INTEROFFICE MEMORANDUM

TO: AD

FROM: XA

DATE: 20 OCT 1992

SUBJECT: Center for Information Management's Article for the Defense Information Systems Agency's 1992 Annual Report

Reference: AD memo of 18 Aug 1992

Preparer: L. Ramsey/XTP/285-5389

1. Enclosed is the Center for Information Management's article for the Defense Information Systems Agency's 1992 Annual Report. As requested, a hard copy of the article is provided together with a 5 1/2 inch floppy disk.

2. If you have any questions, please contact Lorna Ramsey, XTP, 285-5389.

Denis M. Brown

I Enclosure a/s

DENIS M. BROWN
Director
Center for Information
Management

CENTER FOR INFORMATION MANAGEMENT

BACKGROUND

The Center for Information Management (CIM) is one of the Defense Information Systems Agency's (DISA's) newest organizations. It was established in March 1991 to provide direct technical support to and representation for one of the Department of Defense's (DoD's) key initiatives, corporate Information Management (corporate IM). The corporate IM mission is to improve business processes, support standardization of data, and eliminate redundancies, to achieve more effective and efficient information management Department-wide.

Because of the far-reaching implications of corporate IM across DoD, the Center was needed to translate new IM policies and procedures into real time technical and functional applications. The Director of Defense Information (DDI), (Office of the Assistant Secretary of Defense for Command, Control, Communications, and Intelligence (OASD(C3I)) also looked to CIM for technical methods, tools and training to implement policies and guidelines. The result was CIM, the technical change agent for the Department.

MISSION AND VISION

More specifically, CIM's mission is to manage, engineer, develop, and integrate standards, methodology, tools, data and communications/computer infrastructure for the evolution of information systems that promote improvement in functional performance. CIM's long term vision is to become the leader in providing reliable, flexible, and affordable information systems (IS) and related services to support the Department's continuous process improvement throughout the organization. Thus the Center is dedicated to the highest standards of quality and to delivering the best information technology support goods and services to its broad customer community -- the Department of Defense.

The Center employs a customer-driven approach to fulfill its mission and achieve its vision. This approach includes the following:

- Assist functional managers as they identify better ways of doing business, by providing standard methods and tools for developing improved business practices that have quantifiable measures of performance.

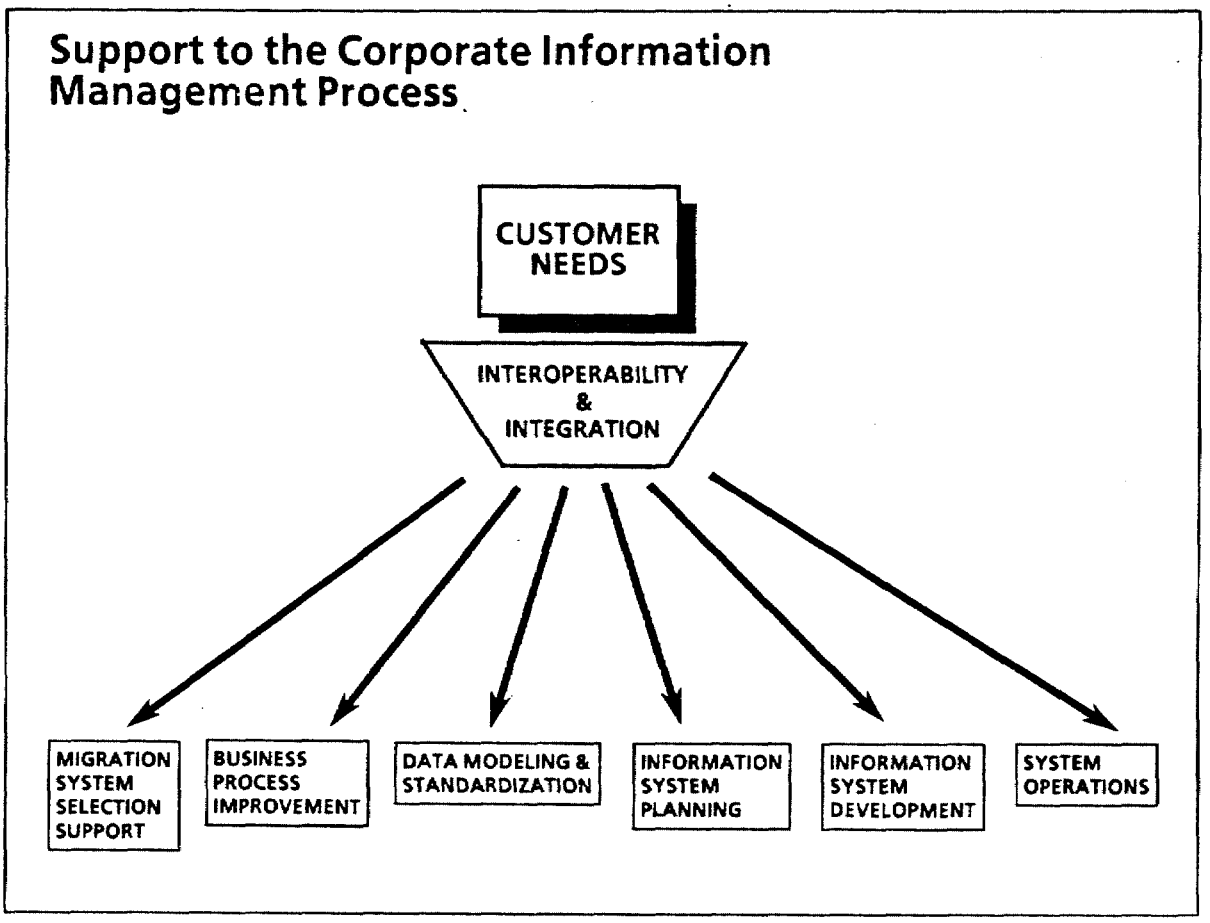
- Promote efficiencies and standardization in data administration, software reuse, and software engineering, development, and maintenance (e.g., via computer aided software engineering (CASE) tools.)

- Assist in integrating common information systems in and among functional areas, built on standard data and business methods.

- Promote open systems standards to allow the use of vendor neutral commercial products and to facilitate open competition for services; facilitate promotion of applications among platforms; and enable the emergence of DoD-wide applications operating in common environments.

- Assist in planning for and managing the development of an efficient and effective computer and communications infrastructure through the use of mechanisms such as information technology warehouses and benchmarking as DoD evolves to a common-user processing utility for shared services.

Illustration



CIM PRODUCTS AND SERVICES

The Center offers major programs and initiatives in targeted areas to focus on priority goods and services for the Department. These products and services are considered critical to the success of the corporate IM effort. They make up part of the cornerstone for laying a firm foundation to help the Department ultimately implement management improvements and realize cost savings in the years to come.

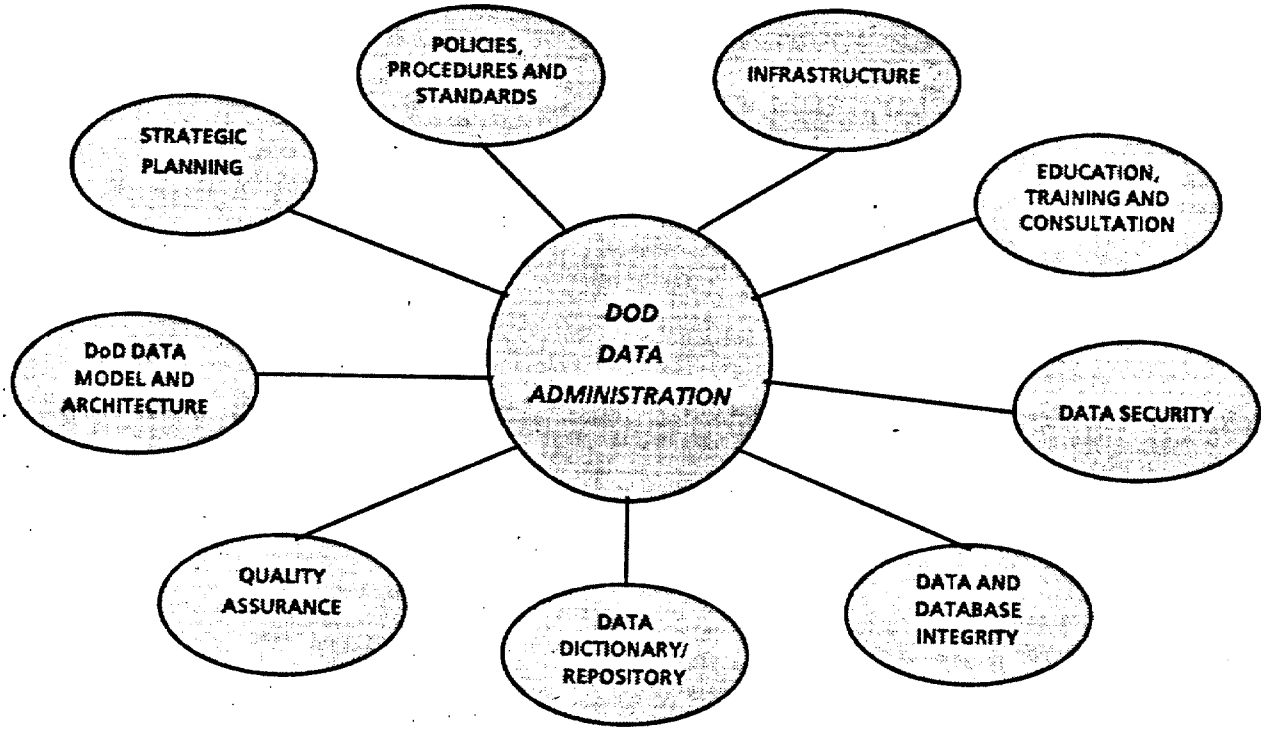
Data Administration

Data Administration is responsible for defining, organizing, and protecting data in an organization. It covers both data requirements and data resources at all levels of authority and responsibility, whether to conduct transactions or support decisions. It includes DoD functions and programs involving installation/base, strategic, tactical, theater, research and development, and administrative support. To this end, a Program Management Office was established in the Center to support the DoD Data Administration Program. This office offers the following data administration services:

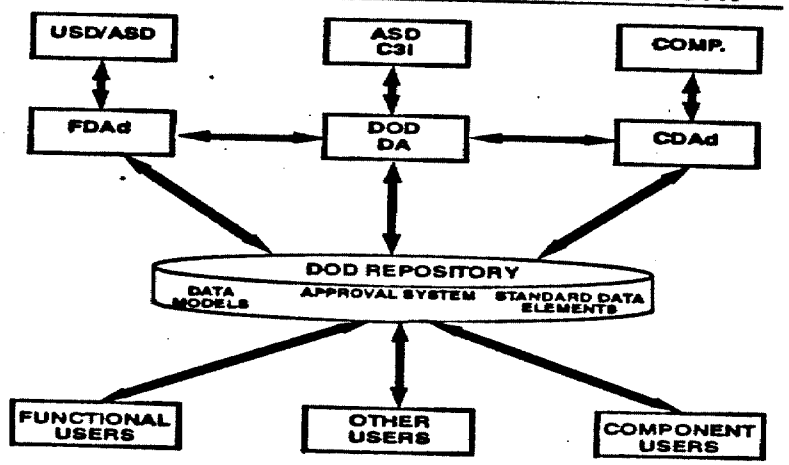
- Strategic planning
- Program planning and implementation
- Policy and procedures interpretation and application
- Reverse engineering
- Data modeling
- Data architecture
- Integration
- Data dictionary/repository
- Data standardization
- Quality assurance
- Training and education

Illustration

ELEMENTS OF THE DOD DATA ADMINISTRATION PROGRAM



DoD Data Administration Framework



Accomplishments

- Defense Data Repository System (DDRS) activated; initial set of developmental prime words loaded.
- DoD Data Model Phases I and II completed.
- Data Administration Council established as a forum for exchange of information and discussion among functional and Component Data Administrators, and the DoD Data Administrator, of issues arising in data administration in DoD.
- DoD Data Administration Strategic Plan issued.
- DoD Data Administration Procedures, DoDD 8320.1-M, distributed for informal review.
- DoD Data Element Standardization Procedures, DoDD 8320.1-M-1, approved by DDI for use as interim guidance.
- Training for more than 500 attendees.

Information Engineering

The Center provides information engineering (IE) support to DDI, DoD functional and technical communities, and other customers on a fee-for-service basis. The services include technical support in defining functional information requirements including the development and maintenance of a full spectrum of business engineering and information engineering products and services. They are designed to enable functional managers to increase mission capability while decreasing costs. Specific information engineering support services which are offered through the Center's Information Engineering Program Management Office include:

- Business Process Improvement (BPI)
- DoD enterprise modeling
- Information engineering project management
- Functional Economic Analysis (FEA)
- Functional Integration Management (FIM) staff adjunct
- Methods and tools facilitation and training
- Studies and analyses

Accomplishments

Business Process Improvement (BPI) Support

- Customer-responsive BPI support service developed, which facilitated over 90 separate BPI tasks for functional areas of Command and Control, Finance, Personnel, Reserve Affairs, Health Affairs, Acquisition, and Logistics, valued at approximately $18M.

- Physical configuration audits for BPI tasks performed on behalf of the contracting officer technical representative (COTR), with 23 BPI process models currently under configuration control.

- DoD IDEF (ICAM (Integrated Computer Aided Manufacturing) Definition) implementation group membership/meeting support administered.

- BPI training for more than 150 people supported.

- BPI program support team for FY93 Program Plan assembled. Program areas include: Functional Group Support, Model Integration and Conversion, Methodology Development, Infrastructure Support, and Functional Economic Analysis.

- BPI customer hot line organized.

Functional Economic Analysis/Economic Analysis (FEA/EA)

- OASD(PA&E)/OASD(C3I) Technical Integration Working Group supported to develop an integrated cost structure for DoD economic analysis requirements.

- FY 92 FEA case review of more than 90 cases completed.

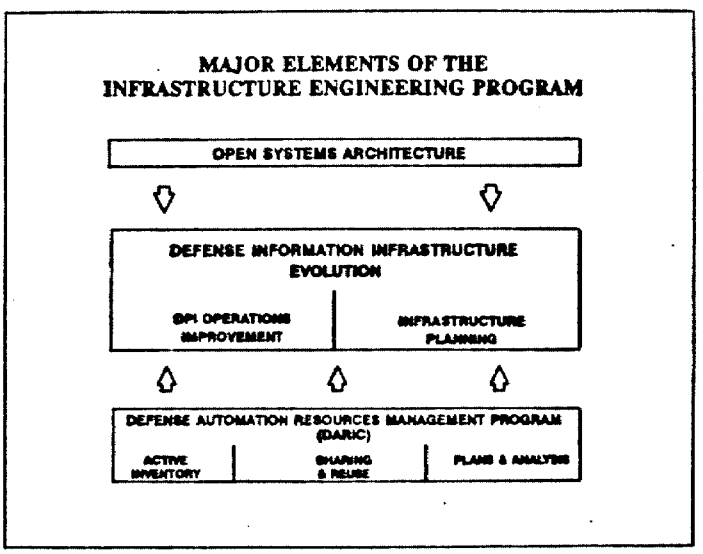
- Development of a common DoD business analysis methodology initiated for use in preparing FEA's DoD. Prototype created with methodology for a functional subgroup.

Infrastructure Engineering

The Center provides open systems engineering-related services to support implementation by functional and technical managers, and other customers, of the Defense Information Infrastructure Program. Infrastructure engineering in CIM promotes interoperability and a standards-based architecture/open systems environment throughout DoD as well as common technical architecture planning methodologies that assist DoD elements in open systems planning. Infrastructure engineering will plan and design the Defense Information Infrastructure (DII) and its management controls. The DII will ensure seamless and transparent operations to its customers. Some of the products and services provided in the area of infrastructure engineering are:

- Data base administration for the Automation Resource Management System.
- Global, integrated information on DoD automation resources for managers in OSD, corporate IM, and DoD organizations.
- Expert consultation on reutilization of computer hardware, commercial off-the-shelf (COTS) software, and sharing of excess capacity.
- Design of measures for technical and cost efficiency.
- Infrastructure engineering technical assistance.
- Integrated DoD capacity planning capability.

Illustration



Accomplishments

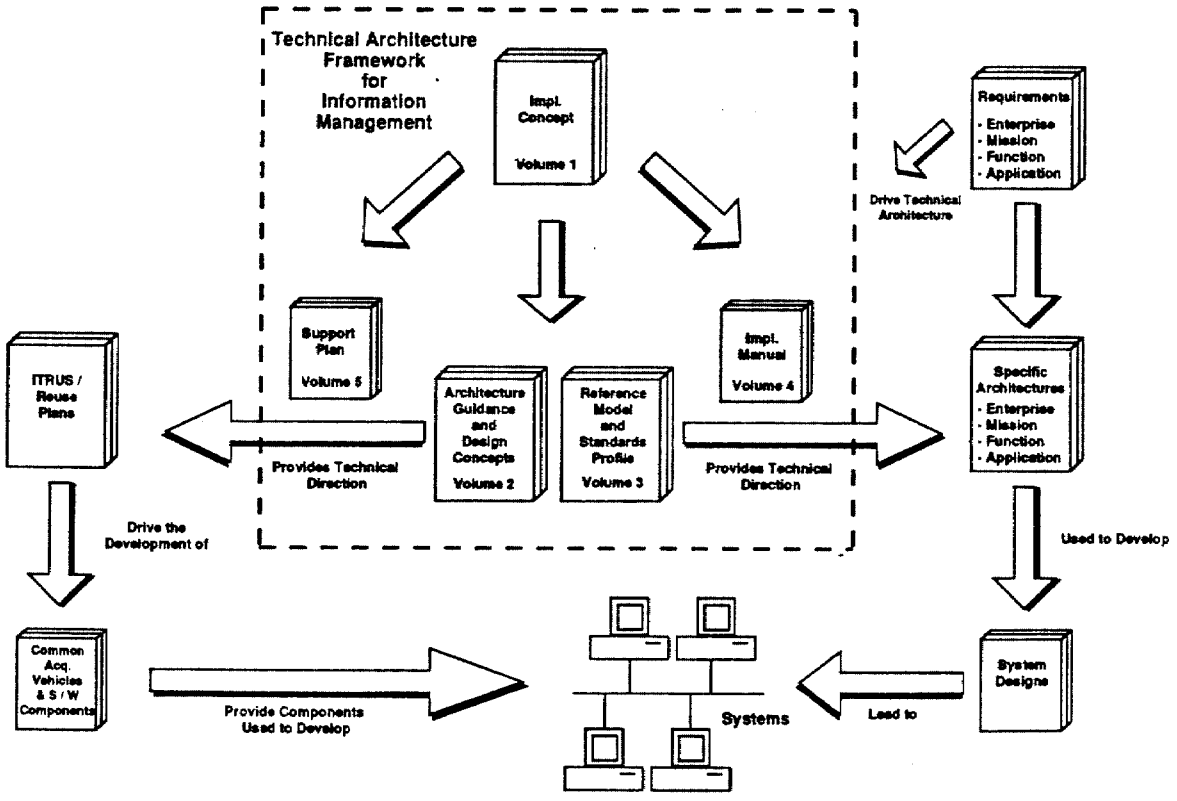
- DoD Computer Capacity Management Program established.
- Program to benchmark all DITSO data processing installations (DPIs) established.
- Development and Agency-wide review of "Defense Information System Utility Concept Plan," (DISA Utility Working Group - June 1992) coordinated.
- Information Technology Reuse (ITRUS) concept formulated. Assistance provided to DECCO to successfully demonstrate the initial phase of an active ITRUS operations.
- Inventory of over one million items of DoD automation hardware maintained, valued at $15 billion.
- 89,046 line items of reported excess computer hardware/software (an increase of 33% from FY91) screened. Redistribution transfers resulted in an annual cost avoidance of $69 million.
- DoD computer sharing services savings of approximately $40 million reached.
- 1,683 items of DoD computer equipment leased under the Historically Black Colleges and Universities Automation Resources Program, valued at approximately $3.4 million.

Technical Architecture

The Technical Architecture activity in CIM is responsible for the integrated guidance that governs the evolution of the DoD's technical infrastructure (i.e., computer/communications). It provides the services, standards, design concepts, components and configurations that can be used to guide the development of technical architectures that meet specific mission requirements. It promotes interoperability, portability, and scalability of information systems through the development of standards-based open systems environments. It also explores critical technical subjects (e.g., security) to define standards and guidance suitable to DoD's computing needs. Some of the team's activities in technical consultation services include:

- Technical reference model interpretation and application.
- Technical architecture framework definition, design, and development.
- Technical guidelines review and analysis.
- Technical transition planning.
- Technical guidelines interpretation and application.

Illustration



TECHNICAL ARCHITECTURE IMPLEMENTATION CONCEPT

Accomplishments

- Scope of the DoD Technical Architecture Framework for Information Management defined.

- Drafts of the Program Management Plan, Implementation Concept (Volume 1), and Architecture Guidance and Design Concepts (Volume 2) completed.

- Technical Reference Model approved for DoD-wide use. The Model identifies the services and standards that support migration to an Open Systems/ Standards-Based Architecture. Version 1.1 (February 1992) identified an initial set of standards approved by Service and Agency representatives to the Center's Architecture Methodology Working Group. A more complete edition, Version 1.2, was approved for use in August 1992. Version 1.2 contains security standards, a discussion on Ada bindings and requirements for standards conformance testing along with other enhancements. Version 1.2 of the TRM is available, in electronic form, to the public through the National Technical Information Service (NTIS) bulletin board (703) 321-8020. Version 1.3 (draft) of the TRM has also been placed on the NTIS bulletin board for the purpose of receiving vendor comments. At least one edition will be made available to the public each year to facilitate support of the TRM. The TRM is also under consideration for use by a number of organizations external to DoD.

- DoD Human Computer Interface Style Guide approved for use. The Style Guide was developed by Service and Agency members of the Common Operation Environment (COE) Working Group in conjunction with DISA. The Style Guide provides a consistent "look and feel" for graphical user interfaces across the Department. Version 1.0 was circulated for industry review and comments. Version 2.0 incorporates industry comments in addition to the Navy's implementation of the basic Style Guide. Future editions will add implementations from the other Services and Agencies.

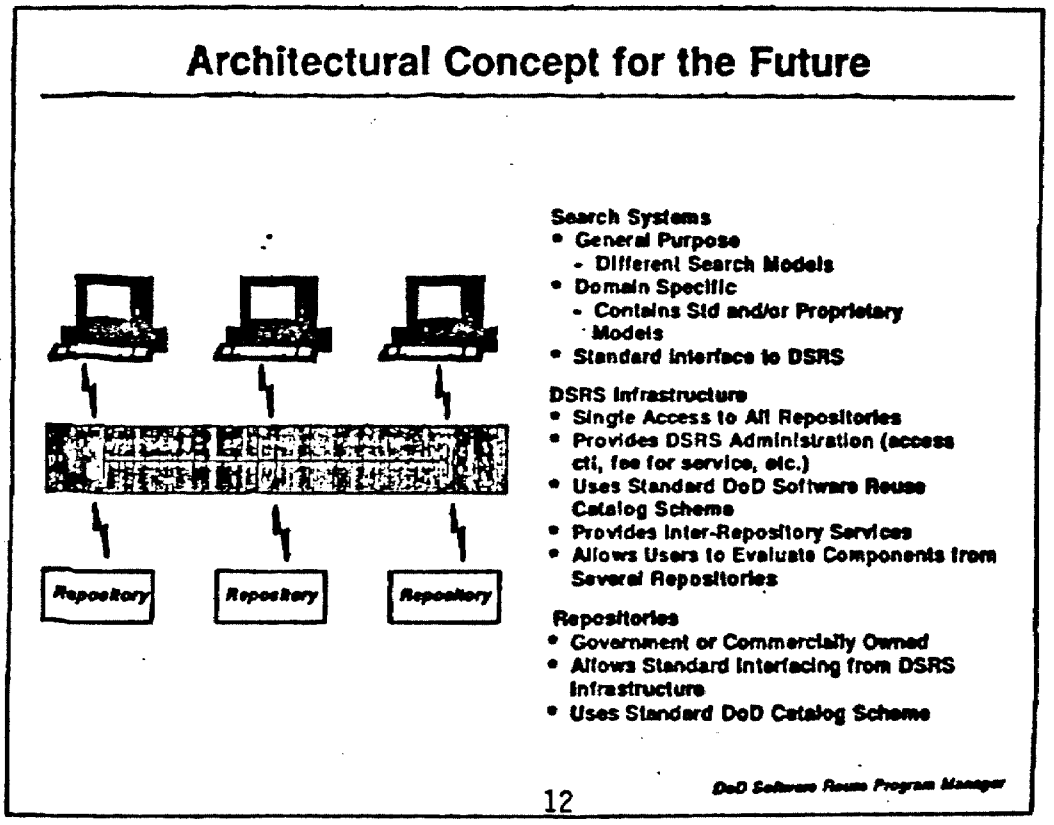
- Standards-Based Architecture Planning Guide developed to assist DoD Components with the transition from vendor-proprietary information systems to open systems based on the Technical Reference Model. The draft guide is being used to develop the follow-on office automation architecture for OSD and the Marine Corps technical architecture for information systems. The guide is also being reviewed by organizations external to DoD for use.

Software Reuse

The Center focuses on software reuse as another means of providing cost saving opportunities to its customers. A Software Reuse Program was launched to develop an effective infrastructure that would support the implementation of DoD-wide reuse policies, procedures, tools, and technology. CIM then established the Center for Software Reuse Operations (CSRO) to operate and maintain a central DoD "warehouse," the Defense Software Repository System (DSRS), for reusable software component storage and access. Operation of Pilot Software Reuse Centers will continue at each Service/Agency and at selected sites. DoD reuse products and services include:

- DSRS operations, evolution, customer assistance, and training.
- Reusable asset acquisition, certification, population, maintenance, and customer assistance.
- Domain engineering methods/guidelines, customer assistance, and training.
- Pilot Reuse Center coordination, customer assistance, and training.
- DoD reuse coordination, policy development, implementation, metrics, and program management.

Illustration



Accomplishments

- Center for Software Reuse Operations activated.
- DSRS reuse components totaling 1662 loaded.
- DSRS implemented at National Security Agency.
- Domain definitions for DoD identified.
- DoD reuse policy requirements identified.
- FY92/93 Software Reuse training schedule published.
- Action plan developed to
  - Accelerate repository population.
  - Extend customer base.
- 55 Ada bindings solicited from Government and industry.
- Program Management Office established.
- Continuous reuse process improvement initiated.
- Technology transfer established with other Defense agencies.

Software Systems Engineering

The Software Systems Engineering activity in CIM provides direct support in software process improvement to Central Design Activity (CDA) customers. This field is relatively new in the Department and relies on the visibility and efforts of CIM to underscore its importance in the requirements definition and design processes. Actual improvement depends on a host of complementary and interdependent initiatives in software process assessments (SPAs), metrics, software re-engineering assistance, technology transfer, and software engineering environments. As an example, in conjunction with the DoD I-CASE procurement for a central acquisition vehicle for integrated environments and related technical services, the Center, through its Software Systems Engineering organization, will provide guidance and direction on architectural, acquisition, and technical issues related to the use of CASE technology in DoD. Other services and products in the CIM's software systems engineering are:

- Software process assessments
- Maturity model
- Metrics
- Architecture
- Software engineering environments
- Software re-engineering

Accomplishments

- DoD Executive Agent for software process improvement designated.
- Initial contract for software process assessment support awarded.
- DoD Software Process Improvement Advisory Group established.
- Two CIM-sponsored software process assessments initiated.
- Five software process improvement baseline surveys for the Defense Information Technology Service Organization (DITSO) completed.
- Software metrics advisor prototype tool developed.
- Software process model developed for the I-CASE RFP (Integrated-Computer Aided Software Engineering request for proposal).
- I-CASE Program Implementation Plan developed. Readiness Plan for I-CASE pilot projects developed.
- Software re-engineering pilot project with the Air Force Weighted Airman Promotion System initiated.

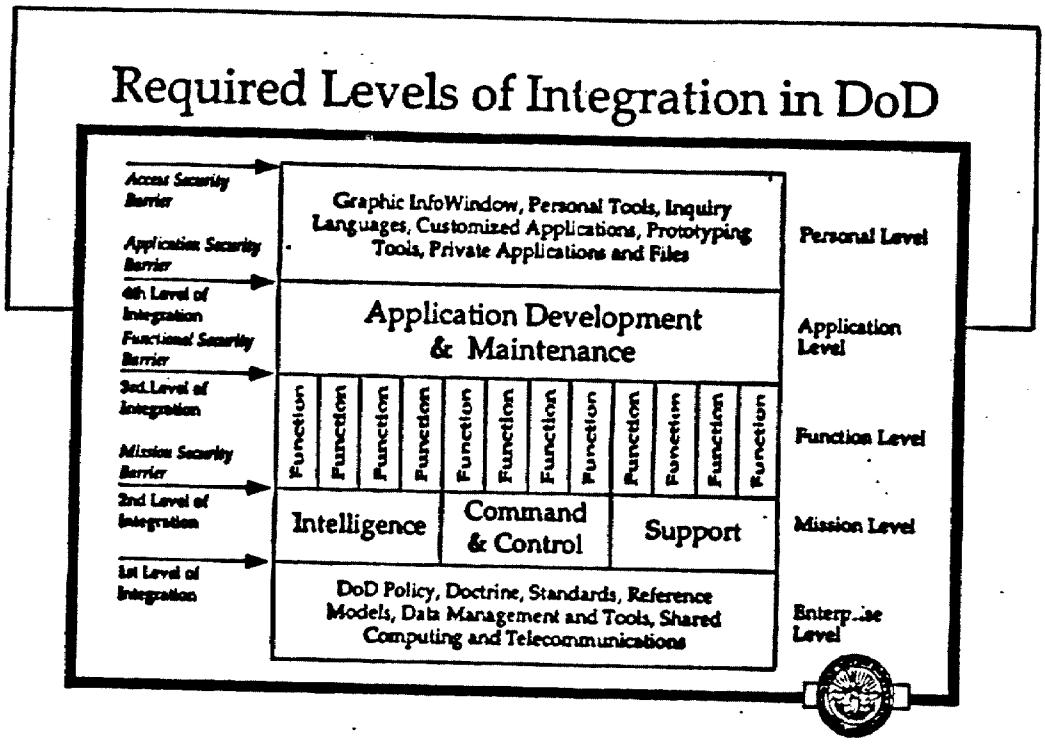
Technical Integration

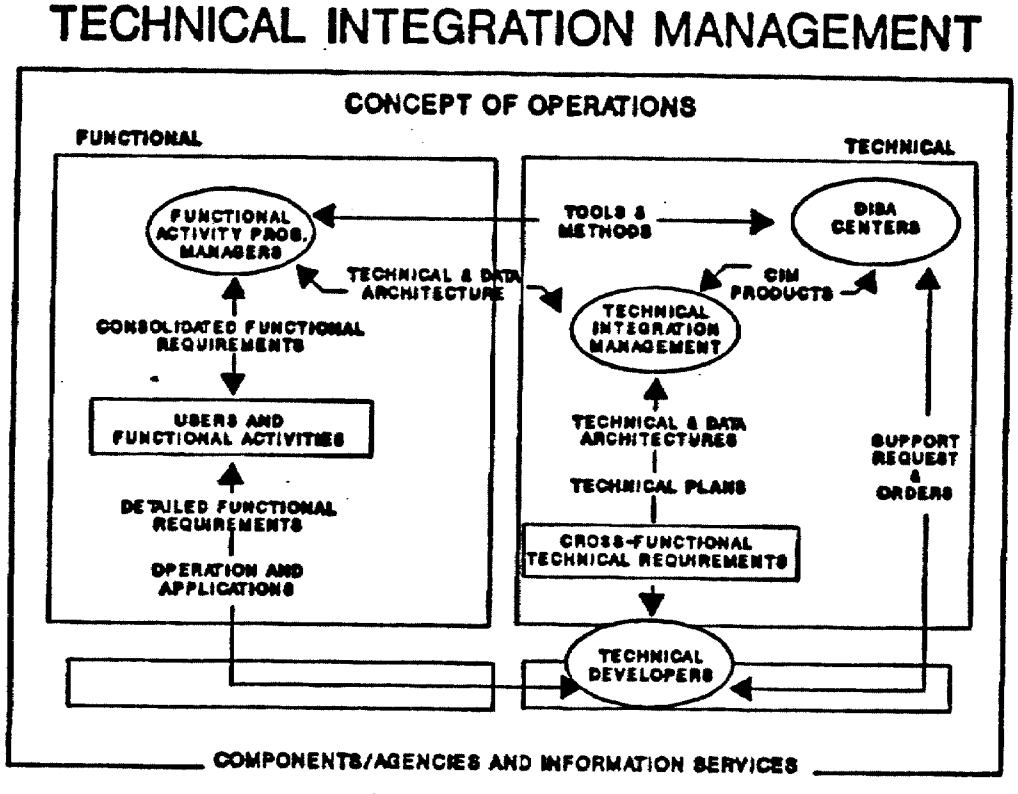
Doctrine changes and continuing reductions in the Defense budget are focusing greater attention than ever on the problem of information systems integration, consolidation and interoperability. Historically, methods of achieving these goals have been cumbersome and difficult to manage across the entire Department as well as within DISA. The Office of Technical Integration (OTI) was created in recognition of the Agency's increasing Department-wide information systems responsibility. OTI addresses, as a priority matter, the problems inherent in DoD information systems integration, consolidation, and interoperability.

The OTI was established to oversee and coordinate the technical integration process for DoD information systems, including specifically those functional areas in the Department's enterprise model. OTI develops and maintains the Department's technical integration and migration strategy for all functions. This strategy provides planning guidance at the enterprise and mission levels for information systems and services to migrate toward the standard technical environment defined by the DoD technical architecture.

From the perspective of the functional customer, OTI supports a variety of customers from OSD to component organizations. For each of these areas, OTI assigns a Technical Integration Manager (TIM) who works with the functional manager. The TIM ensures that the full range of DISA technical capabilities are brought to bear in solving technical issues and problems faced by the functional communities in achieving cross-functional integration and interoperability.

Vertical and horizontal information systems integration within and across functional areas within DoD is a key DISA mission. Toward this end, OTI functions as coordinator of all technical integration programs within DISA.


Required Levels of Integration in DoD
Access Security Barrier
Application Security Barrier
4th Level of Integration
Functional Security Barrier
3rd Level of Integration
Mission Security Barrier
2nd Level of Integration
1st Level of Integration
Graphic InfoWindow, Personal Tools, Inquiry Languages, Customized Applications, Prototyping Tools, Private Applications and Files
Application Development & Maintenance
Function
Intelligence
Command & Control
Support
DoD Policy, Doctrine, Standards, Reference Models, Data Management and Tools, Shared Computing and Telecommunications
Personal Level
Application Level
Function Level
Mission Level
Enterprise Level


TECHNICAL INTEGRATION MANAGEMENT
CONCEPT OF OPERATIONS
FUNCTIONAL
TECHNICAL
FUNCTIONAL ACTIVITY PROG. MANAGERS
TOOLS & METHODS
DISA CENTERS
TECHNICAL & DATA ARCHITECTURE
CIM PRODUCTS
TECHNICAL INTEGRATION MANAGEMENT
CONSOLIDATED FUNCTIONAL REQUIREMENTS
USERS AND FUNCTIONAL ACTIVITIES
TECHNICAL & DATA ARCHITECTURES
TECHNICAL PLANS
SUPPORT REQUEST & ORDERS
DETAILED FUNCTIONAL REQUIREMENTS
OPERATION AND APPLICATIONS
CROSS-FUNCTIONAL TECHNICAL REQUIREMENTS
TECHNICAL DEVELOPERS
COMPONENTS/AGENCIES AND INFORMATION SERVICES

Accomplishments

- Technical Integration Managers for Command and Control, Finance, Health, Personnel, Materiel, Distribution, Procurement, Environment and Transportation assigned.

- Customer support products and services launched in the following areas:
  - Enterprise Level 1
    - Migration management
    - Technical architecture
    - Security
    - Technical integration repository services
  - Mission Level 2
    - Subject data bases
    - Migration strategy guidance
    - Near-Term migration

- Civilian pay/civilian personnel subject data base design initiated.

- Defense Finance and Accounting Service (DFAS) inventory of systems data base analyzed; Finance Technical Architecture defined; and Finance Technical Integration Strategy and Technical Integration Guidance developed.

- Navy Medical Information Management Center design and implementation of an open systems LAN communications architecture for military hospitals supported.

- CIM Logistics Migration Plan initiated.

- First in a series of Functional Information/Technical Integration Management Conferences conducted.

- Technical Integration Repository (TIR) of baseline architectures developed and prototyped.

- Tree Diagrams that map the migration of existing corporate Information Management legacy systems toward the target architecture published.