A Plan for
Corporate Information Management
for the
Department of Defense

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Executive Summary

November 1990

Forward

This plan for the Corporate Information Management (CIM) of the Department of Defense (DoD) was developed with the assistance of the Executive Level Group for Corporation Information Management, a Federal Advisory Council comprising executives from the private and public sectors. This document is a living plan that will be updated and refined as needed.

Preface

The economist Adam Smith identified three resources that must be managed by every organization: capital, material, and labor (people). Now information is being recognized as a fourth such resource. Computing and communications technology makes possible new business methods not otherwise practicable.

Model

The Corporate Information Management model is a top-down process that can lead to dramatic improvement in business effectiveness and efficiency. The CIM model has implications for team work as well as technology. Knowledge of the business must be combined with knowledge of computing and communications, requiring users and technical support groups to collaborate at every stage of execution.

Planning Structure

A condensed master plan for CIM follows. Supporting plans will be necessary for each functional area and organizational element in the Department.

- Mission
  The mission of the Department is to cause information to be managed across the DoD as a resource that contributes significantly to the shaping and achievement of objectives of the DoD.

- Scope
  The scope of this plan shall initially be restricted to business oriented functions. Specifically this includes the business functions involved in managing personnel, materiel, and financial resources.

- Guiding Principles
  - Simplification by elimination and integration is to be preferred to automation whether developing new or enhancing existing information systems.
  - Business methods will be subject routinely to cost-benefit analyses, including benchmarking against the best public and private sector achievements.
  - Information systems performing the same function must be common unless specific analysis determines they should be unique.
  - Information systems will be developed and enhanced according to a DoD-wide methodology, and accomplished in a compressed time-frame.
  - Information systems will be developed and enhanced in the context of process and data models that document business methods.
  - The computing and communications infrastructure will be transparent to the information systems that rely upon it.

- Common definitions and standards for data will exist DoD-wide.
- Access to information will be facilitated, and/or controlled and limited.

- Objectives
  - Provide an effective, global defense against threats to the United States through ready and able forces
  - Increase the effectiveness of defense capabilities through collaboration.
  - Use available resources efficiently and in a manner that ensures mission readiness and effectiveness.
  - Provide a cooperative environment that ensures acquisitions are efficient and competitive, with reasonable return.
  - Provide a safe, enabling work environment with opportunities for professional enrichment and growth.

- Vision of the Future -- The Department of Defense in the Year 2000
  - The Department has been downsized while new threats involve more varied problems, greater volatility, and more diverse locations. Even with smaller overall numbers, military readiness and effectiveness are very high because forces are more self-contained, flexible, mobile and responsive.
  - The Defense burden on the U.S. economy is now at its lowest point in recent history. At the same time, the Department has substantially increased the productivity and effectiveness of its business and mission support activities.
  - A streamlined and simplified acquisition process has been put in place to solve problems identified by the 1989 Defense Management Report and other efforts.
  - Planning and resource allocation in the Department has been strengthened by achieving a common, more integrated Planning, Programming, Budgeting, and Execution System. It permits consistent, mission oriented output analyses to support decisions throughout all four phases.
  - Simplification of business methods has helped to establish a more flexible organization for DoD which can now adapt more rapidly to changes in mission emphasis, resources, or size. Responsiveness to policy and performance of operational level activities has been improved, reinforcing the longstanding DoD management approach of centralized policy and decentralized execution.
  - The Department has streamlined business operations and realigned functional organizations around them to enhance quality and responsiveness. Organizational redundancy and layering have been reduced Operating expenses are declining more rapidly than is the overall DoD budget.
  - Business functions are now evaluated against a suitable set of performance measures. Simplification of methods and availability of consistent data provide the basis for improved evaluation.

- Vision of the Future -- DoD Information Management in the Year 2000
  - Information management is recognized as a business and force multiplier. It has reduced non-value added work, improved productivity, and enable consolidation of like functions and organizations.
  - Business methods across the Department have been documented and opportunities to simplify business activities identified. Functional managers are challenging and changing old ways of doing business.
  - Process and data models are being used to document and continuously improve business methods. This activity provides the foundation for the development of new and enhancement of existing information systems.
  - The Department's measures of business performance have sharpened focus upon quality, costs, productivity, and time-based performance. These measures allow benchmarking against the best comparable achievement in

the public and private sectors, and can used to justify investment in new business information systems.
- Data standards have been set and implemented across the Department's major business, support, and mission areas.
- Most data are being entered into information systems without being handwritten or typed.
- Electronic data interchange and funds transfer are now in place speeding financial transactions and the exchange of technical and management information. Transactions between the Department and its suppliers and among DoD Components are handled more quickly and accurately; clerical and other costs are reduced, everyone is better informed.
- Business methods are more readily integrated and improved. Information systems, implementing these business methods, are more compatible with each other, less complex, and therefore more easily developed and changed.
- Common information systems, embodying common business methods, are in wide use. Common information systems have simplified many business operations, and have provided organizational flexibility.Continuous improvement is more easily effected. Management control is strengthened through the uniform implementation of policy.
- An updated and expanded life cycle management methodology is applied across the DoD for development or enhancement of information systems.

- Vision of the Future -- DoD Information Technology in the Year 2000
  - Computers are now at least a hundred times more powerful than in 1990.
  - DoD is operating a computer and communications infrastructure that is transparent to the information systems that stand upon. The overall architecture is open in order to accommodate a wide variety of centralized and distributed technologies and products. In emphasizing a heterogeneous, open systems architecture, the DoD has focused on standards critical to portability and interoperability across the DoD and with allies.
  - Digital communications infrastructure built on Open Systems Interconnection (OSI) standards is fully operational. A long-haul network is implemented that provides integrated digital communications services. Local area networks are being integrated with long-haul digital communications network, providing end to end interoperability. Wideband communications permit integrated voice, data, and video services. In combination these provide interconnection flexibility, fast response times, and lowered costs.
  - The time to develop and deploy information system has been compressed and life-cycle costs reduced through special attention to software.
  - Standards for graphically oriented windowing have rendered user interfaces simple, intuitive, and consistent. This has reduced training costs and improved productivity of users and technical support personnel. Voice recognition allows hands-free interactions.
  - Data modeling tools and methodologies have matured to permit rapid generation and manipulation of data bases.

- DoD Situation Analysis
  - The Department is reassessing its military posture, structure, programs, and resources to deal with changing global conditions.
  - Significant reductions in Defense spending are planned, starting with reductions in the President's FY1991 budget. Planning is underway to effect a downsizing of the Department in response to the changing threat as well as Congressional and public expectations that Defense expenditures decline.

- The process for acquiring new weapon and other systems is long, cumbersome and complex. Important first steps have been taken to implement the framework for streamlining and clarifying the acquisition process.
- The potential of the Department's planning and resources allocation process, the Planning, Programming, and Budgeting System, is not yet fully realized.
- Business methods, developed on an ad hoc basis, have been institutionalized in older generation information systems which are not easily evolved.
- Large numbers of personnel and financial resources are involved throughout the Department in supporting functions which are fundamentally the same.
- The buildup of separate organizations, policies, and procedures has resulted from a bias that responsive support could not be achieved without direct "ownership" of the resources performing these functions and from earlier, less constrained budgets.
- The Department has not established formal measures to assess performance of its business functions.
- The DoD workforce contains a mixture of skills and capabilities. A portion of the military and civilian personnel do not have sufficient skills to employ new advanced technology with the flexibility desired. New employees reflect many of the skill deficits that national educational assessments have identified.

- Situation Analysis of DoD Information Management
  - Effective control through management of information is not a central focus of most DoD organizations. Information management responsibilities are fragmented. The information environment consists of a wide variety of information systems and supporting resources.
  - Business methods are infrequently documented, making it difficult to understand the link between improvements in the efficiency or effectiveness of business operations and information systems.
  - Evaluations in DoD focus on development costs and technical performance, rather than contribution to overall efficiency and effectiveness of operations.
  - Standardization of data across DoD has not yet been achieved.
  - Data entry in many functional areas remains a labor-intensive activity, subject to many errors and often requiring reentry.
  - Electronic exchange of documents exists in limited applications.
  - Many barriers to effective data exchange exist, impeding integration and improvement of business methods.
  - Very few common information systems have been developed in the Department. Existing federal and DoD development policies have encouraged individual, non-integrated systems development efforts.
  - Life-cycle management methodology exists in DoD for business applications, but is focused on the development of individual information systems.

- Situation Analysis of DoD Information Technology
  - The Department's technology base has evolved into a variety of disparate computing and communications architectures.
  - The Department's numerous information systems are based on a variety of computer language standards, multiple definitions and formats for the same basic data, several communication protocols, and a multiplicity of hardware and operating systems.
  - The growth in distributed processing has resulted in greater dependence on telecommunications to transmit and receive data processing information and increased the burden on the communications infrastructure. Communications standards exist, but the wide variety of vendor-unique implementations complicate communication interoperability in DoD.

- Much of DoD applications software has been custom designed and developed using a variety of methodologies and languages. This has resulted in standalone systems that are not transportable nor easily integrated with other systems. DoD software development and maintenance costs are high.
- DoD has begun to recognize the importance of managing data as part of the system development process. However, data modeling is not a widespread or fully understood process and its use is still very limited.
- The acquisition process is lengthy, plagued with many delays and constrained by numerous legislative and administrative regulations.

Goals

- Process models documenting new and existing business methods by FY XX.
- Standard data definitions available for business and mission areas by FY XX.
- A set of common information systems for each function, built upon standard data and business methods, implemented by FY XX.
- An open systems computing and communications infrastructure, transparent to the information systems that stand upon it, implemented by FY XX.

Strategies

- Develop process models that document new and existing DoD business methods.
- Develop data standards with emphasis on data modeling.
- Development and implement a set of cost effective, common information systems based on process models and data standards.
- Develop and implement a communications and computing infrastructure on the principles of open systems architecture and systems transparency, to include but not be limited to:
  - Operating systems
  - Database management
  - Data interchange
  - Network/communications services
  - User interfaces
- Manage expenditures for information, regardless of the technology that is applied.
- Institute 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.
- Establish measures of information management effectiveness and efficiency.
- Educate Department personnel in the concepts of corporate information management and the plans to apply it.