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STATEMENT BY

MR. PAUL STRASSMANN
DIRECTOR OF DEFENSE INFORMATION
BEFORE THE
HOUSE ARMED SERVICES COMMITTEE
READINESS SUBCOMMITTEE

APRIL 23, 1991

OPENING REMARKS:

Mr. Chairman and members of the subcommittee, it is a privilege to report to you on the current status of the Corporate Information Management (CIM) initiative of the Department of Defense (DoD).

In terms of expense, the CIM initiative is the largest information management program ever conceived by any U.S. business organization. In terms of schedule, it will require every moment of the 5-year period for which savings were initially targeted. CIM calls for a major reengineering and restructuring of business methods and administrative processes in DoD.

The immediate CIM goals are set by the Defense Management Report (DMR) initiatives. Each of the top three DMR cost reduction targets exceeds the annual information management budgets for the top three U.S. manufacturing companies. A significant percentage of DMR cost reductions will be accomplished as a result of the CIM initiative. As Mr. Andrews pointed out, we are now concentrating on improving information management in selected administrative areas, such as contract

payment, civilian payroll, distribution centers, and medical applications. We are also setting the foundation for applying CIM information management methods to all other DoD business areas.

We have chosen information technology as one of the tools to achieve DMR results. Our objective is to shorten the time for delivery of new computer applications by 75 percent while simultaneously realizing savings in excess of $6.0 billion in information technology through fiscal year 1997. This includes savings through reductions in systems development costs, sharing of computer software, consolidation of systems engineering design centers, and simplifying operations of data and design centers. The information technology savings also include gains from the Computer-aided Acquisition and Logistics Support (CALS) initiative and the Electronic Data Interchange (EDI) initiative for paperless processing of business transactions.

Let me emphasize, however, that CIM should not be seen as an information technology program. Although it is expected to deliver in excess of $6.0 billion of savings in information technology, CIM succeeds only insofar as it supports all DMR targets. Information technology should be seen only as the rails on which the DMR freight train can roll to deliver its results!

Even the most ambitious initiatives can succeed only by making steady progress, one step at a time. Therefore, I shall

dispense with generalities and concentrate on examples of what CIM has already accomplished. After that, I shall discuss immediate steps we are taking to make sure CIM ultimately delivers what is expected.

A. ILLUSTRATIVE EXAMPLES OF CIM RESULTS:

1. THEATER MEDICAL AUTOMATION

The start of Operation Desert Shield found the Department without the necessary medical information system capabilities to support a major joint theater operation. The medical functional group provided joint automation support for Desert Storm. This included the Theater Army Medical Management Information System, Defense Medical Regulating Information System, and Automated Patient Evacuation System. Each of these systems had to be adapted to function as an integral part of a joint theater medical operation.

The four Services began immediate implementation of required support. By November 1990, essential automation support was being provided to medical regulating, patient administration, patient evacuation, and medical logistics operations. By the start of Operation Desert Storm, this support was being provided from the Central Command theater of operations, through Europe, and into the support base in the continental United States. Throughout the Operation, the medical group worked closely with the Joint Staff, both theater commands, and the Services to provide the necessary support.

By April 1991, these automation initiatives supported 10,000 patients and tracked the movement of over $200 million in medical supplies in theater. In providing this support, time for a patient regulating request was reduced from 20 minutes to 30 seconds.

Altogether, twelve standard systems have been designated to serve medical information-handling needs of DoD Components.

2. LOGISTIC SYSTEMS

We have selected a number of current, wholesale logistic systems as candidate DoD standards. In the future, we anticipate the functional requirements represented by a large number of existing information systems in the materiel management area will be met by fewer redesigned systems. This will require considerable additional planning and analysis, but we expect substantial returns.

3. CIVILIAN PERSONNEL SYSTEMS

For the civilian personnel function, we have selected a single system - the Air Force Civilian Personnel Data System - to support 94 percent of DoD employees.

4. FINANCIAL OPERATIONS SYSTEMS

The CIM process is instrumental in enabling the Defense Finance and Accounting Service (DFAS) to consolidate diverse financial operations. DFAS is now working jointly with the

civilian payroll group to specify how the DoD payroll business shall be conducted.

The CIM functional groups are currently evaluating Army's travel module for deployment by the Air Force and are also evaluating the potential of adopting Army's Program and Budget System for deployment by the Defense Logistics Agency (DLA) and the Air Force.

The subcommittee should be aware that unification and consolidation of administrative systems is not a simple technical matter. For instance, the civilian payroll group has identified many procedural differences in current business practices among DoD Components:

-- how to calculate pay after expiration of a temporary appointment;

-- how to deliver leave and earning statements (mailing versus hand-delivery);

-- how to document time and attendance and labor accounting (extensions computed in the payroll system versus outside the payroll system);

-- how to address payment versus use of compensatory time; and

-- how to define a standard pay period. (The Military Departments use the same pay period and DLA uses an alternate pay period.)

The above may appear to be minor procedural matters. However, accumulation of such diversity makes it mandatory to change business practices and reorient people prior to attempting a systems consolidation that has a chance of succeeding.

Precipitous consolidations without consideration of human and procedural complexities have resulted in well documented administrative disasters. We shall avoid taking such risks. We shall specify improved business methods before proceeding with any standardization.

B. MEASURES TO ASSURE CIM PROGRAM RESULTS:

1. MEASUREMENT OF EFFECTIVENESS AND EFFICIENCY

The Department is now installing an aggressive approach to measure effectiveness of individual CIM initiatives. In each case, we shall ask for expected financial results and for operating measures prior to approving full implementation. The program manager will show expected cash flow, adjusted for risk and for the time value of money. This approach follows industrial practices of business analysis in justifying productivity improvement projects.

To make comparisons between different implementation alternatives, we have delivered to the Contract Payment CIM group a computerized procedure for financial evaluations. This approach will assure consistency of planning, provide a method for full disclosure of operating assumptions, and allow for quarterly audit of actual accomplishments.

We require CIM program managers to compare their projected unit costs, order-handling delays, and transaction errors with comparable private sector business practices. For example, in the case of handling purchase orders for low cost items, the Materiel Management CIM manager will examine purchasing practices of the most efficient U.S. firms. The CIM method requires performing value-engineering on individual transactions to find out how to revise existing DoD business policies and practices.

We expect most of the projected CIM savings will result from change in business methods and revision in DoD policies rather than from more efficient computerization. There is no point in having a computer do something faster if it should not be done at all!

2. MEASURING RESULTS OF THE CIM PROGRAM

Timely delivery of cost reductions specified in the Defense Management Report initiatives - without impairing effectiveness of our Armed Forces - shall be used as the proof that the CIM

program is effective. We have decided to couple CIM activities to implementation of DMR initiatives. The CIM approach to streamlining all DoD business methods and eliminating unnecessary information activities becomes the means for delivering the initiatives' results. This is why the scope of CIM covers streamlining of all DoD information work, which includes personnel, materiel, logistics, finance, and planning.

3. ROLE OF COMPUTERS IN CIM

A relatively small share of total DMR savings will accrue from simplification and standardization of information technology. Benefits from streamlining DoD's automatic data processing activities will become visible as we monitor results from technology programs just as we track all other CIM programs.

Improvements in responsiveness of organizations managing computers are essential for achieving CIM cost reduction targets while improving effectiveness of defense support operations.

4. MEASURING VALUE OF INFORMATION

Analysts studying the competitiveness of U.S. industry discovered a prevailing neglect in managing "indirect" costs, also identified as "overhead" expenditures. The value of a tank, fighter airplane, or cruiser can be evaluated, because they represent tangible military power. The value of information-handling procedures is much harder to assess,

because these costs are incurred on the basis of custom, procedure, regulation, and organization.

Industry has attacked the problem of overhead cost control through "activity-based" accounting. In this approach, indirect support costs are attributed to operating results.

We have embarked on a vigorous program to associate overhead support activities with tangible operating results. The first target for the new approach is information technology. Information services provided by large DoD data and software design centers will be placed on a fee-for-service basis. Data center and design center budgets will be determined by demand from DoD customers and not by budget allocation which cannot achieve a fair balance between supply and demand for information services.

Since the electronic industry delivers annual cost/performance improvements in the 30 to 40 percent range, adoption of fee-for-service is a prerequisite for an economically sound approach to the expected modernization of computer centers that the CIM program requires. Fee-for-service makes it possible to establish a measure of actual computer center productivity gains.

Similarly, marked productivity gains that can be achieved by means of Computer-aided Systems Engineering (CASE) methods will permit evaluation of options for delivering software support to DoD Components. Fee-for-service for design centers

will make it possible to establish a measure of competitive excellence for software efforts.

5. DATA MANAGEMENT

For CIM to succeed, we shall eliminate unnecessary labor in transcribing, translating and reinterpreting the same data. Penalties for inconsistent and redundant handling of data are incurred primarily by clerical and administrative personnel. Poor data management practices show up as costly errors in the conduct of DoD business affairs, as excessive transaction costs, and as added management layers to monitor and control work.

The Executive Level Group stated all data in DoD should be entered into the information-handling system only once, with zero defects, so it could be reused as the information passes from its origin to its final use.

All DoD data definitions are now a shared "joint" asset, rather than belonging to individual information-handling systems. Data modeling and data control shall be under direct policy guidance of the office of the Director of Defense Information.

The subcommittee may be also interested to hear that we are not viewing CIM's data management program as an isolated DoD activity.

We are in the final process of reaching an agreement with the Veterans Administration on their participation in data

sharing aspects of the CIM program. They have identified information management savings if they can make direct use of DoD personnel and medical information when veterans transfer from DoD to the Veterans Administration.

DoD suppliers will also be affected by our Computer-aided Acquisition and Logistics Support (CALS) CIM initiative. CALS addresses timely and efficient handling of information that supports weapons and commercial products acquired by the DoD. Our purpose is to improve productivity within DoD as well as reduce the paperwork required of our suppliers. For instance, we developed methods and standards for electronic transmission of engineering drawings, technical manuals, and manufacturing documentation.

6. SPEEDING UP AND REDUCING COSTS OF INFORMATION TECHNOLOGY IMPLEMENTATION THROUGH STANDARDS

To simplify DoD business methods, we shall substitute automation for labor-intensive and error prone procedures whenever economically justifiable. The urgency of DMR targets makes it necessary to install new information technology on a schedule measured in months instead of years.

In June, I shall be joined by information technology executives from all DoD Components to announce DoD's unqualified commitment to implement a standard, vendor-independent, and readily upgradable information systems architecture. This

approach is generally known as the pursuit of "open systems" architecture.

No major U.S. corporation has as yet made such a full commitment, because "open systems" architecture is still debated in public, private, national, and international standards organizations. DoD cannot wait for vendors and customers to reach full agreement on every computer systems standard.

We shall proceed, without further delay, to construct all DoD information systems according to approved Federal Standards, as defined by the National Institute of Standards and Technology. We shall focus DoD resources on accelerated adoption of Federal Information Processing Standards (FIPS). We shall continue participating in international and industry standard organizations, after endorsement from the National Institute of Standards and Technology.

All information standards activities in DoD shall be under central coordination from the new Center for Information Management within the Defense Communications Agency and guided by policy from the Director of Defense Information.

7. SPEEDING UP AND REDUCING COSTS OF INFORMATION TECHNOLOGY THROUGH SYSTEMS ENGINEERING TOOLS

Prevailing methods for specification and development of new computer applications are labor-intensive and extremely error prone. They result in excessive life-cycle maintenance costs.

At present, the overwhelming majority of DoD programming resources is consumed in maintaining computer programs handcrafted more than a decade ago.

We shall select from a wide array of available tools a DoD standard set that will be applied to the manufacture of all new computer programs. Specification and selection of standard DoD software production tools will be guided by central policy from the Director of Defense Information. This approach will finally make it possible to realize the original intent of specifying the ADA computer language as a standard DoD programming language.

Implications of adopting a standard set of software engineering tools for DoD are far-reaching. The tools will safeguard interoperability of computer applications manufactured to the new standards. DoD's goal is to apply the standard toolset to reengineering and reuse of existing software. This will minimize conversion expenses while speeding up full implementation of CIM programs.

8. SPEEDING INTRODUCTION OF CIM PROGRAMS THROUGH REDUCTION OF RETRAINING DIFFICULTIES

Human factors - not information technology - are the pacesetters for the rate of progress through application of CIM methods. Evolutionary management methods and organizational learning will always be the most important ingredients in reaching DMR goals.

CIM calls for changed work habits. Rapid changes expected under CIM initiatives will require retraining of perhaps as many as one million DoD employees. Training will have to be continuous and personalized, because local conditions and individual skills will dictate the pace of change.

Information technology will play a major role as an ever present tutor, available to every person whenever they need on-the-job assistance. Existing information systems and information networks possess a confusing variety in appearance, procedure, and in visual perception. Therefore, they are not suitable as a means for understanding what needs to be done.

We shall proceed, as part of adopting Federal Information Processing Standards, to apply a standard graphic appearance to all new computer screens to make them suitable as training aids.

I thought members of the subcommittee would be particularly interested to hear about these important behavioral dimensions of the CIM effort. Management of the CIM program has been, is, and will always remain an endeavor that depends on people for its achievement.

C. CONCLUDING REMARKS:

Since 1955, I have managed many organizations in their quest to meet challenges of the electronic age. Although nothing in my experience - or anyone else's - compares with the

scope and demanding schedule of the CIM program, I am convinced that it shall succeed.

Our objectives are clear. The human resources at our disposal are equal or better than anything I have ever seen. The technical means are available. The need has never been greater.

As CIM evolves over the next several years, I am confident you will be pleased when you examine evidence of what has been accomplished.

Department of Defense Corporate Information Management

STATEMENTS

TO

CONGRESS

- REPORT ON CORPORATE INFORMATION MANAGEMENT TO THE APPROPRIATIONS COMMITTEES OF THE CONGRESS
- STATEMENT BY ASD (C3I) BEFORE THE HASC READINESS SUBCOMMITTEE ON APRIL 23, 1991
- STATEMENT BY DDI BEFORE THE HASC READINESS SUBCOMMITTEE ON APRIL 23, 1991

Department of Defense

Corporate Information Management

Prepared by the

Assistant Secretary of Defense

(Command, Control, Communications and Intelligence)

April 1991

ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301-3040

COMMAND, CONTROL,
COMMUNICATIONS
AND
INTELLIGENCE

April 18, 1991

Honorable Robert C. Byrd
Chairman
Committee on Appropriations
United States Senate
Washington, DC 20510

Dear Mr. Chairman:

The Joint Appropriations Conference Report (Report 101-938) for FY 1991 requested the Department of Defense's (DoD's) Senior Information Resources Management (IRM) Official to submit a report to the Appropriations Committees of the Congress on the status and progress of the Corporate Information Management (CIM) initiative. The enclosed report is forwarded in response to this request.

Your continued support for the CIM initiative is appreciated.

Sincerely,

Duane P. Andrews

Enclosure

cc: Honorable Mark O. Hatfield
Ranking Republican

ASSISTANT SECRETARY OF DEFENSE

WASHINGTON, D.C. 20301-3040

COMMAND, CONTROL,
COMMUNICATIONS
AND
INTELLIGENCE

April 18, 1991

Honorable Jamie L. Whitten
Chairman
Committee on Appropriations
House of Representatives
Washington, DC 20515

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cc: Honorable Joseph M. McDade
Ranking Republican

Table of Contents

Topic	Page
Background	1
Defining Corporate Information Management	2
Major Accomplishments	8
CIM Program Status and Progress	16
Migration Systems and Executive Agents	23
Budget Status and Plans	29
Major Milestones	32
Concluding Remarks	33

Background

The Joint Appropriations Conference Report (Report 101-938) for FY 1991, "Making Appropriations for the Department of Defense," requested the Department of Defense's (DoD's) Senior Information Resources Management Official to submit a report to the Appropriations Committees of the Congress

> "on the status and progress of the Corporate Information Management (CIM) initiative, to include program milestones, return-on-investment objectives, dates for selection of interim standard systems in each functional area, and anticipated investment costs associated with the development of interim standard systems or the integration of existing systems with the interim standard architecture."

The purpose of this report is to respond to Conferees' request.

Also in Report 101-938, the Conferees centralized funding of development, modernization, and procurement for CIM-related automated information systems in the Office of the Secretary of Defense. To this end, the Conferees provided $1 billion of development and modernization operation and maintenance funding to the Secretary of Defense, and moved some procurement funding for Service-proposed systems to the CIM funding line in Procurement, Defense Agencies.

This report also includes a description of the disposition of the FY 1991 CIM funding, as it was centralized according to the Conferees' instructions.

Defining Corporate Information Management

The Corporate Information Management initiative is part of the President's overall effort to improve the management of the Department of Defense. In response to the President's direction to "realize substantial improvements ... in defense management overall," the Secretary of Defense issued the Defense Management Report (DMR) in July 1989. The DMR contains outlined policies and directions the DoD is taking to maintain or improve defense capabilities, even in times of austere resource availability.

One of the important tenets of the DMR is that the members of the Department will be "encouraged to examine and improve continuously the processes in which they are engaged -- and to raise, at all levels, new ideas and approaches that will contribute to a sound, affordable program to maintain adequate U.S. military strength." This must be done to take full advantage of opportunities for cost savings and quality improvement.

Accordingly, the Deputy Secretary of Defense announced in October 1989 the Corporate Information Management (CIM) initiative, to reduce non-value added work and costs, and to improve the management of DoD's information.

CIM is one of the management methods for achieving DMR cost reductions while maintaining or improving the effectiveness of DoD military missions. The primary objective of CIM is business process improvement. The role of information technology is supportive and allows the adoption of more efficient and effective business area management practices.

CIM acts as an enabler for many DMR initiatives and their associated cost savings. This includes DMR initiatives such as reducing supply system costs, consolidation of supply depots, consolidation of financial operations, stock funding of

reparables, reducing transportation costs, and better management of Defense Agencies.

Computing and communication technology make possible new business methods which are not otherwise practicable, but the decision to use technology must be made within the context of DoD's mission and policy. The extremely large and complex logistics operations in the Persian Gulf employed information technology to mark and track individual items, plan depot repairs and critical asset redistribution, and rapidly determine aircraft cargo loads. These process improvements were enabled by advances in information management, but the bottom line in each case was the added contribution to mission achievement.

To achieve its objectives of transforming the DoD business practices, the CIM program will follow the principles of:

- Centralized direction of functional methods, but decentralized execution;
- Application of business case analysis to functional and information technology decisions;
- Centralized guidance on how to apply standard information technology;
- Managing risk through the evolutionary migration of existing systems, salvaging and revising existing know-how and software to the maximum extent possible; and
- Benchmarking new business methods and systems against the best accepted practices.

In establishing the CIM initiative, the Deputy Secretary of Defense directed that DoD examine successes in industry, suggesting that these same successes could be achieved in the Department. To evaluate the depth of DoD's information management issues, he convened an Executive Level Group (ELG) of high-level industry and Defense officials to recommend an overall approach and action plan for improving information management throughout the Department. The ELG was set up as a

Federal Advisory Committee reporting directly to the Deputy Secretary of Defense.

The ELG began its work in early 1990. In looking towards DoD's information needs for the future, the ELG made its projections from three perspectives:

(1) policy direction to down-size and refocus the U.S. defensive posture in light of changing threats,

(2) management of information as an enabler for improving the Department's business methods and operations, and

(3) information technology available as a supportive infrastructure.

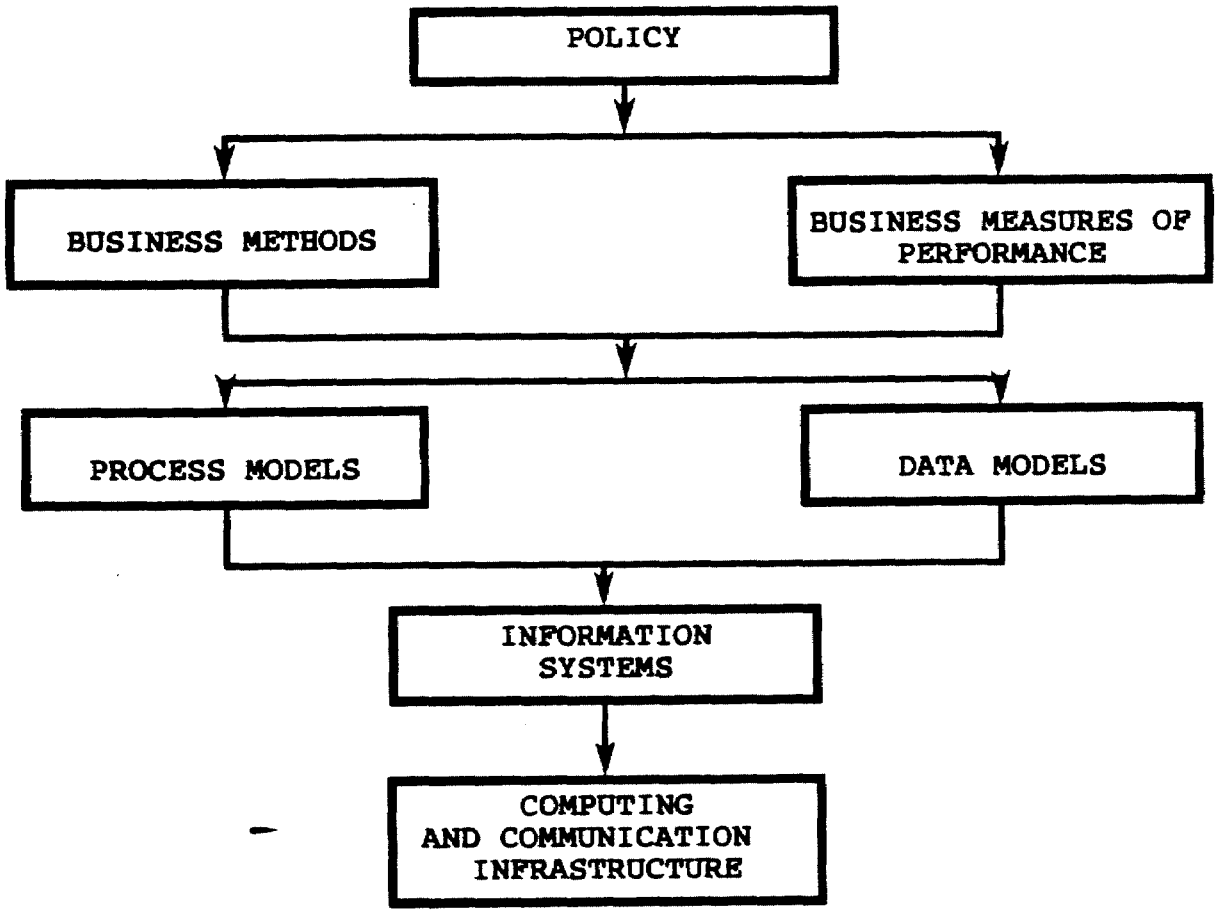
The ELG submitted its plan to the Deputy Secretary of Defense, who endorsed the plan on November 16, 1990. The concepts set forth in the plan serve as a guide for implementation of CIM principles throughout the Department. The concepts are being accepted DoD-wide because they are mission driven, support functional responsibility and accountability, focus on business methods and practices, and introduce to the Department a mission-oriented discipline for information management.

The Department takes a broad view of information management as a means for achieving DMR savings. This wider view includes information as a resource, to be managed in much the same manner as capital, materiel, and people. Forward-looking organizations take a path which puts primary emphasis on continual improvement of business methods, with information management being one of the means available to carry out those improvements.

The ELG plan describes the use of information technology thusly: Management of information begins with policy, which are the guiding principles and operating fundamentals. Business methods represent a selected and defined approach to executing the operation of the DoD organization. Measures of business

performance provide insight into the strengths and weaknesses of operations; appropriate measures may include cost, responsiveness of service, and quality of service. Process models graphically described tasks to be performed and their sequencing. Data models show the information necessary to execute business tasks; data may need to be shared among several business tasks, such as having a Social Security number being a shared item among personnel, payroll, and reserve mobilization tasks.

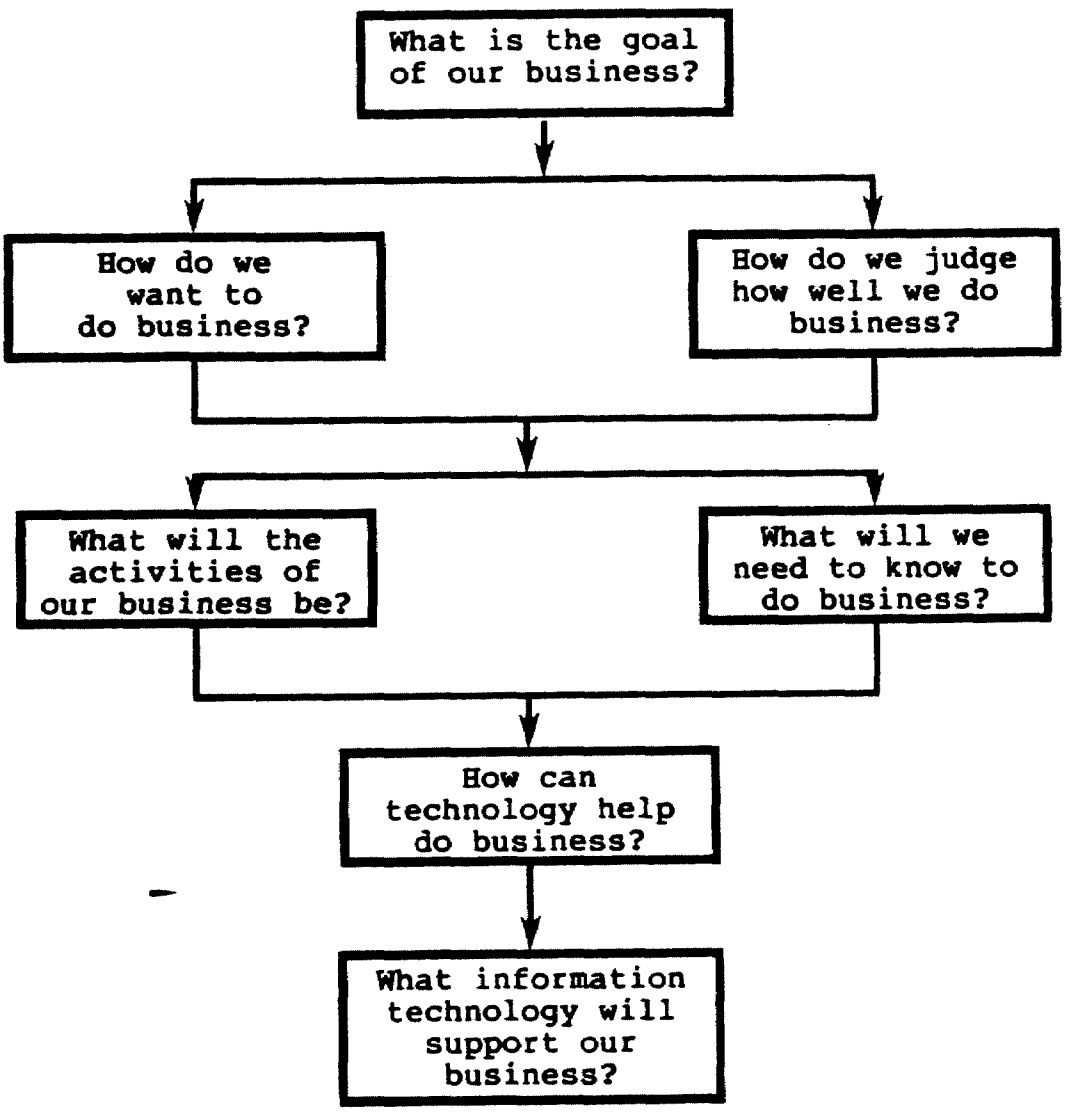
The following depicts the model described in the ELG plan:



The application of information systems and information technologies comes into play only after revised business processes have been examined thoroughly and agreed upon. This is important as CIM is not about information technology per se, but will enable benefits to be reaped through simplification and

standardization of functional processes and the ways we do business in DoD.

As shown in the model, information systems come into the planning process only after business policies, procedures, and measurements have been considered. Restated as a series of questions, the model becomes an examination of business strategies first, and an information management plan second.



Information systems and technology can, however, make possible changes in business methods that would have been otherwise infeasible. Bar codes and hand-held scanners allow inventories to be tracked without checking it into and out of a warehouse. Smart cards carry complete and accurate medical records without having to transport bulky manila folders. Decisions to use information technology must be driven, however, by a business need for new ways of doing business, such as lowering costs or finding a more accurate and timely way of tracking inventory.

Use of information systems must facilitate, rather than hinder, access to data. To do this, DoD's computer and communications systems must give access to data that is needed by appropriate users, while keeping unauthorized users out. DoD's computers must be able to share data without requiring cumbersome translation. Under the CIM initiative, DoD is increasing its efforts towards applications software and data standardization. DoD's computers need to allow for software portability to prevent dependence on any individual computer manufacturer. Under the CIM initiative, DoD is directing its movement towards an "Open Systems" architecture.

Major Accomplishments

In the last year, the CIM initiative has made significant progress in meeting its goals in several important areas. It has laid the foundation for long-term strategies, and it has demonstrated the feasibility and viability of the initiative at the operational level.

Key to the progress in the first 18 months of the initiative is the high level of cooperation that has developed among the senior managers of the DoD Components. The CIM initiative is a joint and cooperative effort and has the full support and interest of the Secretary of Defense and the Deputy Secretary of Defense. The "jointness" of the CIM initiative is exemplified by two major accomplishments -- the progress made in the CIM functional groups and the cooperative allocation of the $1 billion CIM Transfer Fund set up by the Congress for FY 1991.

Functional groups

At the same time the Deputy Secretary of Defense established the Executive Level Group to advise on an overall direction for the Department, he also set up groups to examine eight business areas and the information management of each.

Groups of experts from across the Military Departments and Defense Agencies are now convened to examine and document the functional requirements in their respective areas of responsibility. The initial set of areas is as follows: Civilian Payroll, Civilian Personnel, Contract Payment, Distribution Centers, Financial Operations, Government Furnished Material, Materiel Management, and Medical. These groups, for the first time, bring together functional experts across the Department in a major collaborative effort to improve the efficiency and effectiveness of each function.

Each Service and selected Defense Agencies contribute to the membership of each group. OSD provides leadership and administrative support for each group. Members of each group remain permanently assigned to their home organizations but are detailed full time to the group for its duration. The functional groups are supported across DoD organizational lines:

Membership of Initial Eight Functional Groups

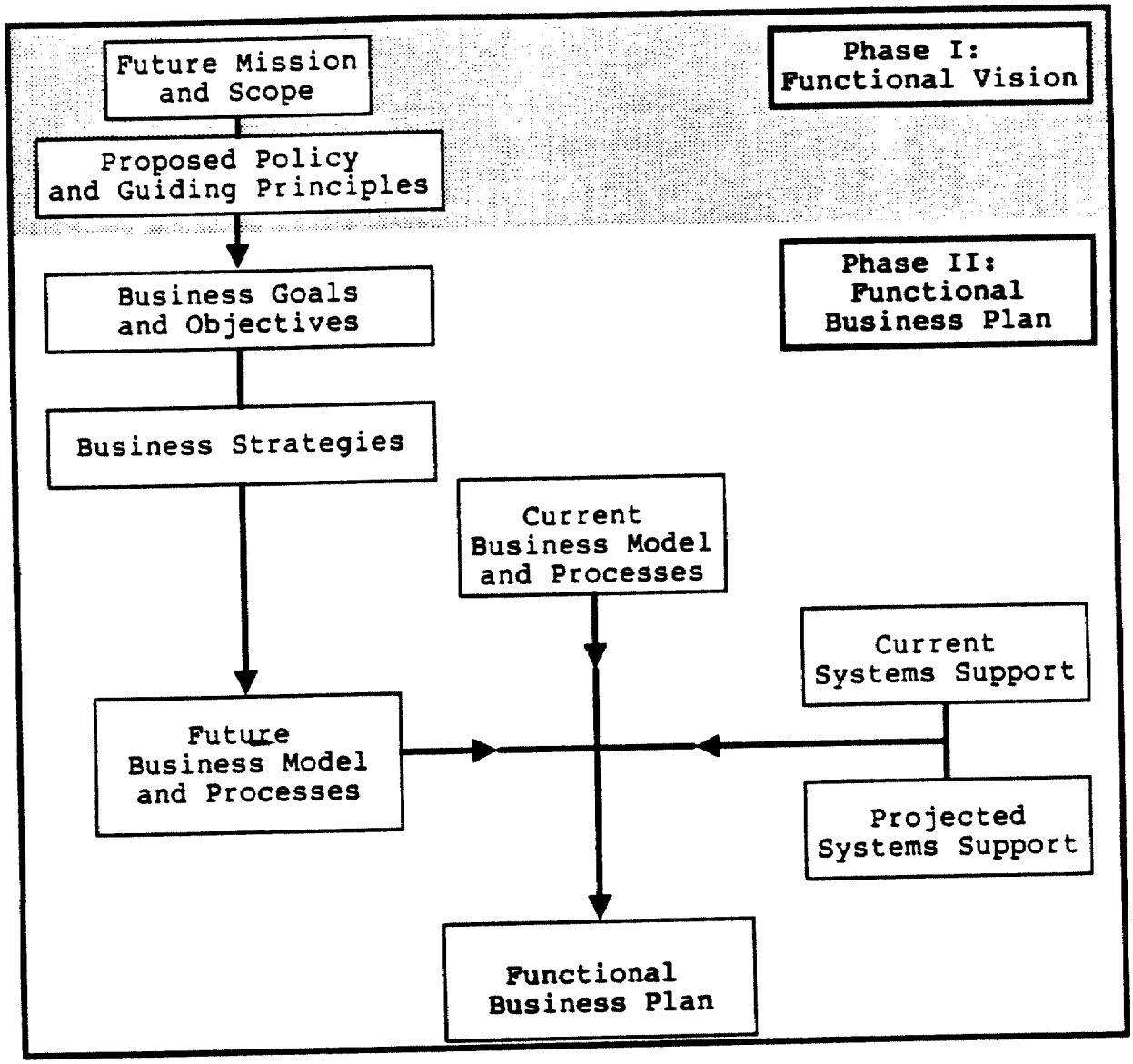
Group	Army	Navy	Air Force	Defense Agencies	OSD	Totals
Civilian Payroll	3	3	3	3	4	16
Civilian Personnel	4	6	5	3	5	23
Contract Payment	3	2	2	6	4	17
Distribution Centers	4	3	3	3	5	18
Financial Operations	5	7	8	4	6	30
Government-Furnished Material	1	1	2	2	6	12
Materiel Management	6	5	5	10	6	32
Medical	9	6	7	5	6	33
TOTAL	35	33	36	43	42	181

The eight groups are working from a single set of procedures that follow closely the model described by the Executive Level Group. The emphasis is on looking to the future to determine upcoming needs and the ways to do business in each area. The process provides a measurement of each group's progress, and consists of two initial phases: Functional Vision and Functional Business Plan.

Phase I - Functional Vision. Phase I focuses entirely on the business aspects of a function and develops a visionary perspective of the function as it will ultimately evolve.

Phase II - Functional Business Plan. Phase II develops strategies for meeting the future vision, documents the current environment and functional requirements, projects the future environment and functional requirements, and formulates the business plan for management decisions.

The first two phases are the province of the functional groups, and their activities are shown as follows:



In most functional areas, these joint functional business plans -- including strategies and plans for moving forward to yield cross-Service management requirements and redesigned business practices -- will be the first of their kind.

The Functional Business Plan is responsibility of functional management. Proposed and existing business methods are subject to business case analyses, that include benchmarking against the best public and private sector achievements. New business methods which have clearly been demonstrated as cost effective via a business case can then be scheduled for evolutionary implementation as Phase III of the systems planning process. Several groups will be completing their functional planning products in the next few months and will be working with their functional management to develop more detailed information systems strategies.

The initial eight functional groups have all completed the Functional Vision of their respective areas, and all are proceeding through Phase II. During the study of the current function in this second phase, several hundred business practices are analyzed, and hundreds of possibilities for near-term improvement have already been identified. These improvements should result in a significant savings to the Department through the elimination of unnecessary practices.

Among the techniques being used by the functional groups is benchmarking with industry and other government agencies. The civilian personnel group has found this technique particularly useful. Members of the working group have visited with organizations having exemplary human resource management programs, such as Federal Express, Florida Power & Light, and IBM. Members of the group have also been in direct contact with other corporations with outstanding personnel practices, such as Marriott, General Electric, Wal-Mart, and Monsanto. Through these efforts, the group is developing recommendations for changes to DoD's civilian personnel practices. Changes to

supportive information systems will be developed in accordance with these revised business practices.

A chart showing more detailed information on the status of the groups follows:

PROGRESS OF THE INITIAL EIGHT FUNCTIONAL GROUPS

Functional Group	Start Date	PHASE I FUNCTIONAL VISION completion	PHASE II FUNCTIONAL BUSINESS PLAN estimated completion
Civilian Payroll	December 1989	August 1990	3rd Quarter FY 1991
Civilian Personnel	April 1990	September 1990	3rd Quarter FY 1991
Contract Payment	June 1990	February 1991	3rd Quarter FY 1991
Distribution Centers	December 1989	September 1990	3rd Quarter FY 1991
Financial Operations	March 1990	October 1990	1st Quarter FY 1992
Government-Furnished Material	February 1990	January 1991	3rd Quarter FY 1991
Materiel Management	May 1990	December 1990	4th Quarter FY 1991
Medical	April 1990	July 1990	1st Quarter FY 1992

Following the joint analytical process laid out under the CIM initiative has caused a number of interfunctional discussions that might never have taken place, each of which resulted in better understanding of the direction DoD is going or needs to go. In the medical area, the functional group is taking an interdisciplinary, departmental look at services that support their area, such as financial, material, and personnel services, and itemized areas or actions for follow-on work and coordination with other functional areas. The groups are also influencing examination of services other than information

technology which support their business strategies and can be shared jointly. For example, the Military Services have formed a consortium to look at providing centralized joint training in some civilian personnel areas.

The initial eight groups, in addition to supporting their own functional areas, also provide direct support to the overall DoD information management area by being the prototypes for examining the policies and processes in all DoD business areas. The first eight groups are setting the stage for the business case to be the driver in DoD's information management decisions, with information systems providing support for carrying out those decisions.

Disposition of the FY 1991 $1 Billion CIM Transfer Fund

The FY 1991 Defense Appropriations Act reduced the Department operation and maintenance request for information technology development and modernization by 27 percent, from $1.374 billion to $1 billion. Furthermore, it transferred the $1 billion to the Office of the Secretary of Defense (OSD) for central management and allocation consistent with the Corporate Information Management (CIM) initiative.

Immediately upon enactment, the DoD Comptroller, through the Deputy Comptroller (Information Resources Management (IRM)), established a working group to carry out the requirements of the Act. DoD Components submitted to OSD details on the systems included in their modernization efforts as described by the Congress, with the number of related systems as follows:

COMPONENT	# SYSTEMS
Army	109
Navy	128
Air Force	124
Defense Logistics Agency	21
OSD	7
TOTAL	389

To ensure allocation of the central funds as necessary to "further the objectives of the Corporate Information Management initiative," in accordance with the Act, the Deputy Comptroller (IRM) worked with functional management representatives to set criteria for development programs to receive funding.

The review of the Components' systems undergoing modernization and development included a categorization of the systems based on their adherence to fundamental information management criteria, such as --

- Have the costs of the systems been weighed against the functional benefits to come from the system?
- Is the development proceeding at a given level of effort or is it focused at achieving a given goal?
- Does the development effort support interoperability, and is it directed to an open systems environment?

OSD functional manager representatives identified 42 information systems in areas covered by the initial eight functional groups totaling $224 million. For these 42 systems, $79 million was allocated to cover FY 1991's first 4 months of funding. The $145 million remaining for the 42 systems was withheld from allocation until formal designation of Executive Agents was made for the initial CIM functional areas. (Executive Agent designation is discussed later in this report.)

The initial allocation was made by the DoD Senior IRM Official on December 24, 1990. This first allocation included the $79 million discussed above. A total of $701 million was allocated on a specific system basis to support previously approved modernization requirements in areas not related to 1991 CIM functional groups. The allocation was based on a prioritized list of systems and included command and control systems. This included no funding for new starts in FY 1991. In addition, a total of $26 million was allocated to Executive Agents in the materiel management area.

The transfer of operation and maintenance funds to the DoD Component appropriations required prior OMB apportionment approval. This approval was obtained January 28, 1991, when OMB granted DoD's request for exemption to apportionment requirements due to Desert Shield/Desert Storm. Further delays, in allocating funds to program offices, were experienced in the DoD Components.

Subsequently, Executive Agents for the functional areas were designated and the remaining $145 million for the 42 systems was allocated on March 27, 1991. An additional $8.8 million was allocated on the same date to a high-priority logistics program. The $40 million balance remaining from the $1 billion will be allocated in May 1991. The $40 million was held pending identification of any exigent requirements; otherwise, it will be allocated to programs previously prioritized.

CIM Program Status and Progress

The progress made by the ELG and the initial functional groups has already been discussed. Along with this progress, the organizational structure for carrying out the CIM initiative has evolved to meet program management, oversight, and execution needs to improve information management on a Departmentwide basis.

While the organizations for carrying out DoD's CIM initiative have undergone structural changes, the CIM program continues to have as its primary objective to facilitate the adoption of more efficient and effective management practices and improve DoD's business processes. This includes improving the standardization, quality, and consistency of data in the Department's management information systems and more effective use of these information systems. CIM, by its scope and nature, is a long-term effort.

CIM Program Organization

At the inception of the CIM initiative, responsibility for setting up and carrying out initial studies and tasks was within the office of the DoD Comptroller, the DoD Senior Information Resources Management (IRM) Official. The Deputy Comptroller (IRM) was given primary responsibility for setting up, facilitating, and supporting the Executive Level Group and the initial set of functional groups.

The DoD Comptroller also served as one of the three DoD members of the ELG, the others being the Assistant Secretary of Defense (Command, Control, Communications and Intelligence) (ASD(C3I)) and the Assistant Secretary of Defense (Program Analysis and Evaluation) (ASD(PA&E)). The group also drew six expert members from the private sector, with one of the industry members serving as chairman of the ELG.

In endorsing the ELG's Plan for Corporate Information Management for the Department of Defense, the Deputy Secretary of Defense also assigned responsibility to the ASD(C3I) for establishing an organization to implement CIM throughout the Department and for ensuring the proper integration of DoD computing, telecommunications, and information management principles. The ASD(C3I) has put into place an organization to provide CIM with the highest levels of functional and technical guidance, and information exchange in the Department. Concurrently, the ASD(C3I) is now the DoD Senior IRM Official and the chairman of the Major Automated Information System Review Council (MAISRC).

The new organization was put in place to support the CIM function and to serve as the focus for this vital area both within and without the Department. To accomplish this, the ASD(C3I) has established a Director of Defense Information (DDI), at the Principal Deputy Assistant Secretary level, with a supporting staff. This Director has overall responsibility for implementing the corporate information management program across the Department. This includes the development and implementation of information management policies, programs and standards and the integration of the principles of information management into all of the Department's functional activities. In addition, within the OASD(C3I), a Deputy Assistant Secretary of Defense (Information Systems) (DASD(IS)) with responsibility for review and oversight of ADP programs and information services has been established, along with a supporting staff.

The DDI is implementing a functional information management process to document business methods, rationalize functional information management programs, and enable users to achieve improved information management support. This is emphasized through the establishment of the DDI's Deputy Directors for

Functional Information Management (FIM). This includes FIM for C3I, to define relationships between and oversee interfunctional systems integration of CIM and C3I information systems.

To provide further valuable technical and program execution assistance, the Center for Information Management within the Defense Communications Agency (DCA) is being established. DCA will be redesignated as as the Defense Information Systems Agency. The Center will perform such functions as:

- support the information technology standardization area of the defense standardization and specification program;
- assist in the production of process and data models;
- help to identify alternative approaches, methods and tools for the development of process models and data models;
- coordinate the development of DoD standard information technology architectures;
- assist in the development, coordination and execution of the DoD data administration program and provide the technology support to achieve the objectives of that program; and
- assist in assessing the efficiency and effectiveness of information services in DoD.

Management of information begins with policy, as was shown in the model described by the ELG. To ensure the highest level policy direction for DoD information management, Functional Steering Committees are in place to review the products and recommendations of the appropriate functional groups. Each committee is chaired by the Assistant Secretary of Defense (ASD) of the pertinent function, and participants are the senior officials responsible for the function across the DoD Components. The DoD Senior Information Resources Management (IRM) Official serves on all committees. The initial set of Functional Steering Committees, their chairs, and the applicable functional groups are as follows:

CORPORATE INFORMATION MANAGEMENT
FUNCTIONAL STEERING COMMITTEES

FINANCIAL MANAGEMENT

Chairman: Mr. Sean O'Keefe, DoD Comptroller.

Functional Groups: Civilian Payroll
Contract Payment
Financial Operations
Government Furnished Material

HUMAN RESOURCES MANAGEMENT

Chairman: Mr. Christopher Jehn, Assistant Secretary of Defense (Force Management & Personnel)

Functional Group: Civilian Personnel

MEDICAL

Chairman: Dr. Enrique Mendez, Jr., Assistant Secretary of Defense (Health Affairs)

Functional Group: Medical

PRODUCTION AND LOGISTICS

Chairman: Mr. Colin McMillan, Assistant Secretary of Defense (Production and Logistics)

Functional Groups: Distribution Centers
Materiel Management

The CIM initiative also requires support and understanding by the entire DoD community. To facilitate this, the ASD(C3I) is also establishing a DoD Information Policy Council (IPC) to exchange information management concepts and plans and to provide a forum for the exchange of a full range of views on achieving the goals of CIM. The IPC will be chaired by the ASD(C3I) and will assist in shaping Defense and Federal IRM policy matters affecting defense information management. A key subelement of the IPC is the CIM Council, which was formed in early 1990 and is chaired by the DASD(IS). The CIM Council has

met one to two times per month since its formation, and has proved itself vital to exchanging ideas and promulgating CIM principles throughout the DoD Components. The CIM Council will be renamed the Information Policy Subcouncil.

The DDI has established the Information Technology Policy Board to address joint technical issues, such as programming languages and compliance with data standards, that will require centralized policy direction. This board meets weekly and is chaired by the DDI. In its first months, the Information Technology Policy Board is to reach decisions and begin implementations in three of the most critical areas of information technology:

- DoD-wide information technology standards,
- Modeling support to architecture and system development, and
- Defining standards and methods for managing data.

Strategies for Implementing Information Management

The Executive Level Group identified the following eight strategies, which are being used as a basis for formulating further CIM plans:

1. PROCESS MODELS

Early emphasis will be placed on documenting new and existing business methods throughout the Department's major functional areas. This will be accomplished to be sure that functional improvements truly drive all of our future information systems decisions. The use of process models is one way we will determine cross-Service methodologies and move to joint programs while maintaining or improving quality of support to any given organizational element.

2. MEASUREMENT OF EFFECTIVENESS AND EFFICIENCY

The Department will establish an aggressive program to identify and install functional, technical and cost measures of performance as an essential element to establish proper controls for information management. This will allow the Department's measures of business performance to focus upon quality, costs, productivity, and time-based performance. These measures will allow benchmarking against the best comparable achievement in the public and private sectors, and will be integral to making investment decisions in new business information systems.

3. MANAGEMENT OF EXPENDITURES

The ASD(C3I) will work with the DoD Comptroller and the Defense Finance and Accounting Service to ensure the capture and management of all costs for information systems. This long-term effort will require us to update our supporting accounting systems to gather the cost data necessary to move towards a fee-for-service environment. Within a fee-for-service environment, information services will be accounted for in much the same way as an organization's personnel or contracting expenses. Measurement of information support expenses will be a management tool for assessing a system's efficiency.

4. COMMON INFORMATION SYSTEMS

Work is progressing towards our goal of developing and implementing a set of cost effective, common information systems based upon process models and data standards. Development of Functional Information Management plans, to coordinate information systems directions and developments across the functional areas of the Department, will provide the basis to identify where common systems can be employed and when systems should be unique. This is a high-priority area.

5. OPEN SYSTEMS INFRASTRUCTURE

We intend to promote the development and implementation of a communications and computing infrastructure based upon the

principles of open systems architectures. Establishment of the architecture identified in this strategy is a long-term effort but a key link in our plans, since it will free DoD from the software locks in proprietary systems that hinder the move to new technology. The overall architecture must be open and capable of rapidly accommodating a wide variety of centralized and distributed technologies and products.

6. DATA STANDARDS

The Department intends to assume a strong leadership role to assist in accelerating the development of open systems standards and will place increasing reliance on full conformity with Federal Information Processing Standards for all new system developments. In particular, DoD is working as a partner with the Commerce Department's National Institute for Standards and Technology.

7. LIFE-CYCLE MANAGEMENT METHODOLOGY

Strengthening of this cornerstone information management policy will govern the implementation of CIM principles in the automated information system development process. We will improve our existing life-cycle management methodology to make the accelerated deployment of evolutionary systems development feasible. The new life-cycle management methodology will include process models, data models, updated system development and acquisition methodologies, and educate the user and technical communities on its use.

8. EDUCATION

We must educate Department personnel in the concepts of CIM and the plans to apply it. The Information Resources Management College of the National Defense University is the leader in meeting the Department's education needs in this area.

In carrying out the CIM strategies, a balance must be struck between the long-term goals of information management and the

near-term needs of DoD missions. DoD has in place a large inventory of information systems and business practices. Only through evolutionary migration can we achieve the move to improved information management while managing the risks of such an undertaking.

Migration Systems and Executive Agents

The Department of Defense has a sizable investment in installed information systems that provide required functional capabilities. It is important to determine whether there are opportunities for taking advantage of these existing resources as joint requirements are determined and must be met. Consequently, the Department developed mechanisms in the summer of 1990 for examining existing systems and for assigning responsibility for accelerating the migration to systems emerging from Phase II plans by means of "interim" systems.

The "interim" systems concept designed to save ADP money today by transitioning to fewer systems supporting the same function in the near term, without major changes in business processes. The Business Plan and subsequent information systems strategy will detail the approach to migration. The migration systems will be made as the functional groups complete the Business Plans and the Department establishes the open architecture policy and rules for the future.

Guidelines for selecting systems for migration were developed to meet day-to-day operational requirements, while maximizing the use of limited resources and eliminating duplicative automated information systems (AIS) development. This is to set the stage for evolution of DoD's information systems to meet joint requirements and to become more responsive to improvements in DoD's business processes.

Migration systems are selected only when DoD's selection criteria, as issued by the DoD Comptroller in June 1990, are met:

- A migration system will be employed only if net benefits accrue to the Department prior to deployment of a standard system whose development is based on the CIM model.

- A selected migration system must meet functional requirements, based on the current functional concept of

operations, and is applicable and acceptable across DoD Components.

- A selected migration system must be flexible enough to adjust to functionally drive operational changes.

- A selected migration system must be operational or in an advanced state of development and be partially implemented. A migration system may be a system that is operational in one of the Components or it may be a hybrid system composed of modules taken from currently operational systems.

- System implementation must be technically feasible; that is, it must address the ability to interface with related functional areas.

- An acquisition strategy must be feasible to support the transition.

A key criterion requires that benefits exceed costs. It must be recognized that if the cost of fielding that system to other Components exceeds its benefits, the Department does not accept that system for migration.

As teams of experts in their areas, the CIM functional groups were asked to provide nominations on candidate systems for use as migration systems to their respective Functional Steering Committees for review. The Functional Steering Committees then nominated candidate systems to the DoD Senior IRM Official for approval.

In addition, executive agents in the eight initial functional areas have been designated by the DoD Senior IRM official to act as stewards of migration of systems in their functional area. Part of their mission is the responsibility to obtain the greatest benefits from the use of limited resources. Executive agents must submit a technical plan, which includes feasibility, economic and technical analyses, to the appropriate Functional Steering Committees for review and to the DoD Senior IRM Official for approval. Identification of funding for

migration systems is also the responsibility of the executive agents for their respective functional areas. Resources for the multiple systems to be replaced by the migration systems will be transferred to the executive agents for use in administering the transition to the migration systems.

Some example of the role of the functional groups and executive agents in the migration of systems is as follows:

1) The Medical area has received approval for twelve systems by the Senior IRM Official for migration. In the medical area, most major systems are already quad-Service or scheduled for replacement by a quad-Service system. Some of the selected medical systems are expected to operate well into the 1990s, such as the Composite Health Care System (CHCS).

2) A decision for the Civilian Personnel function has been made. The Air Force Personnel Data System-Civilian (PDS-C), of which the Personnel Concept-III system is an integral part, was selected. The Secretary of the Air Force is designated as the acting DoD Executive Agent until the ASD(Force Management and Personnel) provides a final recommendation.

Orderly implementation of incremental improvements to systems is essential to avoid the degradation of the information processing capabilities achieved to date through endeavors undertaken jointly by the functional communities and the automated data processing communities over the past 10 years. The migration from interim to future systems will be evolutionary. It must be free of periods of discontinuity that would deprive the Department of Defense of its access to information and would disrupt DoD's mission functions. To achieve this objective, the migration of systems is designed to maintain a balance between a rate of transition and the ability of DoD Components to absorb the changes. This will be done in such a way as to retain within the individual Components

sufficient capability to define and articulate requirements to meet its special mission-related needs and legitimate managerial preferences.

The selected migration systems in the initial eight functional areas and the associated executive agents are:

APPROVED EXECUTIVE AGENTS AND MIGRATION SYSTEMS

FUNCTIONAL AREA	APPROVED EXECUTIVE AGENTS	APPROVED MIGRATION SYSTEMS
Civilian Payroll	Defense Finance and Accounting Service (DFAS)	
Civilian Personnel	Air Force	Air Force Personnel Data System - Civilian (Approved 3/4/91)
Contract Payment	DFAS	
Distribution Centers	Defense Logistics Agency (DLA)	
Financial Operations	DFAS	
Government Furnished Material	DFAS	
Materiel Management • Asset Management • Acquisition Management • Item Introduction • Requirements • Distribution	Army Navy Marine Corps Air Force DLA	

APPROVED EXECUTIVE AGENTS AND MIGRATION SYSTEMS

FUNCTIONAL AREA	APPROVED EXECUTIVE AGENTS	APPROVED MIGRATION SYSTEMS
Medical	Defense Medical Systems Support Center (DMSSC)	• Automated Quality of Care Evaluation Support System (AQCESS) • Composite Health Care System (CHCS) • Computer Assisted Processing of Cardiograms (CAPOC) • Defense Blood Management Information System (DBMIS) • Defense Medical Regulating Information System (DMRIS) • Medical Expense and Performance Reporting System, Expense Assignment System, Version 3 (MEPRS/EAS III) • Tri-Service Food Service System (TRIFOOD) Tri-Service Micro Pharmacy System (TMPS)
	Army	• Theater Army Medical Management Information System (TAMMIS) • Veterinary Services Automated Data Management System (VSADMS)
	Navy	Shipboard Nontactical ADP Program (SNAP) Automated Medical Systems (SAMS)
	Air Force	Automated Patient Evacuation System (APES) (All approved 12/24/90)

The executive agents will be responsible for the life-cycle of these approved migration systems and beyond, since the functional business processes within each area must continually be analyzed for improvement.

Budget Status and Plans

Beginning with FY 1991, the DoD budget request includes a central account for new, standardized systems as part of the CIM initiative. The current funding line for this account is as follows (dollars in millions):

Appropriation	FY 91	FY 92	FY 93
Operation & Maintenance	50.0	179.4	257.6
Procurement	79.1	40.0	60.0
TOTAL	129.1	219.4	317.6

This CIM Central Fund does not involve the $1 billion in operation and maintenance appropriations placed in a CIM Transfer Fund by the Congress in its mark of the FY 1991 DoD budget request. It does, however, include the procurement funds directed by the Congress for use by CIM in FY 1991.

The primary purpose of the CIM Central Fund is for development of common information systems, which may include some funding for planning for migration systems. To establish the CIM Central Fund, the Deputy Secretary of Defense reduced the funding for development and modernization of automated information systems in the Services and Defense Agencies beginning in FY 1991. The reduction to each of the Components was phased, starting as a low percentage in FY 1991 and increasing the percentage reduction up to FY 1995. Recognizing that funding is needed to develop the standard information systems, about a third of the reduction was placed in a CIM Central Fund.

Considering only the savings associated with information systems, the CIM activity related to information technology only, produces a net savings of $2.1 billion from FY 1991 to FY 1995. Significant reductions continue to be anticipated as a result of eliminating duplicative development and modernization of multiple systems for the same functional requirement as well

as future reductions resulting from maintaining fewer information systems. These anticipated reductions result from slowing development and modernization in anticipation of the full implementation of a CIM environment with common data standards, open systems architecture, as well as changing business practices in determining future investment and financing of systems. The anticipated reductions are offset in part by investment costs needed to design new systems, to procure related equipment and systems development tools, and update the skills of DoD's systems developers. The anticipated information technology budget reductions and investments are estimated in millions of dollars as follows:

SERVICE/AGENCY	Appropriation	Total
Reductions:		FY 1991-FY 1995
Army	All	1,162.8
Navy	All	1,312.1
Air Force	All	791.2
Defense Agencies	All	141.0
Gross Reduction	All	3,407.1
Less Investment:		
Central Fund	O&M	-982.0
Central Fund	PROC	-310.0
Net Reduction	All	2,115.1

Not reflected in this table are the savings in areas other than those directly associated with information technology. DoD sees the bulk of the payoff for the CIM initiative in functional improvements and savings beyond computers and communication systems. The true return on CIM investments will come in the business areas supported by CIM and in the realization of DMR targets.

It is fundamental to CIM that a return on investment be maximized. The information technology budget has already been reduced in anticipation of savings to be achieved as a result of improving business practices and eliminating the duplicative development of multiple systems for the same functional requirement. Similarly, the goal of CIM is to move the Department to an investment strategy that will allow DoD to reap the greatest return on its investment.

Initial estimates of CIM information technology DMR costs and savings are based on the best data that DoD has in hand -- which are geared towards consideration of the information technology budget. DoD is taking a series of steps to obtain more precise management data on CIM costs and the associated savings, regardless of the business area in which they accrue.

One of these steps will include cost recovery of information support through a fee-for-service mechanism. This is one of the key eight strategies for implementing CIM, and the ASD(C3I) and the DoD Comptroller have begun fact-finding and exploratory studies on moving to a fee-for-service environment. As DoD funding becomes more austere, DoD managers want more control over where their dollars are spent. This should give them one more tool for making their business case decisions.

Another step is top-level review of DoD information technology budget requests. The Joint Appropriations Conference Report for FY 1991 requests the DoD Components "to submit future budget requests for medical, material management, logistics, and other CIM-related systems through the CIM program director for coordination and review." For the FY 1992/1993, information technology budget request was reviewed in detail by the DoD Comptroller and ASD(C3I) staffs, with attention paid to the role of each program in meeting mission needs and, for programs falling within the scope of the functional groups, CIM criteria. In preparation for future years, the DDI is strengthening his staff to continue the review of the information technology proposals within the context of CIM principles.

Major Milestones

October 4, 1989 The Deputy Secretary of Defense announces the CIM initiative.

December 20, 1989 The ELG is chartered as a Federal Advisory Committee.

December 1989 First CIM functional groups are convened for training.

February 1990 ELG is convened.

May 1990 All eight initial CIM functional groups are in session.

June 1990 Interim Standard (Migration) System Criteria are issued by the DoD Comptroller.

September 11, 1990 The ELG formally submits *A Plan for Corporate Information Management for the Department of Defense* to the Deputy Secretary of Defense.

November 5, 1990 Congress established the $1 billion CIM Transfer Fund.

November 16, 1990 CIM is institutionalized throughout the Department by the Secretary of Defense. Primary responsibility for CIM moves from the Comptroller to the ASD(C3I). ASD(C3I) becomes the DoD Senior IRM Official.

December 24, 1990 Initial allocation of CIM Transfer Fund is made, totaling over $800 million. First migration systems are approved.

December 30, 1990 Deputy Comptroller (IRM) and staff become the DASD(IS) and staff under ASD(C3I).

January 14, 1991 The Deputy Secretary of Defense approves the ASD(C3I) plan for implementing CIM DoD-wide.

March 10, 1991 The Center for Information Management is established within DCA.

March 18, 1991 The Director of Defense Information is on board.

Concluding Remarks

The mission of CIM -- the improvement of business methods with information technology as an enabler -- is necessary and attainable. That is the consensus of the public and private sectors alike. Even as critics argue as to how to proceed and when successes can be realized, there is unanimity as to the philosophy and principles of corporate information management and the need for it in the Department of Defense to achieve more effective and efficient methods of doing business.

Continued congressional support for the CIM program remains essential. In 1990 congressional documents, the supportive language has lent added credence to the merit of the CIM initiative. This show of support is the reason for its success thus far. Specifically, Joint Appropriations Conferees have strongly endorsed the CIM initiative, calling it a constructive effort undertaken by the Department of Defense to ensure standardization, quality, and consistency of data from DoD's multiple administrative management information systems. As we move closer to achieving our ends, it is hoped that Congress will continue this strong support.

The Office of Management and Budget (OMB) is also supporting the CIM initiative by designating it a Priority System for 1991. This designation gives DoD's CIM priority attention and ensures OMB oversight of CIM implementation. An objective of the Program for Priority Systems (PPS, formerly the Presidential Priority Systems) is to involve top management in the planning (including cost/benefit analysis) for use of modern information management methods, which includes the effective deployment of information technologies.

The Deputy Secretary of Defense continues his strong support of CIM. The transition to the Office of the ASD(C^3I) and the concomitant reorganization of the information resources

management organization within OASD (C^3I) adds to the program the support that will help ensure the institutionalization of CIM as a broad-based effort. This confidence in the program guarantees its success in the Department.

The CIM initiative has come a long way in a year and a half. Under the broad CIM umbrella, many groups and many people have accomplished much towards implementing CIM throughout DoD. But these achievements are just the beginning -- part of the groundwork -- for much more. The work ahead will be great, but it is hoped that these efforts will have long-lasting effect in achieving DMR savings, improving business methods, delivering quality products and services, and managing effectiveness in support of DoD's military missions.

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HOUSE ARMED SERVICES COMMITTEE
HOUSE OF REPRESENTATIVES

STATEMENT BY

THE HONORABLE DUANE P. ANDREWS

ASSISTANT SECRETARY OF DEFENSE

(COMMAND, CONTROL, COMMUNICATIONS

AND INTELLIGENCE)

BEFORE

HOUSE ARMED SERVICES COMMITTEE

READINESS SUBCOMMITTEE

April 23, 1991

STATEMENT BY

THE HONORABLE DUANE P. ANDREWS
ASSISTANT SECRETARY OF DEFENSE
(COMMAND, CONTROL, COMMUNICATIONS AND INTELLIGENCE)
BEFORE THE
HOUSE ARMED SERVICES COMMITTEE
READINESS SUBCOMMITTEE

APRIL 23, 1991

Mr. Chairman and members of the subcommittee, I appreciate this opportunity to appear before you today to discuss Corporate Information Management (CIM) in the Department of Defense. I will describe our recent progress, and Mr. Paul Strassmann, my Director of Defense Information, will discuss our plans for this key initiative and address the ways in which information management will continue improving the effectiveness and efficiency of the Department.

The CIM initiative was established to reduce non-value added work and costs, as highlighted by the July 1989 Defense Management Report (DMR) to the President. CIM is one of our important management methods for achieving DMR cost reductions while maintaining or improving the effectiveness of DoD military missions. The primary objective of CIM is business process improvement. This is where the major benefits of implementing CIM will be achieved. The role of information technology is supportive and allows the adoption of more efficient and effective business area management practices.

Improved information management acts as an enabler for many DMR initiatives and their associated cost savings. This

includes initiatives such as reducing supply system costs, consolidation of supply depots, consolidation of financial operations, stock funding of reparables, reducing transportation costs, and better management of Defense Agencies.

DoD recognizes that information must be managed, just as capital, materiel, and people must be managed, to improve effectiveness and efficiency of operations. We will use improvements in our information management to improve the accuracy of our inventories, to speed their distribution, and to eliminate unnecessary steps in the warehousing process. Our information management improvements will leverage cost reductions and operational efficiencies throughout our operations, from command and control to payroll. CIM represents a dramatic change in the way DoD sees its business functions and uses information.

Central to the concepts of CIM is that DoD's information management decisions must be made on a business case basis. By this we mean we will maintain or improve the quality of a product or service while we minimize our total expenses for conducting that particular business function. These expenses include labor, materials, and any proposed or existing information system. We will look at alternative ways of performing that function, contract payment for example, and information systems will be considered only when justified by the total business case.

Computing and communications technology are to play a subordinate but important role. A technology base of open system architectures and standardized data will be emphasized. This will allow systems developers to concentrate on software that will be more responsive to the needs of DoD users, such as paying our soldiers, maintaining their medical records, or requisitioning their supplies. Our systems developers will be able to focus on software improvements and use jointly shared technologies, such as those developed through research at DoD's Software Engineering Institute, to make these improvements.

Our initial estimates of net savings in information technology attributable to the CIM initiative for FY 1991 through FY 1995 total about $2 billion. This amount has already been removed from the DoD budget. We based this estimate on the budget data submitted from the Military Departments and Defense Agencies for the FY 1991 budget review. This estimate is based on information technology savings only. The estimate does not reflect the larger role that improved information management plays by improving business processes and decisions on operational methods.

Following the internal DoD management decisions to reduce our information technology budget in anticipation of CIM savings, the Congress took additional actions to reduce DoD's FY 1991 information technology development and modernization funds by almost 30 percent and centralize the remaining

$1 billion in a CIM Transfer Fund. This significant funding reduction and the mechanics of reallocating FY 1991 funds from the CIM Transfer Fund have caused adverse impacts and resulted in some negative reaction towards CIM in those operational mission activities that lost legitimate support. The review and subsequent complex allocation process continues to delay the receipt of FY 1991 funding by the Component information system program managers. This has created some unfortunate breakage in the Components' acquisition programs, as has been the case with at least one major logistics information system. Coming on the heels of the large reduction in DoD's development and modernization funding, the delays caused by the red tape of a central transfer fund have introduced obstacles to implementing CIM and responding to mission needs. I assure you that we are setting up a strong information management program within the Department that will ensure central oversight and review of information system modernization activities while still allowing the Components to budget for, and execute, these programs and reap the programs' benefits in their operations.

Responsibility for the CIM initiative was recently assigned to me by the Secretary of Defense. He has charged me with ensuring the proper integration of Defense computing, telecommunications, and information management activities. In line with these responsibilities, we are establishing an organization and policy base to implement Corporate Information Management throughout the Department. Last month, I established

in my organization the position of Director of Defense Information, and appointed Mr. Strassmann to serve in this Principal-Deputy Assistant Secretary of Defense level job. Mr. Strassmann and his staff will have overall responsibility for implementing the CIM program across the Department. This will include the development and implementation of information management policies, programs and standards and the integration of the principles of information management into all of the Department's functional activities.

I also serve as the Department's Senior Information Resources Management (IRM) Official. My Deputy Assistant Secretary of Defense for Information Systems, Ms. Cynthia Kendall, supports me in this area. Review and oversight of automated information systems will continue under the Major Automated Information Systems Review Council (MAISRC). In addition, our plans are to expand oversight to include information services in order to improve effectiveness and efficiency.

Today, I will discuss DoD's plan for carrying out CIM as a Departmentwide strategy, and also I will give the background for the plan.

PROGRESS TO DATE

Only 18 months ago, the Deputy Secretary of Defense announced our initiative on Corporate Information Management (CIM) to ensure more effective management for and use of DoD's information. CIM is one of the major strategic initiatives identified as a result of the Secretary's July 1989 Defense Management Report to the President. The Deputy Secretary directed that DoD examine successes in improving effectiveness and efficiency in industry, suggesting that these same successes could be achieved in the Department. He also directed that DoD should move towards systems and software that support joint needs. Most importantly, he called for improvements in information management to realize savings both in the $9 billion spent annually by the Department on information technology and, more importantly, in the billions more spent on associated business areas.

Two primary vehicles were initially established to carry out the CIM initiative. The first was an Executive Level Group (ELG), a Federal Advisory Committee made up of six experts from the private sector and three DoD officials. In addition to myself, Mr. Sean O'Keefe, the DoD Comptroller, and Dr. David Chu, the Assistant Secretary of Defense for Program Analysis and Evaluation, represented the Department on the ELG. The role of the ELG was to recommend an overall information management approach and an action plan to enhance the availability and standardization of information in common areas for the DoD. I

do not believe we could have accomplished this important task without the vision of our external members, who were led by Mr. David-Hill, the Chief Information Officer of General Motors.

I would like to note here that throughout the initial year of analysis and study for CIM, the Comptroller had primary responsibility for the initiative. He and his staff deserve much credit for carrying this effort forward, which included many approaches never tried before within the Department. Major among these was the convening of experts from across the Department to concentrate on functional reviews of business processes from a DoD-wide rather than Service-unique point of view. These initial functional groups formed the other portion of CIM, as established by Mr. Atwood in October 1989.

The first of these functional working groups was convened in December 1989. Altogether, eight groups are currently in session. They cover civilian payroll, distribution centers, financial operations, government furnished material, civilian personnel, medical, materiel management, and contract payment.

Among the valuable lessons learned from these groups is the criticality of functional area leadership in information management decision making. Functional leadership assures that business process change drives improvements, including those related to information systems development. Strong support and commitment from the highest level of functional leadership is evidenced by the fact that the Assistant Secretary of Defense

for each functional area chairs their respective Functional Steering Committee. For example, the DoD Comptroller chairs the Functional Steering Committee overseeing financial management working groups, which includes civilian payroll, financial operations, government furnished material and contract payment. In addition to providing the highest level of policy direction to the work of each functional group, the leadership has the authority to implement the policy decisions that must be made to foster better information management within that area.

CIM PLANS

The ELG submitted its plan to the Deputy Secretary of Defense in early fall of 1990. The Secretary of Defense endorsed the plan on November 16, 1990 and put into motion a series of actions to carry out the plan. Among these was designation of my office for leadership of CIM, reassignment of the supporting IRM staff to me, and the requirement to prepare a plan for implementation of CIM principles across the Department. Also, because of my expanded responsibilities, including the CIM initiative, I now report directly to the Deputy Secretary and Secretary of Defense.

The Deputy Secretary of Defense in January 1991 approved our Plan for Implementation of CIM in DoD. This plan establishes a management process allowing for centralized information

management policy making and decentralized information program execution by the Components of the Defense Department.

Responsibility to develop policy for the effective and efficient development and operation of all automated data processing equipment in the Department of Defense has been consolidated in my staff. The only exception involves equipment and software which is an integral part of a weapon or weapons system or related test equipment, for which policy responsibility will remain with the weapons systems acquisition community.

We are creating a new Center for Information Management within the Defense Communications Agency to provide technical support and assist us and the DoD Components in execution of our information management programs. The Center will perform functions such as supporting the functional groups, developing DoD architectures, assisting in the production of process and data models, and supporting the development of information management standards. These changes are significant enough that we are renaming DCA the Defense Information Systems Agency.

In conjunction with the DoD Comptroller, we will develop a comprehensive plan for the evolutionary transition of the Department's data processing operations to a fee-for-service basis. This will provide all levels of functional and information managers with vital insight into the cost and value

of their information technology support and will facilitate decision making on a business case basis.

These improvements are aimed at specific goals for the future, such as making common business systems the norm rather than the exception and providing a computing and communications infrastructure transparent to the information systems that rely upon it. To meet these goals and our vision of the future, the Executive Level Group identified major strategies, which have been approved by the Deputy Secretary of Defense as a basis for formulating further CIM plans. Some of these strategies are as follows:

PROCESS MODELS

We must look for improved ways of doing business in the DoD; we need to simplify business processes before we automate. Early emphasis will be placed on documenting new and existing business methods throughout the Department's major functional areas. This will be accomplished to be sure that functional improvements truly drive all of our future information systems decisions.

A process model is a way to represent a business method. For example, we can use a process model to describe our methods for maintaining inventories and determining reorder levels. We can then examine these methods and look for ways of improving them, measuring the methods against an exemplary private

industry program as a benchmark. Likewise, we can compare the methods used by different DoD Components.

The use of process models is one way we will determine cross-Service methodologies and move to joint programs while maintaining or improving quality of support to any given organizational element.

COMMON INFORMATION SYSTEMS

Work is progressing towards our goal of developing and implementing a set of cost-effective, common information systems based upon process models and data standards. Development of Functional Information Management plans, to coordinate information systems directions and developments across the functional areas of the Department, will provide the basis to identify where common systems can be employed and when systems should be unique. This is a high-priority area, and we are backing this up by designating high-level Functional Information Managers, who report directly to Mr. Strassmann and work with senior functional management, such as the chairs of the Functional Steering Committees.

LIFE-CYCLE MANAGEMENT METHODOLOGY

Strengthening this cornerstone of information management policy will further the implementation of CIM principles in the automated information system development process. We will build upon our existing life-cycle management methodology to include

process models, data models, updated system development and acquisition methodologies that employ evolutionary approaches, and we will educate the user and technical communities in its use.

EDUCATION

We must educate Department personnel in the concepts of CIM and the plans to apply it. The Information Resources Management College of the National Defense University is the leader in meeting the Department's education needs in this area. We will move quickly to establish and implement education programs to instill knowledge of information management and to support all DoD Components. The IRM College is also taking the CIM and oversight message to field installations through its Paul Revere program, which delivers education on policy updates to the very organizations that must implement those policies to make information management improvements successful.

CURRENT STATUS

The Department continues to place strong and active emphasis upon our oversight role. In this regard, the Major Automated Information Systems Review Council (MAISRC) now operates independently of the Defense Acquisition Board (DAB). The MAISRC membership has been expanded to include a representative from the Joint Staff, who will assure that system

interoperability and deployment factors are given appropriate consideration, and a representative from Developmental Test and Evaluation organizations. The DoD Comptroller remains a member and provides valuable contributions from a financial management perspective.

While being examined for potential improvements, DoD's life-cycle management policies remain strong. Automated information systems, including those systems being developed or improved as part of the CIM initiative, will continue to be subject to these life-cycle management policies.

In addition, we have updated the reporting guidance for our major system quarterly reports and aligned the DoD information technology budget reporting format to provide expanded oversight information.

We are now formulating program plans to execute information management throughout the Department. Throughout our plans, we are emphasizing incremental and evolutionary change rather than organizational upheaval. For example, we must consider the impact that our plans will have on our existing base of personnel, facilities, and networks. As we move to a more integrated computer and communications environment, we will emphasize the retraining of our people whose skills need to be broadened or updated so that they may work with more efficient systems development tools. Also, to identify our key information managers and to provide education and career

opportunities for our people with the potential to become key information managers, we are continuing our efforts with the Office of Personnel Management for the designation of a distinct job classification and series.

SUMMARY

The Department is providing strong leadership and sending a strong and consistent signal in the CIM initiative. In anticipation of cost reductions, money has already been removed from DoD's budget. DoD is not just cutting funding -- more importantly, we are putting in place the ability to provide the same or better level of service and response at these lower funding levels.

As I have described it, integrating information management across the Department is a long-term challenge. Examining and improving the many information management activities of the Department will be a process of continuing evolutionary improvement. However, these improvements are integral to the Department's ability to maintain critical capabilities while downsizing.

The success of CIM hinges in large part on the ability to standardize processes and data and to install an open systems architecture as we move the Department into an era emphasizing information management. This is a strategic move and will take

several years before execution is completed. Your continued support for CIM and these related activities will go a long way towards making CIM a success.

To give you a better idea of specific progress we have made and expect to make, Mr. Strassmann will provide some examples of business process improvements and discuss our plans for the future.

We solicit the subcommittee's support for our efforts to improve information management, which is a key to improving the overall accomplishment of DoD's mission.

NOT FOR PUBLICATION UNTIL RELEASED BY THE
HOUSE ARMED SERVICES COMMITTEE
HOUSE OF REPRESENTATIVES

STATEMENT BY

MR. PAUL STRASSMANN

DIRECTOR

OF

DEFENSE INFORMATION

BEFORE THE

HOUSE ARMED SERVICES COMMITTEE

READINESS SUBCOMMITTEE

April 23, 1991

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OPENING REMARKS:

Mr. Chairman and members of the subcommittee, it is a privilege to report to you on the current status of the Corporate Information Management (CIM) initiative of the Department of Defense (DoD).

In terms of expense, the CIM initiative is the largest information management program ever conceived by any U.S. business organization. In terms of schedule, it will require every moment of the 5-year period for which savings were initially targeted. CIM calls for a major reengineering and restructuring of business methods and administrative processes in DoD.

The immediate CIM goals are set by the Defense Management Report (DMR) initiatives. Each of the top three DMR cost reduction targets exceeds the annual information management budgets for the top three U.S. manufacturing companies. A significant percentage of DMR cost reductions will be accomplished as a result of the CIM initiative. As Mr. Andrews pointed out, we are now concentrating on improving information management in selected administrative areas, such as contract

payment, civilian payroll, distribution centers, and medical applications. We are also setting the foundation for applying CIM information management methods to all other DoD business areas.

We have chosen information technology as one of the tools to achieve DMR results. Our objective is to shorten the time for delivery of new computer applications by 75 percent while simultaneously realizing savings in excess of $6.0 billion in information technology through fiscal year 1997. This includes savings through reductions in systems development costs, sharing of computer software, consolidation of systems engineering design centers, and simplifying operations of data and design centers. The information technology savings also include gains from the Computer-aided Acquisition and Logistics Support (CALS) initiative and the Electronic Data Interchange (EDI) initiative for paperless processing of business transactions.

Let me emphasize, however, that CIM should not be seen as an information technology program. Although it is expected to deliver in excess of $6.0 billion of savings in information technology, CIM succeeds only insofar as it supports all DMR targets. Information technology should be seen only as the rails on which the DMR freight train can roll to deliver its results!

Even the most ambitious initiatives can succeed only by making steady progress, one step at a time. Therefore, I shall

dispense with generalities and concentrate on examples of what CIM has already accomplished. After that, I shall discuss immediate steps we are taking to make sure CIM ultimately delivers what is expected.

A. ILLUSTRATIVE EXAMPLES OF CIM RESULTS:

1. THEATER MEDICAL AUTOMATION

The start of Operation Desert Shield found the Department without the necessary medical information system capabilities to support a major joint theater operation. The medical functional group provided joint automation support for Desert Storm. This included the Theater Army Medical Management Information System, Defense Medical Regulating Information System, and Automated Patient Evacuation System. Each of these systems had to be adapted to function as an integral part of a joint theater medical operation.

The four Services began immediate implementation of required support. By November 1990, essential automation support was being provided to medical regulating, patient administration, patient evacuation, and medical logistics operations. By the start of Operation Desert Storm, this support was being provided from the Central Command theater of operations, through Europe, and into the support base in the continental United States. Throughout the Operation, the medical group worked closely with the Joint Staff, both theater commands, and the Services to provide the necessary support.

By April 1991, these automation initiatives supported 10,000 patients and tracked the movement of over $200 million in medical supplies in theater. In providing this support, time for a patient regulating request was reduced from 20 minutes to 30 seconds.

Altogether, twelve standard systems have been designated to serve medical information-handling needs of DoD Components.

2. LOGISTIC SYSTEMS

We have selected a number of current, wholesale logistic systems as candidate DoD standards. In the future, we anticipate the functional requirements represented by a large number of existing information systems in the materiel management area will be met by fewer redesigned systems. This will require considerable additional planning and analysis, but we expect substantial returns.

3. CIVILIAN PERSONNEL SYSTEMS

For the civilian personnel function, we have selected a single system - the Air Force Civilian Personnel Data System - to support 94 percent of DoD employees.

4. FINANCIAL OPERATIONS SYSTEMS

The CIM process is instrumental in enabling the Defense Finance and Accounting Service (DFAS) to consolidate diverse financial operations. DFAS is now working jointly with the

civilian payroll group to specify how the DoD payroll business shall be conducted.

The CIM functional groups are currently evaluating Army's travel module for deployment by the Air Force and are also evaluating the potential of adopting Army's Program and Budget System for deployment by the Defense Logistics Agency (DLA) and the Air Force.

The subcommittee should be aware that unification and consolidation of administrative systems is not a simple technical matter. For instance, the civilian payroll group has identified many procedural differences in current business practices among DoD Components:

-- how to calculate pay after expiration of a temporary appointment;

-- how to deliver leave and earning statements (mailing versus hand-delivery);

-- how to document time and attendance and labor accounting (extensions computed in the payroll system versus outside the payroll system);

-- how to address payment versus use of compensatory time; and

-- how to define a standard pay period. (The Military Departments use the same pay period and DLA uses an alternate pay period.)

The above may appear to be minor procedural matters. However, accumulation of such diversity makes it mandatory to change business practices and reorient people prior to attempting a systems consolidation that has a chance of succeeding.

Precipitous consolidations without consideration of human and procedural complexities have resulted in well documented administrative disasters. We shall avoid taking such risks. We shall specify improved business methods before proceeding with any standardization.

B. MEASURES TO ASSURE CIM PROGRAM RESULTS:

1. MEASUREMENT OF EFFECTIVENESS AND EFFICIENCY

The Department is now installing an aggressive approach to measure effectiveness of individual CIM initiatives. In each case, we shall ask for expected financial results and for operating measures prior to approving full implementation. The program manager will show expected cash flow, adjusted for risk and for the time value of money. This approach follows industrial practices of business analysis in justifying productivity improvement projects.

To make comparisons between different implementation alternatives, we have delivered to the Contract Payment CIM group a computerized procedure for financial evaluations. This approach will assure consistency of planning, provide a method for full disclosure of operating assumptions, and allow for quarterly audit of actual accomplishments.

We require CIM program managers to compare their projected unit costs, order-handling delays, and transaction errors with comparable private sector business practices. For example, in the case of handling purchase orders for low cost items, the Materiel Management CIM manager will examine purchasing practices of the most efficient U.S. firms. The CIM method requires performing value-engineering on individual transactions to find out how to revise existing DoD business policies and practices.

We expect most of the projected CIM savings will result from change in business methods and revision in DoD policies rather than from more efficient computerization. There is no point in having a computer do something faster if it should not be done at all.

2. MEASURING RESULTS OF THE CIM PROGRAM

Timely delivery of cost reductions specified in the Defense Management Report initiatives - without impairing effectiveness of our Armed Forces - shall be used as the proof that the CIM

program is effective. We have decided to couple CIM activities to implementation of DMR initiatives. The CIM approach to streamlining all DoD business methods and eliminating unnecessary information activities becomes the means for delivering the initiatives' results. This is why the scope of CIM covers streamlining of all DoD information work, which includes personnel, materiel, logistics, finance, and planning.

3. ROLE OF COMPUTERS IN CIM

A relatively small share of total DMR savings will accrue from simplification and standardization of information technology. Benefits from streamlining DoD's automatic data processing activities will become visible as we monitor results from technology programs just as we track all other CIM programs.

Improvements in responsiveness of organizations managing computers are essential for achieving CIM cost reduction targets while improving effectiveness of defense support operations.

4. MEASURING VALUE OF INFORMATION

Analysts studying the competitiveness of U.S. industry discovered a prevailing neglect in managing "indirect" costs, also identified as "overhead" expenditures. The value of a tank, fighter airplane, or cruiser can be evaluated, because they represent tangible military power. The value of information-handling procedures is much harder to assess,

because these costs are incurred on the basis of custom, procedure, regulation, and organization.

Industry has attacked the problem of overhead cost control through "activity-based" accounting. In this approach, indirect support costs are attributed to operating results.

We have embarked on a vigorous program to associate overhead support activities with tangible operating results. The first target for the new approach is information technology. Information services provided by large DoD data and software design centers will be placed on a fee-for-service basis. Data center and design center budgets will be determined by demand from DoD customers and not by budget allocation which cannot achieve a fair balance between supply and demand for information services.

Since the electronic industry delivers annual cost/performance improvements in the 30 to 40 percent range, adoption of fee-for-service is a prerequisite for an economically sound approach to the expected modernization of computer centers that the CIM program requires. Fee-for-service makes it possible to establish a measure of actual computer center productivity gains.

Similarly, marked productivity gains that can be achieved by means of Computer-aided Systems Engineering (CASE) methods will permit evaluation of options for delivering software support to DoD Components. Fee-for-service for design centers

will make it possible to establish a measure of competitive excellence for software efforts.

5. DATA MANAGEMENT

For CIM to succeed, we shall eliminate unnecessary labor in transcribing, translating and reinterpreting the same data. Penalties for inconsistent and redundant handling of data are incurred primarily by clerical and administrative personnel. Poor data management practices show up as costly errors in the conduct of DoD business affairs, as excessive transaction costs, and as added management layers to monitor and control work.

The Executive Level Group stated all data in DoD should be entered into the information-handling system only once, with zero defects, so it could be reused as the information passes from its origin to its final use.

All DoD data definitions are now a shared "joint" asset, rather than belonging to individual information-handling systems. Data modeling and data control shall be under direct policy guidance of the office of the Director of Defense Information.

The subcommittee may be also interested to hear that we are not viewing CIM's data management program as an isolated DoD activity.

We are in the final process of reaching an agreement with the Veterans Administration on their participation in data

sharing aspects of the CIM program. They have identified information management savings if they can make direct use of DoD personnel and medical information when veterans transfer from DoD to the Veterans Administration.

DoD suppliers will also be affected by our Computer-aided Acquisition and Logistics Support (CALS) CIM initiative. CALS addresses timely and efficient handling of information that supports weapons and commercial products acquired by the DoD. Our purpose is to improve productivity within DoD as well as reduce the paperwork required of our suppliers. For instance, we developed methods and standards for electronic transmission of engineering drawings, technical manuals, and manufacturing documentation.

6. SPEEDING UP AND REDUCING COSTS OF INFORMATION TECHNOLOGY IMPLEMENTATION THROUGH STANDARDS

To simplify DoD business methods, we shall substitute automation for labor-intensive and error prone procedures whenever economically justifiable. The urgency of DMR targets makes it necessary to install new information technology on a schedule measured in months instead of years.

In June, I shall be joined by information technology executives from all DoD Components to announce DoD's unqualified commitment to implement a standard, vendor-independent, and readily upgradable information systems architecture. This

approach is generally known as the pursuit of "open systems" architecture.

No major U.S. corporation has as yet made such a full commitment, because "open systems" architecture is still debated in public, private, national, and international standards organizations. DoD cannot wait for vendors and customers to reach full agreement on every computer systems standard.

We shall proceed, without further delay, to construct all DoD information systems according to approved Federal Standards, as defined by the National Institute of Standards and Technology. We shall focus DoD resources on accelerated adoption of Federal Information Processing Standards (FIPS). We shall continue participating in international and industry standard organizations, after endorsement from the National Institute of Standards and Technology.

All information standards activities in DoD shall be under central coordination from the new Center for Information Management within the Defense Communications Agency and guided by policy from the Director of Defense Information.

7. SPEEDING UP AND REDUCING COSTS OF INFORMATION TECHNOLOGY THROUGH SYSTEMS ENGINEERING TOOLS

Prevailing methods for specification and development of new computer applications are labor-intensive and extremely error prone. They result in excessive life-cycle maintenance costs.

At present, the overwhelming majority of DoD programming resources is consumed in maintaining computer programs handcrafted more than a decade ago.

We shall select from a wide array of available tools a DoD standard set that will be applied to the manufacture of all new computer programs. Specification and selection of standard DoD software production tools will be guided by central policy from the Director of Defense Information. This approach will finally make it possible to realize the original intent of specifying the ADA computer language as a standard DoD programming language.

Implications of adopting a standard set of software engineering tools for DoD are far-reaching. The tools will safeguard interoperability of computer applications manufactured to the new standards. DoD's goal is to apply the standard toolset to reengineering and reuse of existing software. This will minimize conversion expenses while speeding up full implementation of CIM programs.

8. SPEEDING INTRODUCTION OF CIM PROGRAMS THROUGH REDUCTION OF RETRAINING DIFFICULTIES

Human factors - not information technology - are the pacesetters for the rate of progress through application of CIM methods. Evolutionary management methods and organizational learning will always be the most important ingredients in reaching DMR goals.

CIM calls for changed work habits. Rapid changes expected under CIM initiatives will require retraining of perhaps as many as one million DoD employees. Training will have to be continuous and personalized, because local conditions and individual skills will dictate the pace of change.

Information technology will play a major role as an ever present tutor, available to every person whenever they need on-the-job assistance. Existing information systems and information networks possess a confusing variety in appearance, procedure, and in visual perception. Therefore, they are not suitable as a means for understanding what needs to be done.

We shall proceed, as part of adopting Federal Information Processing Standards, to apply a standard graphic appearance to all new computer screens to make them suitable as training aids.

I thought members of the subcommittee would be particularly interested to hear about these important behavioral dimensions of the CIM effort. Management of the CIM program has been, is, and will always remain an endeavor that depends on people for its achievement.

C. CONCLUDING REMARKS:

Since 1955, I have managed many organizations in their quest to meet challenges of the electronic age. Although nothing in my experience - or anyone else's - compares with the

scope and demanding schedule of the CIM program, I am convinced that it shall succeed.

Our objectives are clear. The human resources at our disposal are equal or better than anything I have ever seen. The technical means are available. The need has never been greater.

As CIM evolves over the next several years, I am confident you will be pleased when you examine evidence of what has been accomplished.