expected to grow from \$220 million in FY 1992 to \$360 million by FY 1997 at a CAGR of 10%. Most of the money will be used to acquire professional services associated with developing standard migration systems. This forecast does not include other programs and initiatives that CIM will influence.

This report discusses the role of Corporate Information Management within the DoD as a business re-engineering process. CIM's status and its impact on Defense Department programs and software development activities is also addressed.


Federal CIM Information Services Market offers insight to vendors on establishing or revising their marketing strategies directed at the DoD.

This report contains 84 pages, including 17 exhibits.

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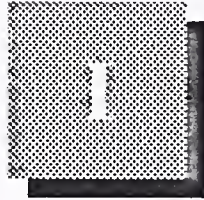
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Introduction

The *Federal CIM Information Services Market* is a new INPUT report. This report was prepared to help INPUT clients understand the CIM initiative and its impact on DoD procurements. CIM's implementation status is discussed in detail.

The DoD Corporate Information Management (CIM) initiative is the application of business case analysis methods to systems that support the war fighting mission. Through CIM, the DoD intends to standardize common business practices and associated information systems operations DoD-wide. Faced with a declining budget, CIM will allow the DoD to do more with fewer resources.

CIM causes concern for many Defense Department contractors. Unanswered questions concern information systems development to support CIM, as well as the resulting implications for other DoD systems. This report addresses the following questions:

- What opportunities exist for vendors because of CIM?
- What is the scope of vendor support the Pentagon will need to carry out CIM?
- Will procurements be large or small?
- Which DoD organizations will sponsor CIM-related contract actions?

The *Federal CIM Information Services Market* appears in INPUT's agency report format. It discusses the DoD support organizations responsible for CIM policy, planning, implementation, and market issues and trends. A CIM forecast is included. For these reasons, it is shorter than regular INPUT reports.

This report is part of INPUT's Federal Information Systems and Services Program (FISSP). Market analyses issued by this program are designed to assist INPUT's U.S. industrial clients in planning how to satisfy future federal government needs for computer-based information systems and services.

A**Scope**

The period of interest for this report is GFY 1992-1996. On-site and telephone interviews were conducted with several DoD personnel, although a formal questionnaire was not developed. Respondents answered questions on CIM's organization, status and initiative directions.

For this study, INPUT defines the CIM information services market as encompassing the following categories of vendor products and services (see Appendix A for detailed explanations of each category):

- Professional Services
- Systems Operations
- Systems Integration
- Network Services
- Systems Software Products
- Applications Software Products
- Turnkey Systems
- Hardware
- Equipment Services

B**Methodology**

The OMB/GSA Five-Year Plan analyzed for the INPUT Procurement Analysis Reports was reviewed for programs beginning during the GFY 1992-1996 period. INPUT also researched other DoD planning documents to identify significant spending changes during the forecast period.

The report's findings are based on research and analysis of several sources, including:

- OMB/GSA/NIST Five-Year Information Technology Plans for 1992-1996 and available Department of Defense plans
- INPUT's Procurement Analysis Reports
- Plan for Implementation of Corporate Information Management in the DoD, submitted by the Assistant Secretary of Defense (Command, Control, Communications and Intelligence), January 10, 1991

- Goals and Directions of DoD Corporate Information Management, Office of the Director of Defense Information, June 10, 1991
- Defense ADP, "Corporate Information Management Savings Estimates are Not Supported," GAO, February 1991
- Corporate Information Management status report prepared for the Appropriations Committees of Congress, April 1991
- Various Congressional testimonies
- Various DoD documents, including presentations
- Secondary research sources, industry journals and reports
- Interviews with CIM policy-level officials

C

Report Organization

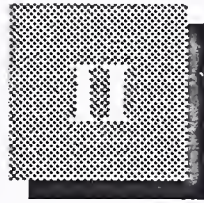
The report consists of four additional sections:

- Section II is an Executive Overview describing the major points and findings in this report.
- Section III focuses on CIM's development, mission, plans, the Center for Information Management and the status of program goals.
- Section IV discusses CIM programs, DoD trends affecting CIM, INPUT's forecast, and implications for vendors.

Several appendixes are also provided:

- Definitions
- Glossary of Acronyms
- Policies, Regulations, and Standards
- CIM-Related Documents and Information
- Related INPUT Reports

Following the appendixes is a description of INPUT and its programs and services.



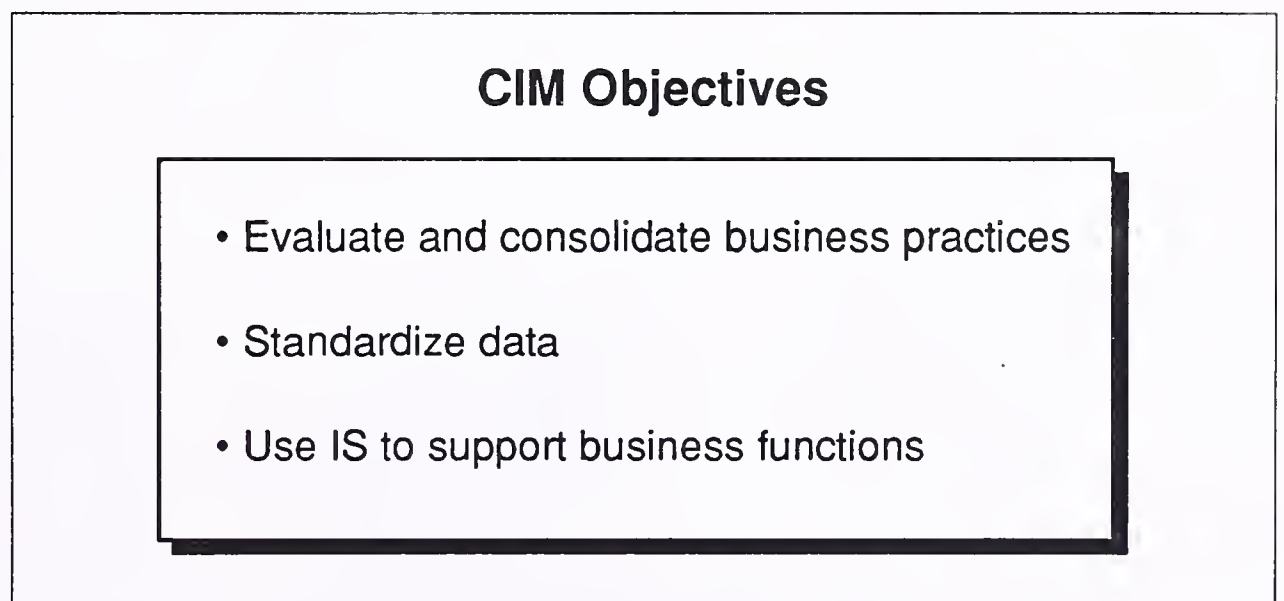
Executive Overview

A

Corporate Information Management Objectives

The Corporate Information Management (CIM) initiative should not be viewed as one program or procurement. CIM is a business approach to re-engineering the workflow at the DoD. Business case analysis is applied to business processes and associated information resources. The new, lean DoD is becoming an efficiently operated business supporting the warfighting mission. CIM is an ongoing process. It is not limited to addressing administrative management processes. CIM also includes tactical, command, control, communications and intelligence functions. At present, only DoD embedded weapons systems are excluded from its domain. CIM's objectives are summarized in Exhibit II-1.

EXHIBIT II-1



CIM is evaluating DoD business practices and supporting ADP functions. CIM intends to eliminate duplicate efforts serving the same or similar functions across the DoD. Standard processes and information systems will be selected and implemented DoD-wide. Also, existing IT resources are targeted for consolidation to reduce costs.

In order to implement standard information systems across the DoD, data standards must also be imposed to support common systems use and access. CIM is actively establishing data and systems standards to promote portability and interoperability of operations.

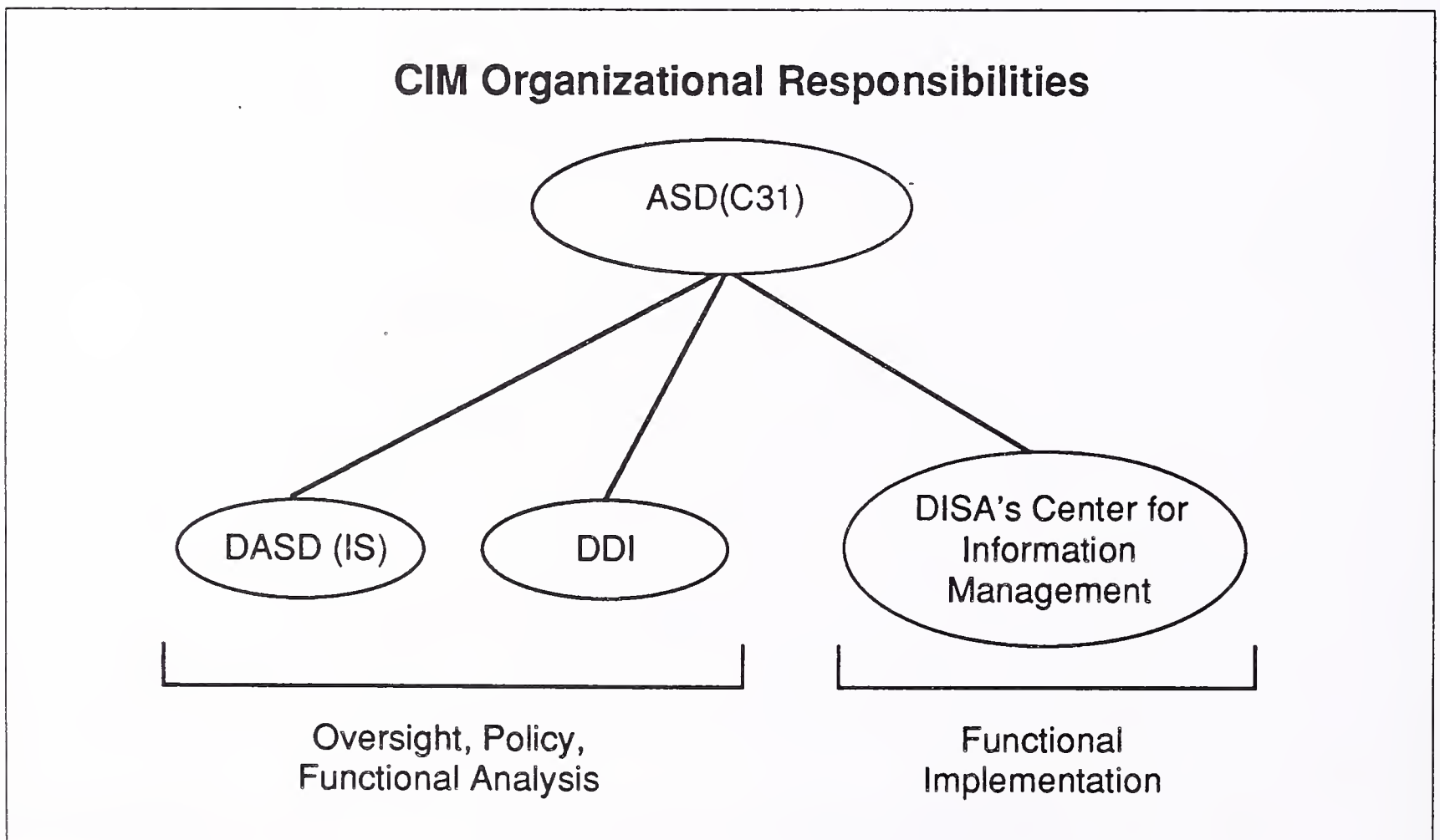
The DoD views information technology as an “enabler” of business efficiencies. CIM’s primary objective is business process improvement. Information technology is used to support business practices.

B

The CIM Organization

Although it was established in October 1989, CIM gathered significant momentum in 1991 toward establishing a support and implementation organization headed by the Assistant Secretary of Defense for Command, Control, Communications and Intelligence. A simplified view of the ASD(C3I) organization is shown in Exhibit II-2.

EXHIBIT II-2



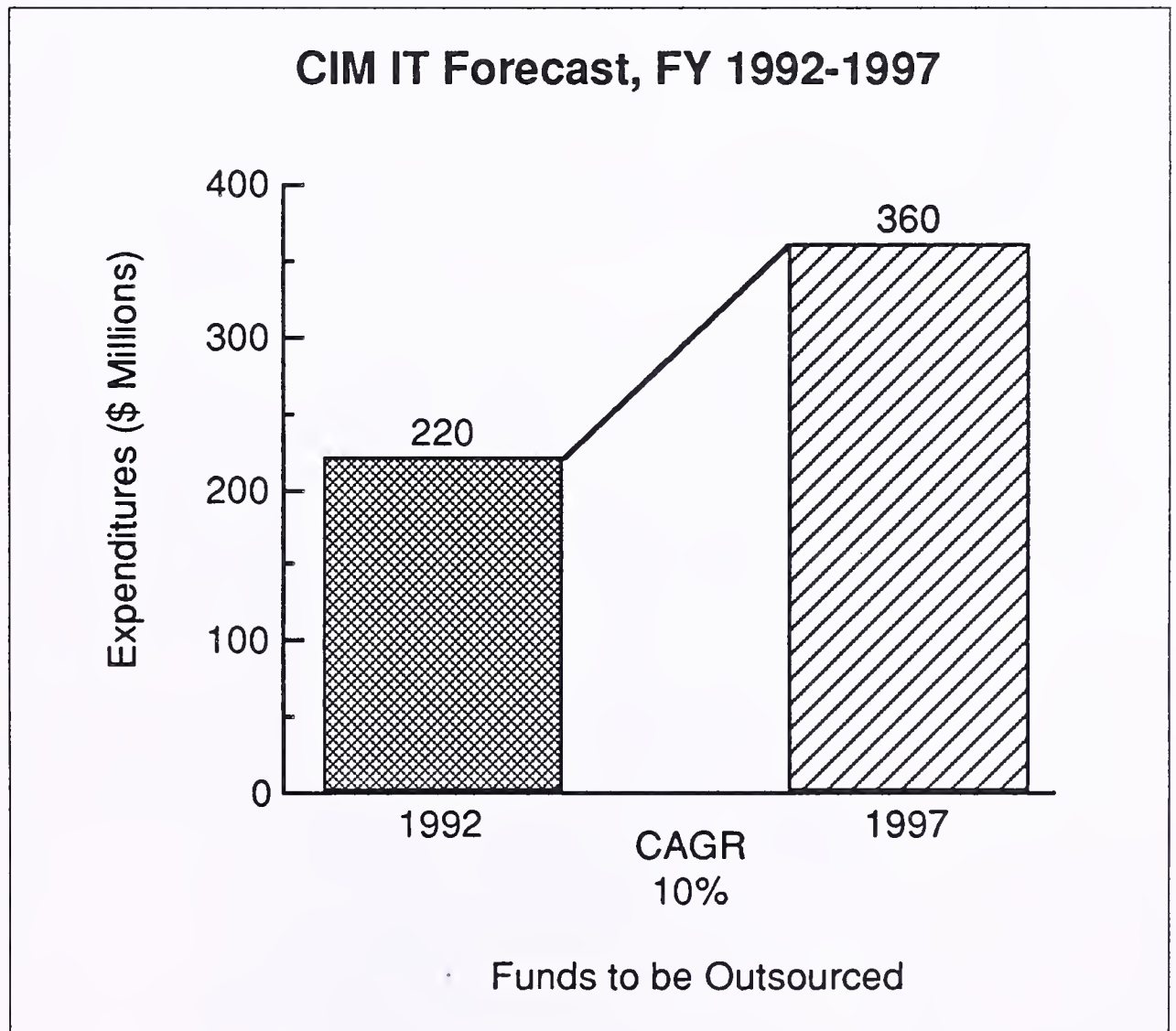
Paul Strassmann, the Director of Defense Information (DDI), is charged with overall responsibility for development and implementation of CIM policies, programs and standards across all functional areas in the DoD. The Deputy Assistant Secretary for Defense (Information Systems) supports the DDI's policy role. The Defense Information Systems Agency (DISA) provides the functional implementation of CIM's policies through its Center for Information Management.

C

CIM Market Forecast

The forecast in Exhibit II-3 indicates the funding for information technology in the CIM Central Fund. Expenditures are expected to increase from \$220 million in 1992 to \$360 million by 1997 at a compound annual growth rate of 10%. Funding for the CIM Central Fund comes from a threefold decrease in ADP funding for the Military Departments and the Defense Logistics Agency, the remainder being reduced from the DoD budget. Most of the money will acquire professional services associated with developing standard migration systems. Funding required by the Center for Information Management to implement CIM's policies are incorporated into DISA's budget requests. The Director of Defense

EXHIBIT II-3



Information (DDI) organization provides for the distribution of funds from the CIM Transfer Fund to programs conforming to CIM principles. Congress does not expect to continue mandating appropriations from the services to this fund, beginning in 1993.

D

CIM Progress

Despite criticism, the CIM organization believes it is making significant progress toward its goals. Paul Strassmann is advancing CIM at a faster rate than expected. Efforts toward consolidating materiel management functions within the DoD are well under way. Migration systems for other functional areas are under evaluation, and some have been selected for implementation DoD-wide. CIM's scope now encompasses twelve functional areas, shown in Exhibit II-4. C3I, food services, environment, and procurement management have been added to CIM's sphere of influence. Additional common functional areas will be identified over time.

EXHIBIT II-4



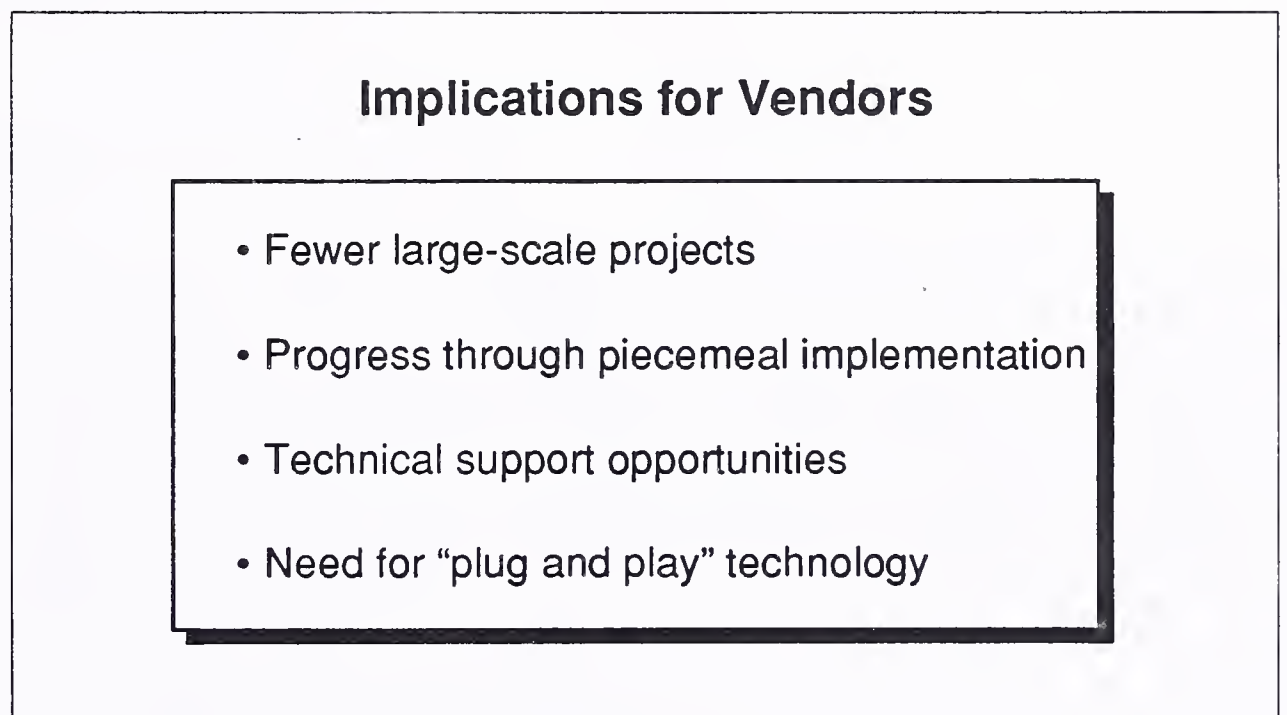
The Air Force's Personnel Data System-C is designated as the DoD standard civilian personnel system. Standard systems are named for the medical areas. Efforts at achieving data standardization are also under way. Mr. Strassmann has made two "gold nugget" awards: to the Army for its Data Management Center; and to the Army Corps of Engineers for its re-engineering methods and Integrated Definition (IDEF) language.

E

Impact on Defense Contractors

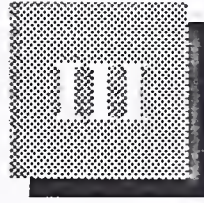
CIM impacts vendor-supplied information systems and services in several ways, as shown in Exhibit II-5.

EXHIBIT II-5



Fewer large-scale projects and procurements will be acquired by the DoD. CIM will progress through piecemeal implementation of standard migration systems. Funds are easier to obtain and successes more frequently visible using this approach to improve business processes. CIM planners and executive agents expect to rely on vendors to supply technical expertise to solve migration and consolidation problems. The individual services will require fewer custom systems as common DoD business practices are adopted.

Vendors capable of supplying plug-and-play technology in software, hardware, and peripherals will profit from CIM. The DoD now requires information technology to be easily refurbishable.



CIM Program Overview

This section presents a brief history of CIM's development and discusses CIM's mission, plans, and organization, and the status of program goals.

A

CIM Concept Development and History

In an effort to curb the rising federal deficit, President Bush stressed the need to improve management processes in his February 1989 Congressional address. The Department of Defense responded with a Defense Management Review Report issued in July 1989. The report suggested adopting several management initiatives addressing business processes within the DoD, including the Corporate Information Management (CIM) plan. The Deputy Secretary of Defense established CIM in October 1989. CIM has three objectives:

- Standardize data
- Evaluate and consolidate business practices
- Use IS to support business functions efficiently

CIM views information technology as the implementation arm of business processes. Through CIM, the DoD expects to standardize ADP systems; prevent and eliminate duplicate systems and acquisitions; and ensure open systems architectures. CIM should be viewed as a business management process, not a single program.

The Defense Department expects to save \$2.2 billion from its FY 1991-FY 1995 budgets implementing CIM. However, some believe it will be difficult to measure CIM's effectiveness because \$2.2 billion has already been removed from the DoD's budget. Cost savings attributable to CIM may only be realized as standard migration systems replace existing business practices, and reusable software code is available. Realization of these goals may take several years.

Initially, the DoD created two activities to guide CIM: an Executive Level Group (ELG) and functional groups. The ELG for Defense Corporate Information Management included outside industry executives and DoD analysts. It directed CIM's overall strategy. Functioning as a Federal Advisory Council, the ELG reported directly to the Deputy Secretary of Defense. The ELG's initial effort was the development of a plan for DoD information systems, spanning ten years. Only embedded computer weapons systems were excluded from the plan.

The functional groups were staffed by agency IRM officials who were experts in their respective business areas. CIM functional groups evaluated existing DoD business approaches, and determined their applicability as common business practices across the DoD. Their business plans will now be implemented by the ASD(C3I) with assistance from the Functional Information Managers (FIMS).

Accountability for CIM was transferred to the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C3I)) in November 1990. Shortly thereafter, the Defense Communications Agency received the responsibility for CIM's implementation. Over the last thirty years, DCA has evolved from a communications agency to a full-service supplier of information systems within the DoD. To reflect DCA's increasing responsibility for DoD information systems development and management, DCA was renamed the Defense Information Systems Agency. DISA created the Center for Information Management (also called CIM) to carry out CIM plans.

To date, CIM has published one implementation plan. A status and progress report will be delivered to Congress annually. The next report is scheduled for April 1992.

B

CIM Implementation Plan

The CIM Implementation Plan was released January 10, 1991. The plan outlined actions needed to implement CIM, and transferred responsibility for CIM to the Assistant Secretary of Defense for Command, Control, Communications and Intelligence.

An organizational structure to support CIM functions and assure its implementation was created within the DoD. The position of Director of Defense Information was established, soon filled by Paul Strassmann.

Mr. Strassmann is stepping up CIM efforts to achieve promised savings amid controversy generated by GAO and CIM critics.

Much of the DoD's Comptroller's mission, functions and resources were transferred to OASD(C3I) to implement CIM. Other DoD manpower, personnel and funding resources were also reallocated to ASD(C3I) to form the information management organization supporting CIM. Specific policies and programs outlined by the plan included:

- Create the Center for Information Management within DISA.

The Center will support the standardization area; produce process and data models; identify alternative processes for the development of process models and data models; develop standard information technology architectures; develop, coordinate and execute a data administration program; and assess the efficiency and effectiveness of DoD information technology.

- Identify information technology functions that should require integrated, central management and oversight. This will enable DoD components to exercise central oversight, and comply with CIM directives.
- Grant policy authority to ASD(C3I) for development, acquisition and operations for all ADPE within the DoD. Weapons systems are excluded.
- Carry out IRM policy responsibilities for information technology; the Freedom of Information Act (FOIA); records management; reports and forms management; privacy; statistical activities; and the ASD(C3I) information collection budget.
- Establish a DoD Information Policy Council to exchange concepts and plans affecting Defense information management.
- Formulate program plans to execute the eight strategies outlined in the "Executive Level Group Plan for Corporate Information Management" issued in September 1990. (Appendix D contains the eight ELG strategies.)
- Establish and centrally manage data and data standardization DoD-wide. This includes the standards associated with the Computer-Aided Logistics Support (CALs) and electronic data interchange (EDI) initiatives.

- Evaluate all ADP development and modernization activities to ensure consistency with DoD policies.
- Provide an oversight process to implement the consolidation of ADP operational and development resources in accordance with Defense Management Review Decision 924.
- Develop a transition plan for DoD's ADPE to a fee-for-service basis.
- Obtain additional authority for ASD(C3I) to stop procurements that do not comply with DoD policy.
- Establish a procedure that would prohibit DoD entities from spending funds that conflict with DoD information management policies.
- Provide management oversight through the Major Automated Information Systems review council (MAISRC). The ASD(C3I) is chairman of the MAISRC.
- Review and update the Life Cycle Management of Automated Information Systems (AISs) directives and practices to ensure conformity with the acquisition principles outlined in DoDD 5000.1 (see Appendix D for a list of information management-related DoD issuances targeted for change).
- Assume responsibility for all software policy and the issuance of waivers on the use of Ada.
- Create a career management program to support high-quality personnel managing the CIM Plan.
- Examine and develop a plan to consolidate ADPE support activities.

The significance of the Implementation Plan is the power granted to ASD(C3I) within the DoD. ASD(C3I) through CIM is now the dominant force behind DoD management, and information systems. The CIM Plan places the authority within ASD(C3I) to establish and enforce IRM standards and policy DoD-wide. The actual implementation of CIM is delegated to the Defense Information Systems Agency's (DISA's) Center for Information Management. In addition, existing and future software development efforts, including Ada, will be centrally controlled by CIM.

C**Mission Responsibilities and Goals****1. Overall Mission and Goals**

The overall mission of the CIM initiative is to create an efficient business environment in support of the DoD's warfighting mission. Information technology supports an efficiently managed business environment. CIM is not limited to addressing administrative management processes. It also includes tactical, command, control, communications and intelligence functions.

The DoD needs the capability to respond to military threats with fewer resources. This can only be accomplished if the operations/management ratio is improved. The time necessary to deliver information support must also be significantly reduced. Overall CIM information technology goals in support of these missions are shown in Exhibit III-1.

EXHIBIT III-1

CIM Information Technology Goals

- 100% reusable data
- Infinite life for data definitions
- 80%+ reusable code
- 20+ years life on software elements
- 80%/20% development/maintenance ratio
- Technology asset life should be 2-3 times greater than the technology innovation cycle

If CIM meets the above goals, DoD information technology costs will be significantly reduced.

According to the CIM status report delivered to Congress in April 1991, CIM's guiding principles to improve DoD business processes encompass:

- Centralized direction of functional methods, but decentralized execution

- Application of business case analysis to functional and information technology decisions
- Centralized guidance on how to apply standard information technology
- Minimizing risk through the evolutionary migration of existing systems. Salvaging and revising existing know-how and software to the maximum extent possible.
- Benchmarking new business methods and systems against the best accepted practices

The DDI organization will provide the policy direction for functional business processes. DoD components will execute and manage business functions, in addition to determining how their money is spent.

Business case analysis is being used, and will continue to be applied to all functional and information technology processes. Any work flow changes will be implemented prior to computerizing the business process. New technologies will not be adopted simply because they are new. All technologies must be able to be effectively used by an organization and promote business efficiencies.

The DDI organization will furnish guidance to all DoD components on how to implement standards and standards-based information technology. CIM is defining an open systems architecture and data standardization efforts department-wide. DoD entities will be able to share data and allow software portability across multiple computer manufacturers.

Progress will be accomplished through the piecemeal consolidation and migration of DoD IRM resources. CIM planners selected this approach for two reasons: successes are more frequently visible; and the associated risks are less than with large scope projects. Existing hardware and software resources will be utilized as much as possible.

All new business processes and information systems will be assessed against commercially successful business methods.

2. Current Mission Support Areas

The CIM Implementation Plan contains eight strategies that guide the execution of CIM. A list of the strategies and their associated plans is included in Appendix D.

Eighteen DoD mission support areas are currently identified using the ELG's strategies. Each area and its designated manager is listed in Exhibit III-2. CIM policy officials are beginning to support these missions that will drive the DoD into a mission-oriented discipline for information management.

EXHIBIT III-2

CIM Mission Support Areas

Mission Support Areas	Managers
Guide corporate information management	Dep. Dir., Policy
Manage information technology resources	Dep. Dir., Information Technology
Oversee systems	Dir., Program Oversight
Establish policies for functional information management	Dep. Dir., Policy
Manage information services	Dir., Information Services
Establish information technical integration policies for all systems	Dep. Dir., Information Technology
Establish data management policies and methods for all DoD systems	Dep. Dir., Information Technology
Guide integration of functional information support	Dep. Dir., Finance, Health & Personnel, Reserve Affairs, FIM
Guide integration of functional information systems for human resources management	Dep. Dir., Finance, Health & Personnel, Reserve Affairs, FIM

EXHIBIT III-2 (CONT.)

CIM Mission Support Areas

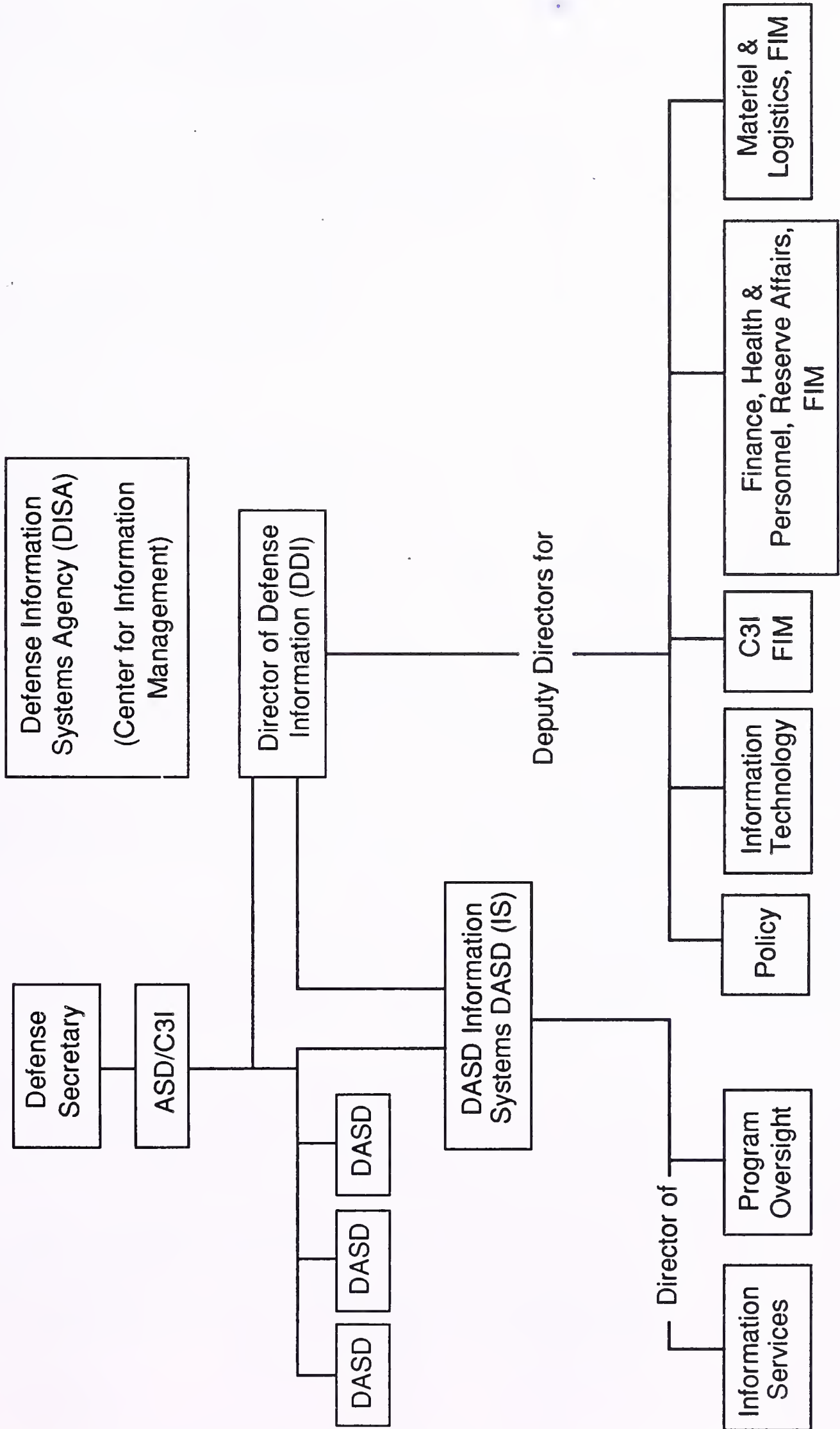
Mission Support Areas	Managers
Guide integration of functional information systems for materiel and logistics	Dep. Dir., Materiel and Logistics, FIM
Guide integration of functional information systems for health services/programs (medical)	Dep. Dir., Finance, Health & Personnel, Reserve Affairs, FIM
Guide integration of C3I information with CIM functional information systems	Dep. Dir., C3I FIM
Guide IRM personnel planning and development	Dir., Information Services
Manage external relationships, senior IRM official support	DASD(Information Systems)
Manage councils, etc.	DASD(Information Systems)
Manage DDI operations	Office of DDI
Manage business re-engineering	Dep. Dir., Materiel and Logistics, FIM
Support reserve affairs functional information	Dep. Dir., Finance, Health & Personnel, Reserve Affairs, FIM

D**DoD Relationships****1. CIM Policy Support Organization**

The current ASD(C3I) organization that supports the Corporate Information Management initiative is outlined in Exhibit III-3. The functions may be modified or realigned as CIM plans and programs are revised.

EXHIBIT III-3

ASD/C3I Organization Chart



The responsibility for CIM was transferred from the DoD Comptroller to the Assistant Secretary of Defense for Command, Control, Communications and Intelligence (ASD(C3I)) in November 1990.

The ASD(C3I) created the position of Director of Defense Information (DDI) to provide oversight of all Defense information management, information technology, and information systems across all functional areas. The DDI develops and manages the CIM program DoD-wide.

The Deputy Assistant Secretary of Defense for Information Systems (DASD(IS)) provides oversight functions for information systems development, acquisitions, and operations. This office supports the Director of Defense Information (DDI) in the execution and enforcement of information management policies.

The DDI created Deputy Directors for Functional Information Management to evaluate business methods, information management programs, and allow users to receive improved information management support and services. At present, three Functional Integration Managers (FIMs) are responsible for all existing and intended functional areas, as shown in Exhibit III-4.

The Office of the Deputy Director for policy is responsible for policy development and guidance for the process, procedures and methodology of life cycle management, including systems development, process and data modeling.

Within the office of the Deputy Director for Information Technology, DoD information architectures and standards are defined and developed. The office is also responsible for activities in the areas of software reuse, metrics, and software engineering tools.

The Director, Systems Oversight reports to the DASD(IS). The Director's many functions include monitoring DoD entities for compliance with IRM policies and procedures, and tracking all Defense major automated information systems (AISs).

The Director, Information Services also reports to the DASD(IS). This office is responsible for developing DoD fee-for-service guidance and policy, oversight for ADP consolidation efforts, ADP education and performance measurement.

The Defense Information Systems Agency (DISA) is considered a separate DoD entity, but is controlled by the ASD(C3I). DISA provides backbone telecommunications services and information management equipment, technical standards, systems engineering, common user equipment and software, and software design.

EXHIBIT III-4

CIM Functional Areas/Business Activities

DDI/FIMs	Business Activities	Executive Agent
Finance, Personnel, Health, Reserve Affairs	Civilian Personnel Civilian Payroll Financial Operations Medical	AF DFAS DFAS 4 agents
	Government-furnished Material	DFAS
Materiel and Logistics	Distribution Centers Materiel Management	DLA Army, Navy, Marines, AF
	Contract Management	TBD
	Environment	TBD
	Procurement Food Service	TBD TBD
C3I	C3I	TBD

DISA is responsible for providing all CIM technical support functions. It operationally supports the DDI who reports directly to the ASD(C3I). DISA created the Center for Information Management as a dedicated unit to implement CIM. A discussion of the Center for Information Management is presented in the following section.

An Information Policy Council (IPC) also meets quarterly to provide broad oversight of CIM and DoD compliance. The council is comprised of the ASD(C3I), DDI, DASD(IS), Service Information Resource Management Managers, the Directors of all DoD agencies, and the Joint Staff. The IPC allows DoD entities to share information management ideas on a departmental basis.

2. Center for Information Management Structure

The Center for Information Management's organizational structure is shown in Exhibit III-5. The center is the technical implementation arm of Paul Strassmann's plans for CIM. Mr. Strassmann is responsible for CIM policy and implementation.

DISA is accountable for all CIM operational support functions. Specifically, the Center will provide standards support, develop process and data models, perform assessments of DoD information systems, develop tools for computer and communications architecture, and manage DoD's data management program. CIM does not include embedded weapons systems at this time.

Approximately 75% of the Center's work will be directed at non-DISA specific systems. Currently, the Center's headquarters is located in Tyson's Corner, Virginia with three other offices located in the Northern Virginia area. The Center is expected to grow to 400-500 employees by December 1992. Once the Center is operational, the Army plans to transfer data standardization management to DISA.

Reporting to the Software Systems Engineering Directorate are the Information Systems Architecture Division, the Software Engineering Effectiveness Division, the Software Technical Integration Division, the Software Life Cycle Support Division, the Software Reissue-Project Office, and the I-CASE Liaison Division.

The Information Engineering Directorate is responsible for information architecture, functional analysis and modeling, business case analysis, data administration operations, and combat mission analysis.

Within the Infrastructure Engineering Directorate are the Technical Architecture Division, the Utility Engineering Division, the Defense Automation Resource Information Center, and the Premises Equipment and Perform Assessment Divisions.

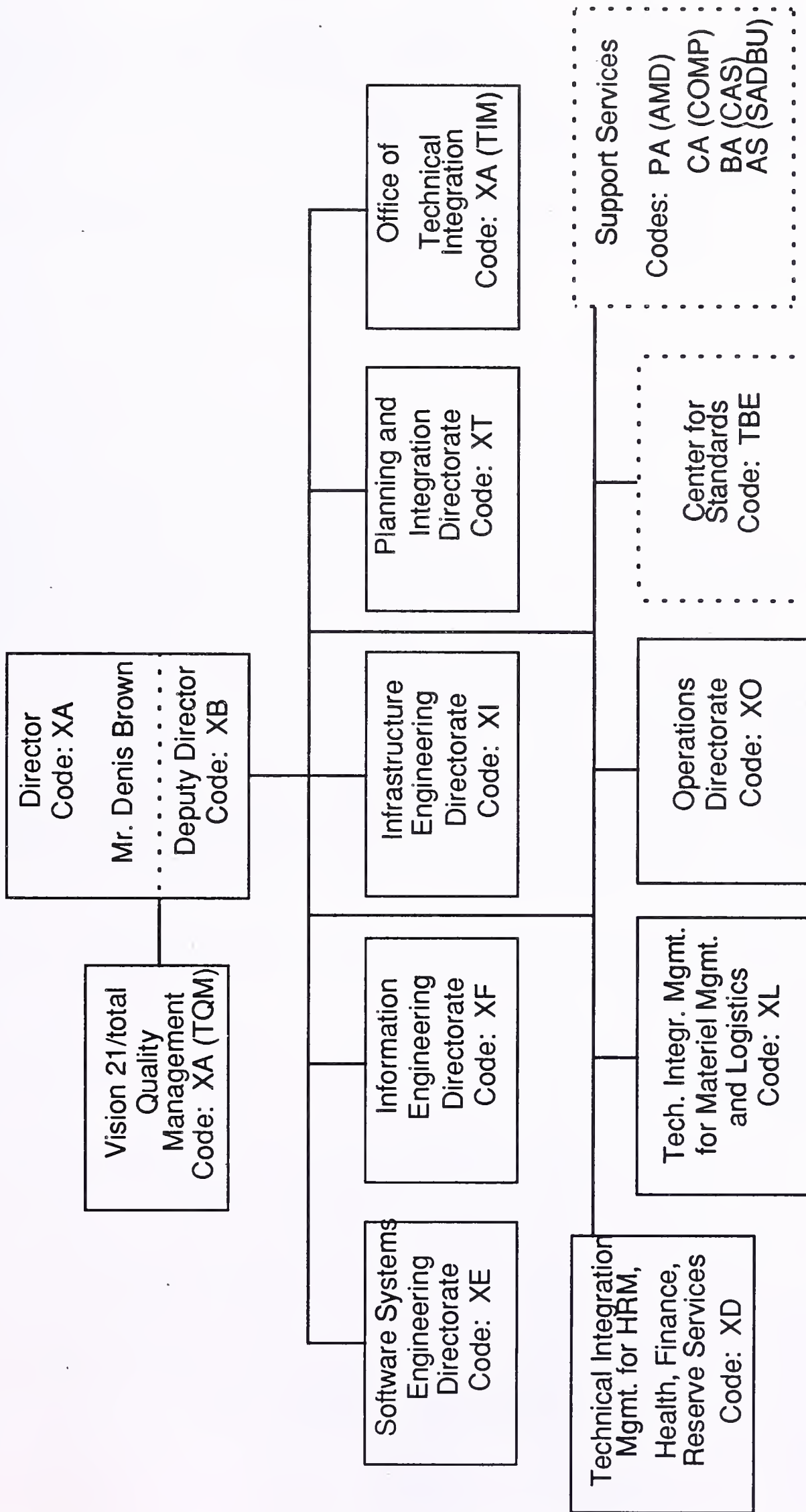
The Planning and Integration Directorate's duties include planning, integration, customer support, acquisition and administration.

Medical, materiel management and CALS systems responsibilities are the domain of the Office of Technical Integration.

The duties for Technical Integration Management for Human Resources, Health, Finance and Reserve Services, and Materiel Management and Logistics were not finalized at the writing of this report.

EXHIBIT III-5

Center for Information Management Organization Chart



as of 26 November, 1991

Source: Director of Defense Information

The Center for Information Management provides guidance on standards compatibility and architectures to JTC3A's Center for Standards. The Center for Standards is committed to GOSIP. NIST recently designated JTC3A as a GOSIP test center.

Support services required by the Center are performed by the staffs in the four organizations handling common support needs for all of DISA.

E

CIM Funds

CIM's implementation is funded by two sources: the CIM Transfer Fund and the CIM Central Fund.

The CIM Transfer Fund is Congressionally mandated. Appropriations for operations and maintenance from the military services budgets was reallocated to this fund in 1991 (\$1 billion) and 1992 (\$710 million) for CIM to finance programs conforming to CIM principles. Monies previously allocated to the IRM managers of individual systems were transferred to the executive agents responsible for each functional area. As CIM's implementation widens, the CIM Transfer Fund will no longer be necessary.

The CIM Central Fund was established by the Deputy Secretary of Defense to provide for the common development of information systems, including planning efforts for migration systems. Money for this fund was extracted from the services and Defense agencies' development and modernization budgets.

DISA supports the Center for Information Management's funding requirements.

F

Implementation Status

Criticism from both DoD and industry is leveled at CIM for a variety of reasons. The concept of integrating and consolidating DoD information systems is considered too expansive to undertake. It is expected to take 8-10 years to implement standard migration systems DoD-wide. CIM's evaluation and migration processes will use considerable time and resources before cost savings can be achieved. Some believe the individual military services are reluctant to subordinate their specific needs to benefit long-term DoD goals. Many vendors continue to view CIM as ill-defined at this time, and new CIM goals appear daily.

Despite criticisms, the CIM organization believes it is making progress. Paul Strassmann is advancing CIM at a faster rate than anticipated. Efforts toward consolidating materiel management functions within the DoD are well under way. Many migration systems are under evaluation, and some have been selected. The Air Force's Personnel Data System-C has been designated as the DoD standard civilian personnel system. Standard systems have also been named for the medical areas. Each of the services recently submitted recommendations for consolidating business and information management processes.

CIM's success should also be evaluated in terms of the number of duplicate systems acquisitions it has prevented. CIM has saved the DoD costly procurement dollars, and has stopped implementation of duplicate systems. A list of cancelled acquisitions is located in section IV-A, Impact on DoD Programs and Software Development.

The status of the activities scheduled in support of CIM during 1991 appears in Exhibit III-6. A new schedule for 1992 is to be released during the second quarter of fiscal 1992 (January-March 1992).

CIM reports progress in developing the DoD into a fee-for-service information processing entity. A plan is under development to ready information processing centers to compete for business from the functional users. DoD IT costs should decrease as functional users demand the lowest prices for services rendered. The DoD is beginning to view information technology as a resource or commodity item, available from a variety of sources and easily refurbishable.

EXHIBIT III-6

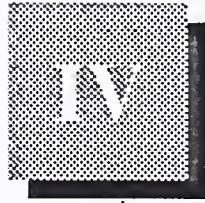
CIM Implementation Events—1991

Event	Status
Establish new IM organizational structure in C3I	Done
Establish new CIM organizational structure within DISA	Done
Transfer component resources to DISA per DMRD 924	Done
Develop program plans for eight ELG strategies	Under way
Release DoDD5000.II, Data Administration	Under way
Complete draft manual for Data Administration	Drafted
Develop proposal and implementation plan for fee-for-service transition	Plan development; transition under way
Complete IRM curriculum changes	Done
Update Life Cycle Management Policy	Expected 2QFY92
Define process for implementation and oversight of ADP consolidation	Under way; services plan submitted
Submit CIM manpower and funding plan (DISA to do)	Done

EXHIBIT III-6 (CONT.)

CIM Implementation Events—1991

Event	Status
Define and implement process for review of all ADP development/modification funds	Under way
Issue guidance to DoD components on IRM functions to be centrally managed (ASD (C3I))	Done
Complete study of ADPE support activities within OSD	Done
Complete study of ADPE support activities within Pentagon	Under way
Complete OPM action on new job series	Awaiting OPM agreement
Complete plan for IRM career program	Awaiting OPM agreement
Complete plan for transfer of CALS elements	Done
Charter Information Policy Council	Done
Complete changes in DoD directives and instructions	Under way; continuing process



Market Outlook

A

Impact on DoD Programs and Software Development

Defense business processes are being re-engineered to conform with CIM principles. The major effects of these management efficiencies on current and planned DoD programs and software development activities are:

- Consolidation of ADP resources
- Cancellation of duplicate procurements and/or the consolidation of procurements
- Centralized management of software development
- Compliance with standards
- Increased use of Ada

The military services recently submitted their plans for consolidation of ADP resources. At the writing of this report, it is unknown which programs will be directly affected.

The DDI organization has stopped many procurements, including the JUSTIS acquisition sponsored by the Air Force, because of CIM. JUSTIS requirements will be rolled into CALS. Other systems cancelled as a result of CIM policy are:

- Army's Integrated Procurement System (IPS)
- Navy's Integrated Disbursing and Accounting Financial
- Information Processing System (IDAFIPS)
- Air Force's Base Level Accounting and Reporting
- System (BLARS)
- Air Force's Local On-Line Network System (LONS)
- Air Force's Contracting Data Management System (CDMS)

Software development activities for DoD agencies are changing. Central management of all software development activities has begun. DoD entities are no longer able to develop systems meeting their specific requirements only. One system that can fulfill functional requirements across the DoD will serve all DoD components. Evaluation by the CIM organization of existing DoD business functions and associated information systems is under way.

In addition, all newly developed and existing systems, even if still evolving, must comply with DoD standards and policy. The DoD has set goals of systems interoperability and portability. The steps necessary to meet these goals are still being defined.

In early 1992, DISA announced CIM's first set of open systems standards for future acquisitions. Most of the standards are based on those adopted by the National Institute of Standards and international organizations. The DoD intends to mirror commercial standards as much as possible.

The CIM Technical Reference Model was also released for comment in January 1992. The model contains a target framework and standards profile for open systems, and lists the application types that must be supported within the DoD.

Because of CIM, the DoD's commitment to developing systems in Ada is expected to significantly increase. Congress clearly mandated the use of Ada for all DoD software in its fiscal 1991 budget. CIM has responsibility for all software policies, including Ada. It is accurate to say that most Ada programs fall into CIM's domain.

The release of CIM's Software Action Plan—SWAP—is expected early in 1992. SWAP will incorporate the previous DoD Software Master Plan, and address all software policies and practices including Ada waivers.

Current major Ada projects include:

- STANFINS
- STARFIARS
- JCALS
- I-CASE
- RAPID

The Navy's Standard Financial System (STANFINS) and the Standard Army Financial Inventory Accounting Report System (STARFIARS) are currently under development by Computer Sciences Corporation. STARFIARS manages invoices for retail systems. Both projects are proving that Ada was a good choice for large systems development projects. Ada is easier to maintain and reduces associated costs over the long term.

CSC just won the fly-off competition in December 1991 for the Joint Computer-Aided Logistics Support (JCALS) system procurement. JCALS, formerly known as Army CALS, will automate the design, manufacture, storage and distribution of Defense weapons systems.

The creation of the Integrated Computer-Aided Software Engineering (I-CASE) environment is also a CIM-directed Ada effort. I-CASE will establish a DoD standard software engineering environment.

An on-line software warehouse of reusable Ada code is planned, based on the Army's project RAPID (Reusable Ada Products for Information systems Development).

B

CIM Initiatives

INPUT estimates it will be several years before final migration systems are in place. Most opportunities for vendors are expected to be in the form of technical services contracts for migration systems. Existing DoD systems must also migrate to open systems to meet new DoD standards. The executive agent responsible for each functional area has total responsibility to recommend and implement migration systems. Any contractor opportunities will be let by the executive agents, if necessary. Few new systems are anticipated.

1. General Initiatives

Computer systems having DoD-wide applicability are perceived by Paul Strassmann as "gold nuggets." To date, only two systems have been officially termed gold nuggets: the Army's Data Management Center; and the re-engineering methods and Integrated Definition (IDEF) language and tools developed by the Army Corps of Engineers. The Corps' methodology will be exported throughout the DoD. Targeted gold nuggets include: Air Force I-CASE, Army RAPID, the Army's data dictionary, and a hardware/software leasing center.

CIM intends to use the Army's automatic data dictionary tool. Data elements will become standard issue and are the basis of Army's project RAPID.

Mr. Strassmann plans to make hardware and software available through a store or leasing center to shorten the acquisition cycle for users. All classes of software and equipment could be easily acquired, including mainframes, workstations and peripherals. CIM will look to vendors to supply plug-and-play technology as refurbishable items through requirements-type contracts.

Existing IRM organizations are expected to spend less time managing procurements and more time supporting users and DISA's Center for Information Management. The Leasing Center/Store is currently in the planning stage. It has not yet been determined if reusable code will also be available from the store.

2. Specific Initiatives

Specific initiatives now under the CIM umbrella include:

- CHCS (Defense Medical Systems Support Center)
- DDS/DWASP (Defense Logistics Agency)
- I-CASE (Air Force)
- PDS-C (Air Force)
- SAMS (Navy)
- SAMMS (Defense Logistics Agency)
- SBIS (Army)
- CALS

The Composite Health Care System (CHCS), part of the Tri-Service Medical Information System (TRMIS), is one of twelve health care standard migration systems. Science Applications International Corporation (SAIC) won the CHCS contract in 1988 to provide integrated hospital information systems.

DLA is currently testing a prototype Defense Distribution System based on the DLA Warehouse and Shipping Procedures System (DWASP). The prototype was developed in response to DMRD 902, which directed the consolidation of all defense depots under DLA. A decision about which information system will be standardized and implemented worldwide is expected early in 1992. DoD hopes to deploy the system by October 1992, and should require a contractor(s) to quickly drop in additional computing resources and services.

Through the Integrated Computer-Aided Software Engineering (I-CASE) procurement, the Air Force intends to acquire a development environment to support software production and maintenance functions throughout the DoD. The development environment must support Ada, SQL, RDBMs, X-Windows, and a central data repository. All I-CASE software must eventually be ported to operate on DoD standard POSIX platforms. The contract's value is estimated at \$25 million. The final RFP should be released early in 1992.

The Air Force's Personnel Data System-Civilian (PDS-C) is designated as a standard system for civilian personnel. PDS-C was also renamed the Defense Civilian Personnel Data System (DCPDS). Eighty percent of the Pentagon currently uses this system. DLA's Automated Payroll Cost and Personnel System (APCAPS) is used by some of the other services to supply this function. Future APCAPS enhancements will be severely limited as DCPDS is deployed throughout the DoD.

The Army's project RAPID (Reusable Ada Products for Information Systems Development) will be used to implement an on-line DoD software warehouse of reusable code. General purpose software code will be available for both DoD users and DoD contractors as government-furnished equipment (GFE). RAPID is expected to significantly lower internal software development costs, as well as those passed on through contractors.

The Navy's Shipboard Non-Tactical ADP Program (SNAP) replaces ADP equipment for ships and select Naval sites. One component, the Automated Medical System (SAMS), has been designated as a standard system. Other approved medical migration systems include:

- Automated Quality of Care Evaluation Support System (AQCESS)
- Computer-Assisted Processing of Cardiograms (CAPOC)
- Defense Blood Management Information System (DBMIS)
- Defense Medical Regulating Information System (DMRIS)
- Medical Expense and Performance Reporting System, Expense Assignment System, Version 3 (MEPRS/EASIII)
- Tri-Service Food Service System (TRIFOOD)
- Tri-Service Micro Pharmacy System (TMPS)
- Theater Army Medical Management Information System (TAMMIS)
- Veterinary Services Automated Data Management System (VSADMS)
- Automated Patient Evacuation System (APES)

SAMMS—DLA's Standard Automated Materiel Management System—processes hardware, medical, clothing and textiles commodities. An integration contract was recently terminated for SAMMS. Now under evaluation by CIM, the system is expected to be downsized and rescope before being resolicited.

The Army's Sustaining Base Information Systems (SBIS) contract is expected to incorporate other DoD services and DoD information services requirements. Although not officially a CIM program, SBIS is expected to become one if it is deployed services-wide. The RFP for the second phase of the contract was released on February 26, 1992. Its potential value is \$500 million.

DoD began making some headway towards consolidation efforts in 1985. The Computer-Aided Logistics Support (CALs) initiative was launched to institute a fully integrated network of defense acquisition and logistics systems. CALs programs are projected to automate the creation, design, manufacture, and support of weapon systems and equipment within the DoD. Although each of the services runs its own programs, some common CALs standards have been developed. CIM management will now take CALs from the standards mode to the execution mode. Some awarded and current CALs programs are listed in Exhibit IV-1.

EXHIBIT IV-1

CALs Programs		
Program	Agency	Status
Engineering Data Management Information Control System (EDMICS)	Navy	Awarded
Network for the Integrated Undersea Surveillance System (IUSS)	Navy	Open
CAD/CAM II	Navy	Partial Award
Joint Computer-Aided Logistics Support (JCALS)	Army	Awarded
Cataloging Tools On-Line (CTOL)	DLA	Awarded

The Navy's EDMICS program was selected as the automated engineering repository for all the services. PRC's current contract, valued at \$150 million, is expected to expand in value and scope as EDMICS is extended to all the services. The Department of Energy is considering patterning its system after EDMICS.

Phase I of the Network for the Integrated Undersea Surveillance System (IUSS) will be awarded in 1992. Phase II of IUSS will be competed between the two contractors selected for Phase I. IUSS will automate the development and management of undersea surveillance systems data.

The Navy's CAD/CAM II project will standardize the design, manufacturing and support of Naval weapon systems development. Valued at over \$1 billion, CAD/CAM II is divided into four separate procurements. The NAVSEA component, awarded to Intergraph, addresses shipboard applications. The RFPs have been released for the other three phases: NAVAIR (aeronautical applications), NAVFAC (facilities engineering), and NAVSUP (printing and publishing applications). Awards are expected during 1992. Costs associated with the design, manufacturing, maintenance and logistics of weapons systems should be significantly reduced as CAD/CAM II is implemented.

As discussed earlier in the Ada section, the Joint Computer-Aided Logistics Support (JCALS) system will automate documents relating to weapons systems design. A contract for \$744.2 million was awarded to CSC in December 1991.

Cataloging Tools On-Line (CTOL), a DLA initiative, automates the item identification for National Stock Numbers and item supply request processing at DLA Distribution Regions. Oracle holds the contract to supply minicomputers and optical storage devices to support this effort.

C

Trends and Factors Impacting the DoD

Within the DoD, three factors are responsible for CIM's development and evolving implementation:

- Budget cuts
- Standards requirements
- Desert Shield/Storm lessons

The continuously mounting federal deficit has forced Congress to place further constraints on military spending. The situation is not expected to ease soon. The military must do more with less and still support the warfighting mission. Improving business methods to cut costs seemed a

logical alternative to DoD officials. Created in response to the Defense Management Report (DMR), CIM has become DoD's major battle plan to stop work flow and information systems inefficiencies. Business process re-engineering is the new buzzword describing CIM activities.

Also, in response to a dwindling budget and increased pressure from users, DoD must develop and enforce standards to promote interoperability and shared data between systems. New systems are required to comply with recent development standards such as GOSIP, POSIX and Ada. Modifications will be made to existing systems to facilitate intra- and interagency communications.

CIM is accountable for resolving the realities of daily operations across the military services in a declining resource environment. Through CIM, DoD is selecting standard systems that will consolidate resources across the services. The military agencies have until recently processed most of their business functions independently of each other. Many information systems were functionally similar, but structurally different.

CIM is beginning to consolidate common DoD business practices, and influence the efficient management of information resources. CIM functions as a police force controlling Defense systems development. CIM will rely on contractors to help the DoD use technology to get the same or greater output with less input.

The lessons learned during Operations Desert Shield and Desert Storm strengthen the DoD's evolving commitment to standards and interoperability. They may have even contributed to the mission changes that transformed DCA into DISA. The lessons include needs for:

- Rapid, reliable communications
- Interoperable communications
- Common user networks
- Transparent interfaces
- Mobile, lightweight C3I equipment
- Relationships with industry

The military should use satellite communications to ensure rapid, reliable communications for any large-scale, long-distance combat exercise. Adhering to common interface standards for systems development allows for interoperability within the DoD and with U.S. allies. Continued development of OSI standards will improve interoperability in the future. Common user networks, not dedicated circuits, improve network flexibility, reduce equipment requirements, and improve information sharing.

Using common graphical interfaces to access systems means personnel in one branch of the services can easily use systems created by another branch. Learning curves are reduced when time is of the essence, especially during a war emergency. It is not practical to transport large-scale computer equipment into war zones. All C3I equipment should be lightweight and easily mobile, allowing for air transport.

Modern warfare relies on information technology for communications, weapons systems, intelligence, tactical planning, and logistics. A key lesson learned from Desert Storm is that the DoD needs contractors to build systems and quickly modify them as combat situations may require. As technology continues to progress, it is difficult for the DoD to maintain its own stable of experts. Relationships with commercial contractors are expected to expand as the DoD readies itself in anticipation of future conflicts.

D

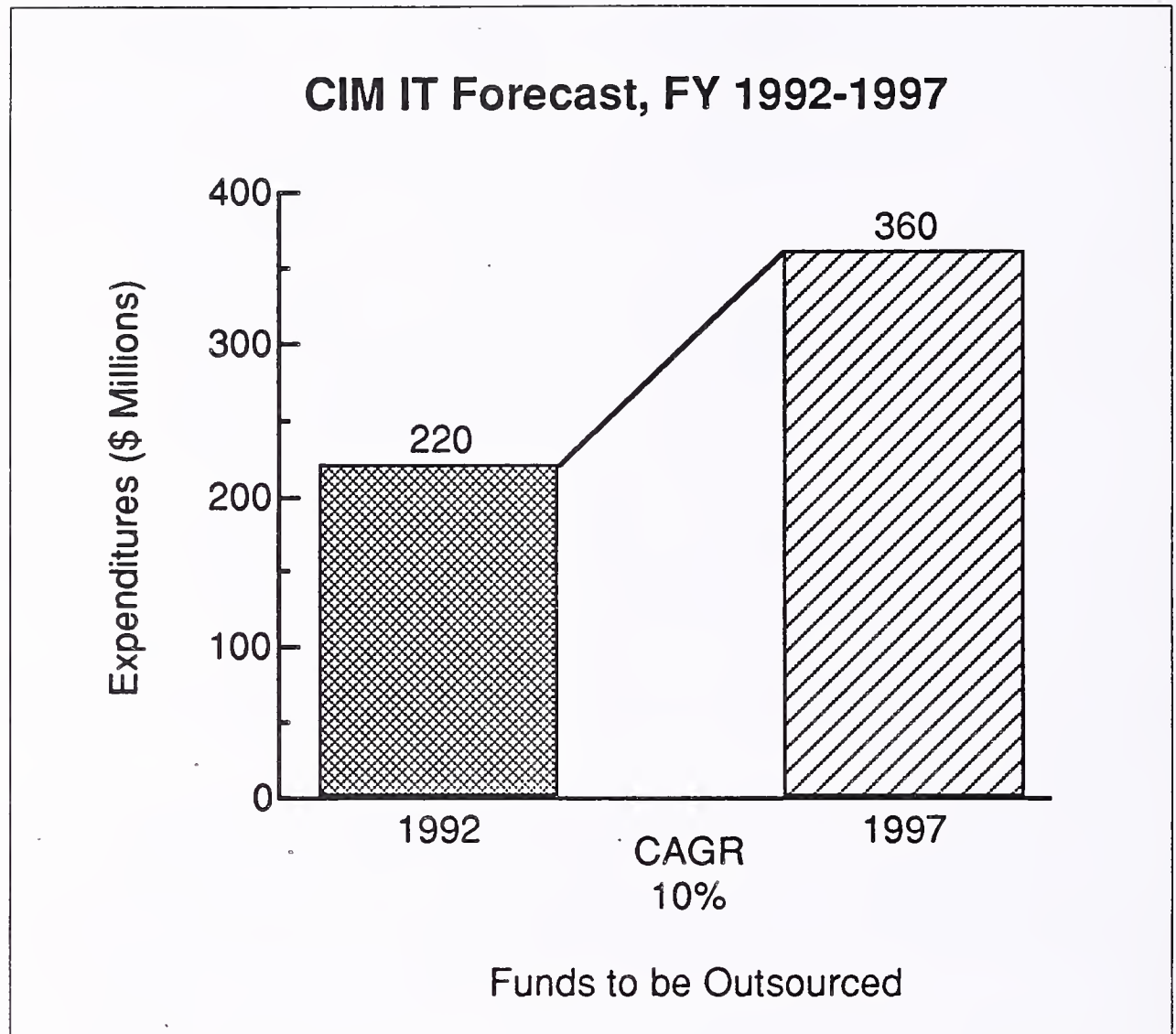
Market Forecast

The IT budget request for Corporate Information Management, also known as the CIM Central Fund, is designed to support the development of standard ADP systems, and CIM's internal operations. The funds indicated in the forecast are planned for contracts for computer hardware and professional services, including studies, systems analysis, design and programming.

The increases requested in the FY 1993 budget above the funding shown in Exhibit IV-2 are intended for the compensation, benefits and travel of internal government personnel. Although the initial authorization included cost reimbursement for 100 DoD personnel in 1991, and up to 400 in 1992, the present estimates do not exceed 100 by 1993-1994.

Most of the funding will come from the operations and maintenance (O&M) funds of DoD, by Congressional mandate. Although somewhat less in FY 1991, the O&M funds represent about 75% of the annual budget, and the Procurement Fund provides about 25%. The work completed by the end of FY 1991 must now be converted into specified business process improvements and the related specifications for applications software to support the re-engineered business functions.

EXHIBIT IV-2



In the same manner that the DISA operating IT budget is considerably less than the program funding controlled by DISA, CIM will impact significantly larger amounts of program funding. These funds will be allocated to the designated executive agency responsible for a Defense-wide system. These funds are currently held in the CIM Transfer Fund. The principal agencies will be the Army, the Air Force, the Navy and the Defense Logistics Agency. At present, the CIM Transfer Fund contains more than one billion dollars, and the eventual total will be heavily dependent on the extent and direction of Defense Department reductions approved by Congress and the Administration.

About 136 Defense-wide programs were initially targeted for CIM management. A number of these, such as those in the CALS initiative, have been combined. At least 15 programs in the 1989-1990 long-range plans have been cancelled. The programs yet to be approved or initiated will be influenced by the upcoming presidential election.

Calls for large peace dividends, to result from budget cuts ranging up to \$150 billion over five years, must be moderated by the fact that both Democrat and Republican presidents used the DoD budget to increase employment and overcome recessions.

E**Implications for IS Vendors**

For many vendors, CIM remains a mystery. Most vendors are anxiously awaiting procurement announcements related to CIM, or a detailed strategic plan. However, CIM is a business approach to re-engineering the workflow at the DoD. CIM's implementation will continue to develop as business case analysis is applied to additional DoD functional requirements.

The implications for vendors, as CIM begins 1992, center on:

- Fewer large-scale projects
- Progress through piecemeal implementation
- No detailed strategic CIM plan
- Opportunities for technical support
- Supply "plug and play" technology
- Reusable software code issues

During the past several years, vendors were accustomed to the DoD conducting large-scale, multimillion- and billion-dollar procurements. Unfortunately for contractors at this time, CIM may not include any large-scale projects, with the exception of SBIS. Rather, existing DoD information technology resources will be eliminated or modified to meet new requirements and priorities.

The new, lean DoD is becoming an efficiently operated business. Efforts to consolidate business processes and information systems are under way. Through CIM, the DoD is moving toward centralized control of systems development and decentralized information technology operations.

Vendors will need to change the way they view DoD opportunities. Because of CIM's incremental implementation, vendor services will be solicited in smaller amounts. However, this does not necessarily mean that overall there will be fewer dollars spent.

CIM intends to proceed incrementally on a smaller scale. However, as a recent report from the Information Technology Association of America (ITAA) points out, a large number of smaller acquisitions would dramatically increase the workload, and impede the DoD's ability to provide "just-in-time support."

To date, CIM policy officials do not intend to release a detailed strategic plan. Many vendor concerns would be alleviated if such a plan existed. Strategic and marketing plans cannot be developed to support CIM if the level of contractor services cannot be anticipated. In the absence of such a plan, vendors must contact CIM executive agents and CIM staffers to gain an informal understanding of CIM directions.

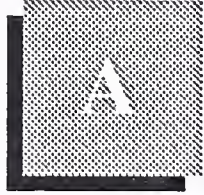
Existing DoD systems are under evaluation for their applicability DoD-wide. For the most part, the "best systems" will be adopted for use by all the services. The DoD will seek new technology expertise and technical services associated with consolidation efforts from contractors.

Solicitations for contractor services should begin to appear in FY 1992. For CIM to be judged effective, organizational and planning efforts must be implemented soon to reap promised savings.

Vendors capable of supplying plug-and-play technology in terms of software, hardware, and peripherals will profit from CIM. The DoD can no longer be leisurely in its deployment of systems. Short-term cost savings are achievable only if systems become operational quickly.

DoD users view information technology as a commodity utility. CIM plans to make it easy for users to acquire new or replacement parts quickly by setting up a store or leasing center. The lengthy acquisition process would then be avoided, saving the government unnecessary procurement costs. Requirements contracts are expected to "stock the store."

CIM is also seeking 80% or more reusable code. According to ITAA, the DoD should ensure that vendors are compensated adequately for their additional investments in producing reusable software code. Also, the issue of contractor liability must be addressed: How long after software is accepted by the DoD is a contractor liable for its performance?



Definition of Terms

A

Introduction

INPUT's *Definition of Terms* provides the framework for all of INPUT's market analyses and forecasts of the information services industry. It is used for all U.S. programs. The structure defined in Exhibit A-1 is also used in Europe and for the worldwide forecast.

One of the strengths of INPUT's market analysis services is the consistency of the underlying market sizing and forecast data. Each year INPUT reviews its industry structure and makes changes if they are required. When changes are made they are carefully documented and the new definitions and forecasts reconciled to the prior definitions and forecasts. INPUT clients have the benefit of being able to track market forecast data from year to year against a proven and consistent foundation of definitions.

For 1992 INPUT has incorporated customer services (hardware maintenance) into the information services industry structure. Equipment service becomes the ninth delivery mode used by INPUT to segment and analyze this industry.

In addition, some new areas are being researched during 1992 as part of the outsourcing area and may result in future changes to the industry structure. These areas of research are discussed in Section B 5 of this document.

B

Overall Definitions and Analytical Framework**1. Information Services**

Information Services are computer/telecommunications-related products and services that are oriented toward the development or use of information systems. Information services typically involve one or more of the following:

- Processing of specific applications using vendor-provided systems (called *Processing Services*)
- A combination of hardware, packaged software and associated support services which will meet a specific application processing need (called *Turnkey Systems*)
- Packaged software products, either systems software or applications software products (called *Software Products*)
- People services that support users in developing and operating their own information systems (called *Professional Services*)
- Bundled combinations of products and services where the vendor assumes total responsibility for the development of a custom solution to an information systems problem (called *Systems Integration*)
- Services that provide operation and management of all or a significant part of a user's information systems functions under a long-term contract (called *Systems Operations*)
- Services associated with the delivery of information in electronic form—typically network-oriented services such as value-added networks, electronic mail and document interchange, on-line data bases, on-line news and data feeds, etc. (called *Network Services*)
- Services that support the operation of computer hardware and resident systems software (called *Equipment Services*)

In general, the market for information services does not involve providing equipment to users. The exception is where the equipment is bundled as part of an overall service offering such as a turnkey system, a systems operations contract, or a systems integration project.

The information services market also excludes pure data transport services (i.e., data or voice communications circuits). However, where information transport is associated with a network-based service (e.g., EDI or VAN services), or cannot be feasibly separated from other bundled services (e.g., some systems operations contracts), the transport costs are included as part of the services market.

The analytical framework of the information services industry consists of the following interacting factors: overall and industry-specific business environment (trends, events and issues); technology environment; user information system requirements; size and structure of information services markets; vendors and their products, services and revenues; distribution channels; and competitive issues.

2. Market Forecasts/User Expenditures

All information services market forecasts are estimates of *User Expenditures* for information services. When questions arise about the proper place to count these expenditures, INPUT addresses them from the user's viewpoint: expenditures are categorized according to what users perceive they are buying.

By focusing on user expenditures, INPUT avoids two problems which are related to the distribution channels for various categories of services:

- Double counting, which can occur by estimating total vendor revenues when there is significant reselling within the industry (e.g., software sales to turnkey vendors for repackaging and resale to end users)
- Missed counting, which can occur when sales to end users go through indirect channels such as mail order retailers

Captive Information Services User Expenditures are expenditures for products and services provided by a vendor that is part of the same parent corporation as the user. These expenditures are not included in INPUT forecasts.

Non-captive Information Services User Expenditures are expenditures that go to vendors that have a different parent corporation than the user. It is these expenditures which constitute the information services market analyzed by INPUT and that are included in INPUT forecasts.

3. Delivery Modes

Delivery Modes are defined as specific products and services that satisfy a given user need. While *Market Sectors* specify *who* the buyer is, *Delivery Modes* specify *what* the user is buying.

Of the nine delivery modes defined by INPUT, six are considered primary products or services:

- *Processing Services*
- *Network Services*
- *Professional Services*
- *Applications Software Products*
- *Systems Software Products*
- *Equipment Services*

The remaining three delivery modes represent combinations of these products and services, bundled together with equipment, management and/or other services:

- *Turnkey Systems*
- *Systems Operations*
- *Systems Integration*

Section C describes the delivery modes and their structure in more detail.

4. Market Sectors

Market Sectors or markets are groupings or categories of the users who purchase information services. There are three types of user markets:

- *Vertical Industry* markets, such as Banking, Transportation, Utilities, etc. These are called "industry-specific" markets.
- *Functional Application* markets, such as Human Resources, Accounting, etc. These are called "cross-industry" markets.
- *Other* markets, which are neither industry- nor application-specific, such as the market for systems software products and much of the on-line data base market.

Specific market sectors used by INPUT are defined in Section E, below.

5. Outsourcing

The changes in the information services area towards longer term client-vendor relationships has created a number of new types of *outsourcing* relationships. In addition to the nine delivery modes, INPUT will be conducting research during 1992 in each of the areas defined below. Based on this research, INPUT will review and may change its information services industry structure for 1992.

- *Outsourcing* - The contracting of all or a major part of an information systems process to an external vendor on a long-term basis. The vendor takes responsibility for the performance of the process.

- Outsourcing can include any or all of the following elements:
 - Processing Operations - The vendor is responsible for managing and operating the client's computer systems.
 - Network Operations - The vendor assumes full responsibility for the client's data communications systems. This may also include the voice communications of the client.
 - Applications Maintenance - The vendor has full responsibility for maintaining the applications software that the vendor uses as part of its business operations.
 - Applications Management - Not only does the vendor maintain and upgrade the applications software for the client, but also develops and implements new software as the need arises.
 - Desktop Services - The vendor assumes responsibility for the deployment, maintenance and connectivity between the PCs in the client organization. The service may also include performing the help desk function.

C

Delivery Modes and Submodes

Exhibit A-1 provides the overall structure of the information services industry as defined and used by INPUT. This section of *Definition of Terms* provides definitions for each of the delivery modes and their submodes or components.

1. Software Products

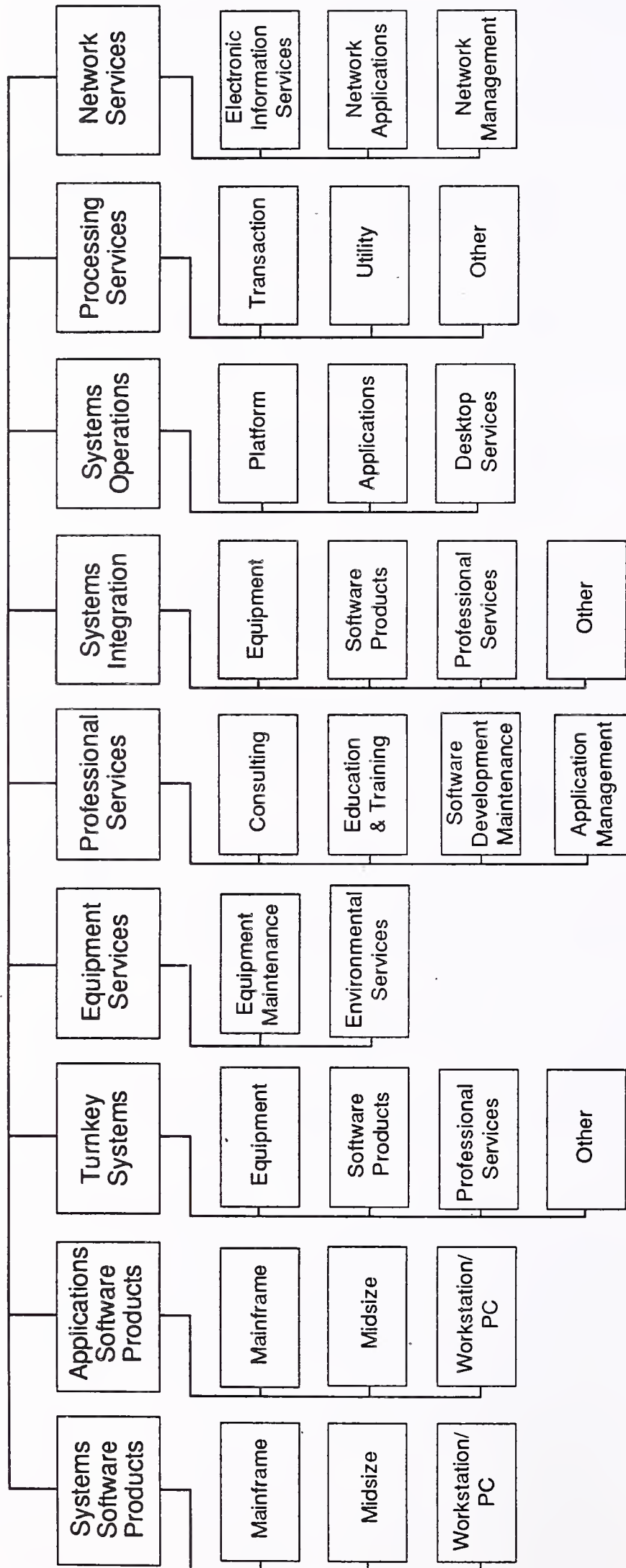
INPUT divides the software products market into two delivery modes: systems software and applications software.

The two delivery modes have many similarities. Both involve user purchases of software packages for in-house computer systems. Included are both lease and purchase expenditures, as well as expenditures for work performed by the vendor to implement or maintain the package at the user's sites. Vendor-provided training or support in operation and use of the package, if bundled in the software pricing, is also included here.

Expenditures for work performed by organizations other than the package vendor are counted in the professional services delivery mode. Fees for work related to education, consulting, and/or custom modification of software products are counted as professional services, provided such fees are charged separately from the price of the software product itself.

EXHIBIT A-1

Information Services Industry Structure



Source: INPUT

a. Systems Software Products

Systems software products enable the computer/communications system to perform basic machine-oriented or user interface functions. INPUT divides systems software products into three submodes.

- *Systems Control Products* - Software programs that function during application program execution to manage computer system resources and control the execution of the application program. These products include operating systems, emulators, network control, library control, windowing, access control, and spoolers.
- *Operations Management Tools* - Software programs used by operations personnel to manage the computer system and/or network resources and personnel more effectively. Included are performance measurement, job accounting, computer operation scheduling, disk management utilities, and capacity management.
- *Applications Development Tools* - Software programs used to prepare applications for execution by assisting in designing, programming, testing, and related functions. Included are traditional programming languages, 4GLs, data dictionaries, data base management systems, report writers, project control systems, CASE systems and other development productivity aids. Also included are system utilities (e.g., sorts) which are directly invoked by an applications program.

INPUT also forecasts the systems software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

b. Applications Software Products

Applications software products enable a user or group of users to support an operational or administrative process within an organization. Examples include accounts payable, order entry, project management and office systems. INPUT categorizes applications software products into two submodes.

- *Industry-Specific Applications Software Products* - Software products that perform functions related to fulfilling business or organizational needs unique to a specific industry (vertical) market and sold to that market only. Examples include demand deposit accounting, MRPII, medical record keeping, automobile dealer parts inventory, etc.
- *Cross-Industry Applications Software Products* - Software products that perform a specific function that is applicable to a wide range of industry sectors. Examples include payroll and human resource systems, accounting systems, word processing and graphics systems, spreadsheets, etc.

INPUT also forecasts the applications software products delivery mode by platform level: mainframe, minicomputer and workstation/PC.

2. Turnkey Systems

A turnkey system is an integration of equipment (CPU, peripherals, etc.), systems software, and packaged or custom application software into a single product developed to meet a specific set of user requirements. Value added by the turnkey system vendor is primarily in the software and support services provided. Most CAD/CAM systems and many small business systems are turnkey systems. Turnkey systems utilize standard computers and do not include specialized hardware such as word processors, cash registers, process control systems, or embedded computer systems for military applications.

Computer manufacturers (e.g., IBM or DEC) that combine software with their own general-purpose hardware are not classified by INPUT as turnkey vendors. Their software revenues are included in the appropriate software category.

Most turnkey systems are sold through channels known as value-added resellers.

- *Value-Added Reseller (VAR)*: A VAR adds value to computer hardware and/or software and then resells it to an end user. The major value added is usually applications software for a vertical or cross-industry market, but also includes many of the other components of a turnkey systems solution, such as professional services.

Turnkey systems have three components:

- Equipment - computer hardware supplied as part of the turnkey system
- Software products - prepackaged systems and applications software products
- Professional services - services to install or customize the system or train the user, provided as part of the turnkey system sale

3. Processing Services

This delivery mode includes three submodes: transaction processing, utility processing, and "other" processing services.

- *Transaction Processing* - Client uses vendor-provided information systems—including hardware, software and/or data networks—at the vendor site or customer site to process transactions and update client data bases. Transactions may be entered in one of four modes:

- *Interactive* - Characterized by the interaction of the user with the system for data entry, transaction processing, problem solving and report preparation: the user is on-line to the programs/files stored on the vendor's system.
- *Remote Batch* - Where the user transmits batches of transaction data to the vendor's system, allowing the vendor to schedule job execution according to overall client priorities and resource requirements.
- *Distributed Services* - Where users maintain portions of an application data base and enter or process some transaction data at their own site, while also being connected through communications networks to the vendor's central systems for processing other parts of the application.
- *Carry-in Batch* - Where users physically deliver work to a processing services vendor.
- *Utility Processing* - Vendor provides basic software tools (language compilers, assemblers, DBMSs, graphics packages, mathematical models, scientific library routines, etc.), generic applications programs and/or data bases, enabling clients to develop their own programs or process data on the vendor's system.
- *Other Processing Services* - Vendor provides service—usually at the vendor site—such as scanning and other data entry services, laser printing, computer output microfilm (COM), CD preparation and other data output services, backup and disaster recovery, etc.

4. Systems Operations

Systems operations was a new delivery mode introduced in the 1990 Market Analysis and Systems Operations programs. It was created by taking the Systems Operations submode out of both Processing Services and Professional Services. For 1992 the submodes have been defined as follows.

Systems operations involves the operation and management of all or a significant part of the user's information systems functions under a long-term contract. These services can be provided in either of two distinct submodes where the difference is whether the support of applications, as well as data center operations, is included.

- *Platform systems operations* - The vendor manages and operates the computer systems, often including telecommunications networks, without taking responsibility for the user's application systems.

- *Applications systems operations* - The vendor manages and operates the computer systems, often including telecommunications networks, and is also responsible for maintaining, or developing and maintaining, the user's application systems.

In the federal government market, systems operation services are also defined by equipment ownership with the terms "COCO" (Contractor-Owned, Contractor-Operated), and "GOCO" (Government-Owned, Contractor-Operated).

The ownership of the equipment, which was the previous basis for the systems operations submodes, is no longer considered critical to the commercial market. Most of the market consists of systems operations relationships using vendor-owned hardware. What is now critical is the breadth of the vendor/client relationship as it expands beyond data center management to applications management.

Systems operations vendors now provide a wide variety of services in support of existing information systems. The vendor can plan, control, provide, operate, maintain and manage any or all components of the user's information systems (equipment, networks, systems and/or applications software), either at the client's site or the vendor's site. Systems operations can also be referred to as "resource management" or "facilities management."

5. Systems Integration (SI)

Systems integration is a vendor service that provides a complete solution to an information system, networking or automation requirement through the custom selection and implementation of a variety of information system products and services. A systems integrator is responsible for the overall management of a systems integration contract and is the single point of contact and responsibility to the buyer for the delivery of the specified system function, on schedule and at the contracted price.

To be included in the information services market, systems integration projects must involve some application processing component. In addition, the majority of cost must be associated with information systems products and/or services.

- *Equipment* - Information processing and communications equipment required to build the systems solution. This component may include custom as well as off-the-shelf equipment to meet the unique needs of the project. The systems integration equipment category excludes turnkey systems by definition.
- *Software products* - Prepackaged applications and systems software products.

- *Professional services* - The value-added component that adapts the equipment and develops, assembles, or modifies the software and hardware to meet the system's requirements. It includes all of the professional services activities required to develop, and if included in the contract, operate an information system, including consulting, program/project management, design and integration, software development, education and training, documentation, and systems operations and maintenance.
- *Other services* - Most systems integration contracts include other services and product expenditures that are not easily classified elsewhere. This category includes miscellaneous items such as engineering services, automation equipment, computer supplies, business support services and supplies, and other items required for a smooth development effort.

Systems integrators perform, or manage others who perform, most or all of the following functions:

- Program management, including subcontractor management
- Needs analysis
- Specification development
- Conceptual and detailed systems design and architecture
- System component selection, modification, integration and customization
- Custom software design and development
- Custom hardware design and development
- Systems implementation, including testing, conversion and post-implementation evaluation and tuning
- Life cycle support, including
 - System documentation and user training
 - Systems operations during development
 - Systems maintenance

6. Professional Services

This category includes three submodes: consulting, education and training, and software development.

- *Consulting:* Services include management consulting (related to information systems), information systems consulting, feasibility analysis and cost-effectiveness studies, and project management assistance. Services may be related to any aspect of the information system, including equipment, software, networks and systems operations.
- *Education and Training:* Products and services related to information systems and services for the professional and end user, including computer-aided instruction, computer-based education, and vendor instruction of user personnel in operations, design, programming, and documentation.
- *Software Development:* Services include user requirements definition, systems design, contract programming, documentation, and implementation of software performed on a custom basis. Conversion and maintenance services are also included.

7. Network Services

Network services typically include a wide variety of network-based functions and operations. Their common thread is that most of these functions could not be performed without network involvement. Network services is divided into two submodes: *Electronic Information Services*, which involve selling information to the user, and *Network Applications*, which involve providing some form of enhanced transport service in support of a user's information processing needs.

a. Electronic Information Services

Electronic information services are data bases that provide specific information via terminal- or computer-based inquiry, including items such as stock prices, legal precedents, economic indicators, periodical literature, medical diagnosis, airline schedules, automobile valuations, etc. The terminals used may be computers themselves, such as communications servers or personal computers. Users typically inquire into and extract information from the data bases. Although users may load extracted data into their own computer systems, the electronic information vendor provides no data processing or manipulation capability and the users cannot update the vendor's data bases.

The two kinds of electronic information services are:

- *On-line Data Bases* - Structured, primarily numerical data on economic and demographic trends, financial instruments, companies, products, materials, etc.
- *News Services* - Unstructured, primarily textual information on people, companies, events, etc.

While electronic information services have traditionally been delivered via networks, there is a growing trend toward the use of CD ROM optical disks to support or supplant on-line services, and these optical disk-based systems are included in the definition of this delivery mode.

b. Network Applications

Value-Added Network Services (VAN Services) - VAN services are enhanced transport services which involve adding such functions as automatic error detection and correction, protocol conversion, and store-and-forward message switching to the provision of basic network circuits.

While VAN services were originally provided only by specialized VAN carriers (Tymnet, Telenet, etc.), today these services are also offered by traditional common carriers (AT&T, Sprint, etc.). Meanwhile, the VAN carriers have also branched into the traditional common carriers' markets and are offering unenhanced basic network circuits as well.

INPUT's market definition covers VAN services only, but includes the VAN revenues of all types of carriers. The following are examples of VAN services.

- *Electronic Data Interchange (EDI)* - Application-to-application exchange of standardized business documents between trade partners or facilitators. This exchange is commonly performed using VAN services. Specialized translation software is typically employed to convert data from organizations' internal file formats to EDI interchange standards. This software may be provided as part of the VAN service or may be resident on the organization's own computers.
- *Electronic Information Exchange (EIE)* - Also known as electronic mail (E-mail), EIE involves the transmission of messages across an electronic network managed by a services vendor, including facsimile transmission (FAX), voice mail, voice messaging, and access to Telex, TWX, and other messaging services. This also includes bulletin board services.

- *Other Network Services* - This segment contains videotex and pure network management services. Videotex is actually more a delivery mode than an application. Its prime focus is on the individual as a consumer or in business. These services provide interactive access to data bases and offer the inquirer the ability to send as well as receive information for such purposes as home shopping, home banking, travel reservations, and more.

Network management services included here must involve the vendor's network and network management systems as well as people. People-only services are included in professional services that involve the management of networks as part of the broader task of managing a user's information processing functions are included in systems operations.

8. Equipment Services

The equipment services delivery mode includes two submodes. Each deals with the support and maintenance of computer equipment operations.

- *Equipment Maintenance* - Services provided to repair, diagnose problems and provide preventive maintenance both on-site and off-site. The costs of parts, media and other supplies are excluded. These services are typically provided on a contract basis.
- *Environmental Services* - Composed of equipment- and data center-related special services such as cabling, air conditioning and power supply, equipment relocation and similar services.

D

Hardware/Hardware Systems

Hardware - Includes all computer and telecommunications equipment that can be separately acquired with or without installation by the vendor and not acquired as part of an integrated system.

- *Peripherals* - Includes all input, output, communications, and storage devices (other than main memory) that can be connected locally to the main processor, and generally cannot be included in other categories such as terminals.
- *Input Devices* - Includes keyboards, numeric pads, card readers, light pens and track balls, tape readers, position and motion sensors, and analog-to-digital converters.
- *Output Devices* - Includes printers, CRTs, projection television screens, micrographics processors, digital graphics, and plotters

- *Communication Devices* - Includes modem, encryption equipment, special interfaces, and error control
- *Storage Devices* - Includes magnetic tape (reel, cartridge, and cassette), floppy and hard disks, solid state (integrated circuits), and bubble and optical memories

Terminals - Three types of terminals are described below:

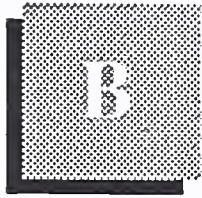
- *User Programmable* - Also called intelligent terminals, including the following:
 - Single-station or standalone
 - Multistation, shared processor
 - Teleprinter
 - Remote batch
- *User Nonprogrammable*
 - Single-station
 - Multistation, shared processor
 - Teleprinter
- *Limited Function* - Originally developed for specific needs, such as point-of-sale (POS), inventory data collection, controlled access, and other applications

Hardware Systems - Includes all processors from microcomputers to supercomputers. Hardware systems may require type- or model-unique operating software to be functional, but this category excludes applications software and peripheral devices, other than main memory and processors or CPUs not provided as part of an integrated (turnkey) system.

- *Microcomputer* - Combines all of the CPU, memory, and peripheral functions of an 8-, 16-, or 32-bit computer on a chip in various forms including:
 - Integrated circuit package
 - Plug-in boards with increased memory and peripheral circuits
 - Console including keyboard and interfacing connectors
 - Personal computer with at least one external storage device directly addressable by the CPU
 - An embedded computer which may take a number of shapes or configurations

- *Workstations* - High-performance, desktop, single-user computers employing (mostly) Reduced Instruction Set Computing (RISC). Workstations provide integrated, high-speed, local network-based services such as data base access, file storage and back-up, remote communications, and peripheral support. Typical workstation products are provided by Apollo (now a unit of Hewlett-Packard), Sun, Altos, DEC (the MicroVAX) and IBM. These products usually cost more than \$15,000. However, at this writing many companies have recently announced sizable price cuts.
- *Midsized Systems* - Describe superminicomputers and the more traditional business minicomputers. Due to steadily improving design and technology, the latter have outgrown traditional definitions (which defined small systems as providing 32-bit to 64-bit word lengths at prices ranging from \$15,000 to \$350,000). Increasingly, minicomputers and workstations meet the 32-bit definition, and may go beneath the \$15,000 lower price limit. Typical midrange systems include IBM System/3X, 43XX, AS/400, and 937X product lines, DEC PDP and VAX families (excluding MicroVAX families), and competitive products from a wide range of vendors, including HP, Data General, Wang, AT&T, Prime Concurrent, Gould, Unisys, NCR, Bull, Harris, Tandem, Stratus, and many others.
- *Large Computer* - Presently centered on storage controllers, but likely to become bus-oriented and to consist of multiple processors or parallel processor. Intended for structured mathematical and signal processing and typically used with general purpose, Von Neumann-type processors for system control. This term usually refers to traditional mainframes and supercomputers.
- *Supercomputer* - High-powered processors with numerical processing throughput that is significantly greater than the fastest general purpose computers, with capacities in the 100-500 million floating point operations per second (MFLOPS) range. Newer supercomputers, with burst modes over 500 MFLOPS, main storage size up to 10 million words, and on-line storage in the one-to-four gigabyte class, are labeled Class V to Class VII in agency long-range plans. Supercomputers fit in one of two categories:
 - Real Time - Generally used for signal processing in military applications
 - Non-Real Time - For scientific use in one of three configurations:
 - Parallel processors
 - Pipeline processor
 - Vector processor

- *Supercomputer* - Is also applied to micro, mini, and large mainframe computers with performance substantially higher than attainable by Von Neumann architectures.
- *Embedded Computer* - Dedicated computer system designed and implemented as an integral part of a weapon, weapon system, or platform; critical to a military or intelligence mission such as command and control, cryptological activities, or intelligence activities. Characterized by military specifications (MIL SPEC) appearance and operation, limited but reprogrammable applications software, and permanent or semipermanent interfaces. These systems may vary in capacity from microcomputers to parallel processor computer systems.



Glossary of Federal Acronyms

The federal government's procurement language uses a combination of acronyms, phrases, and words that is complicated by different agency definitions and interpretations. The government also uses terms of accounting, business, economics, engineering, and law with new applications and technology.

Acronyms and contract terms that INPUT encountered most often in program documentation and interviews for this report are included here, but this glossary should not be considered all-inclusive. Federal procurement regulations (DAR, FPR, FAR, FIRMR, FPMR) and contract terms listed in RFIs, RFPs, and RFQs provide applicable terms and definitions.

Federal agency acronyms have been included to the extent they are employed in this report.

A

Federal Acronyms

AAS	Automatic Addressing System.
AATMS	Advanced Air Traffic Management System.
ACS	Advanced Communications Satellite (formerly NASA 30/20 GHz Satellite Program).
ACT-1	Advanced Computer Techniques (Air Force).
Ada	DoD High-Order Language.
ADA	Airborne Data Acquisition.
ADL	Authorized Data List.
ADNET	Anti-Drug Network.
ADS	Automatic Digital Switches (DCS).
AFA	Air Force Association.
AFCEA	Armed Forces Communications Electronics Association.
AGE	Aerospace Ground Equipment.
AIP	Array Information Processing.

AIS	Automated Information System.
AMD	Acquisition Management Directorate.
AMPE	Automated Message Processing Equipment.
AMPS	Automated Message Processing System.
AMSL	Acquisition Management Systems List.
ANG	Army National Guard
AP(P)	Advance Procurement Plan.
Appropriation	Congressionally approved funding for authorized programs and activities of the Executive Branch.
APR	Agency Procurement Request.
ARC	Acquisition Review Council.
ARPANET	DARPA network of scientific computers.
ASP	Aggregated Switch Procurement
ATLAS	Abbreviated Test Language for All Systems (for ATE-Automated Test Equipment).
Authorization	In the legislative process programs, staffing, and other routine activities must be approved by Oversight Committees before the Appropriations Committee will approve the money from the budget.
AUSA	Association of the U.S. Army.
AUTODIN	AUTOMATIC DIGITAL Network of the Defense Communications System.
AUTOSEVOCOM	AUTOMATIC SECURE VOICE COMMUNICATIONS Network
AUTOVON	AUTOMATIC VOICE Network of the Defense Communications System.
BA	Basic Agreement.
BAFO	Best And Final Offer.
Base level	Procurement, purchasing, and contracting at the military installation level.
BCA	Board of Contract Appeals.
Benchmark	Method of evaluating ability of a candidate computer system to meet user requirements.
Bid protest	Objection (in writing, before or after contract award) to some aspect of a solicitation by a valid bidder.
BML	Bidders Mailing List—qualified vendor information filed annually with federal agencies to automatically receive RFPs and RFQs in areas of claimed competence.
BOA	Basic Ordering Agreement.
B&P	Bid and Proposal—vendor activities in response to government solicitation/specific overhead allowance.
BPA	Blanked Purchase Agreement.
Budget	Federal Budget, proposed by the President and subject to Congressional review.
C ²	Command and Control.
C ³	Command, Control, and Communications.
C ⁴	Command, Control, Communications, and Computers.
C ³ I	Command, Control, Communications, and Intelligence.
CAB	Contract Adjustment Board or Contract Appeals Board.
CADE	Computer-Aided Design and Engineering.
CADS	Computer-Assisted Display Systems.
CAIS	Computer-Assisted Instruction System.

CALS	Computer-Aided Logistics Support.
CAPS	Command Automation Procurement Systems.
CAS	Contract Administration Services or Cost Accounting Standards.
CASB	Cost Accounting Standards Board.
CASP	Computer-Assisted Search Planning.
CBD	<i>Commerce Business Daily</i> —U.S. Department of Commerce publication listing government contract opportunities and awards.
CBO	Congressional Budget Office.
CCEP	Commercial Comsec Endorsement Program
CCDR	Contractor Cost Data Reporting.
CCN	Contract Change Notice.
CCPDS	Command Center Processing and Display Systems.
CCPO	Central Civilian Personnel Office.
CDR	Critical Design Review.
CDRL	Contractor Data Requirement List.
CFE	Contractor-Furnished Equipment.
CFR	Code of Federal Regulations.
CICA	Competition in Contracting Act
CIG	Computerized Interactive Graphics.
CIM	Corporate Information Management or Center for Information Management.
CINCs	Commanders-in-Chief.
CIR	Cost Information Reports.
CM	Configuration Management.
CMI	Computer-Managed Instruction.
CNI	Communications, Navigation, and Identification.
CO	Contracting Office, Contract Offices, or Change Order.
COC	Certificate of Competency (administered by the Small Business Administration).
COCO	Contractor-Owned, Contractor-Operated.
CODSIA	Council of Defense and Space Industry Associations.
COMSTAT	Communications Satellite Corporation.
CONUS	CONtinentaL United States.
COP	Capability Objective Package.
COTR	Contracting Officer's Technical Representative.
COTS	Commercial Off-the-Shelf (Commodities).
CP	Communications Processor.
CPAF	Cost-Plus-Award-Fee Contract.
CPFF	Cost-Plus-Fixed-Fee Contract.
CPIF	Cost-Plus-Incentive-Fee Contract.
CPR	Cost Performance Reports.
CPSR	Contractor Procurement System Review.
CR	Cost Reimbursement (Cost Plus Contract).
CSA	Combat or Computer Systems Architecture.
CSIF	Communications Services Industrial Fund.
C/SCSC	Cost/Schedule Control System Criteria (also called "C-Spec").
CWAS	Contractor Weighted Average Share in Cost Risk.

DAB	Defense Acquisition Board.
DABBS	Defense Acquisition Bulletin Board System.
DAL	Data Accession List.
DAR	Defense Acquisition Regulations.
DARPA	Defense Advanced Research Projects Agency.
DAS	Data Acquisition System.
DBHS	Data Base Handling System.
DBOF	Defense Business Operating Fund.
DCA	Defense Communications Agency (see DISA).
DCAA	Defense Contract Audit Agency.
DCAS	Defense Contract Administration Services.
DCASR	DCAS Region.
DCC	Digital Control Computer.
DCP	Development Concept Paper (DoD).
DCS	Defense Communications System.
DCTN	Defense Commercial Telecommunications Network.
DDA	Dynamic Demand Assessment (Delta Modulation).
DDC	Defense Documentation Center.
DDI	Director of Defense Information.
DDL	Digital Data Link—A segment of a communications network used for data transmission in digital form.
DDN	Defense Data Network.
DDS	Defense Distribution System.
DECCO	Defense Commercial Communications Office.
DECEO	Defense Communications Engineering Office.
D&F	Determination and Findings—required documentation for approval of a negotiated procurement.
DFAS	Defense Finance and Accounting Service.
DIA	Defense Intelligence Agency.
DIF	Document Interchange Format, Navy-sponsored word processing standard.
DISA	Defense Information Systems Agency (Formerly DCA).
DHHS	Department of Health and Human Services.
DIDS	Defense Integrated Data Systems.
DISC	Defense Industrial Supply Center.
DLA	Defense Logistics Agency.
DMA	Defense Mapping Agency.
DMR	Defense Management Review.
DMRD	Defense Management Review Decision.
DNA	Defense Nuclear Agency.
DO	Delivery Order.
DOA	Department of Agriculture (also USDA).
DOC	Department of Commerce.
DOE	Department of Energy.
DOI	Department of Interior.
DOJ	Department of Justice.
DOS	Department of State.
DOT	Department of Transportation.
DPA	Delegation of Procurement Authority (granted by GSA under FPRs).

DPC	Defense Procurement Circular.
DQ	Definite Quantity Contract.
DQ/PL	Definite Quantity Price List Contract.
DR	Deficiency Report.
DRFP	Draft Request For Proposal.
DSCS	Defense Satellite Communication System.
DSN	Defense Switched Network.
DSP	Defense Support Program (WWMCCS).
DSS	Defense Supply Service.
DTC	Design-To-Cost.
DTN	Defense Transmission Network.
ECP	Engineering Change Proposal.
ED	Department of Education.
EEO	Equal Employment Opportunity.
8(a) Set-Aside	Agency awards direct to Small Business Administration for direct placement with a socially/economically disadvantaged company.
EMC	Electro-Magnetic Compatibility.
EMCS	Energy Monitoring and Control System.
EO	Executive Order—Order issued by the President.
EOQ	Economic Ordering Quantity.
EPA	Economic Price Adjustment.
EPA	Environmental Protection Agency.
EPMR	Estimated Peak Monthly Requirement.
EPS	Emergency Procurement Service (GSA) or Emergency Power System.
EUC	End User Computing, especially in DoD.
FA	Formal Advertising.
FAC	Facility Contract.
FAR	Federal Acquisition Regulations.
FCA	Functional Configuration Audit.
FCC	Federal Communications Commission.
FCDC	Federal Contract Data Center.
FCRC	Federal Contract Research Center.
FDPC	Federal Data Processing Center.
FEDSIM	Federal (Computer) Simulation Center (GSA).
FEMA	Federal Emergency Management Agency.
FFP	Firm Fixed-Price Contract (also Lump Sum Contract).
FIPR	Federal Information Processing Resource.
FIPS	NBS Federal Information Processing Standard.
FIPS PUBS	FIPS Publications.
FIRMR	Federal Information Resource Management Regulations.
FMS	Foreign Military Sales.
FOC	Final Operating Capability.
FOIA	Freedom of Information Act.
FP	Fixed-Price Contract.
FP-L/H	Fixed-Price—Labor/Hour Contract.
FP-LOE	Fixed-Price—Level-Of-Effort Contract.

FPMR	Federal Property Management Regulations.
FPR	Federal Procurement Regulations.
FSC	Federal Supply Classification.
FSG	Federal Supply Group.
FSN	Federal Supply Number.
FSS	Federal Supply Schedule or Federal Supply Service (GSA).
FSTS	Federal Secure Telecommunications System.
FT Fund	A revolving fund, designated as the Federal Telecommunications Fund, used by GSA to pay for GSA-provided common-user services, specifically including the current FTS and proposed FTS 2000 services.
FTSP	Federal Telecommunications Standards Program administered by NCS; Standards are published by GSA.
FTS	Federal Telecommunications System.
FTS 2000	Replacement of the Federal Telecommunications System.
FY	Fiscal Year.
FYDP	Five-Year Defense Plan.
GAO	General Accounting Office.
GFE	Government-Furnished Equipment.
GFM	Government-Furnished Material.
GFY	Government Fiscal Year (October to September).
GIDEP	Government-Industry Data Exchange Program.
GOCO	Government Owned—Contractor Operated.
GOGO	Government Owned—Government Operated.
GOSIP	Government Open Systems Interconnection Profile.
GPO	Government Printing Office.
GPS	Global Positioning System.
GRH	Gramm-Rudman-Hollings Act (1985), also called Gramm-Rudman Deficit Control.
GS	General Schedule.
GSA	General Services Administration.
GSBCA	General Services Administration Board of Contract Appeals.
HCFA	Health Care Financing Administration.
HHS	(Department of) Health and Human Services.
HPA	Head of Procuring Activity.
HSDP	High-Speed Data Processors.
HUD	(Department of) Housing and Urban Development.
I-CASE	Integrated Computer-Aided Software Engineering.
IAR	Senior IRM Official.
ICA	Independent Cost Analysis.
ICAM	Integrated Computer-Aided Manufacturing.
ICE	Independent Cost Estimate.
ICP	Inventory Control Point.
ICST	Institute for Computer Sciences and Technology, National Bureau of Standards, Department of Commerce.
IDAMS	Image Display And Manipulation System.

IDEP	Interservice Data Exchange Program.
IDIQ	Indefinite Delivery-Indefinite Quantity.
IDN	Integrated Data Network.
IFB	Invitation For Bids.
IOC	Initial Operating Capability.
IOI	Internal Operating Instructions.
IPS	Integrated Procurement System.
IQ	Indefinite Quantity Contract.
IR&D	Independent Research & Development.
IRM	Information Resources Management.
IXS	Information Exchange System.
JCS	Joint Chiefs of Staff.
JCALs	Joint Computer-Aided Logistics Support.
JFMIP	Joint Financial Management Improvement Program.
JOCIT	Jovial Compiler Implementation Tool.
JSIPS	Joint Systems Integration Planning Staff.
JSOP	Joint Strategic Objectives Plan.
JSOR	Joint Service Operational Requirement.
JUMPS	Joint Uniform Military Pay System.
JWAM	Joint WWMCCS ADP Modernization (Program).
LC	Letter Contract.
LCC	Life Cycle Costing.
LCMP	Life Cycle Management Procedures (DD7920.1).
LCMS	Life Cycle Management System.
L-H	Labor-Hour Contract.
LOI	Letter of Interest.
LRPE	Long-Range Procurement Estimate.
LRIRP	Long-Range Information Resource Plan.
LTD	Live Test Demonstration.
MAISRC	Major Automated Information Systems Review Council (DoD).
MANTECH	MANufacturing TECHnology.
MAPS	Multiple Address Processing System.
MAP/TOP	Manufacturing Automation Protocol/Technical and Office Protocol.
MASC	Multiple Award Schedule Contract.
MDA	Multiplexed Data Accumulator.
MENS	Mission Element Need Statement or Mission Essential Need Statement (see DD-5000.1 Major Systems Acquisition).
MILSCAP	Military Standard Contract Administration Procedures.
MIL SPEC	Military Specification.
MIL STD	Military Standard.
MIPR	Military Interdepartmental Purchase Request.
MLS	Multilevel Security.
MNF	Multi-National Force.
MOD	Modification.
MOL	Maximum Ordering Limit (Federal Supply Service).

MPC	Military Procurement Code.
MYP	Multi-Year Procurement.
NARDIC	Navy Research and Development Information Center.
NASA	National Aeronautics and Space Administration.
NBS	National Bureau of Standards.
NCA	National Command Authorities.
NCMA	National Contract Management Association.
NCS	National Communications System (evolving to DISN).
NICRAD	Navy-Industry Cooperative Research and Development.
NIP	Notice of Intent to Purchase.
NMCS	National Military Command System.
NSA	National Security Agency.
NSEP	National Security and Emergency Preparedness.
NSF	National Science Foundation.
NSIA	National Security Industrial Association.
NTIA	National Telecommunications and Information Administration of the Department of Commerce; (replaced the Office of Telecommunications Policy in 1970).
NTIS	National Technical Information Service.
Obligation	“Earmarking” of specific funding for a contract from committed agency funds.
OCS	Office of Contract Settlement.
OFCC	Office of Federal Contract Compliance.
Off-Site	Services to be provided near but not in government facilities.
OFMP	Office of Federal Management Policy (GSA).
OFPP	Office of Federal Procurement Policy.
OIRM	Office of Information Resources Management.
O&M	Operations & Maintenance.
OMB	Office of Management and Budget.
O,M&R	Operations, Maintenance, and Readiness.
On-Site	Services to be performed on a government installation or in a specified building.
OPM	Office of Procurement Management (GSA) or Office of Personnel Management.
Options	Sole-source additions to the base contract for services or goods to be exercised at the government’s discretion.
OSADBU	Office of Small and Disadvantaged Businesses.
OSHA	Occupational Safety and Health Act.
OSI	Open System Interconnect.
OSP	Offshore Procurement.
OTA	Office of Technology Assessment (Congress).
Out-Year	Proposed funding for fiscal years beyond the Budget Year (next fiscal year).
P-1	FY Defense Production Budget.
P3I	Pre-Planned Product Improvement (program in DoD).
PAR	Procurement Authorization Request or Procurement Action Report.
PAS	Pre-Award Survey.
PASS	Procurement Automated Source System.
PCO	Procurement Contracting Officer.
PDA	Principal Development Agency.

PDM	Program Decision Memorandum.
PDR	Preliminary Design Review.
PIR	Procurement Information Reporting.
PME	Performance Monitoring Equipment.
PMP	Purchase Management Plan.
PO	Purchase Order or Program Office.
POE	Panel Of Experts.
POM	Program Objective Memorandum.
POSIX	Portable Open System Interconnection Exchange.
POTS	Purchase of Telephone Systems.
PPBS	Planning, Programming, Budgeting System.
PR	Purchase Request or Procurement Requisition.
PRA	Paperwork Reduction Act.
PS	Performance Specification—alternative to a Statement of Work, when work to be performed can be clearly specified.
QA	Quality Assurance.
QAO	Quality Assurance Office.
QMCS	Quality Monitoring and Control System (DoD software).
QMR	Qualitative Material Requirement (Army).
QPL	Qualified Products List.
QRC	Quick Reaction Capability.
QRI	Quick Reaction Inquiry.
R-1	FY Defense RDT&E Budget.
RAM	Reliability, Availability, and Maintainability.
RC	Requirements Contract.
R&D	Research and Development.
RDA	Research, Development, and Acquisition.
RDD	Required Delivery Date.
RD&E	Research, Development, and Engineering.
RDF	Rapid Deployment Force.
RDT&E	Research, Development, Test, and Engineering.
RFI	Request For Information.
RFP	Request For Proposal.
RFQ	Request For Quotation.
RFTP	Request For Technical Proposals (Two-Step).
ROC	Required Operational Capability.
ROI	Return On Investment.
RTAS	Real Time Analysis System.
RTDS	Real Time Display System.
SA	Supplemental Agreement.
SADBU	Small and Disadvantaged Business Utilization.
SBA	Small Business Administration.
SB Set-Aside	Small Business Set-Aside contract opportunities with bidders limited to certified small businesses.
SCA	Service Contract Act (1964 as amended).

SCN	Specification Change Notice.
SDN	Secure Data Network.
SEC	Securities and Exchange Commission.
SE&I	Systems Engineering and Integration.
SETA	Systems Engineering/Technical Assistance.
SETS	Systems Engineering/Technical Support.
SIBAC	Simplified Intragovernmental Billing and Collection System.
SIMP	Systems Integration Master Plan.
SIOP	Single Integrated Operations Plan.
Sole Source	Contract award without competition.
Solicitation	Invitation to submit a bid.
SOR	Specific Operational Requirement.
SOW	Statement of Work.
SSA	Source Selection Authority (DoD).
SSAC	Source Selection Advisory Council.
SSEB	Source Selection Evaluation Board.
SSO	Source Selection Official (NASA).
STINFO	Scientific and Technical INFOrmation Program—Air Force/NASA.
STU	Secure Telephone Unit.
SWO	Stop-Work Order.
Synopsis	Brief Description of contract opportunity in CBD after D&F and before release of solicitation.
TA/AS	Technical Assistance/Analysis Services.
TCP/IP	Transmission Control Protocol/Internet Protocol.
TEMPEST	Studies, inspections, and tests of unintentional electromagnetic radiation from computer, communication, command, and control equipment that may cause unauthorized disclosure of information; usually applied to DoD and security agency testing programs.
TILO	Technical and Industrial Liason Office—Qualified Requirement Information Program—Army.
TM	Time and Materials contract.
TOA	Total Obligational Authority (Defense).
TOD	Technical Objective Document.
TQM	Total Quality Management.
TR	Temporary Regulation (added to FPR, FAR).
TRACE	Total Risk Assessing Cost Estimate.
TRCO	Technical Representative of the Contracting Offices.
TREAS	Department of Treasury.
TRP	Technical Resources Plan.
TSP	GSA's Teleprocessing Services Program.
TVA	Tennessee Valley Authority.
UCAS	Uniform Cost Accounting System.
USA	U.S. Army.
USAF	U.S. Air Force.
USCG	U.S. Coast Guard.
USMC	U.S. Marine Corps.

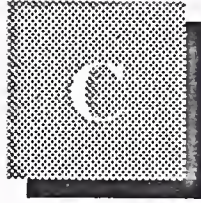
USN	U.S. Navy.
U.S.C.	United States Code.
USPS	United States Postal Service.
USRRB	United States Railroad Retirement Board.
VA	Veterans Affairs Department.
VE	Value Engineering.
VHSIC	Very High Speed Integrated Circuits.
VIABLE	Vertical Installation Automation BaseLine (Army).
VICI	Voice Input Code Identifier.
VTC	Video Teleconferencing.
WAM	WWMCCS ADP Modernization Program.
WBS	Work Breakdown Structure.
WGM	Weighted Guidelines Method.
WIN	WWMCCS Intercomputer Network.
WITS	Washington Interagency Telecommunications System.
WIS	WWMCCS Information Systems.
WS	Work Statement—Offerer's description of the work to be done (proposal or contract).
WWMCCS	World-Wide Military Command and Control System.

B

General and Industry Acronyms

ADAPSO	Association of Data Processing Service Organization, now the Computer Software and Services Industry Association. (See ITAA).
ADP	Automatic Data Processing.
ADPE	Automatic Data Processing Equipment.
ANSI	American National Standards Institute.
BOC	Bell Operating Company.
CAD	Computer-Aided Design.
CAM	Computer-Aided Manufacturing.
CASE	Computer-Aided Software Engineering.
CBEMA	Computer and Business Equipment Manufacturers Association.
CCIA	Computers and Communications Industry Association.
CCITT	Comite Consultatif Internationale de Télégraphique et Téléphonique; Committee of the International Telecommunication Union.
COBOL	COMmon Business-Oriented Language.
COS	Corporation for Open Systems.
CPU	Central Processor Unit.
DMBS	Data Base Management System.
DRAM	Dynamic Random Access Memory.

EIA	Electronic Industries Association.
EPROM	Erasible Programmable Read-Only Memory.
IEEE	Institute of Electrical and Electronics Engineers.
ISDN	Integrated Services Digital Networks.
ISO	International Organization for Standardization; voluntary international standards organization and member of CCITT.
ITAA	Information Technology Association of America (Formerly ADAPSO).
ITU	International Telecommunication Union.
LSI	Large-Scale Integration.
MFJ	Modified Final Judgement.
PROM	Programmable Read-Only Memory.
RBOC	Regional Bell Operating Company.
UNIX	AT&T Proprietary Operating System.
UPS	Uninterruptable Power Source.
VAR	Value-Added Reseller.
VLSI	Very Large-Scale Integration.
WORM	Write-Once-Read-Many-Times.



Policies, Regulations, and Standards

A

OMB Circulars

A-11	Preparation and Submission of Budget Estimates.
A-49	Use of Management and Operating Contracts.
A-71	Responsibilities for the Administration and Management of Automatic Data Processing Activities.
A-109	Major Systems Acquisitions.
A-120	Guidelines for the Use of Consulting Services.
A-121	Cost Accounting, Cost Recovery, and Integrated Sharing of Data Processing Facilities.
A-123	Internal Control Systems.
A-127	Financial Management Systems.
A-130	Management of Federal Information Resources.
A-131	Value Engineering.

B

GSA Publications

The FIRMR as published by GSA is the primary regulation for use by federal agencies in the management, acquisition, and use of both ADP and telecommunications information resources.

C

DoD Directives

DD-5000.1	Major System Acquisitions.
DD-5000.2	Major System Acquisition Process.
DD-5000.11	DoD Data Administration (C3I).
DD-5000.31	Interim List of DoD-Approved, High-Order Languages.
DD-5000.35	Defense Acquisition Regulatory Systems.
DD-5200.1	DoD Information Security Program.

DD-5200.28	Security Requirements for Automatic Data Processing (ADP) Systems.
DD-5200.28-M	Manual of Techniques and Procedures for Implementing, Deactivating, Testing, and Evaluating Secure Resource Sharing ADP Systems.
DD-7920.2	Major Automated Information Systems Approval Process.
DD-7935	Automated Data Systems (ADS) Documentation.
DoDD 3405.1	Computer Programming Language Policy
DoDD 5000.11	DoD Data administration (C31)
DoDI 5000.12	Data Elements and Data Codes Standardization Procedure
DoDI 5000.18	Implementation of Standard Data Elements and Related Features
DoDD 5105.19	Defense Information Systems Agency
DoDD 5110.4	Washington Headquarters Services
DoDD 5118.3	Comptroller of the Department of Defense
DoDD 5137.1	Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)
DoDD 7740.1	DoD Information Resources Management Program
DoD 7740.1-G	DoD ADP Internal Control Guideline
DoDD 7740.2	Automated Information System (AIS) Strategic Planning
DoDI 7740.3	Information Resources Management (IRM) Review Program
DoDD 7750.5	Management and Control of Information Requirements
DoDI 7750.7	DoD Forms Management Program
DoDI 7920.2-M	Automated Information Systems (AIS) Life-Cycle Manual
DoDI 7920.4	Baselining of Automated Information Systems (AISs)
DoDI 7920.5	Management of End User Computing (EUC)
DoDI 7930.1	Information Technology Users Group Program
DoDI 7930.2	ADP Software Exchange and Release
DoDD 7950.1	Automated Data Processing Resources Management
DoD 7950.1-M	Defense Automated Resources Management Manual of Information Requirements

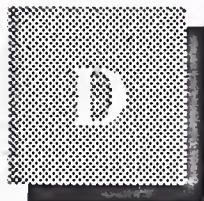
D

Standards

ADCCP	Advanced Data Communications Control Procedures; ANSI Standard X3.66 of 1979; also NIST FIPS 71.
CCITT G.711	International PCM standard.
CCITT T.0	International standard for classification of facsimile apparatus for document transmission over telephone-type circuits.

DEA-1	Proposed ISO standard for data encryption based on the NIST DES.
EIA RS-170	Monochrome video standard.
EIA RS-170A	Color video standard.
EIA RS-464	EIA PBX standards.
EIA RS-465	Standard for Group III facsimile.
EIA RS-466	Facsimile standard; procedures for document transmission in the General Switched Telephone Network.
EIA RS-232-C	EIA DCE to DTE interface standard using a 25-Pin connector; similar to CCITT V-24.
EIA RS-449	New EIA standard DTE to DCE interface which replaces RS-232-C.
FED-STD 1000	Proposed Federal Standard for adoption of the full OSI reference model.
FED-STD 1026	Federal Data Encryption Standard (DES) adopted in 1983; also FIPS 46.
FED-STD 1041	Equivalent to FIPS 100.
FED-STD 1061	Group II Facsimile Standard (1981).
FED-STD 1062	Federal standard for Group III facsimile; equivalent to EIA RS-465.
FED-STD 1063	Federal facsimile standard; equivalent to EIA RS-466.
FED-STDs 1005, 1005A-1008	Federal Standards for DCE Coding and Modulation.
FIPS 46	NIST Data Encryption Standard (DES).
FIPS 81	DES Modes of Operation.
FIPS 100	NIST Standard for packet-switched networks; subset of 1980 CCITT X.25.
FIPS 107	NIST Standard for local-area networks, similar to IEEE 802.2 and 802.3.
FIPS 146	Government Open Systems Interconnection (OSI) Profile (GOSIP).
FIPS 151	NIST POSIX (Portable Operating System Interface for UNIX) standard.
IEEE 802.2	OSI-Compatible IEEE standard for data-link control in local-area networks.
IEEE 802.3	Local-area network standard similar to Ethernet.
IEEE 802.4	OSI-compatible standard for token bus local-area networks.
IEEE 802.5	Local-area networks standard for token ring networks.
IEEE P1003.1	POSIX standard, similar to FIPS 151.

MIL-STD-188-114C	Physical interface protocol similar to RS-232 and RS-449.
MIL-STD-1777	IP-Internet Protocol.
MIL-STD-1778	TCP - Transmission Control Protocol.
MIL-STD-1780	File Transfer Protocol.
MIL-STD-1781	Simple Mail Transfer Protocol (electronic mail).
MIL-STD-1782	TELNET - virtual terminal protocol.
MIL-STD-1815A	Ada Programming Language Standard.
SVID	UNIX System Interface Definition.
X.12	ANSI standard for Electronic Data Interchange
X.21	CCITT standard for interface between DTE and DCE for synchronous operation on public data networks.
X.25	CCITT standard for interface between DTE and DCE for terminals operating in the packet mode on public data networks.
X.75	CCITT standard for links that interface different packet networks.
X.400	ISO application-level standard for the electronic transfer of messages (electronic mail).



CIM-Related Documents and Information

This appendix contains selected CIM documents used in the production of this report and a list of Defense Management Review Decisions enabling CIM savings.

A

Information Management-Related DoD Issuances, Revised 1991

This section contains DoD directives slated for revision as a result of a memorandum issued by the Secretary of Defense on November 16, 1990. The memorandum gave ASD the “authority to establish and implement information management policies, processes, programs and standards to govern the development, acquisition, and operation of ADPE by the DoD.” Many of the following were redrafted following issuance of the Secretary’s memorandum.

EXHIBIT D-1

Information Management-Related DoD Issuances To Be Changed

Issuance	Title	Last Issue Date/ Comments
DoDD 3405.1	Computer Programming Language Policy	Apr. 2, 1987
DoDD 5000.11	Data Elements and Data Codes Standardization Program (reissued as Data Administration, 8230.1)	Dec. 7, 1964
DoDI 5000.12	Data Elements and Data Codes Standardization Procedure	Apr. 27, 1965
DoDI 5000.18	Implementation of Standard Data Elements and Related Features	Mar. 17, 1969
DoDD 5105.19	Defense Information Systems Agency	Jun. 25, 1991
DoDD 5110.4	Washington Headquarters Services	May 6, 1991
DoDD 5118.3	Comptroller of the Department of Defense	Jun. 24, 1991
DoDD 5137.1	Assistant Secretary of Defense (Command, Control, Communications, and Intelligence)	Apr. 2, 1985 (In final coordination)
DoDD 7740.1	DoD Information Resources Management Program	June 20, 1983
DoD 7740.1-G	DoD ADP Internal Control Guideline	July 88
DoDD 7740.2	Automated Information System (AIS) Strategic Planning	July 29, 1987
DoDI 7740.3	Information Resources Management (IRM) Review Program	Feb. 7, 1989

EXHIBIT D-1 (CONT.)

Information Management-Related DoD Issuances To Be Changed

Issuance	Title	Last Issue Date/ Comments
DoDD 7750.5	Management and Control of Information Requirements	Aug. 7, 1986.
DoDI 7750.7	DoD Forms Management Program	May 31, 1990
DoDD 7920.1	Life-Cycle Management of Automated Information Systems (AISs)	June 20, 1988 (In final coordination)
DoDI 7920.2	Automated Information Systems (AIS) Life-Cycle Management Review and Approval Milestone Procedures	Mar. 7, 1990
DoDI 7920.2-M	Automated Information Systems (AIS) Life-Cycle Manual	Mar. 1990
DoDI 7920.4	Baselining of Automated Information Systems (AISs)	Mar. 21, 1988
DoDI 7920.5	Management of End User Computing (EUC)	Mar. 1, 1989
DoDI 7930.1	Information Technology Users Group Program	Mar. 25, 1986
DoDI 7930.2	ADP Software Exchange and Release	Dec. 31, 1979
DoDI 7935.1	DoD Automated Information Systems Documentation Standards (Standards are being revised: Reissue expected FY 94)	Sept. 13, 1977
DoDD 7950.1	Automated Data Processing Resources Management	Sept. 29, 1980
DoD 7950.1-M	Defense Automated Resources Management Manual of Information Requirements	Sept. 1988

B**Program Plans for CIM Strategies**

Exhibit D-2 contains the eight strategies listed in the ELG "Plan for Corporate Information Management for the Department of Defense" dated September 11, 1990. Program teams and leaders were named for each strategy and a focal point established to manage the coordination and integration of the program planning.

EXHIBIT D-2

Program Plans for CIM Strategies

The following are the eight strategies contained in the ELG "Plan for Corporate Information Management for the Department of Defense" dated September 11, 1990. The strategies are the underlying foundation for future CIM plans.

1. *Develop process models that document new and existing business methods*

Early emphasis will be placed on documenting business methods throughout the Department's major functional areas. This will ensure that functional needs will drive future information systems decisions.

2. *Develop data standards with emphasis on data modeling*

The DoD will assist in the development of open systems standards, and conform to FIPS for all new systems development.

3. *Develop and implement a set of cost-effective, common information systems based upon process models and data standards*

Functional Information Management plans will identify where common systems can be applied and when systems should be unique.

4. *Develop and implement a communications and computing infrastructure based upon the principles of open systems architecture and systems transparency*

Establishment of the transparent architecture is a long-term effort. The overall open architecture must accommodate products and technologies from diverse manufacturers.

EXHIBIT D-2 (CONT.)

Program Plans for CIM Strategies**5. *Manage expenditures for information, regardless of the technology involved***

The ASD(C3I) is working with the DoD Comptroller and the Defense Finance and Accounting Service to ensure that financial data and reporting will permit the capture and management for all costs for information systems. Measurement of IS support expenses will be used to assess systems' efficiencies and provide cost data to make the DoD a fee-for-service entity.

6. *Institute a life cycle management methodology that addresses process models, data models, updated system development and acquisition methodologies, and educate the user and technical communities on its use.*

This policy will guide the implementation of CIM principles in the AIS development process. A new life cycle methodology should be released by mid-1992.

7. *Establish measures of information management effectiveness and efficiency*

An aggressive program to identify and install functional, technical and cost measures of performance will be implemented to control information management.

8. *Education department personnel in the concepts of corporate information management and the plans to apply it*

The ASD(C3I) intends to use the IRM College of the National Defense University to accomplish this task.

C**Defense Management Review Decisions (DMRDs) Enabling CIM Savings**

The following exhibit presents DMRDs that will enable CIM cost savings from FY 1991 to FY 1997. Estimates were compiled in FY 1991.

EXHIBIT D-3

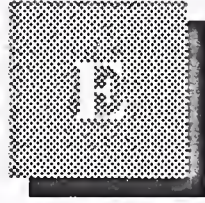
DMRDs Enabling CIM Cost Savings

DRMD Initiative	\$ in Billions
Reducing Supply Costs	17.3
Logistics System Improvements	1.8
Reduce Aircraft Spares Requirement	1.2
Aviation Depots	.7
Shipyard Productivity	2.4
Industrial Fund Productivity Initiatives	.3
Restructure AF Log Command	1.3
Electronic Data Input	.3
Long Haul Communications	.3
Consolidation of ADP Operations and Design Centers	1.2
Develop Standard ADP Systems (CIM)	2.8
Computer-Aided Logistics Support	1.6
Streamline Information Systems Command	.1
Centralize TAADS Manpower Standards and Surveys	.1
Modernize Telecommunications Center Equipment	.1
Reduce Illustrators and Graphic Technicians	.1
Automatic Telephone Directory Service	.1
Software Engineering	.3
Consolidate NAVTELCOM/NAVDAC	.2
ADP Enhancements to Support	-.2
Network Architecture Efficiencies	-
Communication-Computer Restructure (1&2)	.1
SCC ADP Consolidation	-
WWMCCS ADP Modernization	-
WWMCCS ADP Operations	-
Restructure Air Force Communications	.4

EXHIBIT D-3 (CONT.)

DMRDs Enabling CIM Cost Savings

DRMD Initiative	\$ in Billions
Finance Software Development Efficiencies	-
Consolidate/Restructure AF Comm-Computer Functions	-
Space and Naval Warfare Labs	.2
Efficiencies at Air Labs	.3
Streamline DoD Contract Management	.4
Better Controls over Govt. Furnished Material	.6
Consolidation of Finance and Accounting Activities	.3
Reduce Travel Cost	.9
More Efficient Management of Defense Agencies	.9
Army Reserve Travel Reduction	.1
Consolidate Official and Personal Mail	-
Transfer Remaining Publications Mgmt. Personnel to DOIM	-
Total	36.2



Related INPUT Reports

A

Annual Market Analyses

- *Procurement Analysis Reports, FY 1992-FY 1997*

B

Market Reports

- *Federal Information Systems and Services Market, 1991-1996*
- *Federal Computer Security Market, 1991-1996*
- *Federal Software and Related Services Market, 1991-1996*
- *Federal Systems Integration Market, 1991-1996*
- *Federal Geographic Information Systems Market, 1991-1996*
- *Federal Electronic Imaging Market, 1991-1996*
- *Federal Professional Services Market, 1991-1996*
- *Federal Computer Equipment Market, 1991-1996*
- *Federal Network Management Market, 1991-1996*
- *Federal Electronic Commerce (EDI) Market*
- *Defense Information Systems Agency*
- *Defense Logistics Information Services Market, 1991*
- *NASA Information Systems Market, 1991-1996*
- *Department of Veterans' Affairs Information Systems Market, 1990*
- *DISA Information Services Market, 1991*

Market Issue Bulletins (1991):

- *Uncompensated Overtime*
- *Federal Anti-Drug Program*
- *GSA Schedule Practices*
- *Federal 8(a) Program*

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<input type="checkbox"/> Area of high interest	<input type="checkbox"/> Business/market planning	<input type="checkbox"/> Systems planning
<input type="checkbox"/> Area of general interest	<input type="checkbox"/> Product planning	<input type="checkbox"/> Other _____

3. Please indicate extent report used and overall usefulness:

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	Read	Skimmed	1	2	3	4	5
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Complete report.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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Analyses.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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5. How useful was the report in these areas:

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Confirm existing ideas.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Meet expectations.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other _____.....	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

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POSTAGE WILL BE PAID BY ADDRESSEE

Attention: Marketing Department

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Vienna, VA 22182-9793



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