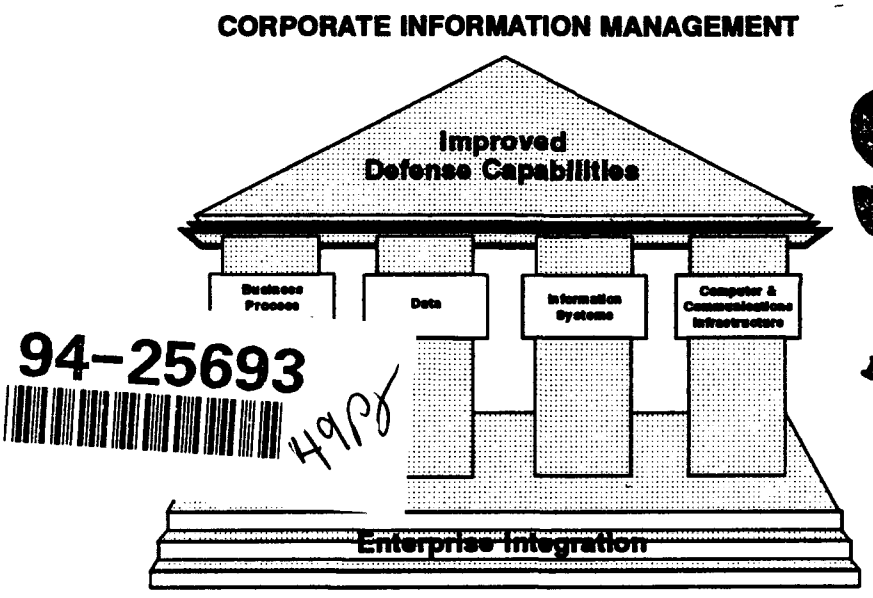
CORPORATE INFORMATION MANAGEMENT FOR THE 21ST CENTURY

- A DoD Strategic Plan -



ENTERPRISE INTEGRATION

- Implementing Strategy -

June 1994

Assistant Secretary of Defense,
Command, Control, Communications, and Intelligence
U.S. Department of Defense

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Mr. W. H. Leary, III, OASD(C³I)/DASD(IM)
Mr. W. Tufte, DISA/JIEO/CFI&I, Mr. M. Yaphe (MITRE)

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The Corporate Information Management (CIM) Strategic Plan provides ~~Top~~ level guidance for all information activities in The Department of Defense. It includes six goals that address functional process reengineering, standardization of and sharing of data, the migration of information systems, a computer and communications infrastructure, functional and technical integration, and management of the CIM initiative at all levels in The DoD. The Enterprise Integration Implementing Strategy describes The approach and initiatives necessary to accomplish the CIM goals in an integrated manner across The DoD. It describes the DoD Enterprise Integration concept, vision, implementing processes and planning targets. ~~for DoD~~.

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THE DEPUTY SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301

13 JUN 1994

MEMORANDUM FOR MEMBERS OF THE ENTERPRISE INTEGRATION EXECUTIVE BOARD

SUBJECT: Corporate Information Management (CIM) Strategic Plan and Enterprise Integration (EI) Implementing Strategy

The subject document has been reviewed and comments incorporated. I am approving this document as management guidance for the Enterprise Integration Executive Board, the Corporate Management Council and the represented organizations.

Corporate Information Management and its supporting Enterprise Integration Implementing Strategy is an essential Defense management initiative which will make important contributions to maintaining readiness while downsizing, streamlining operations, reducing costs and supporting many other major Department of Defense management initiatives such as acquisition reform.

The Assistant Secretary of Defense (Communications, Command, Control and Intelligence) should work with the members of the Enterprise Integration Corporate Management Council to:

1. Update and integrate the initial version of this plan by the fall of 1994.

2. Expand the CIM planning to include functional plans of the Principal Staff Assistants and Component plans.

3. Focus the planning and implementing strategy to identify issues appropriate for consideration of the EI Executive Board and Corporate Management Council.

With your continued support and commitment I am sure the Department will be able to accelerate the progress of this challenging initiative.

Attachment
cc:
Enterprise Integration Corporate Management Council

DoD CORPORATE INFORMATION MANAGEMENT STRATEGIC PLAN
&
ENTERPRISE INTEGRATION IMPLEMENTING STRATEGY

PREFACE

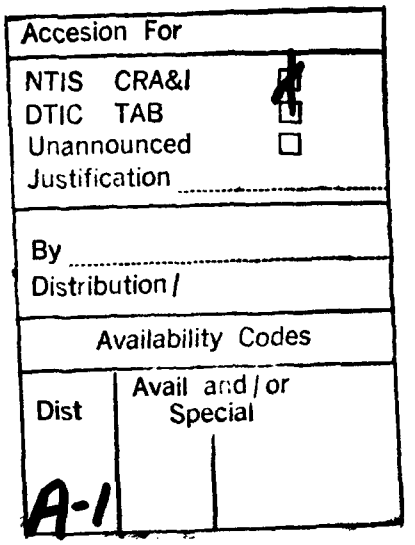
The Department of Defense faces a period of profound change. The end of the cold war, a new agenda for the nation, and the revolution in information technology, challenge old assumptions and "ways of doing business" as never before. The Department must remain ready to protect the country from existing and emerging external threats while also responding to new national priorities. While we cannot foresee all the changes that will occur in defense, we can act now to shape the future, rather than be shaped by it.

Corporate Information Management (CIM) is a strategic, collaborative management initiative. Functional and technical management are working together to adapt the DoD to its new challenges by changing functional business methods and employing information technology to meet effectiveness and efficiency goals. CIM goals and objectives are founded on strategic direction of the senior defense leadership. The *Corporate Information Management Strategic Plan*, contained herein, provides top level guidance for all information management activities in the Department. It includes six goals that address functional process reengineering, standardization and sharing of data, the migration of information systems, a computer and communications infrastructure, functional and technical integration, and management of the CIM initiative at all levels of the Department. Functional managers are responsible for planning and executing process, data, and system improvements and innovations in their functional area. The *Corporate Information Management Strategic Plan* will be followed by a Corporate Information Management Operational Plan which describes the implementation actions and initiatives including schedules, products, and resources that are necessary to meet the CIM strategic goals and support achievement of functional area strategic goals.

Experience with the CIM initiative to date has shown that functional and technical integration, within and across functional areas in the DoD, are among the most critical challenges in achieving the DoD CIM goals and improving the performance of the DoD as an enterprise. To strengthen the CIM initiative and promote Enterprise Integration (EI), DoD has taken two major management steps: first, DoD has established an EI Executive Board chaired by the DEPSECDEF and an EI Corporate Management Council, co-chaired by PDUSD(A&T) and ASD(C3I) to provide senior leadership forums for managing enterprise issues; and second, DoD has expanded the CIM concept to include an *Enterprise Integration Implementing Strategy* to be supported by the Defense Information Systems Agency. To meet the CIM/EI goals and to support the management requirements of the EI Board and Council, a fully coordinated planning process, addressing CIM Strategic and Operational Plans, PSA Functional Strategic and Operational Plans, and Service/Agency plans, will be implemented.

The *Enterprise Integration Implementing Strategy* describes the approach and initiatives necessary to accomplish the goals established in the *Corporate Information Management Strategic Plan* in an integrated manner across the Department of Defense. The Implementing Strategy describes the EI concept and identifies critical success factors, implementing processes, and planning targets for achieving the CIM goals and the vision of a fully integrated, effective, and efficient defense enterprise. Continuous Acquisition and Life-Cycle Support (CALS) and Electronic Commerce (EC)/Electronic Data Interchange (EDI) are critical enabling technology initiatives closely aligned with the achievement of the CIM/EI goals.

These two documents provide a "blueprint" for managing and shaping change across the Department of Defense. They describe the management concepts and structure that are needed to enable the Department to realize the greatest benefits in mission capability, efficiency and economy during this period of significant change. These are living documents that will be refined as priorities change and implementation evolves.



CORPORATE INFORMATION MANAGEMENT FOR THE 21st CENTURY

A DoD Strategic Plan

June 1994
Assistant Secretary of Defense, Command, Control, Communications, and Intelligence
U.S. Department of Defense

INTRODUCTION

The DoD faces a period of profound change. The end of the cold war, a new agenda for the nation, new concepts for managing enterprises, and the revolution in information technology, challenge old assumptions and "ways of doing business" as never before. While we cannot foresee all the changes that will occur in defense, we can act now to shape the future, rather than be shaped by it. DoD must remain ready to protect the country from existing and emerging external threats while also responding to new national priorities.

DoD is evolving from a cold war posture to a smaller, more mobile and flexible force and infrastructure capable of projecting power anywhere in the world at a moments notice. The Department is positioning itself to engage in a much broader spectrum of missions, ranging from deterrence and regional conflict to peacekeeping and humanitarian assistance. In the new global and interdependent world, economic and environmental security, and the enlargement of democracy have become national concerns.

A new agenda has been established for the nation. Our industries must once again become world leaders in quality, productivity, and value. They must create more and better jobs for Americans. Our education must prepare our children for the 21st century workplace so we can continue to be competitive in the world market. Our infrastructure must be sustained and modernized. In order to achieve these national goals, our Government must be reinvented so it better serves the American people. DoD is a leader in the effort to renew, reinvigorate, and improve Government.

The world is in the middle of a true revolution in how organizations are managed, how work is performed, and how people are made more productive. This revolution - a new "paradigm" - results from the ability to manage information through technology. The old organization structures of the past are rapidly giving way to "horizontal" enterprises that focus core competencies across functional lines on mission-results. In essence, the availability of accurate information, where and when it is needed, leverages human knowledge and innovation. It gives the warfighting commander an integrated picture of the battlespace, so he/she can control the pace and outcome of battle. It gives the manager critical insight into current performance and best practice, so processes can be eliminated, improved and reengineered. It creates a new, more responsive and cost-effective relationship between DoD and industry through the application of enabling technologies such as CALS and EC/EDI. The challenge is to harness this "information revolution" to meet the defense goals for the 21st century.

In the DoD, Corporate Information Management (CIM) is a strategic, collaborative management initiative to guide the evolution of the DoD enterprise and capture the benefits of the information revolution. It represents a partnership of functional and technical management to achieve a combination of improved business processes and effective application of information technology across the functional areas of the DoD. It is embodied in policies and programs, implementation guidance, and supporting resources, to help functional managers guide and implement changes to processes, data, and systems across the DoD. To strengthen the CIM initiative and promote enterprise solutions, DoD has established an Enterprise Integration (EI) Executive Board, chaired by the DEPSECDEF, and an EI Corporate Management Council, co-chaired by PDUSD(A&T) and ASD(C^3I), to provide senior leadership forums for managing enterprise issues.

This CIM Strategic Plan identifies the goals for managing change, systematically, and achieving the shared vision for defense. When successfully implemented, this "blueprint for the future" will enable the Department of Defense to bring all national capabilities to bear on each assigned mission to ensure the security of the nation and meet the expectations of the American people. This is a living plan which will be adjusted as experience and impacts from government initiatives such as the National Performance Review dictate.

VISION

The following paragraphs summarize a likely future vision for the DoD at the end of this decade and the beginning of the next.

The United States faces new threats and opportunities abroad. U.S. forces are engaged both multilaterally and unilaterally, in a wide spectrum of assigned missions, ranging from peacekeeping and humanitarian assistance to resolution of multi-regional conflicts.

In addition to its traditional military missions, the Department is undertaking activities to strengthen democracy, promote economic security, prevent the proliferation of weapons of mass destruction, and assist other elements of the U.S. Government in achieving national priorities through information interoperability.

The Department has been downsized from the late 1980's posture, yet maintains technological superiority through a combination of better intelligence, sophisticated command and control, smart weapons, highly motivated and trained personnel and the application of information management to all DoD activities.

Global end-to-end information connectivity among US and allied forces is a critical mission capability and force multiplier for worldwide readiness, mobility, responsiveness, and operations.

Joint interoperability and information integration has been achieved on the battlefield resulting in significantly improved joint service and multinational operations.

The military industrial base has been fully integrated with the commercial base, so the Department can rapidly obtain and use standard commercial products and services at lower cost. Acquisition has been streamlined through the application of CALS and EC/EDI enabling technologies.

The sustaining base has been integrated seamlessly with the Theater to deliver the right mix of assets and capabilities when and where they are needed for the Combatant Commander to achieve the assigned mission.

All Department functions and organizations have been reengineered, improved and integrated, from an enterprise-wide perspective, to achieve streamlined and significantly more effective operations. Modernized information systems have been implemented to support these reengineered functional processes.

Throughout the Department, information is viewed as a strategic asset used to continually increase the effectiveness of military operations and support activities through improved management processes, technology exploitation, economies and greater responsiveness.

INFORMATION MANAGEMENT AS A STRATEGY FOR CHANGE

With every dimension of DoD operations undergoing change, including changes in the threat, changes in missions and reductions in resources, it is clear that the DoD must change the processes it uses to manage and operate functions or activities throughout the Department. Today, many of these functions and processes have been established uniquely by Service. The processes themselves are implemented through information systems. That information system is often a stand-alone system, utilizing non-standard data and with incompatible interfaces to related information systems. Corporate Information Management is a strategic initiative to correct these problems by focusing on the process change, data, information systems, and information technology from a Defense Enterprise perspective. Both the CIM and EI initiatives are in consonance with current private sector practice and with evolving management theories on process change and information management.

The elements effected by Corporate Information Management are shown in the model depicted in Figure 1 on the following page. Applying this model and institutionalizing Corporate management of these activities are central strategies in meeting the vision statements. This model is applied to each functional area and provides the basis for linking together policy, business methods, performance measures, processes, data, information systems, and the computing and communications infrastructure. Culture, organizations, and people are the foundation upon which change must be planned and implemented.

In the Defense Department, "stove-piped" processes and technical systems have developed which preclude or limit data sharing and interoperability across functional boundaries. To focus the implementation of the CIM goals and support the EI Executive Board and Corporate Management Council, an Enterprise Integration (EI) effort has been initiated in the Defense Information Systems Agency (DISA). This initiative develops and maintains an EI Implementing Strategy that addresses cross-functional integration to improve end-to-end processes and information flows.

CIM/EI provides a framework for changing processes, data, information systems, and the computer and communications infrastructure. Within this general framework, cross-functional applications can be applied to increase the effectiveness and efficiency of DoD operations. These applications can contribute innovative concepts, methods, technologies, and tools to major functional processes across the Department of Defense. Figure 2 depicts selected cross-functional applications that have enormous potential for benefiting multiple functional areas, and for strengthening linkages across DoD, to industry, and with allies and coalition partners.

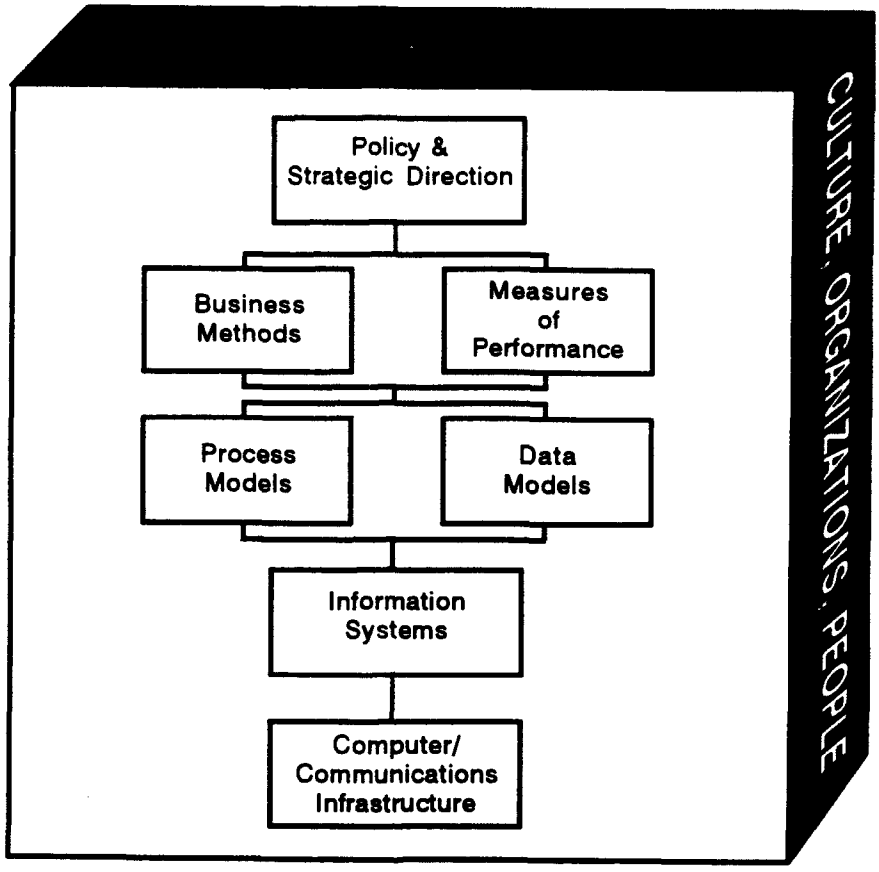


FIGURE 1. CIM MODEL

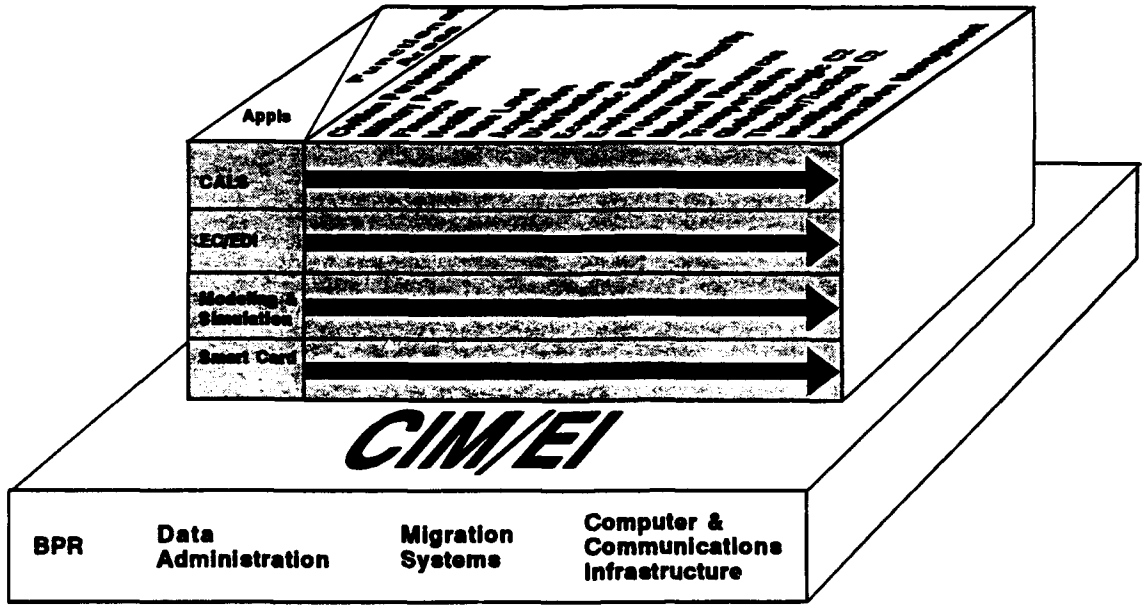


FIGURE 2. CIM/EI AND CROSS-FUNCTIONAL APPLICATIONS

OVERARCHING CIM GOAL

Enable the commanders of military forces and the managers of support activities to achieve the highest effectiveness, agility and efficiency in their operations through the effective use of information applied in improved functional processes.

The management structure of CIM has four "pillars" that support improved Defense capabilities: common information systems; shared, standard data; reengineered processes; and a computer and communications infrastructure. Enterprise Integration provides the implementing strategies processes and coordination of actions needed to put these pillars in place across the DoD, and to link functions, data, and systems horizontally to achieve cross-functional synergies. Figure 3 shows the elements and management framework for achieving CIM goals and objectives.

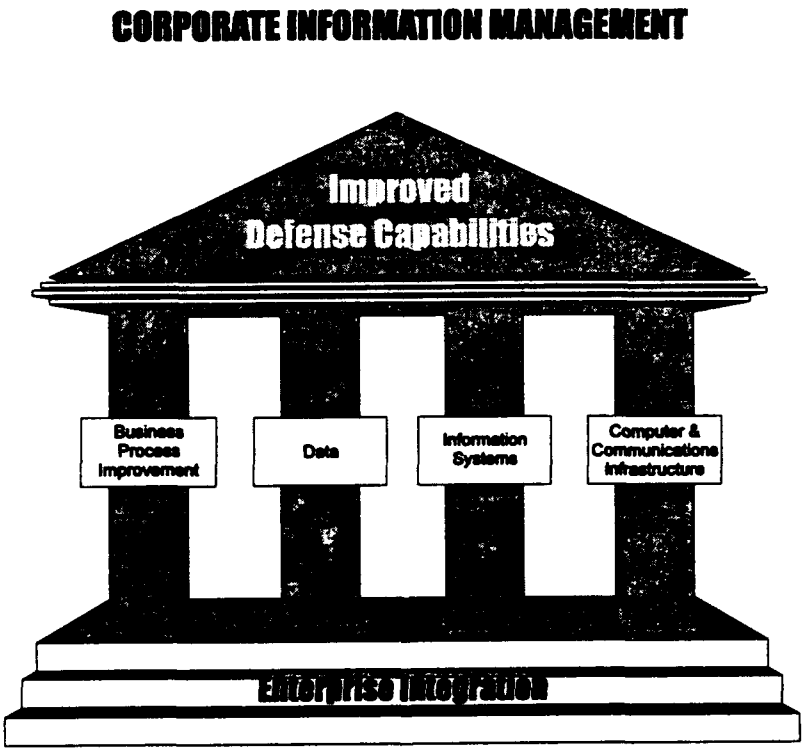


FIGURE 3. THE CIM MANAGEMENT FRAMEWORK

CIM GOALS

There are six broad goals for CIM. These six goals represent the framework for organizing the major programs and projects in the CIM initiative. The goals are summarized below and further explained on the following pages. The lead and support roles for each goal are shown below.

1. **"Reinvent" and Reengineer DoD functional processes to achieve greater mission effectiveness at lower cost.**

2. **Tie DoD together through the use of common, shared data.**

3. **Minimize duplication and enhance DoD's information systems to embody reengineered processes.**

4. **Implement a flexible, world-wide computer and communications infrastructure.**

5. **Apply Corporate Information Management to integrate Defense Enterprise-wide operations.**

6. **Establish CIM policies and management structure.**

Goals	Lead	Support
1	Functional PSAs	ASD(C3I), DISA, Military Departments, Agencies
2	Functional PSAs	ASD(C3I), DISA, Military Departments, Agencies
3	Functional PSAs	ASD(C3I), DISA, Military Departments, Agencies
4	ASD(C3I)/DISA	Military Departments, Agencies
5	ASD(C3I)/DISA	Functional PSAs, Military Departments
6	ASD(C3I)	Functional PSAs, DISA, Military Departments, Agencies

GOAL # 1

"Reinvent" and Reengineer DoD Functional Processes to achieve greater mission effectiveness at lower cost.

Objective: Aggressively pursue process changes in DoD operations that will yield improved efficiency and effectiveness.

Objective: Implement reengineering on a sustaining basis so that it is responsive to the guidance and priorities of the Department's leadership.

To meet these objectives we will:

1. Institutionalize business process reengineering across the DoD.

2. Perform reengineering activities within and across functional areas.

3. Provide DoD top management the means to provide guidance on reengineering priorities.

4. Provide the necessary tools, training and support to perform reengineering.

5. Develop, maintain, and apply the DoD Enterprise Model.

6. Facilitate changes to culture, people, and organizations to achieve a more effective DoD Enterprise.

Performance Measures:

1. Increased functional performance (e.g., lower response time).
2. Reduced functional costs.

GOAL # 2

Tie DoD together through the use of common, shared data.

Objective: Derive standard definitions of data, on an aggressive schedule.

Objective: Establish strong management of data quality, including data availability, integrity, accuracy, and security.

To meet these objectives we will:

1. Establish policies and programs to ensure that requirements for end-to-end data availability, integrity/quality, and security are met.

2. Establish programs to ensure compliance with data policies and programs.

3. Develop standard definitions of data through the application of a DoD data model and functional data models, utilizing a central data dictionary.

4. Aggressively pursue opportunities to share data and establish shared data bases within the DoD, with other government agencies, and with allies.

5. Coordinate and integrate DoD-wide data standardization initiatives supporting cross functional applications including CALS, EC/EDI, and Modeling & Simulation. This should include application of the Integrated Data Environment (IDE) concept and technologies.

6. Reduce costs while ensuring the effectiveness of data/information through efficient data capture, collection, processing, storage, and dissemination.

7. Implement a Data Administration Program which includes procedures for standardizing data, promulgating and enforcing use of standard data elements, and oversight reviews of Service/Agency programs.

Performance Measures:

1. Establishment of DoD core standard data elements representing a significantly reduced set of overall data elements in use today.
2. Improved interoperability across the Defense Enterprise particularly for command and control.
3. Improved military and business operations resulting from accurate, reliable, available, and secure information.
4. Reduced functional and technical costs.

GOAL # 3

Minimize duplication and enhance DoD's information systems to embody reengineered processes.

Objective: Eliminate unnecessary, duplicate systems and migrate toward a common baseline of information systems.

Objective: Implement enhanced information systems that incorporate reengineering results as well as standards based technology.

To meet these objectives we will:

1. Select a minimal set of standard migration systems and implement them to achieve a simplified, common set of functional methods and processes.

2. Implement those enhancements to migration systems that can be accommodated within the initial schedule.

3. Plan for and implement enhancements beyond the initial migration baseline to support reengineered processes and achieve open systems architectural standards.

4. Guide the impacts of information system migration on processes, human and financial assets, organizations, and culture.

Performance Measures:

1. Number and percent of legacy systems eliminated.
2. Number and percent of migration systems implemented.
3. Number and percent of information systems implementing reengineered functional processes on open systems architectures.

GOAL # 4

Implement a flexible, efficient world-wide computer and communications infrastructure.

Objective: Implement a computer and communications infrastructure that is transparent to the applications software residing on it.

Objective: Establish technical policies and a standards based open system architecture to guide implementation of the infrastructure.

To meet these objectives we will:

1. Apply policies and programs to guide infrastructure development and modernization through standards based architectures.

2. Strengthen the management of information technology assets in conformance with architectural and configuration management principles.

3. Ensure that the computing and communications infrastructure can evolve to meet the processing and support requirements of DoD information systems.

4. Benchmark the infrastructure against best commercial practices and performance measures.

5. Improve software practices through software process management, software metrics, software engineering environments, and software reuse.

6. Evaluate new technologies to identify opportunities for significant cost savings or improvements in mission effectiveness.

Performance Measures:

1. Number and percent of information systems fully integrated into the Defense Information Infrastructure (DII).
2. Percent of DII meeting open system architectures.
3. Unit costs of DII transactions compared to commercial sources through benchmarking.
4. Greater interoperability.
5. Lower costs for development and operations.
6. More responsive application of new computer and communications technologies.

GOAL # 5

Apply Corporate Information Management to integrate Defense Enterprise-wide operations.

Objective: Integrate technical programs, particularly cross functionally, so that barriers to data sharing, transfer and interoperability are identified and removed.

Objective: Integrate end-to-end functional processes to achieve greater effectiveness and efficiency.

To meet these objectives we will:

1. Develop policies for and oversee performance of technical integration activities as they support CIM and Enterprise Integration.

2. Assess Enterprise Integration policies, plans, programs and performance and identify areas for improvement as needed.

3. Ensure that policies and programs across process reengineering, data, information systems, and infrastructure are integrated and compatible.

4. Develop and implement a coordinated CIM strategic and operational planning process.

5. Apply CIM/EI to strengthen linkages with Allies, other Government Agencies, and Industry.

Performance Measures:

1. Cross-functional processes that are reengineered to support end-to-end operations that are critical to DoD leadership goals.
2. Improved end-to-end performance of functional processes.
3. Reduced functional and technical costs.
4. A more integrated defense enterprise.

GOAL # 6

Establish CIM policies and management structures.

Objective: Ensure that the Corporate-wide information management structures are put in place and can support the DoD's information needs for the 21st century.

Objective: Establish CIM policy to guide CIM implementation by communicating and clarifying goals, objectives, methods and procedures.

To meet these objectives we will:

1. Develop, implement, and maintain policies for information systems, data, process reengineering, and infrastructure.

2. Establish the management structures and processes to implement CIM on a self-sustaining basis.

3. Establish necessary management structures to involve the senior DoD leadership with providing strategic guidance and priorities to the CIM and EI initiatives.

4. Establish mechanisms to identify and prioritize CIM programs and alternatives for resource investments.

5. Establish performance measures for CIM implementation progress, evaluate actual versus planned progress, and adjust programs as appropriate.

Performance Measures:

1. CIM/EI policies and management practices are current and implemented.

ENTERPRISE INTEGRATION

Implementing Strategy

June 1994
Center for Integration & Interoperability
Defense Information Systems Agency
U.S. Department of Defense

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1.0 EXECUTIVE SUMMARY

The Corporate Information Management (CIM) initiative, embodied in policies and programs, implementation guidance, and supporting resources, was established by DoD to help functional managers improve their processes, data, and information systems. It consists of four major thrusts: simplify and streamline DoD processes through improved decisionmaking using Business Process Re-engineering; share standard data provided through DoD databases; use common information systems; and implement a Defense Information Infrastructure serving as a common utility.

New challenges at home and abroad require the Department of Defense to re-interpret the requirements inherent in its fundamental mission to "provide for the common defense" of the nation. Increasingly limited DoD assets and capabilities must be used effectively to respond in non-traditional ways to unique global situations and changing national priorities. The current organizational focus on narrow concerns must be changed, so that DoD organizations and personnel increasingly concentrate their efforts on creating international, national, and DoD enterprise wide solutions and delivering quality services to end users. EI is a key strategy for achieving mission success in the future.

Enterprise Integration is the CIM key implementing strategy for meeting the formidable new challenges DoD faces as it moves toward the 21st century. From another perspective, EI can be seen as both the vision of the integrated enterprise that the Department of Defense must become if it is to continue to effectively and efficiently fulfill its mission and the implementing processes for realizing that vision. The common thread that connects each of these different characterizations of EI is the fact that a changing set of operational practices both in functional areas and in information management are critical to more effective warfighting and an efficient Defense Enterprise.

EI allows the Department of Defense to optimize the use of information as a strategic resource to: manage more effectively; bridge functional and technical boundaries within DoD; forge closer ties with other Federal agencies, industry, allies, and coalition partners; and to increase flexibility and agility. EI will enable Defense leaders to bring all available capabilities to bear successfully on every assigned mission, to the benefit of the American people and the world community.

The key words in the EI vision are "integration" used in its broadest sense and "implementation" used in a practical sense. A fully "integrated enterprise" requires a clearly defined set of shared Departmental missions, goals, objectives, and measures of performance. The strategies, programs, and activities required to achieve corporate vision, goals, and measures of performance need to be executed by flexible organizations that draw on a common "pool" of core competencies and focus resources as needed to satisfy the specific requirements of each operational mission. Behind the warfighting processes of the enterprise, a simplified and common set of infrastructure support services (e.g., purchasing or personnel) need to efficiently meet routine requirements and be ready to be mobilized to meet contingencies. Implementation means pulling all the pieces together with the existing technologies and solutions currently in hand. It means rapid movement toward the principles laid out by CIM policy.

Within an integrated enterprise, a fully integrated set of information systems, based on an open systems architecture, use a common information infrastructure that provides shared data, processing, and communications in support of all users' applications. Also, in an integrated enterprise organizations share, where feasible, integrated physical resources (e.g., facilities, equipment, materiel) designed for flexibility in support of improved business operations.

The processes involved in making an integrated enterprise a reality across DoD are many and complex, and they reach into all aspects of the Department. But the essence of these processes can be distilled into two essential ingredients: Corporate Information Management (CIM), and corporate understanding and commitment to change within the DoD. CIM provides the overarching policy for functional (i.e., "business") process re-engineering, standard data, common information systems, and a standards-based infrastructure necessary to achieve a totally integrated enterprise. While the these goals are technically challenging, corporate understanding and commitment to the implementing processes of Enterprise Integration may be far more difficult to achieve. Therefore, DoD has established an Enterprise Integration Executive Board, chaired by the DEPSECDEF, and an Enterprise Integration Corporate Management Council, co-chaired by PDUSD(A&T) and ASD(C3I), to provide senior leadership forums for managing enterprise-wide issues. The purpose of this paper is to describe the essence of Enterprise Integration and the tactical strategy required to implement the actions that can achieve the necessary and required future state for DoD.

2.0 INTRODUCTION

The fundamental Department of Defense mission is to "provide for the common defense" of the nation. This enduring mission is being re-interpreted from the cold war era to meet the challenges of the 1990's and the 21st Century. The end of the cold war means that the United States faces a more uncertain world situation and must be capable of responding in non-traditional ways to new opportunities for achieving peace and democracy, economic security, and protection of the environment. At home, changing national priorities require a new focus on competitiveness, jobs, health, community, education, and the national infrastructure. DoD will be expected to contribute to the national agenda, including the "reinvention" of the Federal Government itself.

With an increasingly constrained Defense budget, the DoD has had to match more carefully its capabilities and resources to the new global situation. Obviously, it is imperative that this process not result in a "hollow force." The Department of Defense must maintain its preparedness to safeguard our national interests in the changing world. Accordingly, the DoD must become more efficient, more responsive, and more effective; it must be able to deliver higher quality products and services to its constituency at a lower cost. Also, DoD must be prepared to deliver highly customized responses to increasingly unique world-wide contingencies. One key to meeting these challenges and achieving the defense mission is through CIM and Enterprise Integration (EI).

CIM provides the overarching policy, implementation guidance, and supporting resources leading to the necessary DoD Enterprise Model, Business Process Re-engineering tools, shared corporate data, common systems, and standards-based infrastructure. The other essential element for managing change is that of total corporate understanding of and commitment to the EI processes. Neither element can stand alone. Both are needed to make the vision of an Integrated Enterprise a reality across DoD.

EI is a tactical strategy and an implementing process. It is a new way of using information as a strategic asset to manage DoD far more effectively and efficiently. It bridges functional and technical boundaries in DoD and with industry, allies, and coalition partners to promote communication, increase flexibility, and avoid waste and duplication. EI can be viewed as a mission-oriented focus on cross-functional integration supported by integrated information

systems. This will allow Defense leaders to bring all available capabilities to bear successfully and efficiently on every assigned mission.

2.1 Vision of the Future Defense Enterprise

In the not too distant future, the United States Defense posture will be quite different from the present as described by the following vision for DoD. The vision will impact missions, force structure, physical assets, financial and human resources. The following scenario traces the impact of that vision.

New Missions. The United States faces new threats and opportunities abroad. U.S. forces are engaged, both multilaterally and unilaterally, in a wide spectrum of assigned missions ranging from peacekeeping and humanitarian assistance, to resolution of regional conflicts. In addition to its traditional military missions, the Department is undertaking activities to strengthen democracy, promote economic security, prevent the proliferation of weapons of mass destruction, and assist other elements of the U.S. Government in meeting national emergencies and achieving national priorities.

Continued Military Superiority As DoD Downsizes. The Department has been downsized from its late 1980s' posture, yet, maintains its military superiority through a combination of better intelligence, sophisticated joint command and control, smart weapons, highly motivated and trained personnel, and the application of information management to all DoD activities. Commanders can exploit a total, integrated, "strategic to tactical" flow of information from airborne, shipborne, and ground-based sensors, units, and intelligence assets to conduct joint and combined operations.

Sustaining Base/Theater Integration. The sustaining base has been integrated seamlessly with the Theater to deliver the right mix of assets and capabilities when and where they are needed by the Combatant Commander to achieve the assigned mission.

Interagency/Ally/Partner Integration. The Department has strengthened its partnerships with other Government agencies to implement Presidential priorities by coordinating policy and focusing available Government and private resources on national and international problems. Robust information links over a national "information highway" enable all Government agencies to work together for planning, routine activities, and emergency responses.

Industrial Base Integration. The military industrial base has been fully integrated with the commercial base by removing unnecessary bureaucratic barriers and providing electronic commerce/electronic data interchange (EC/EDI) capabilities and Continuous Acquisition and Life Cycle Support (CALS) linkages to industry/manufacturing. The Department can increasingly obtain and use standard commercial products and services, at lower cost to the American taxpayer. DoD is transferring advanced technologies to US Industry, and pursuing dual use projects, so U.S. industry can be more competitive in the global marketplace, and can create more and better jobs for American workers.

"Empowered" Culture. The DoD culture and values have changed to give people greater responsibility and capacity to improve their work. New job descriptions, skill training, and rewards imbed the leadership's objectives in the behavior of organizations, teams, and individuals. People are "empowered" to contribute to their country, grow in their jobs, and lead more productive, healthy, and satisfying lives.

Business Process Re-engineering. All Department functions and organizations have been re-engineered, improved, and integrated while being supported by modernized, standards-based information systems which provide "end-to-end" flows of information and decision support. These systems are based on full-spectrum, shared, reliable, and secure information services, accessible to all users at affordable costs.

To realize the DoD integrated enterprise vision - to make it a reality - the functional and technical barriers that currently impair the efficiency and effectiveness of the Department need to be reduced or eliminated and DoD functions, data, and systems need to be linked so that the full power of the DoD can be marshaled to meet its new challenges.

2.2 What does it mean to Integrate the Enterprise?

Enterprise Integration is sometimes thought to embody only the functional and technical integration of an organization's information systems. But total Enterprise Integration is not limited to the alignment of an organization's information resources. Rather it comprises: shared strategic direction for the organization itself, consistently deployed at all levels; the integration of both internal functional organizations and external partners and suppliers; the integration of "end-to-end" processes that cross functional and organizational boundaries; the establishment of a cooperative culture throughout the organization and the empowerment of people; integration of financial assets and human resources; the standardization of data and the sharing of corporate information through a common information infrastructure; and the integration of an organization's physical assets to ensure a flexible and adaptive physical infrastructure. The following sections review each facet of a fully integrated enterprise:

Integrated Planning and Direction: An integrated enterprise develops and maintains consistent values, missions, visions, goals and objectives, measures of performance, and programs at all levels. Investment decisions are based on a common functional enterprise model and strategic direction shared by all elements of the enterprise. Business unit objectives are integrated with partner and supplier objectives in order to maximize "end-to-end" value chain benefits. Improvements are harmonized to optimize impacts, and scarce investment resources are prioritized against the enterprise objectives. Integrated financial management ensures shared resources that are programmed and budgeted looking across functional lines. It also achieves economies of scale, recovery of costs, accounting of resources, and continuity for process improvement funding within and across functions. Cross-functional management solutions to enterprise wide issues are identified, planned and programmed.

Integrated Organizations: Both internal organizations (e.g., functional departments) and external organizations (e.g., trading partners and customers) are integrated within the "extended enterprise." Competencies and resources are leveraged across functional and organizational boundaries. Business unit organizations are flexible enough to be part of one or more virtual

enterprise organizations. Core competencies are recognized to be independent of functional organizations and leveraged across services and product lines. Business relationships and alliances are formed quickly and effectively to achieve corporate objectives which are situation dependent and highly variable. Transactions between partners and suppliers are optimized to add maximum value. Teaming brings complimentary skills and resources to bear on missions from wherever they are available.

Integrated Processes: One of the most important aspects of an integrated enterprise is the integration of business processes across varying functions. Traditional functional organizations tend to focus on narrow concerns rather than concentrating their efforts on creating enterprise-wide solutions and delivering quality services to end-users. Industry is rapidly moving to a "horizontal" process orientation that capitalizes on core competencies in functional areas, where "vertical" functions such as personnel, finance, materiel, and information management can be linked together into total value chains. Business Process Re-engineering is applied routinely throughout the DoD. Current baselines are assessed for performance and resource use. Benchmarks are identified to determine "best" practices in Industry and Government. Based on these assessments, and the goals of the leadership, processes are simplified and streamlined to the greatest extent possible. Non-value added activities are eliminated. Focus is placed on satisfying the customer's needs. The right products are supplied at the right place and time to help achieve the assigned mission. Parallel processes and concurrent activities are introduced to speed cycle times. Processes are designed to use the best available technology and a shared information environment. Standards are established for processes including metrics for quality, time, flexibility, customer satisfaction, and cost. Feedback for measuring performance is "built-in" to processes. Continual cross-functional improvements are made to processes with periodic major innovations based on "paradigm shifts."

Integrated Human Resources: People are the most important resource of any enterprise. They apply their knowledge and skills to manage and perform processes within and between functional activities. In an integrated enterprise, a cooperative culture exists between all levels of the organization and between all functional areas. Emphasis is placed on team building. Management motivates people by rewarding positive behavior that aligns with enterprise direction. Cross-functional process improvements are managed and executed by cross-functional, multi-disciplinary teams such as an Integrated Product Team. Efficient and effective person-to-person communication is facilitated by an open environment that encourages "two-way" communications vertically and horizontally across the enterprise. Continual education and training is used to improve personal performance and to enrich job content. Non-traditional "flat" organization structures facilitate smaller distributed work groups oriented around performance of complete processes. Teams and individuals are empowered to innovate and improve their work supported by sophisticated information technologies, like multi-media conferencing and "groupware". Process improvement methods and practices are imbedded in the enterprise through changes to culture, new job descriptions, new performance measurement systems, and rewards for achieving Defense objectives.

Integrated Financial Resources: Integrated financial information is essential for managing the DoD, ensuring proper external oversight, and satisfying statutory requirements. In the integrated enterprise, financial policies, practices, and procedures are standardized, and are supported by shared, standard data, and common information systems. Financial and accounting information is timely and accurate, and is made available to all potential users, subject to the constraints of an organization's right to control access to privileged information, national security, and respect

for the personal financial privacy of the individual. Simply put, this means that responsible managers have direct access to the financial information they need to do their jobs. There is an integration of finance and other functions, where appropriate, so that duplication of reporting is avoided, the best "source" data is used, and managers can obtain a total view of the resource used to satisfy their mission and tasks. Quality, cost effective, integrated financial services are made available, when and where needed, to all DoD customers and users. The DoD has as migrated to Department-wide standardized financial systems that support improved finance and accounting processes.

Integrated Information and Systems: In the integrated enterprise, information is managed as a corporate asset so managers and workers can share a complete, consistent, accurate, and timely view of the enterprise. A rigorous and unambiguous terminology is established through semantic data modeling and data standards. Focus is placed on the capture and effective use of enterprise knowledge as the strategic resource in the Information Age. Information systems provide an important enabling technology for improving decision making and process performance. Unfortunately, many existing systems were put in place without an overall integration strategy and were designed to automate a narrowly defined function rather than an "end-to-end" or complete process. Systems are designed according to an open architecture that allows for both extensibility and flexibility, and rapid interconnection with other systems to accomplish a specific task. A common information infrastructure supporting all applications is shared among all users. The common infrastructure can be extended to include customers and partners (e.g., other Government agencies, allies) to support a global view of DoD's missions and interfaces. The information content of business transactions is standardized to facilitate electronic data interchange for both business and technical data. The quality of data is continually monitored and controlled, ensuring that the right data is provided to the right person at the right time. The traditional paper-oriented environment is replaced with a more robust multi-media electronic-oriented information environment that recognizes the value of sharing and reuse of information within the enterprise and with other organizations. The Continuous Acquisition and Life-Cycle Support (CALS) concept and technologies for an Integrated Data Environment (IDE) can be applied across DoD functions and with industry to enable process improvement and cost savings. Duplication in the current baseline of information systems is eliminated rapidly and current legacy information systems transition smoothly to the integrated environment through encapsulation or conversion.

Integrated Physical Assets: The final aspect of the enterprise is its physical assets that include facilities, equipment, and material. Facilities are designed for the logical flow of information and materials and are adaptive to changes in processes and product mix. Field, manufacturing, and test equipment is flexible with minimal delay and cost for changes. Materiel handling is flexible and integrated with the information system. Material flow is managed to facilitate just-in-time inventory control. The investment decision model for equipment and facilities considers the value of quality, time, and flexibility. Weapons and other end-items have standard interfaces with information systems so that they can be monitored, maintained, and controlled.

Enterprise Integration is a systematic implementing process for removing functional, managerial and technical barriers within an organization, and leveraging all available capabilities to achieve an organization's objectives. Enterprise Integration provides for the establishment of end-to-end managerial and functional processes, shared data, and common or interoperable information systems that result in the highest degree of mission effectiveness and resource efficiency.

But Enterprise Integration also encourages a broader concept of the Enterprise; indeed, it underscores the importance of a "global view." By establishing functional integration and technical interoperability with other US Government agencies and the private sector, the DoD can leverage the Enterprise Integration process to achieve even greater efficiencies and national-level effectiveness. For example, it is easy to recognize significant functional intersections between the Veteran's Administration and Health and Human Services with DoD's Human Resources functional area. Similarly, there are obvious opportunities for data standardization, information interchange, and resource sharing between the General Services Administration, the Federal Trade Commission, the Department of Commerce, and private sector contractors with DoD's Materiel Management and Procurement functional areas. Figure 1 shows the end-to-end processes that cross DoD functional areas and link with external agencies and the private sector.

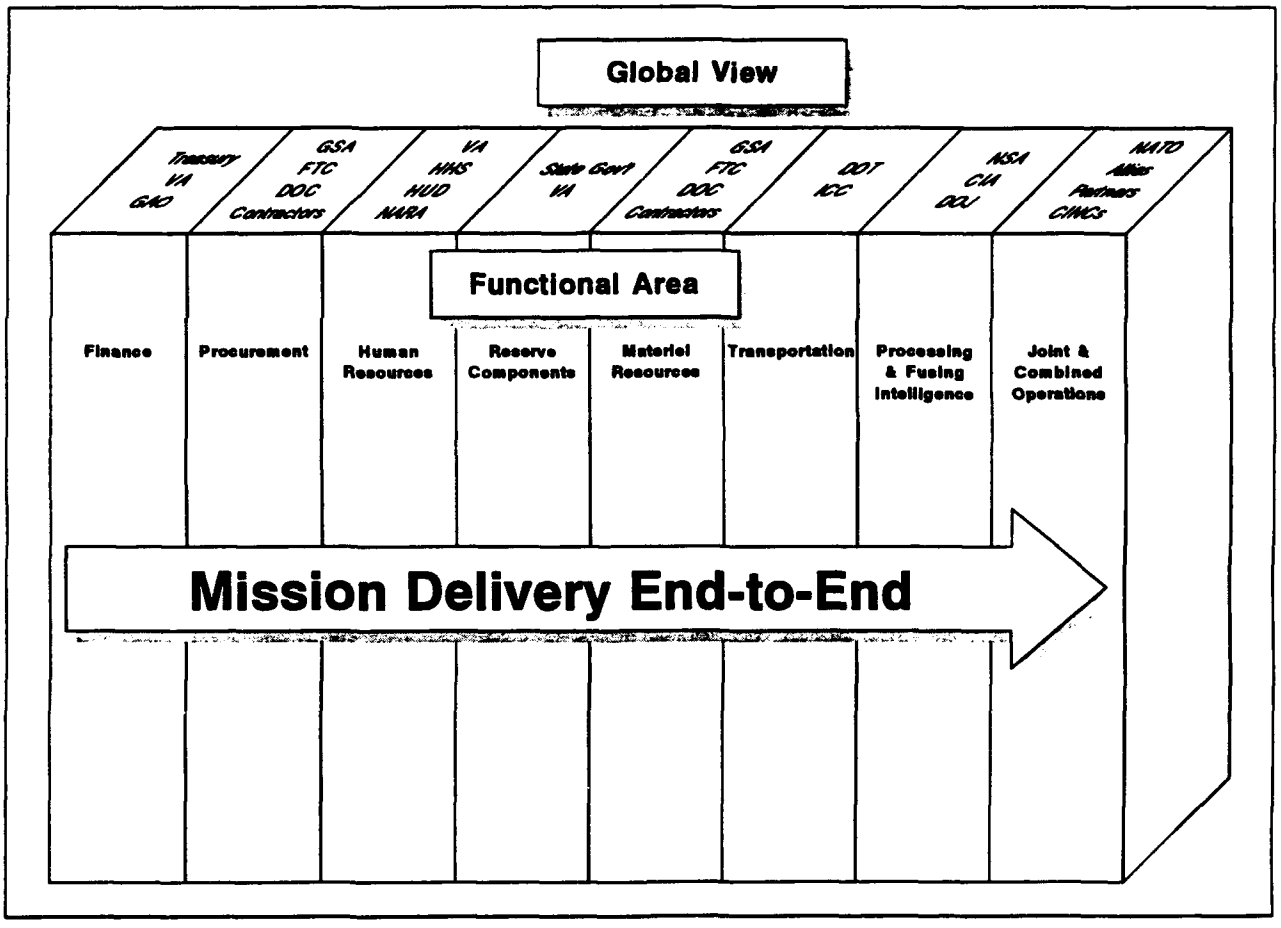

Figure 1. Mission Delivery End-to-End

As an organization becomes more integrated, its various elements evolve from narrow concerns to being highly interdependent, coordinated, and synergistic. Table 1, depicts the stages these elements go through during the EI implementing process.

Enterprise Elements	Current Situation	NEAR TERM TRANSITION	Integrated Enterprise	Enablers	Implementation
A. Mission Objectives	Largely independent	Interdependent within DoD	Interdependent within DoD & with other Government Agencies	Enterprise Modeling and Strategic Planning	Develop EI Strategy & Plans
B. Processes	Functionally-oriented	Critical cross-functional links	Cross-functional, Enterprise-wide processes	Business Process Reengineering	Conduct BPR from Enterprise Perspective
C. Organization	Hierarchical	Mixed hierarchical & networked	Horizontal/networked	Organizational Analysis	Link organizations
D. Human Resources	Individual & non-participating	Individual and team	Team, partnership, alliance	Human Empowerment	Change Management; improve culture, realign jobs & reward systems
E. Financial Resources	Inconsistent, non-standard, not integrated with other functions	Increased accuracy, standard systems, initial integration, cost visibility	High quality, full access, standard practices/data/systems, integrated with other functions	Financial reengineering, systems migration, data standardization	CFO 5 year plan, DFAS plan
F. Information	Non-standard, inaccessible, out-dated, insecure	Initial standards and cross-functional data	Shared, standard, accessible, accurate, timely, secure	Data Standards and Data Administration	Migrate data & implement, shared, standard data bases
G. Information Systems	Stand-along/stovepipe	Interfaced	Common, "open," integrated	Architecture and standards	Migrate information systems
H. Physical Assets	Rigid, expedited	Hybrid	Flexible, cost effective, just-in-time	Infrastructure initiatives	Prototype & evolve the DII

Table 1. Enterprise Integration Elements

3.0 THE ENTERPRISE INTEGRATION CHALLENGE

We sketched a vision of the future integrated Defense Enterprise and have outlined the different elements and attributes of that vision. But Enterprise Integration doesn't happen automatically. It can only be achieved through committed leadership and a team of mobilized and empowered people with new attitudes towards change and their day-to-day tasks. Moreover, the current barriers to EI must be removed, and tools and resources must be provided to make EI happen. How do we begin to fashion this environment for change? First, it is necessary to know the key factors that are critical to the success of the endeavor - the "critical success factors." Second, it is necessary to have a more detailed idea of what strategies to take to achieve the EI goal.

3.1 Critical Success Factors for Enterprise Integration

Communicate EI. Everyone in the Defense community needs to be aware of the pressing need for EI, necessitated by the downsizing of the Department. The alternatives are stark: either achieve a dramatically more effective and efficient DoD or loose real capability to prevent and win wars. Each individual in DoD, as well as its contractors and stakeholders, needs to help remove functional and technical barriers that prevent the Department from bringing all its available capabilities to bear on its assigned missions. This perspective needs to be shared and then communicated by the leadership of the Department.

Lead EI. Defense managers and military commanders must lead the way to EI by their own example and commitment. They need to show that a non-parochial, enterprise approach is the strategic answer for the 1990s. Conversely, all plans for change need to be aligned with the leadership's goals and measures of success to make the compelling case for change that will engage the leadership. Leaders must empower people across DoD by removing barriers that impede EI, and by promoting the enablers of change: new attitudes, streamlined procedures, tools and techniques for improvement, rewards for excellence, and necessary resources.

Implement EI. Change requires a systematic, disciplined approach that is grounded in sound principles, tools, and techniques: the infrastructure for EI. The Department needs to establish a total "life-cycle" methodology that addresses improved business methods, integration techniques, processes, data, and information systems. This life-cycle needs to be supported by effective and low-overhead management structures that help functional and technical organizations coordinate

and integrate changes across the Department at all levels. Finally, specific tools and techniques need to be made available for integrated, end-to-end support of the new EI processes.

In short, what is needed is Communication, Leadership, and Effective Execution!

3.2 DoD Enterprise Integration Strategy

The DoD has established a set of near- and long-term strategies for Defense Enterprise Integration. These strategies draw on the lessons learned in the private sector and the successes already observed in the DoD. Near-term strategies embody tasks and objectives that need to be initiated and achieved within the next three years to institutionalize the EI process across DoD, and achieve immediate improvements in operations and support activities. Long-term strategies map out fundamental changes to how DoD conducts its business. These strategies are reinforced through specific goals and measures of performance.

Enterprise Integration will be achieved through the on-going Corporate Information Management initiative that was started several years ago to help functional managers improve their processes, data, and systems. Process improvements are difficult to implement in an environment with so many independent supporting information systems. The Department stresses a parallel path for business process re-engineering and technology enhancements. It makes sense to simplify the systems first, while gathering an initial baseline on the over-all functional process. This will jump-start the business re-engineering processes by reducing the number of information systems into a few that support the prime functions for the organization. Implicit in this simplification of systems is a standardization of functional processes that results in improved performance and cost savings.

3.2.1 Near-Term Enterprise Integration Strategies

The near-term EI strategies are aimed at jump-starting the EI process in order to get it into motion as quickly as possible and imbed it into the fabric of the Department. They also establish the information management foundation for further progress. The near-term strategies are described below.

Establish Senior DoD Executive Ownership for EI. As EI frequently requires significant decisions that lead ultimately to cultural and institutional changes, it is imperative that EI efforts be led from the highest levels of the organization. The offices of the SECDEF and DEPSECDEF should be actively involved in all major aspects of EI for DoD, to establish the goals and objectives

for EI, and effectively communicate these goals to the functional proponents. This process commenced with the DEPSECDEF memo of 13 Oct 93 on accelerated selection of migration systems. It is evolving through the chartering of an Enterprise Integration (EI) Executive Board and an Enterprise Integration (EI) Corporate Management Council. Responsibilities of this Board and Council are described on page 19.

Use EI to Build-On Bottom-Up-Review (BUR) Initiatives and Support the Defense Performance Review Process. CIM and Enterprise Integration are, fundamentally, about "reinventing" DoD. CIM policy and EI implementing processes build on the efforts of the Bottom-Up-Review decisions and the continuing initiatives of the Defense Performance Review process. The CIM goals and EI plans provide achievable milestones, valid cost-avoidances, and overall enhanced DoD effectiveness through a disciplined, systematic method. The central mission of CIM and EI to help the Department re-engineer its operations and evolve to become an integrated enterprise should be broadly communicated throughout DoD. CIM policies, methods, tools, and procedures can help implement BUR decisions and other strategic decisions, so that a consistent set of improvement initiatives drive DoD toward a shared leadership vision for the future.

Centralize Responsibility for EI Program Implementation in a Single Organization. In order to achieve central responsibility and accountability for Enterprise Integration across DoD, CFI&I will be assigned the Enterprise Integration mission in the Defense Information Systems Agency (DISA). This staff will continue to develop and maintain implementation plans as mentioned in their Integration Strategies, ensure efforts are executed in accordance with best IM practices and common solutions are used, and remove barriers to EI as necessary. Additionally, the EI staff will provide support to the EI Corporate Management Council as required. Programmatic and policy direction will be provided by the ASD (C3I).

Establish "Standard" Information Systems Quickly. The Department needs to establish a common baseline of non-duplicative, standard information systems as a part of a solid-foundation for continual long-term functional improvement. Interim standards for a "critical core" of data entities should be approved, and new Automated Information Systems (AIS) not yet past Milestone II should be required to meet these standards. Migration system planning should be resourced and brought to a close in FY 94, and the selected migration systems implemented within three years. When the migration systems are standardized throughout the DoD, legacy systems will be "shut down" to achieve savings from eliminating duplication. As this standard baseline is being

implemented, target system planning, architecture, and development will begin, to accelerate business process improvements.

Continue Business Process Re-engineering. In parallel with the migration to a common, standard baseline, functional managers should continue progress on the productivity improvements identified by Defense Management Review Decisions (DMRD) and accelerate their Business Process Re-engineering efforts to identify additional improvements. These should be accommodated in migration systems, where possible. EI should serve as a basis for generating new decision opportunities through the Program Budget Decision (PBD) and Program Objective Memorandum (POM) process. Effective re-engineering also requires "change management" to re-train workers and overcome cultural barriers to change, and motivate people to use new technologies and systems. Financial management and human resource issues must be addressed and supported by DoD leadership.

Build on Early Successes. The Department should build upon DoD successes and the gathering momentum for CIM. It should select the best aspects of solidly supported concepts and programs (e.g., C4I For The Warrior and Global Command and Control System, Continuous Acquisition and Life-Cycle Support (CALS)) to demonstrate the benefits that will accrue from EI.

The application of CALS and EC/EDI as a BPR enabler will be the "glue" for design, development, and maintaining of weapons systems as well as facilitating linkage within DoD and industry. CIM goals will necessarily use the CALS and EC/EDI principles to hasten their completion.

3.2.2 Long-Term Strategies

In the long-term, total Defense Enterprise Integration will be achieved by fully implementing the Department's information management program. The strategies for accomplishing this goal are:

Institutionalize Business Process Re-engineering Across DoD. True Enterprise Integration requires a disciplined, systematic method for changing DoD operations. Business Process Re-engineering (BPR) is the total, end-to-end approach needed to change processes, organizations, human resources, information and information systems, and physical assets synchronously for optimum impact on DoD operations. This strategy applies BPR using the DoD Enterprise Model, end-to-end processes that focus on mission results, and corporate measures of performance to identify and plan an integrated program of change across the DoD.

Establish and Execute the DoD Enterprise Model. Managing Business Process Re-engineering within and across functions requires a total understanding of the defense business, from "end-to-end." The DoD Enterprise Model provides senior leadership a strategic view of defense activities and data sc they can assess current performance and strategically plan improvements from a global end-to-end process perspective. This strategy makes the DoD Enterprise Model a strategic planning tool used throughout the DoD.

Aggressively Implement Data Standards and Shared Databases. In the integrated enterprise commanders and managers must share a common view of activities. This strategy ensures consistency, quality, timeliness, availability, and security of shared, corporate data by implementing corporate databases using standard data elements as soon as possible.

Integrate Information Management Resources. Integrated processes across the enterprise require standard and interoperable information support. This strategy eliminates duplication in DoD's information systems, migrates them to a common baseline, and evolves them to open environments that support improved functional processes.

Establish an Integrated Technical Architecture Framework for IM. Technical integration is facilitated through a centrally managed architecture that guides and controls the direction of change. DoD's Technical Architecture Framework for Information Management (TAFIM) is the framework to identify key infrastructure intersections and assign responsibilities for managing technical integration. It helps ensure integration solutions reflect the developing policies and requirements of DoD, and are directed toward an open system environment and a shared Defense Information Infrastructure[1] (DII) from a global view. Instituting a standards-based architecture based on the TAFIM and issuing approved technical guidelines to the developers and operators of the technical infrastructure is a near-term necessity.

Implement a Global Defense Information System and Infrastructure. The underlying computer and communications "platform" for DoD - its information infrastructure - needs to be re-engineered

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1/ The DII encompasses information transfer and processing resources, including information and data storage, manipulation, retrieval, and display. More specifically, the DII is the shared or interconnected version of computers, communications, data, applications, security, people, training, and other support structure, serving the DoD's local and worldwide information needs. The DII (1) connects DoD mission support, command and control, and intelligence computers through voice, data imagery, video, and multimedia services, and (2) provides information processing and value-added services to subscribers over the Defense Information System Network (DISN) which is the DoD's consolidated worldwide enterprise level telecommunications infrastructure that provides the end-to-end information transfer network for supporting military operations. Unique user data, information, and user applications software are not considered part of the DII.

to provide cost-effective, reliable, available, high-quality, and secure information services when and where needed, world-wide. This strategy plans, assesses, and guides technical integration of the shared Defense Information Infrastructure (DII) between and among long-haul communication consolidation, data center consolidation, and base-level modernization activities acquiring IT components that enable technology integration as part of a total Defense Information System architecture.

Manage Functional and Technical Baselines. The complexity and interdependence of these strategies require new tools for managing and integrating change. This strategy uses configuration management processes and procedures to ensure coordination of all EI actions.

Figure 2 depicts the CIM and EI elements, including the enterprise integration process and the "pillars" supporting change.

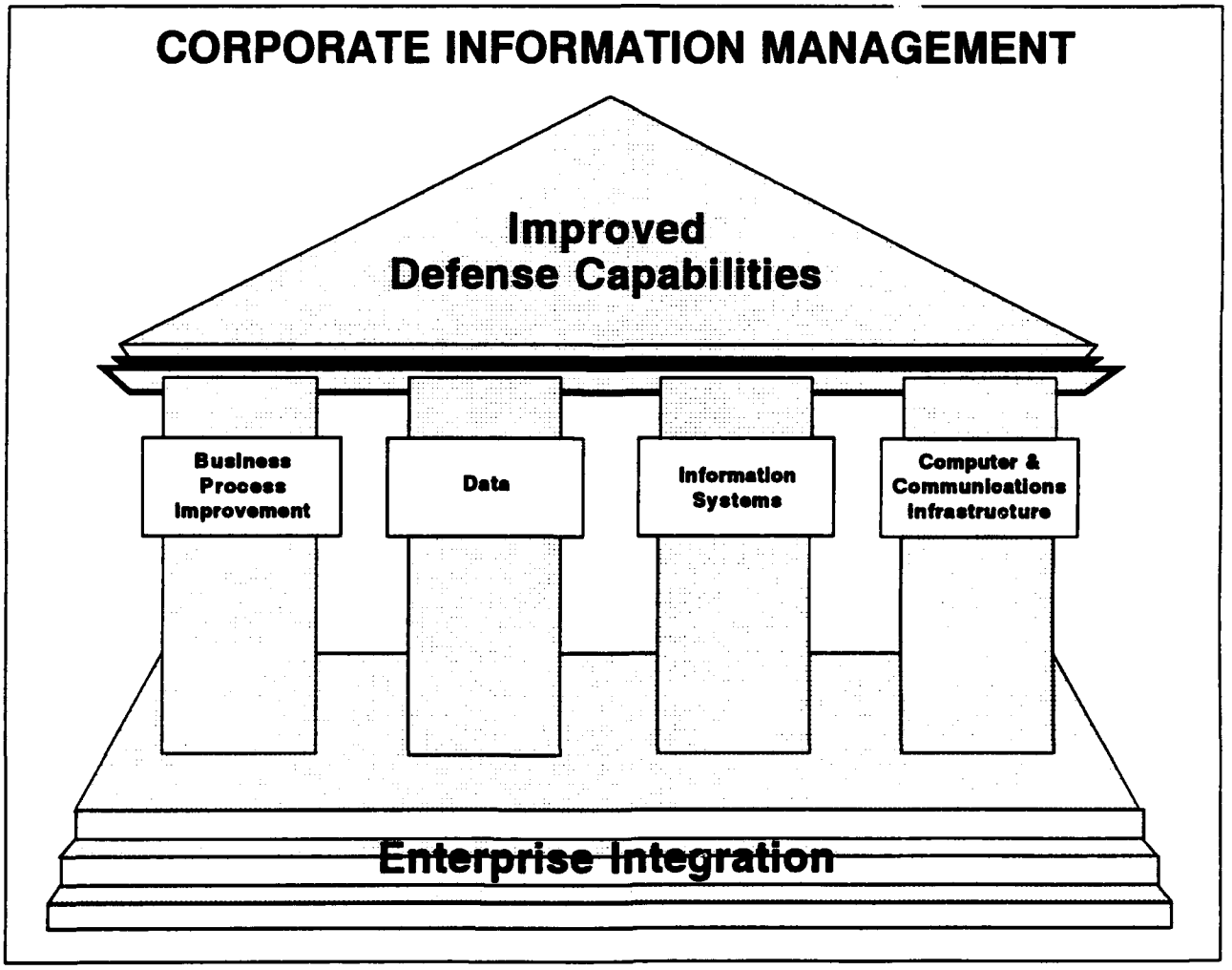

Figure 2. Strategic Vision for Enterprise Integration

3.3 Near-Term Objectives and Measures of Performance

Mr. Perry in his Memorandum of 13 October 1993, stated that "*our near-term strategy requires* selection of migration systems within six months, with follow-on DoD transition to the selected systems over three years. Complete data standardization within three years by simplifying data standardization procedures, reverse engineering data requirements in approved and proposed migration systems, and adopting standard data where previously established by individual functions and Components for DoD use wherever practical."

CIM/EI will develop and validate planning targets to help gauge progress toward Mr. Perry's objectives. These performance measures will be provided by Sept 1994.

4.0 MAKING IT ALL HAPPEN!

We have sketched the vision of the future Defense Enterprise and outlined the basic strategies and management approaches for converting that vision into reality. We have also described the characteristics of an integrated enterprise, and the critical success factors for achieving it. Now it is time to outline the actual mechanisms and specific management structure envisaged to make it happen.

4.1 DoD Enterprise Model

The linkage between the Enterprise perspective (the strategic view) and lower level functions is accomplished through the top-level Enterprise Model activities. The Enterprise model also represents the top level data requirements and leadership priorities for shared data in the form of strategic data entities. Figure 3 shows the top level activities for the DoD Enterprise:

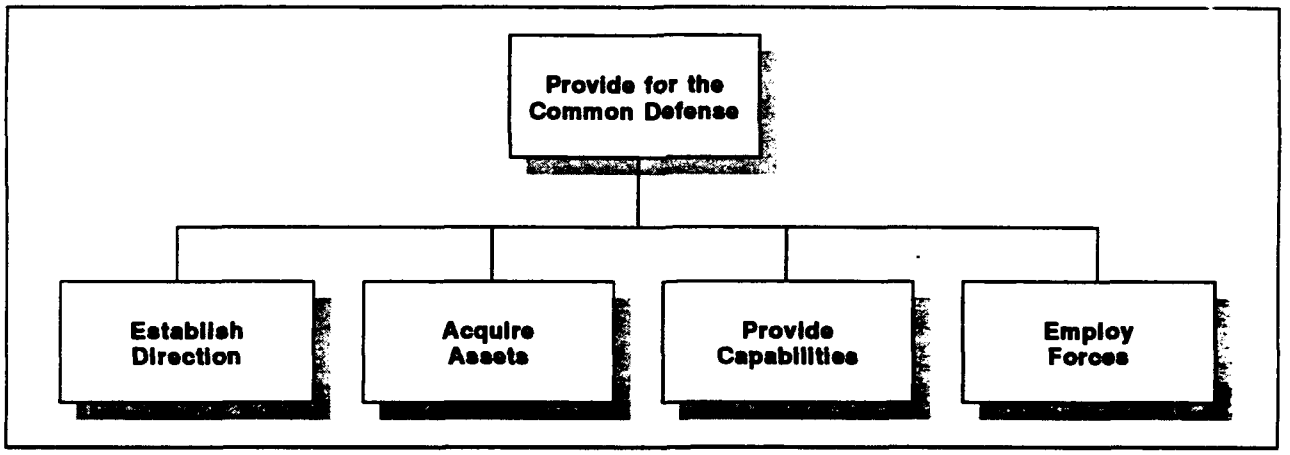

Figure 3. Enterprise Model Activities

The DoD Enterprise Model is the overarching description of all the activities and data within the Department of Defense. Each mission, function, and organization in DoD should utilize DoD Enterprise and Data Models to integrate PSA functional areas into the overall DoD-wide structure. This will provide a structured and greatly enhanced opportunity to discover disconnects and integration opportunities. The DoD Enterprise Model is a means for senior leadership to effect cross-functional and cross-organizational integration. It needs to be integrated with the Defense Planning Guidance and other strategic planning mechanisms.

4.2 Functional Management Process

Figure 4 depicts the Functional Management Process (FMP) for DoD. The DoD prescribes a three-phase FMP strategy for improving management of DoD operations and information. Phase 1 is the establishment of a functional architecture and a strategy for meeting functional requirements. Phase 2 is the establishment of baselines for processes, data, and information systems. This phase entails selecting information systems, which are then designated "migration systems," to support existing business processes. Phase 3 is the improvement of functions, data, and information systems. An Enterprise Integration Architecture helps to guide this process for different management, functional, and technical concerns, at all levels of the DoD. This Architecture includes the DoD Enterprise Activity and Data Models, and the TAFIM. Senior DoD leaders guide Business Process Re-engineering from a top level, total EI perspective to optimize the impact of improvements across the Department.

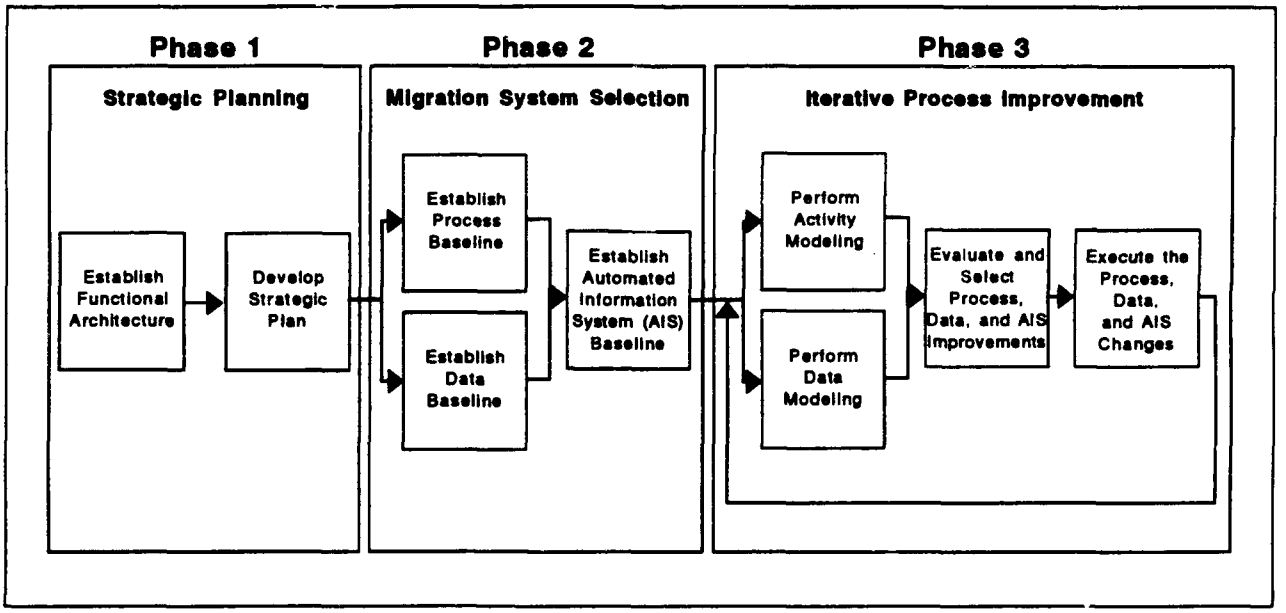

Figure 4. Functional Management Process (FMP) for DoD

4.3 The Cross-Functional Approach to the EI Process

Enterprise Integration is everyone's responsibility, from the Secretary of Defense to the individual defense worker. The process of EI has management, functional, and technical elements. The EI goal is "end-to-end" integration of DoD's processes across functions: the cross-functional view-

point. But cross-functional integration can only be achieved if there is a corresponding technical integration of the underlying information systems. Figure 5 depicts the integration management process to achieve this goal.

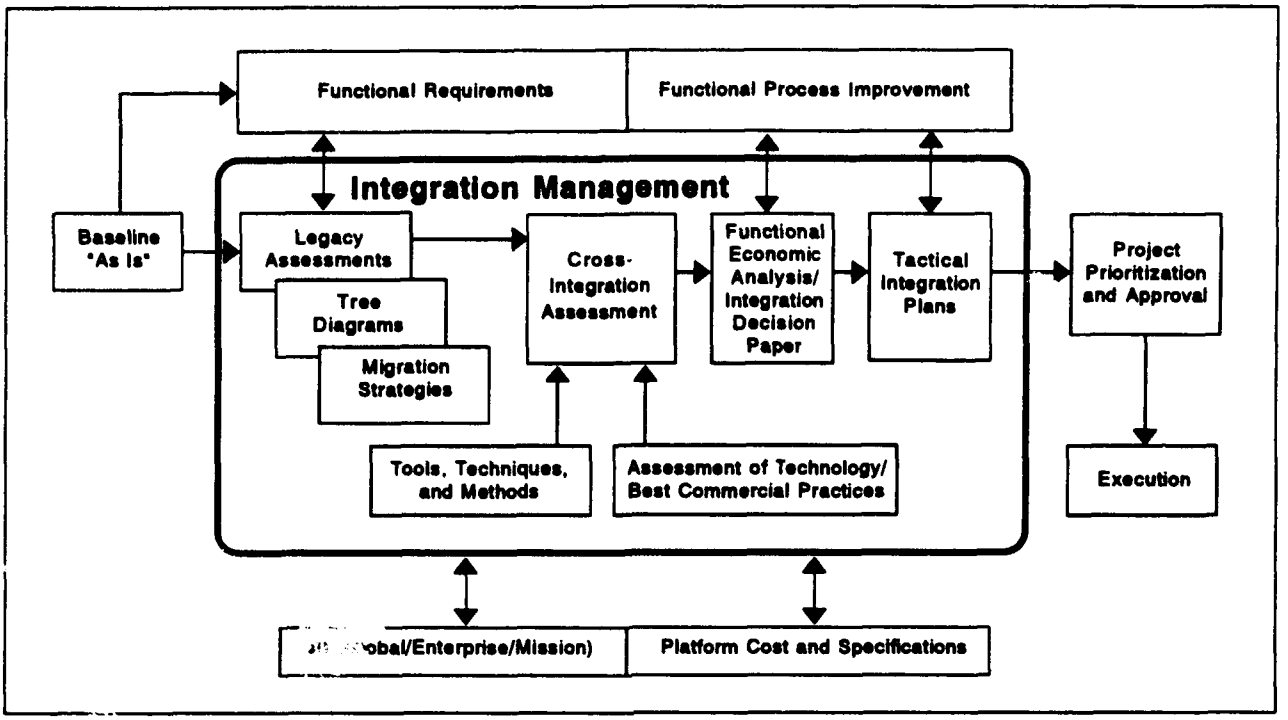

Figure 5. Integration Management Process and Outputs

While the Secretary of Defense, PSAs, JCS, and other functional managers have the major responsibility for functional integration, the responsibility for technical integration rests with the ASD (C3I) and the Director of the Defense Information Systems Agency.

4.3.1 Enterprise Level Integration

The Secretary of Defense is responsible for the functional integration of the Department within the context of the overall National Security Strategy, Public Law, and NCA/Congressional guidance. DoD is in the process of chartering a DoD Enterprise Integration (EI) Executive Board, chaired by the DEPSECDEF, and a subordinate DoD Enterprise Integration (EI) Corporate Management Council to provide forums for EI. The DoD Enterprise Integration (EI) Corporate Management Council identifies and resolves cross-functional issues. It will develop cross-functional solutions to enterprise issues arising out of the accelerated implementations of migration systems, data standards, and process improvements. EI implementation issues will encompass financial assets, human resources, process improvement, management and cultural impacts, and technical

infrastructure solutions. At the Enterprise-level, the ASD (C3I) is responsible for ensuring the necessary technical integration of the Department's information resources to support functional integration. Accordingly, the ASD (C3I) develops an information management strategy, and corresponding information technology and systems policy and plans, within a framework of DoD functional processes, policy, and guidance. Enterprise Integrators are cross-functional teams which resolve issues and plan common solutions. Figure 6 illustrates this functional-technical interaction at the Enterprise-level.

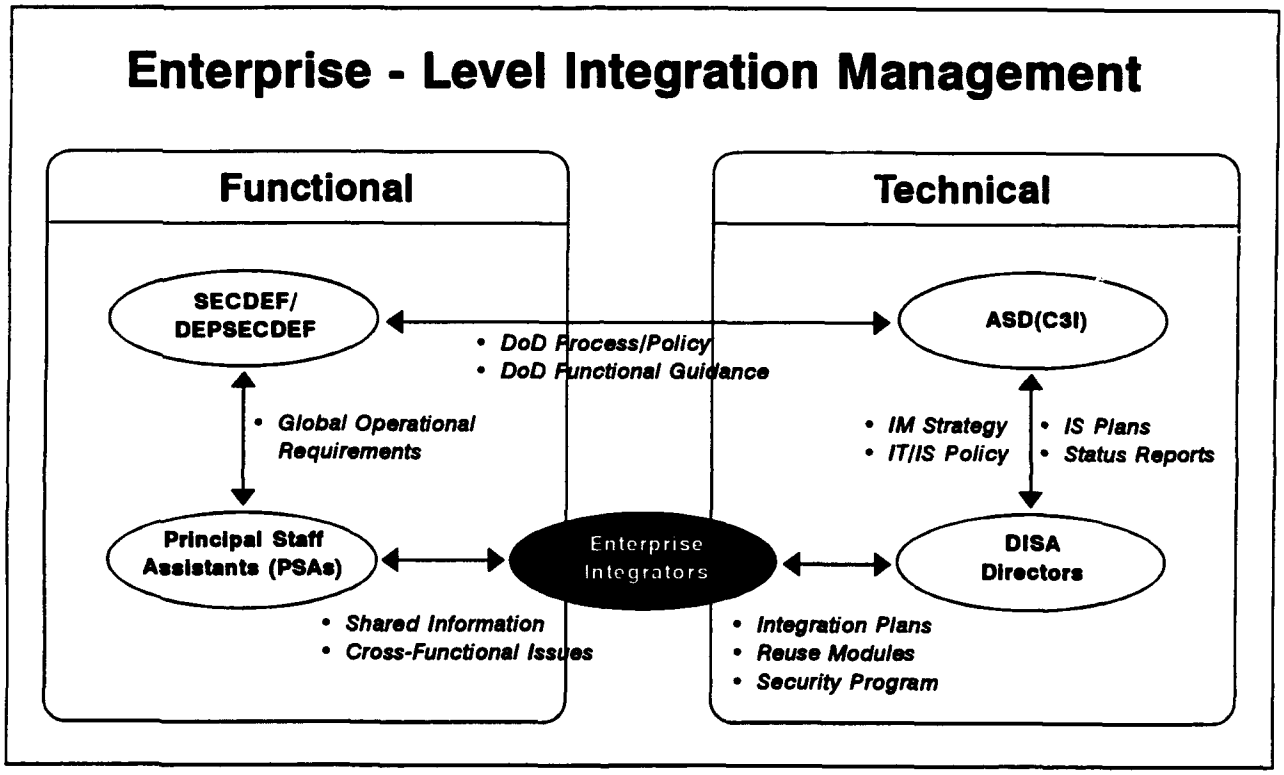

Figure 6. Enterprise Level

4.3.2 Mission-Level Integration

At the Mission-level, the PSAs have primary responsibility for the integration of their assigned functional area with other relevant functional areas, within the context of overall DoD Enterprise goals, objectives and measures defined by the SECDEF and DEPSECDEF. This includes the fact that the PSAs also have primary responsibility for the integration of CALS and EC/EDI. Technical integration at the Mission-level rests with the Director of DISA. Integration Managers are responsible for bridging between functional and technical concerns. Integration Managers are

functional and technical teams used to bridge functional and technical issues and identify common solutions. Figure 7 depicts the integration responsibilities at the Mission-level.

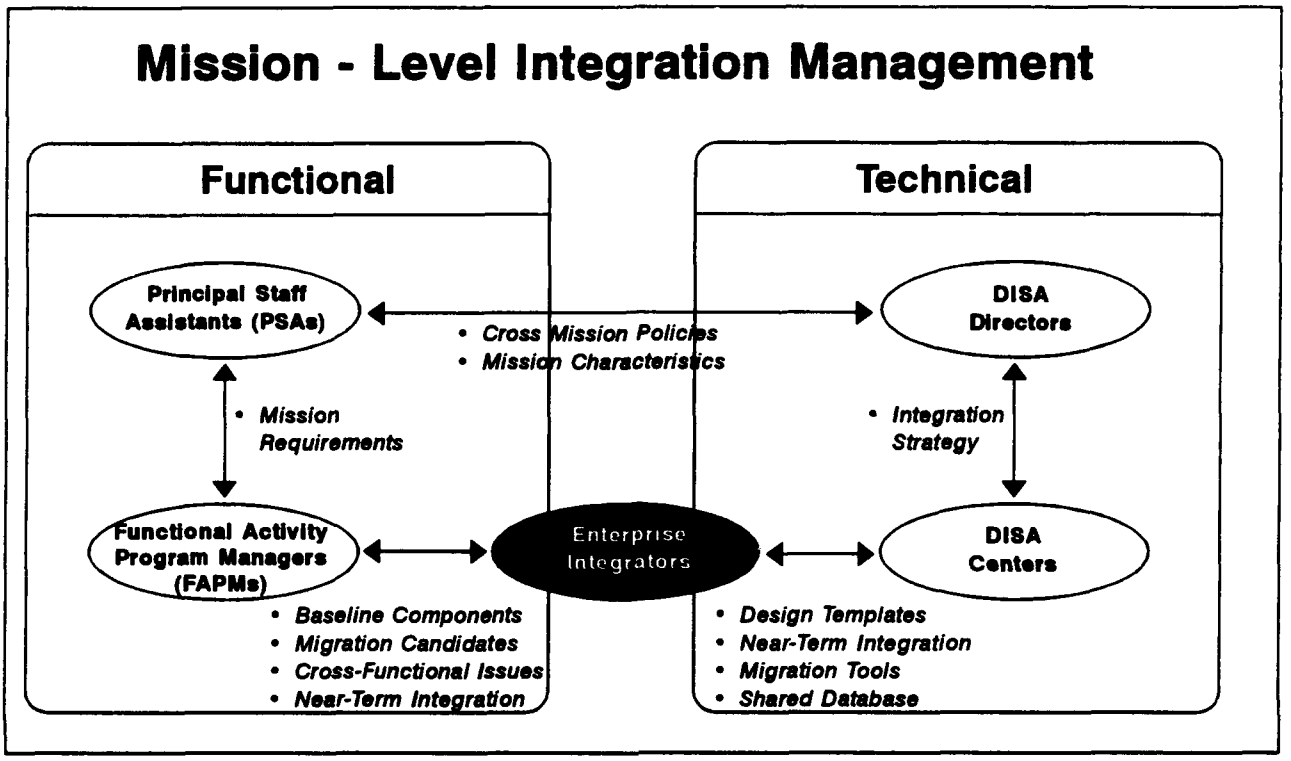

Figure 7. Mission Level

4.3.3 Functional Area-Level Integration

The Functional Activity Program Managers, individuals appointed by PSAs to manage Functional Process Improvement for designated functional activities, are responsible for integrating their assigned functional activities with other relevant activities, within a context of broad functional area goals, objectives, and measures established by the PSAs. Various DISA Centers provide the necessary technical integration support to achieve Activity-level functional integration. Enterprise Integrators are used to coordinate the various functional and technical integration activities. Figure 8 illustrates the interaction of functional and technical integration responsibilities at the Functional-level.

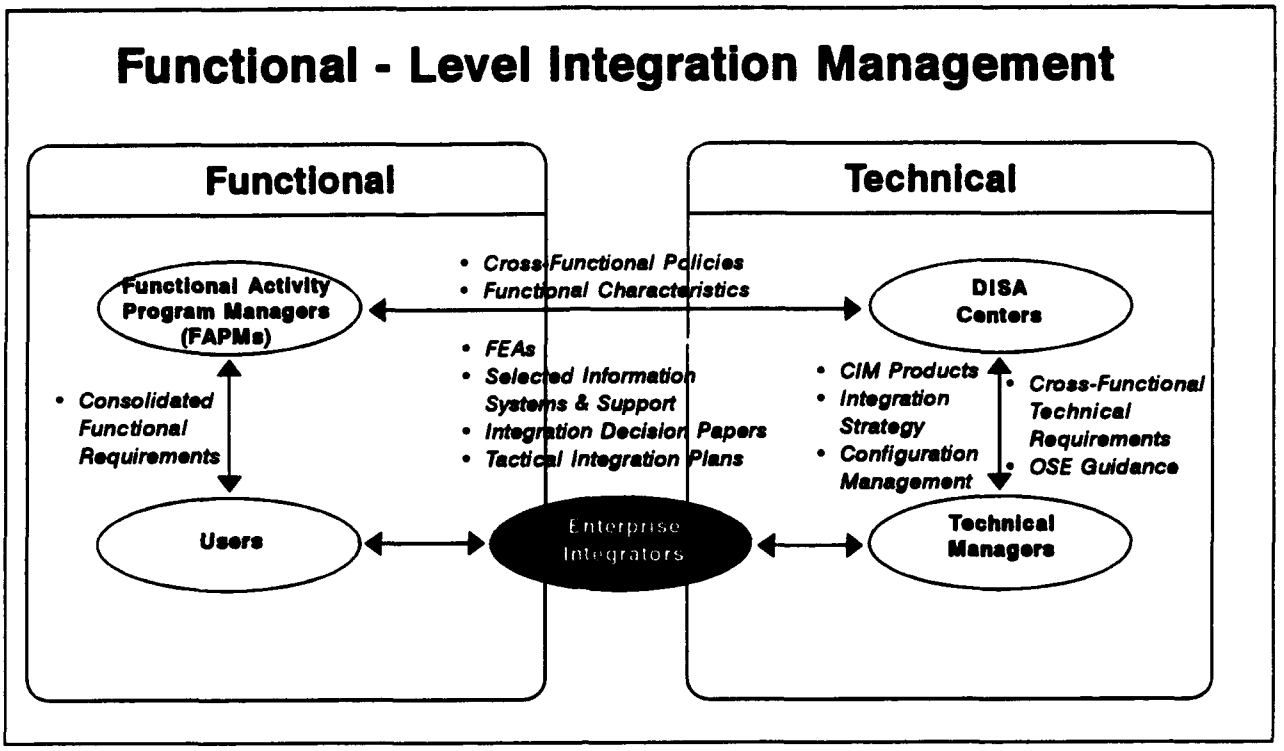

Figure 8. Functional Level

4.3.4 Functional Activity-Level Integration

At the Functional Activity-level, DoD user organizations are responsible for ensuring the integration of their assigned activities with standard DoD processes, data, and information systems. DISA Integration Managers perform a similar function on the technical side. Contractors, serving as Enterprise Integrators, are responsible for vigorously applying integration principles, methods, tools, and advising their DoD clients of functional and technical integration opportunities.

4.3.5 Customer-Oriented Account Organization

Figure 9 shows the CFI&I customer-oriented structure to provide the Principal Staff Assistants with an approach to help conduct BPRs, standardize data, plan for the migration of information systems, use DII services, and find cross-functional linkages and Enterprise solutions.

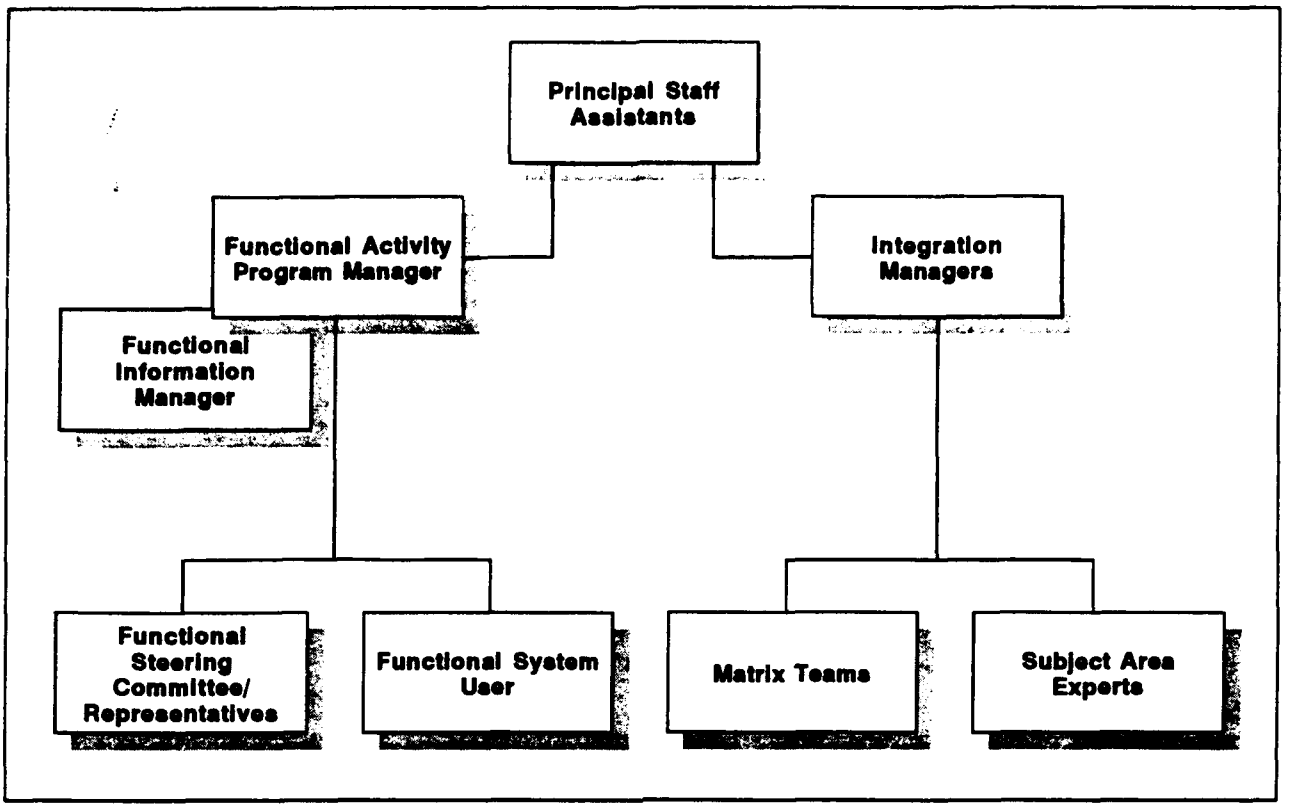

Figure 9. Customer-Oriented Account Organization for EI

5.0 CONCLUSION

The DoD has always been subject to change and evolution; however, the rate of change resulting from the end of the Cold War coupled with the accelerating change in technology has created the need for different management and operational approaches. As a result of these changes the DoD vision for the future includes downsized but technologically superior forces, new peacekeeping and humanitarian missions, an integrated military/commercial industrial base, global information operability, and re-engineered and integrated functions and organizations based on modernized, standards-based open information systems.

EI will support the DoD management orientation to migrate towards greater "jointness" and a "horizontal" focus. This will create more of a "mission-results" culture which will allow the blending of support functions and command and control to strengthen the C4I For The Warrior concept.

EI includes a very broad view of the Enterprise elements which must be integrated to achieve successful cross-functionality and process improvement. The elements include integrated objectives, organizations, financial and human resources, physical assets, processes, information, and information systems. The integration of processes, information, and information systems are key elements which help achieve effective and efficient cross-functional operations. This includes simplified processes based on common data and standardized business/operational transactions using computer based information systems as an enabling technology for improving decision making and process performance.

The framework for achieving EI is the DoD Enterprise Model which provides the means for describing how each mission, function, and organization "fit" in a common way and can operate cross-functionally. EI will require Integration Management from the top to the bottom of the DoD organization. The SECDEF and DEPSECDEF are responsible for Integration Management at the Enterprise-Level where cross-functional policy decisions will be made and provided to the Principal Staff Assistants for implementation using "Enterprise Integrators" are cross-functional teams used to bridge the functional and technical aspects of the policies. At the Mission-Level the PSA's will be responsible for Integration Management where mission requirements will be provided to Functional Activity Program Managers for implementation using the Integration Managers approach. This same approach will be used at the Functional-Level where consolidated functional requirements will be provided to Users.

In conclusion, EI will support the DoD management orientation to migrate toward greater cooperation/integration among the services and a focus on joint operations capability. This will lead to flexible, consistent, and standard information. EI will allow the "warfighter" to fully and effectively pursue his or her mission. EI will provide functionally integrated and truly interoperable and coordinated forces. These forces will be able to respond to any mission world-wide. EI will allow the Joint Task Force Commander to fully integrate the warfighting functions and capabilities of the Service Components. This heightened level of functional integration will act as a force multiplier in an environment of reduced resources and downsized forces.