

DRAFT ESG MINUTES

ESG Meeting in Washington, DC

29 January 1998

1. Mr. Erickson opened the meeting with introductions. An agenda is provided as Attachment 1. See Attendees list as Attachment 2.
2. Mr. Miles went over the ESG minutes (Attachment 3) from the last meeting in St. Louis, MO with no objections. Mr. Erickson approved the minutes as is.
3. Mr. Ron Hatwell discussed outyear funding from the Corps perspective. He stated the Corps would continue to be the program agent and the \$2.4 M would be in the Corps budget for the next funding cycle. However, he stated the \$2.4 M would have to sustain the same funding cuts as all other Corps military fund in FY99 and beyond. History has shown a 5 to 10% cut which he requested the Navy and Air Force to fund equally. **ACTION ITEM: Dr. Moy and Mr. Erickson both agreed to request this expected funding cut from their respective service budgets.**
4. The Strategic Plan (Attachment 4) was then briefed by Mr. Bobby Bean. Mr. Bean stated the Navy had adopted a similar Strategic Planning method for their operation. Mr. Erickson indicated that the customer feedback would be extremely important to provide focus to the Tri-Service CADD Center. Dr. Radha indicated that the customer is important to fulfilling the Center's Mission on the standards. He also stated the standards are developed from the bottom up and then implemented from the top. Satisfying Customer needs was emphasized as one of the more important strategies for the Center. Mr. Bean requested endorsement of the strategic plan direction by the ESG which they provided.
5. Mr. Smith provided a briefing on the ROI—Return on Investment for Tri-Service Center FY98 workplan (Attachment 5). The workplan was divided into 3 groups (1) Corp mission, (2) related mission, and (3) support mission projects. Those projects in support mission group would not have an individual ROI but would be included as overhead cost to the other projects. Mr. Erickson asked about the call for projects and when the letter would go out to the field. **ACTION ITEM: He also wanted to insure the request included the ROI information.**
6. Mr. Mikeal Perritt presented the Hammer Award nomination (Attachment 6) for the Center. Mr. Perritt asked for signatures from the ESG members present. **ACTION ITEM: Minor corrections will be handled by Jean McGinn.**
7. Mr. Harold Smith presented a GANT Chart on the FY98 workplan (Attachment 7). Mr. Erickson is concerned about the funding and the level of effort concentrating on the end of the Fiscal Year. **ACTION ITEM: For future presentations Mr. Erickson wanted to see:**

Agenda

Tri-Service CADD/GIS Technology Center Executive Steering Group Meeting

29 January 1998
Rm 5D400
Pentagon, Washington, DC

1:00	Opening Remarks & Introductions (5 min)	Gary Erickson
1:05	Review of Minutes of Last Steering Group Meeting and Action Items, not elsewhere on agenda (15 min)	M. K. Miles
1:20	Outyear Funding, Executive Agent, etc. (5 + 10 min)	Ron Hatwell
1:35	Strategic Plan / Performance Measures (15 + 10 min)	Bobby Bean
2:00	Return On Investment (ROI) (10 + 10 min)	Harold Smith
2:20	Break (10 min)	
2:30	Program Review – Highlights (10 + 20 min)	Harold Smith
3:00	Hammer Award (5 + 10 min)	Mikeual Perritt
3:15	E.O. 12906 Compliance (10 + 10 min)	Nancy Blyler
3:35	Closing Remarks & Next Meeting Date	Gary Erickson
3:45	Adjourn	

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Draft ESG Minutes

ESG Meeting in St. Louis, MO

20 August 1997

1. Dr. Get Moy made opening remarks and introductions. Attendees were M. K. Miles, Ron Hatwell, Don Ritenour, Steven Stockton, Charlie Cheung, N. Radhakrishnan, Jim Carberry, Paul Herold, Deke Smith, Harold Smith, Bobby Bean, Tony Joyce, R. Mikeual Perritt, Francois Grobler, Terry Coomes, Edward Racht, Edward Middleton, Phil O'Dell, Eugene Tickner, Jean McGinn, Peter Sabo, Paul Kip Otis-Diehl, Carolyn Wilbur, Nancy Blyler and Bob Clearwater.

2. Dr. Get Moy mentioned two key points of concern:

- That another year has gone by without metrics
- Need to know the Center is proceeding.

Mr. Steve Stockton added that the process in place is good but we need better communications. We need metrics and measures. Criteria to select work unit. Where should the focus be? How well is the Center's vision supported? Dr. Get Moy stated that this should not be merely an accounting issue. Are we achieving our strategic vision? Dr. Radha said that a "Cost Benefit Ratio" is good. Some work (i.e. Standards) is a more strategic investment. There may not be a return today but will be in 5 years.

Mr. Charlie Cheung stated that we are at a crossroads now. There are so many forces working against us. He is asked each day, "What is the Corps doing? What benefit is this meeting for the Army and the taxpayer? At the House Appropriations meeting, every question is about "Benefit Cost Statistics". OMB measures performance on benefits, enhancement of technology. All these are driving the Federal Government today. We have not been good at documenting. "Shame on you, Shame on us!" Categorical data: (1) Immediate Savings, (2) Tangible Savings. Right now, we are severely challenged by (OMB).

3. Mr. M.K. Miles asked if we need this before moving forward with FY98 projects? If FY 98 is okay, then are we not sure about FY99? Dr. Get Moy said that the 98 issues are becoming less jelly and more concrete but what will we have to show a year from now for FY99?

TWO PROPOSALS ON TABLE:

- a. ROI analysis of FY98
- b. ROI analysis of prior year projects to support FY98 budget requests.

This must withstand an AAA or GA Audit.

4. Mr. Charlie Cheung reiterated that we need to capture savings and collect “good news” stories. Chances are better with these “good news” stories. MG Ballard won’t have the opportunity to criticize. M. K. Miles mentioned the Pennsylvania “good news” story at which Mr. Charlie Cheung responded, “Wonderful, absolutely! Get as much data as we can.” We will provide ammunition. Mr. Cheung will fight for ’98 budget. The President prepares the Overall Strategic Plan. MG Ballard is responsible for the Army Strategic Plan. We have to tie our efforts in to all and keep track of quantifiable data.

ACTION ITEMS:

- **“Good news” stories should be submitted within two weeks. Dr. N. Radhakrishnan will gather and look at “good news” stories, group them and send them to Dr. Get Moy, who will in turn submit this data to Mr. Charlie Cheung.**
- **Mr. Cheung challenged the group to come up with 10 Hammer Awards. EBS received the Hammer Award. Harold should put together the accomplishments for the Mojave Desert Hammer Award. Center will write Hammer Awards for more projects. (Pete Sabo-Installation-Hammer Award)**
- **Program Review is due by the first quarter.**
- **Strategic Plan review will be due by the first quarter**
 - a. **Apple pie to detail**
 - b. **Here is where we are now**
 - c. **This is where we are going showing goals along the way of what needs to be done.**
 - d. **Plan should be looked at yearly and updated**

5. Dr. Get Moy – Summary action on the FY98 Program: (1) Continue ongoing projects, (2) Continue in-house, (3) Hesitate with contract work. Cost Savings, cost avoidance and estimated savings should be developed for each project. How do we approach the FY99 budget? Add to Navy and Air Force budget? Assigned to EWG to look at the funding issues in the FY99 budget – Army funding the same and raise the Air Force and Navy. Expected workload. Expected ROI, expected funding shortfall. DOE/EPA – Tax these people. Be realistic on the FY99 request. Do not ask for double the FY98 funds.

6. **ACTION ITEM: Get copy of the NASA Strategic Plan.**

7. **ACTION ITEM: Center to present to Mr. Steve Stockton:**

- **Develop some metrics for the Center to demonstrate ROI**
- **Revisit the Strategic Plan at the next FTAG meeting**
 - **How does it relate to Mission Statement and achieving the Strategic Vision?**

8. Mr. Steve Stockton - Continue as we have with (1) Corps as executive agent, (2) Funds from OMA and GE budget. Use the same process as first 5 years. Increasingly difficult to make Tri-Service Initiative from one fund (OMA). Dr. Get Moy – How do we follow-up?
8. Mr. Deke Smith – ROI. Who are the true beneficiaries? Ex: TSSDS, Industry, public sector? How wide do we want to open as far as potential funding sources? Whole country will benefit. Mr. Charlie Cheung – How do we capture what all services are doing? We need to document hard savings.
9. Mr. Don Ritenour – Is the Corps to remain the Executive Agent? What is the responsibility of the Executive Agent? What is the norm? M. K. Miles – The Charter was signed in 1992. A paragraph on budget states that USACE is the Executive Agent and will budget for the Center Activities. This is an open-ended charter. Dr. Radha – This should have been a fenced line-item for OMA funding.
10. Mr. M. K. Miles – Does it sell better if all three contribute to the Center? Each service should supplement with additional funds. Dr. Radha – HPC is funded this way. Services agree this is benefit to them. Dr. Get Moy – Air Force and Navy need to bear their share. Reimbursable funds from Air Force, Navy and Coast Guard have been coming in at around \$300K. Mr. Charlie Cheung – That gives us credibility. Mr. Steve Stockton – Center needs to have a diverse source of income. M. K. – FGDC will provide \$130K in FY98. DLA provided 50K in FY97. Mr. Charlie Cheung directed the Center to seek more reimbursable work.
- 11. Dr. Get Moy - ACTION ITEM: We are assigning the EWG to come back with a strategic funding plan. We need expected workload, expected funding, and a better way to secure out year funding.**
12. Mr. Charlie Cheung – Does EPA, DOE get benefits? If so, we should tax these people. Tax those getting benefits. Dr. Get Moy advised using caution against massive increases in the budget. We do not want to be at odds with the industry.
13. Dr. Radha – Are we considering a line item in the DoD budget?
14. Dr. Get Moy adjourned the meeting saying that unless there is an emergency meeting called, Mr. Erickson will be the next chairman.

Where we are Today

Balanced Scorecard Approach to a Strategic Plan for



Strategic Plan History

- December 1993 version approved and implemented
- April 1997 version approved and implemented
- August 1997 ESG direction to build a revised plan based on measurable results

Goals for Today

- Endorsement of the Balanced Scorecard approach
- Endorsement of the Goals for
 - Strategic Results
 - Customer
 - Internal Process
 - Learning and Growth
- Endorsement of Implementation Plan

Balanced Scorecard Approach

Perspective

Goals/Metrics About

Strategic Results

Desired changes\evolution that represent mission accomplishment.

Customer

Acquisition, satisfaction, and retention of customers.

Internal Process

Innovation: New products/services
Operations: Better production/delivery
Post-delivery: Problem management
Business development: Customer relations.

Learning and Growth

Employees: Training, recognition, retention
IT: Improved support technology
Org climate: Teamwork, communication, QWL.

Recommended Goals

STRATEGIC RESULTS

Increase use of CADD/GIS technology throughout Tri-Service and DoD

Improve effectiveness of doing business within Tri-Service and DoD

CUSTOMER

Increase the adoption of all Tri-Service standards

Increase implementation of the latest information technology

Increase Customer Satisfaction

PROCESS

Improve the identification of customer needs

Improved product development and delivery

Increase training in products

Reduce cost of operations

Improve post -delivery follow-up

Improve project selection process

LEARNING & GROWTH

Increase knowledge base of CADD/GIS initiatives

Improve stability of workforce/membership

Improve employee and membership skills

Perspective 1 - *Strategic Results*

Goals:

1. Increase the use of CADD/GIS technology throughout tri-service and DoD.
2. Improve effectiveness of doing business within tri-service and DoD.

Metrics:

1. Documented number of tri-service/DoD components (i.e. installations, bases , Civil Works projects, design agent) using CADD/GIS technology.
- 2a. Documented percent of tri-service /DoD components using Tri-Service Standards.
- 2b. Projected Return-On-Investment.
(immediate measure based on existing data)
- 2c. Measured Return-On-Investment.
(long-term measure based on actual project(s))

Perspective 2 - *Customer*

Goals:

1. Increase the adoption of all Tri-Service CADD/GIS Technology Center standards.
2. Increase Implementation of the latest information technology developed and/or distributed by Tri-Service CADD/GIS Technology Center.
3. Increase customer satisfaction.

Metrics:

1. Number of products in use by tri-service/DoD components. Products include:
 - TSSDS,
 - A/E/C Standards,
 - TSFMS, and
 - A-E Deliverables.
2. Number of Center products in use:
 - Electronic Bid Solicitation
 - A/E/C & TSSDS Workspaces
 - Translation Guidelines
 - Guidelines for Remotely Sensed Data
 - Electronic Data Management System
3. Customer feedback.
(i.e. e-mail, phone, FAX, survey, web page)

Perspective 3 - *Process*

Goals:

1. Improve the identification of customer needs.
2. Improve project selection process.
3. Improve product development and delivery
4. Increase training in Center products
5. Reduce cost of operations
6. Improve post-delivery follow-up.

Metrics:

1. Percent increase of new project proposals.
(Yearly increases of new projects proposed from the field.) Base lined on FY98.
2. Increase on Return-On-Investment (ROI) totals from projects. (Projects selected based on projected ROI).
- 3a. Percentage of products delivered on scheduled.
3b. Improvement of product quality (ease of use) measured by customer feedback.
- 4a. Total number of courses taught.
4b. Number of people trained.
5. Percent reduction in overhead. Base lined on FY98.
6. Number of customers contracts after product delivery. Base lined on FY98.

Perspective 4 - *Learning and Growth*

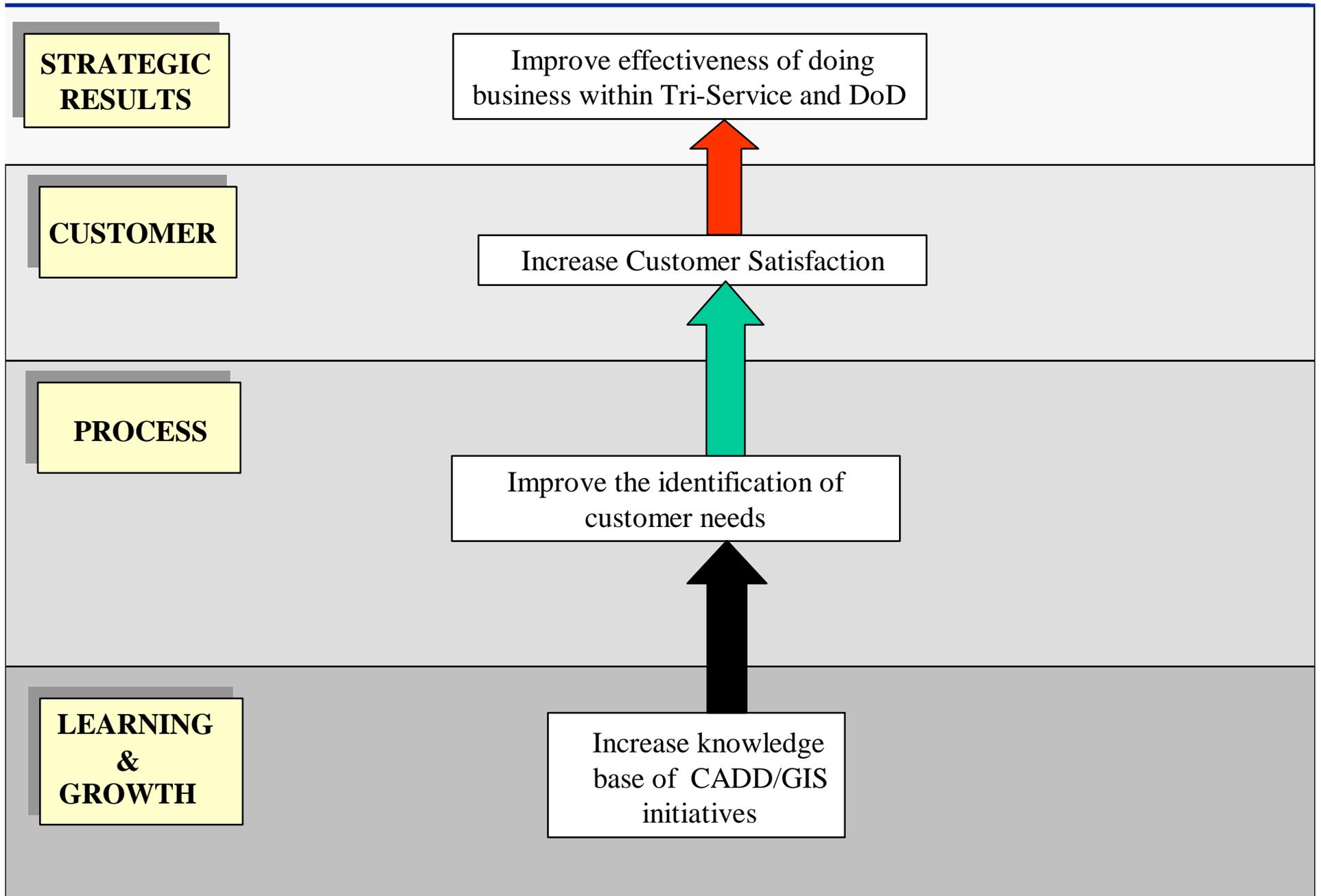
Goals:

1. Increase knowledge base of other tri-service CADD/GIS initiatives and business processes.
2. Improve stability of workforce and membership
3. Improve employee/membership skills

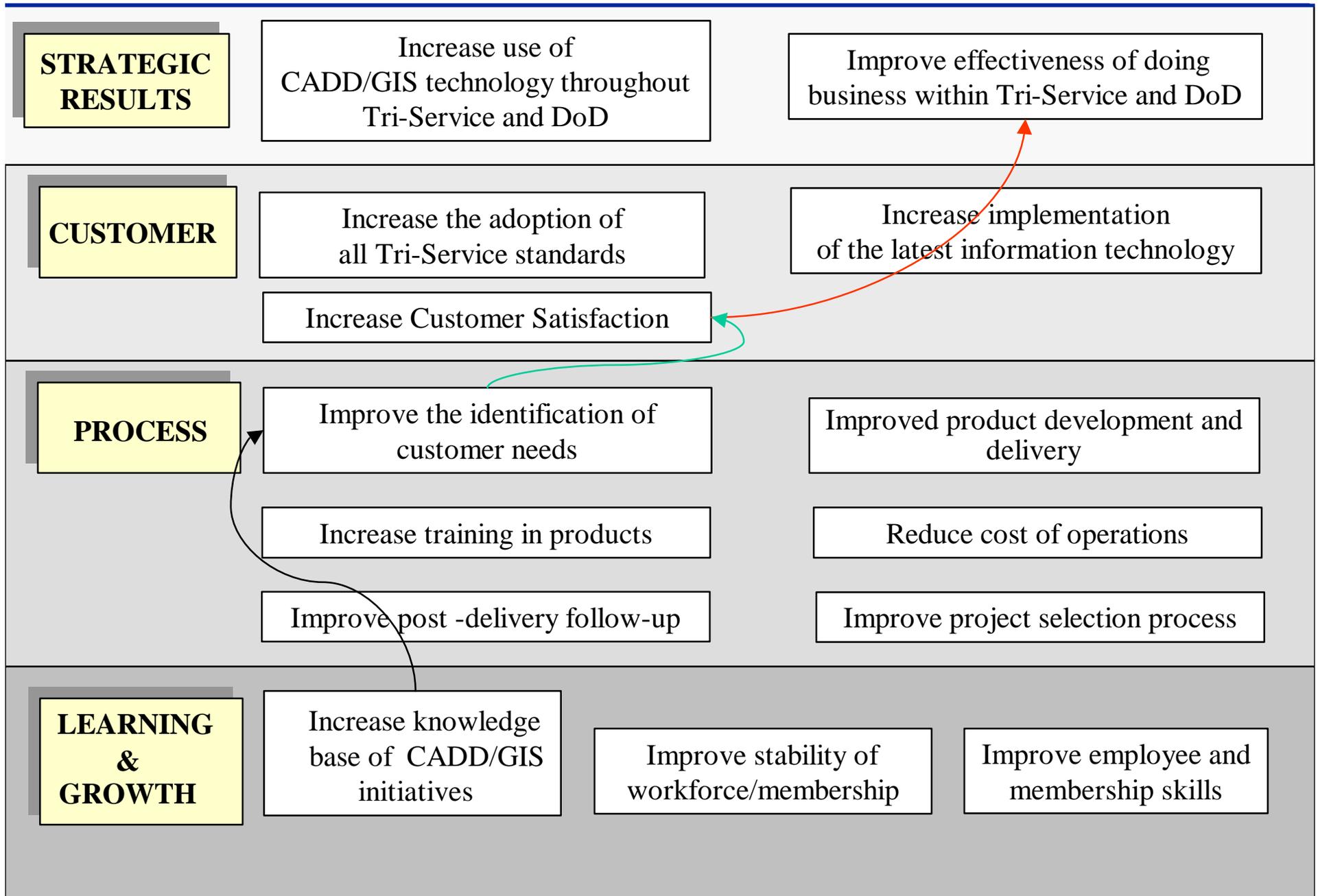
Metrics:

- 1a. Number of formal partnerships with established CADD/GIS initiatives.
- 1b. Number of Center staff/membership participation in professional organizations.
- 2a. Percent of staff/membership turnover.
- 2b. Satisfaction index:
 - leadership
 - workplace quality of life
 - professional development
 - agreement with organizational goals
 - organizational support/job satisfaction
 - recognition and/or support from agency
- 3a. Total training attendance (days/year)
- 3b. Total people trained (people/year)

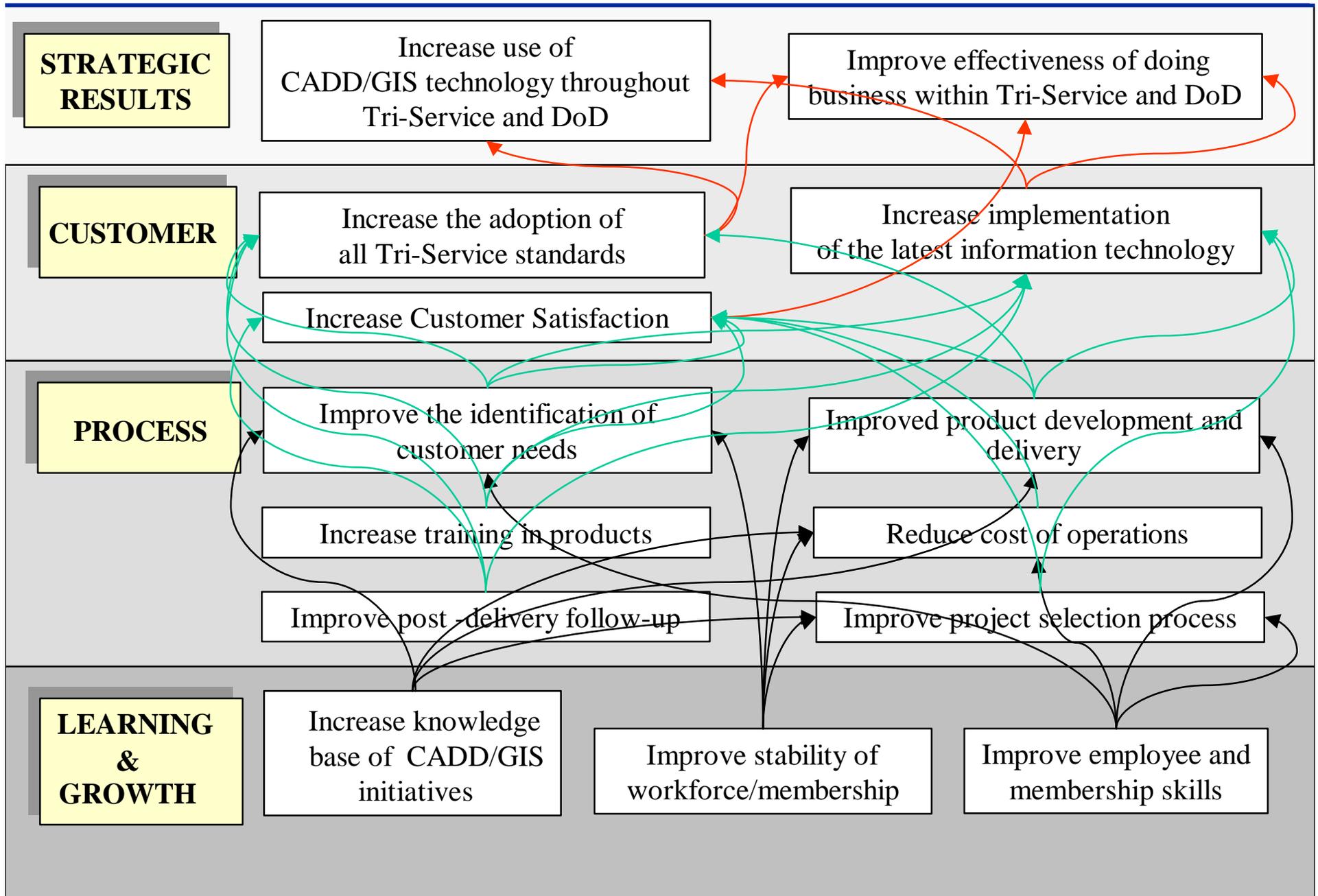
CAUSE AND EFFECT



EXAMPLE OF CAUSE AND EFFECT



CAUSE AND EFFECT DEPENDENCIES



Strategic Plan Components



Proposed Implementation Plan

- FTAG Finalize FY99 effort Feb 1998
- Begin Implementation May 1998
- FY 99 Project Plan based on Preliminary
- FTAG devise Final Plan July 1998
- EWG ESG approval in August 1998
- Revisit during Project Pan process each year

ESG Endorsement?

- Balanced Scorecard Approach
- Are the Goals ok
- How are the Metrics
- Implementation Plan



RETURN ON INVESTMENT TRI-SERVICE CADD/GIS TECHNOLOGY CENTER FY98 PROJECTS

29 January 1998



Return On Investment (ROI)
Analysis Prepared
by MCA Research Corporation with
Assistance from the Tri-Service
CADD/GIS Center



ROI For CADD/GIS TECH. CENTER FY98 PROJECTS

- **AGENDA**
 - **Approach**
 - **Ground Rules & Assumptions**
 - **Return of Investment Data**
 - **Next Steps**
 - **Recommendation**



The Portfolio Approach to Investment In Information Technology

- **Managing IT Investment is more than just selecting the project with the highest Net Present Value (NPV) or Benefit / Cost Ratio (BCR)**
- ***The DoD *Guide for Managing Information Technology (IT) as an Investment and Measuring Performance, Version 1.0* advocates "TAKE THE PORTFOLIO APPROACH TO IT INVESTMENT"***



The Four Steps to Managing a Portfolio of Information Technology Investments

- **Step 1 -- Screen Project Proposals (Screening)**
- **Step 2 -- Compute Investment Metrics (Scoring)**
- **Step 3 -- Apply Weights to Scores (Ranking)**
- **Step 4 -- Judge the Right Mix of Projects (Managing)**



Systems Context

- **In a system engineering and organizational context, inter-project dependencies and competing multiple objectives must also be considered.**
-
- **The selection process becomes a series of steps, often iterated several times.**
- **Only one of the steps involves ROI.**



Step 1 -- Screening

ANSWER THESE QUESTIONS:

- **Is the project relevant to mission priorities?**
- **Is the project feasible to design and execute?**
- **Are COTS alternatives available?**
- **Have others done this? What are lessons learned?**
- **Can anything be salvaged and reused?**
- **Does the project conform to technology and systems architecture?**
- **Does the project anticipate well defined stages of development with clear decision points?**



Step 2 -- Scoring

- **Compute Scores of Investment Metrics**
- ***COMPUTE ROI***
 - « *DETERMINE RISK AND SENSITIVITY PARAMETERS*
- ***COMPUTE OTHER INVESTMENT METRICS AS THEY ARE AVAILABLE***



Step 3 -- Ranking

***APPLY BALANCED SCORECARD WEIGHTS TO
COMPUTED VALUES OF INVESTMENT METRICS***



Step 4 -- Managing

JUDGE THE RIGHT MIX OF PROJECTS

In terms of (for example)

- ***Impact of One Project on Another***
- ***Budget Constraints***
- ***Maintaining Current Systems VS Strategic Improvements***



Ground Rules & Assumptions

- The study concerns the 29 projects that the Tri-Service CADD/GIS Technology Center presented in its FY 98 Project Book
- Benefit lifecycles of 5, 10, 20 and 40 years are calculated with an emphasis in this summary on the 5 year period
- Benefits and costs are based on Department of Defense (DoD) wide implementation



Ground Rules & Assumptions (Cont.)

- Benefits and costs are estimated in constant 1998 dollars
- Present value for ROI analysis is determined by discounting at 3.57% per OMB Circular A-94
- Costs prior to FY98 are defined as sunk costs and are not included in ROI calculations



Findings

In Millions of 1998\$

	<u>FY98 Funding</u>	<u>LCC</u>	<u>Benefits</u>	<u>NPV</u>	<u>B/C Ratio</u>
Core Mission	\$ 1.0	4.8	1,415.4	1,410.0	294.9
Mission Related	\$				
Mission Support	\$				
Total	\$ 1.0	4.8	1,415.4	1,410.0	294.9



Project Listing

- **Core Mission Projects**

Project Number	Project Title
96.013	Tri-Service Spatial data Standards
96.015	Tri-Service Facility Management Standards
96.017	Maintenance, Revision, and Implementation of A/E/C Standards
96.023	Generic Details Library Updates and Revisions
97.019	Coupling of Corps CADD Library of Standard Details with AISC Standard Connection Details
98.245	AEC Tri-Service Object Standards



Findings

In Millions 1998 \$

	FY 98 Funding		LCC		Benefits		NPV	B/C Ratio	
Core Mission	\$	1.0	\$	4.8	\$	1,415.4	\$	1,410.6	293.5
Mission Related		0.9		126.9		256.3		129.3	2.0
Mission Support		1.1		5.4		-		(5.4)	-
Total	\$	3.1	\$	137.1	\$	1,671.7	\$	1,534.6	12.2



Next Steps for Nine Projects

- **96.013 Interview users of GIS to identify value of GIS Spatial Data Standards**
- **97.019 Interview engineers to quantify time savings when AISC standards are available thru Details Library**
- **97.022 Interview TSC and environmental remediation personnel to determine savings from use of GIS in environmental planning, design and construction**
- **98.015 Interview users of erosion models to identify benefits from current information on available models vs integrating to CADD/GIS**



Next Steps for Nine Projects (Concl.)

- **98.045 Interview users of survey data to quantify benefits of automated management and distribution of survey data**
- **98.125 Interview developers and users to quantify benefits of improving GIS by importing CADD data**
- **98.155 Interview developers of facility maps to identify benefits of using satellite data vs. aerial photography**
- **98.200 Interview developers of CADD software to determine benefits of improved mass point computations**
- **98.224 Interview engineers and other users of CADD systems to quantify value of improved plant database**



Recommendation

- Incorporate project lifecycle management including baseline control so each project can be tracked through the following:
 - key decision points of its development
 - implementation phase
 - operational phase
 - technical refresh steps
 - Wind-down, disposal and salvage phase

**VICE PRESIDENT AL GORE'S
NATIONAL PERFORMANCE REVIEW
HAMMER AWARD NOMINATION**

Name of Office/Group/Team: Tri-Service CADD/GIS Technology Center Initiative Team

Government Agencies/Department:

U.S. Army Corps of Engineers (USACE)
Army, Assistant Chief of Staff for Installation Management
Navy Facilities Engineering Command (NAVFAC)
U. S. Air Force Civil Engineer
Tri-Service CADD/GIS Technology Center (Tri-Service Center)

Address: HQUSACE
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20 Massachusetts Ave. N.W.
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Team Leader or Manager's Name: Gary M. Erickson (Current Chair, ESG)

Telephone Number: (210) 536-2162

What process, function, or service has been reinvented?

DEFINITIONS:

CADD – Computer-Aided Design and Drafting
GIS – Geographic Information Systems
DMRD – Defense Management Review Decision
TEC – Topographic Engineering Center

HISTORY:

In June 1991, recognizing the success of the USACE CADD Center in reducing redundant effort and increasing efficiency, DMRD 982 recommended the CADD Center be given an expanded role as a tri-service organization. In October 1992, this decision was implemented with the USACE CADD Center being designated the Tri-Service CADD/GIS Technology Center.

MISSION:

The expanded mission of the Center focuses on the implementation of CADD and GIS technologies within the design and construction, civil works operations and facilities management functions of the Army, Navy, Air Force, and Corps of Engineers. This includes the development and promotion of CADD and GIS standards for data content and format, recommending CADD/GIS policy, interagency communication, government and private sector cooperation, technical support and advice, training, consolidating applications development, evaluating new technologies, and centralized CADD/GIS acquisitions.

REINVENTION:

Starting in the early eighties, the federal government began the transition from hand-drawn construction documents (plans and other drawings) and maps to CADD and GIS technologies. Unfortunately, the originally forecasted 20-30% cost savings have not been fully realized - even today. One fundamental factor in this failure has been the lack of standards for CADD and GIS data content and format. Standardized data and data format ensure the successful exchange and/or reuse of information without the need to reformat or reproduce data again and again. The Center's major achievement is the standardization of the processes for developing and utilizing CADD and GIS drawings and data base information to help realize the promised savings.

The principal standards products developed by the Center (A/E/C CADD, GIS/Spatial Data, and Facility Management Standards) provide a uniform structure for all drawings and associated relational data bases developed throughout the tri-services. As the standards have evolved, they have replaced individual office and service standards and have become a de facto National standard for the tri-services and some other Federal agencies, local and state governments, and private sector firms. The development and implementation of these standards will result in the reinvention of the facilities' life-cycle process, from project planning through design, construction, operations and maintenance to final disposal. These standards products enable effective utilization of the rapidly developing automated technology, moving towards a virtual office scenario for all the DoD services in the future.

How has this group cut red tape or empowered employees to improve service to your customers? Are there tangible benefits to your customers and/or the government?

From a tri-service perspective, the establishment of a multi-service Center for CADD/GIS assistance eliminates the need for each service to create their own individual infrastructure for developing standards or maintaining a clearinghouse for CADD and GIS-related information for their respective users.

Cost savings to tri-service agencies are multi-millions of dollars in eliminating the need to create and staff at least 3 other service centers for the Army, Navy, and Air Force. Additional agencies such as Department of Energy (DOE), Defense Logistics Agency (DLA), and Coast Guard are looking to the Center as the leader in the development and maintenance of standards and as a clearinghouse for CADD/GIS issues.

Tangible benefits of using the Center products and technical expertise are in the millions of dollars in savings for start-up costs of implementation planning, hardware and software purchases, staffing, and sustaining CADD/GIS operations. For instance, without the GIS/Spatial Data Standard schema each military installation (200 in all) and/or civil works project (a few hundred) would be investing between \$50k and \$200k for each new GIS project.

A strong organizational team has been developed over the years whose members include personnel from all the DoD services. The team members have made exceptional progress in putting aside the individual differences in methodologies and preferences to achieve progress for a shared benefit. The team effort among the Center staff and affiliated organizations developed a methodology where the standards are widely disseminated for review, integrated into a Windows application and published on a CD-ROM and the Internet.

Outside of DoD, many Federal (e.g. DLA, DOE, USGS), State (e.g. Pennsylvania, Utah, California), Local government agencies (e.g. Bakersville, CA, Garland, TX, Allentown, PA), and private industry organizations contact the Center requesting products and technical advice on CADD/GIS implementation issues. They have also adopted the use of the GIS/Spatial Data Standards as their standard, thus saving their customers and the Nation millions of dollars.

What has this group done that makes them truly outstanding? We are looking for those federal employees who have done extraordinary things to help build a government that costs less and works better. Please add any additional comments that you feel support this nomination.

The Center exemplifies the global and national vision of centralizing the development of agency products thereby eliminating potential duplication, and conducting business in a “paperless society”. Few have actually had the knowledge and determination to make that vision into a reality. The Center staff consists of personnel with a broad range of expertise in specific disciplines who have expertise in CADD- and GIS-related technologies as well as military and civil works design and construction expertise. These employees come from Corps districts, Corps research laboratories, and Army, Air Force and Navy installations.

The Center management groups and the Center have initiated the implementation of a performance measurement system linked to strategy and process. This system will assure that the Center program will result in substantial cost benefits to the DoD services and the Nation.

All the following projects have been designed and developed through a consensus process with tri-service input, review and coordination.

Architectural/Engineering/Construction (AEC) CADD Standards

Spatial Data Standards (GIS)

Architect-Engineer (A-E) Deliverables Standards

Generic CADD Details Library

Guidance and Demonstrated Use of GIS Technology for Environmental Restoration and Compliance

Natural and Cultural Resources Applications

Participation in Federal Geographic Data Committee

Electronic Bid Solicitation (EBS)

GIS Implementation Guide

Survey Engineering and Monumentation Management System (SEMMS)

A number of specific groups and individuals should be recognized for participation in the success of Center initiatives. Management of the Center program and coordination of the individual DoD services' requirements is accomplished through the actions of three oversight groups. Members of these groups represent multiple organizations within the three services, as well as many different types of installations. Decisions made have a broad impact on all the individuals who comprise America's fighting force, our first line of defense. The individuals participating in these groups have come together successfully to find the solutions to common goals.

Executive Steering Group (ESG) - The Executive Steering Group provides general policy and direction for the Center with a tri-service membership. Participation in the management of the Tri-Service Center through the ESG is an additional duty outside their primary job responsibilities.

Gary Erickson	US Air Force, Brooks AFB, TX
Kisuk Cheung	USACE, HQ, Washington, DC
Steven Stockton	USACE, HQ, Washington, DC
Dr. Get Moy	HQ NAVFACENGCOM, Alexandria, VA
Russel Milnes	Office of the Secretary of Defense, Arlington, VA
Stan Shelton	HQ, Department of the Army, Washington, DC

Executive Working Group (EWG) - The Executive Working Group provides oversight, sets priorities, reviews expenditures, performs periodic in-progress reviews, reviews all major products, and establishes the lines of communication for the Center. Participation in the management of the Tri-Service Center through the EWG is an additional duty outside their primary job responsibilities.

M.K. Miles	USACE, HQ, Washington, DC
Ron Hatwell	USACE, HQ, Washington, DC
Mikeual Perritt	US Air Force, Brooks AFB, TX
Donald Ritenour	US Air Force, Brooks AFB, TX
Jim Carberry	HQ NAVFACENGCOM, Alexandria, VA
Dana (Deke) Smith	HQ NAVFACENGCOM, Alexandria, VA
Peter J. Sabo	USACE Center for Public Works, Alexandria, VA

N. Radhakrishnan	USAE Waterways Experiment Station, Vicksburg, MS
Tom R. Rutherford	Office of the Secretary of Defense, Pentagon, Washington, DC
Jim Whittaker	Office of the Secretary of Defense, Arlington, VA
Paul Herold	United States Coast Guard, Cleveland, OH
Thomas M. Karst	Defense Logistics Agency, Ft. Belvoir

Field Technical Advisory Group (FTAG)– The Field Technical Advisory Group facilitates the mission and provides senior level field management guidance to the EWG. The FTAG is responsible for representing the needs of the field users. The primary objectives of the FTAG are to facilitate standardization, integration, and promote the use of CADD/GIS Technology. Participation in the management activities of the Tri-Service Center through the FTAG is an additional duty outside their primary job responsibilities.

Bobby Bean	Patuxant Naval Air Station
Carolyn Wilber	HQ NAVFACENGCOM, Alexandria, VA
Robert Wood	NAVFAC CBC Pt Hueneme
Randy Lierly	U. S. Air Force, Brooks AFB, TX
Victoria Williams	U.S. Air Force, Peterson AFB, CO
Jim Butler	U.S. Army, Fort Hood, TX
Deborah Duncan	U.S. Army, Fort Carson, TX
Phil O'Dell	USACE, Seattle District
Eugene Tickner	USACE, New Orleans District
Harold Smith	Tri-Service CADD/GIS Technology Center, Vicksburg, MS
Thomas M. Karst	Defense Logistics Agency, Ft. Belvoir

Field Working Groups (FWG) -Field Working Groups have been established, and are populated and directed by the FTAG as necessary to accomplish defined tasks. These tasks address technology initiatives used throughout the life cycle of facilities to accomplish required design, construction, operation and maintenance better, faster and cheaper. There are eight FWGs with 12 members in each group, representing all services. The eight groups are Design, Construction, Civil Works, Environmental, Military Planning, Facilities Management, Natural and Cultural Resources, and Systems. Participation in the accomplishment of the Tri-Service Center initiatives through the FWGs is in addition to their primary job responsibilities.

Tri-Service Center personnel, who serve as Principal Investigators on various projects and are facilitators for the FWGs, are:

Harold Smith	Chief, Tri-Service CADD/GIS Technology Center
Toby Wilson	Architect
Steven Spangler	Mechanical Engineer
Elias Arredondo	Structural Engineer
Bobby Carpenter	Environmental Engineer
Bryan Perdue	Environmental Geographer
Dr. V. Danushkodi	Hydraulic Engineer
David H. Horner	Civil Engineer/Architect

Milton Richardson Computer Specialist
Laurel Gorman Geologist

Names of Person(s) Submitting This Nomination:

Gary M. Erickson, P.E. (Current Chair, ESG)
Air Force
Director, Air Force Center for Environmental Excellence
Signature: _____
Telephone Number: (210) 536-2162

Dr. Get W. Moy, P.E.
Naval Facilities Engineering Command
Chief Engineer and
Director, Planning & Engineering
Signature: _____
Telephone Number: (703) 325-0032

Kisuk Cheung, P.E.
Army Corps of Engineers, Military
Chief, Engineering Division
Directorate of Military Programs
Signature: _____
Telephone Number: (202) 761-4439

Steven Stockton, P.E.
Army Corps of Engineers, Civil Works
Chief, Engineering Division
Directorate of Civil Works
Signature: _____
Telephone Number: (202) 761-4536

Russel E. Milnes, P.E.
DoD
Director of Installations
Office of the Secretary of Defense
Signature: _____
Telephone Number: (703) 604-5763

Stanley C. Shelton, P.E.
Army
Deputy Chief, Plans & Operations
Assistant Chief of Staff for Installation Management
Signature: _____

Telephone Number: (703) 614-4360

Name of Agency/Department Submitting This Nomination:

U.S. Army Corps of Engineers

Date:

*The Tri-Service CADD/GIS
Technology Center's*

*presentation on the
FY97 and FY98 Status
January 1998*

Harold L. Smith

Chief,

Tri-Service CADD/GIS Technology Center

3909 Halls Ferry Rd.

Vicksburg, MS 39180-6199

STATUS OF PROJECTS

◆ 96.011 **Communications**

- New POC database interface
 - ◆ More options added
- New Tri-Service NSDI Server for Installation Metadata online.

STATUS OF PROJECTS

◆ 96.013 Spatial Data Standards

– Produced and Published TSSDS Releases 1.6 & 1.7 -

◆ Release 1.6 -

- Development and Testing completed in December 1996.
- 3,000 CDs were distributed.

◆ Release 1.7 -

- Development and Testing completed in July 1997.
- Approximately 1,200 CDs were distributed at the Tri-Service CADD/GIS/FM Symposium in August 1997.
- The remaining 300 CDs were distributed on an “as requested basis”.

STATUS OF PROJECTS

◆ 96.013 Spatial Data Standards (continued)

– Further Development of FGDC Metadata Requirements within TSSDS -

- ◆ WES Environmental Lab completed white paper entitled “Tri-Service Spatial Data Standard Support of FGDC Standards for Digital Geospatial Metadata Analysis and Recommendation” on 25 March 1997. This paper served as guide for integration of FGDC Metadata requirements into TSSDS.
- ◆ Ability to link to FGDC Metadata files at the “map” or “design file” level was incorporated into TSSDS Release 1.7.

STATUS OF PROJECTS

- ◆ **96.013 Spatial Data Standards - (continued)**
 - **Prepare IDEF Models** -
 - ◆ **Development of IDEF models for Release 1.6 was completed on 24 March 1997.**
 - ◆ **Development of IDEF models for Release 1.7 was completed in July 1997. They were published on Release 1.7 CD in August 1997.**
 - ◆ **IDEF models were developed, in support of USACE IM sponsored effort involving preparation and submission of “candidate” TSSDS Utilities Entity Set to DISA. Separating geospatial data standards from DISA’s information management system standards.**

STATUS OF PROJECTS

◆ 96.013 Spatial Data Standards - (continued)

– Provided Customer Support -

- ◆ E-mail Address (tssds@fwgcom.wes.army.mil) for submission of comments, CD requests, and “TSSDS User” registrations was established in December 1996.
- ◆ TSSDS Comments Database was developed in November 1996. All TSSDS comments submitted to Tri-Service Center in FY97 are recorded in database. Comment resolutions are being recorded, as they are addressed. An updated database was included on Release 1.6 and 1.7 CDs.
- ◆ More than 1,500 individual related E-mail messages (e.g., CD requests, questions, comments, and/or support correspondence) were received & processed in FY97 by the Center’s development team.

STATUS OF PROJECTS

◆ 96.013 Spatial Data Standards - (continued)

– Develop Guidance -

- ◆ Developed three Technical Implementation Guides (MGE, ArcView, & ARC/INFO). Live demonstration using ArcView was provided at Workshop at Tri-Service CADD/GIS/FM Symposium. The Guides are available for download from the Center's Internet WebSite.
- ◆ “Comparison of TSSDS, Release 1.6 and Intergraph ERMA Software” was published in July 1997.
- ◆ Workshop was developed and presented at Tri-Service CADD/GIS/FM Symposium in August 1997.

STATUS OF PROJECTS

◆ 96.013 Spatial Data Standards - (continued)

– TSSDS Release 1.75 and 1.8 Development -

- ◆ Completed FGDC Soils Standard/TSSDS Release 1.6 Comparison in August 1997.
- ◆ Completed 90 percent Submittal of River Engineering and Environmental GIS (REEGIS)/TSSDS Integration Analysis Report on 15 January 1998.
- ◆ Completed update of “Unit of Measure” Domain Table to conform to ISO and ANSI Standards.
- ◆ Completed 60 Percent Submittal on TSSDS Flora & Fauna Entity Set Research & Analysis Reports in December .
- ◆ Completed 60 Percent Submittal of FGDC Vegetation & Wetlands Standards/TSSDS Integration Analysis Report in January 1998.

STATUS OF PROJECTS

◆ 97.022 Environmental GIS Tutorial

- The project scope and general deliverables were determined at the Environmental FWG's August 1996 meeting.
- The Naval Command, Control, and Ocean Surveillance Center (NCCOSC) Research, Development, Test, and Evaluation Division (NRAD), San Diego, CA and Environmental FWG, have developed this project.
- The FY97 Project provided Internet accessible tutorial for setting up a TSSDS compliant environmental GIS.
- The FY98 project will expand on the FY97 effort by providing case studies of actual GIS implementations, advantages of a corporate GIS, etc.

STATUS OF PROJECTS

◆ **96.015 Tri-Service Facility Management Standards**

- **TSFMS Task Group Meeting held in New Orleans on 20-21 February 1997. - Defined the scope of the Facility Management Standard for FY97 and beyond.**

◆ **FY98**

- **Conducting Research on Building Management CADD/GIS/FM Standards**
- **Conducting Research on Space, Utilities, and Real Estate/Parcel Management CADD/GIS/FM Standards.**
- **Developing IDEF Models to Support TSSDS/TSFMS**
- **Release 1.8 scheduled for July 98**

STATUS OF PROJECTS

◆ **96.015 Facility Management Standards - (continued)**

- **Environmental Compliance (EC)/ Pollution Prevention (PP) Data Standards - Received 60% report in November 1997.**
- **Interviews at 3 Installations for Space, Buildings, Utilities, Real Property Data Standards.**
- **Intergraph Facilities Management (IFM) Integrator software/TSSDS Comparison - Received 30% report on 30 September 1997. Stopped work due to Baker request for additional funding.**
- **Completed review and modeling of Architectural & Mechanical HVAC Attribute IAI. Currently awaiting completion of A/E/C CADD Standards layering and organization.**
- **Awarded D.O. for development of Communications Geospatial & FM standards in September using DLA Funds.(60% Due 26 Jan 98).**

STATUS OF PROJECTS

◆ 96.017 A/E/C Standards

- Completed Items to be incorporated on the A/E/C CD (Release 1.7)
 - Generic Details
 - AutoCAD Workspace Report
 - AutoCAD Workspace prototype
 - Validation Study I
 - Validation Study II (FY98 project)
 - Attribute data for Architectural and Mechanical/HVAC

STATUS OF PROJECTS

◆ 96.017 A/E/C Standards

	Scheduled	Revised	Actual
Revised Hard Copy Draft Submittal 1	9/12/97	-	10/25/97
Revised Hard Copy Draft Submittal 2	9/29/97	11/25/97	1/ 5/98
Revised Hardcopy Draft Final Submittal 3	10/14/97	12/15/97	
Revised Electronic Submittal 1	9/12/97	1/15/98	
Revised Electronic Submittal 2	9/29/97	1/30/98	
Revised Electronic Final Submittal 3	10/14/97	2/9/98	
MicroStation Workspace Submission 1	10/28/97		
MicroStation Workspace Submission 2	11/21/97		
MicroStation Workspace Final	12/12/97		

•Workspace

Delta Research is pursuing a subcontract with Bentley to complete the Workspace started by Rock Island District. Work delayed until hardcopy document completed and accepted by Center and Rock Island delivery of Workspace.

STATUS OF PROJECTS

◆ 96.023 Generic Details Library

- 50 Telecommunication, 100 Lighting, 60 Structural, and 100 Civil Site details have been added to the online library. Also, cleaned up versions of the HTRW and Electrical details have been made available online.
- 80 Architectural Details (Metric)
- Version 2.0 of the CADD Details CD will be sent out for duplication in late February 98.

STATUS OF PROJECTS

- ◆ **98.220 Utilities for the Tri-Service Workspace For AutoCAD Users**

- ◆ A draft of the MOA has been from the Coast Guard on 5 January 98. Currently under WES legal review.

STATUS OF PROJECTS

◆ 98.190 Electronic Bid Solicitation

- Standard template for Web Site (80% Complete)
- Kansas City (next Class)
- PROSPECT Course (April)
- Update and Publish Class Room manual
- Prototype for proposal acceptance over the Web
- Implementation Team (reimbursable)
- Navy - South West Division - Adopted EBS
 - ◆ No other Navy Sites have adopted
- Air Force - No Adoptions
- Army - No Adoptions
- Corps of Engineers - 20 Corps Sites have Adopted

STATUS OF PROJECTS

◆ 97.024 Linking Schedule and Cost to 3D Model Components

- Draft Report on Linking Specifications to Computer Design and Drafting developed.
- Two additional packages are being evaluated, BSD's CADLink and Netmetschek's AllPlan.

◆ Delivery Schedule

	Scheduled	Actual
NTP	23 Sept 97	23 Sept 97
Submission of Eval Report	16 Oct 97	12 Nov 97
Gov't Review of Report	21 Oct 97	19 Nov 97
Resubmittal of Final Report	30 Oct 1997	26 Jan 98

STATUS OF PROJECTS

- ◆ 97.029 FY97 Tri-Service CADD/GIS/FM Symposium
 - The 1997 Tri-Service CADD/GIS/FM Symposium was held in St. Louis the week of August 18-22 to great success.
 - FWGs as well as the EWG, ESG and FTAG were able to meet at least once that week.
 - Over 1200 people attended the Symposium/Conference.
 - Over 100 exhibitors demonstrated products/services in the exhibition hall (20 of these were DoD).
 - There were 6 General Plenary Sessions, 4 Service Breakout Sessions and 13 Concurrent Sessions.

STATUS OF PROJECTS

- ◆ 97.029 FY97 Tri-Service CADD/GIS/FM Symposium
 - 18 Workshops were given on topics such as the A/E/C Standards and the TSSDS.
 - All SAC groups were able to meet on Friday.



QUESTIONS?

DRAFT

Engineering Division

Mr. Bruce Babbitt
Main Interior Building
1849 C Street, NW
Washington, D.C.

Dear Mr. Babbitt:

On behalf of the various Department of Defense (DoD) Services involved in Civil Works and Military facility and installation management and as a DoD Co-Member of the Federal Geographic Data Committee (FGDC) Steering Committee, I am submitting this response to your letter dated There will be a separate response from the other Co-Member, the National Imagery and Mapping Agency (NIMA), providing a tactical military perspective. Full DOD compliance with Executive Order 12906 in the facilities arena has been impeded by the lack of a formal directive from the Office Secretary Defense (OSD) outlining more specific guidance to the Services. My Tri-Service Computer Aided Design and Drafting/Geographic Information Systems (CADD/GIS) facility committee has produced a draft directive which is intended to provide consistent guidance for all facility elements of DoD with respect to using geospatial data standards and sharing geospatial information with the public. To date I have found little support at the OSD level in issuing more specific guidance, but will renew my efforts in this regard. However, the U.S. Army Corps of Engineers Civil Works Program has issued supplemental guidance to its field offices and is serving as the implementation prototype in the facilities arena, as described in the enclosure.

Through the Tri-Service CADD/GIS Technology Center (chartered by the Corps, the Naval Facilities Engineering Command, and the Air Force Civil Engineer) and its oversight groups, the Services coordinate their geospatial technology development efforts. The Center serves as a multi-service vehicle to set standards, promote system integration, support centralized acquisition, and provide assistance for the installation, training, operation and maintenance of CADD/GIS systems. As part of its mission, the Center supports FGDC activities in several arenas. The

Node that will be used by military installations to serve their metadata files. The Services understand that the establishment of a Clearinghouse Node is only one requirement of the Executive Order, but is an important first step. In the area of outreach, the FGDC participated in the Tri-Service CADD/GIS/FM Symposium in August 1997. FGDC information can also be viewed on the TSSDS CD-ROM which is distributed throughout the Services and on the Center's homepage.

The enclosed attachment outlines each Services' efforts in addition to the supporting work of the Tri-Service CADD/GIS Technology Center described above.

Sincerely,

Steven L. Stockton, P.E.
Chief, Engineering Division
Directorate of Civil Works

Enclosure

Copy Furnished:

Mr. Charlie Chung, CEMP-E

Colonel Wyland F. Leadbetter, Jr., DAIM-MD

Mr. Gary Erickson, Director, AFCEE/CD

Colonel Jerrold B. Harrington, HQ AFCEE/CD

Dr. Get W. Moy, NAVFAC

Colonel Richard L. Freeman, Assistant Executive Director, DLA

Mr. Walter Senus, National Imagery and Mapping Agency

Mr. Russell Milnes, OSD

Goal 1: Increase the awareness and understanding of the vision, concepts and benefits of the NSDI through outreach and education. *Training & FGDC Education*

Army

The Army does not have published NSDI implementing guidance. Action to publish an implementing Army Regulation has been deferred pending publication of a corresponding DoD Instruction.

Prior to the Executive Order, the Army has not had any procedure to inventory or maintain oversight over geospatial data collection and holdings. As a result, there is presently no office within the Army capable of proving an estimate of the extension of digital map coverage of Army installations.

During the interim, prior to development and staffing a directive Regulation, the US Army Center For Public Works (USACPW) has established procedures that should provide agency and public visibility for installation mapping (described under Goal 2).

USACPW has provided NSDI orientation sessions at their training workshops since 1995. In addition, NSDI Implementation has been covered in annual presentations to installation Directors of Public Works (DPWs) and in periodic articles addressed to DPW managers.

The principal barrier to agency implementation has been the lack of DOD guidance and the perception that this requirement posed another unfunded mandate upon the installation.

USACPW has worked with other Army agencies, as well as non-defense agencies to develop a better understanding of the requirement and reduce the perception that NSDI compliance is unaffordable. Contacts include participation on the FGDC Facility Management Committee and through state and local GIS committees.

GIS guidance, to include the Corpsmet95 metadata tool, are available on special CPW web page (<http://www.usacpw.belvoir.army.mil/librarie/GIS/GIS.htm>).

Navy

The Naval Facilities Engineering Command (NAVFAC) Information Technology Strategic Plan, in its section on CADD/GIS, emphasizes the use of the National Spatial Data Infrastructure (NSDI) clearinghouse to locate existing geospatial data and the generation of metadata as geographic data is acquired to include in the clearinghouse. The plan is on the NAVFAC home page on the World Wide Web at URL: <http://www.navy.mil/homepages/navfac/compt/itsp.htm> and the CADD/GIS section promoting the awareness of the NSDI is at:

<http://www.navy.mil/homepages/navfac/compt/15cadgis.htm>

Additionally, links to the FGDC and online geographic data sources are provided in an Information Technology World Wide Web links page at:

<http://www.navy.mil/homepages/navfac/compt/itlinks.htm>

The NSDI has also been a topic at several NAVFAC Information Technology Workshops.

E-mail notices relating to NSDI such as those from the NSDI-L and Geoweb e-mail lists are frequently forwarded to a "GIS Interest" e-mail list of NAVFAC and other Department of the Navy points-of-contact.

The Tri-Service CADD/GIS Technology Center distributes a "Geospatial Data Documentation Support Package" on CD-ROM along with the Tri-Service Spatial

Data Standards. The package includes a discussion of the requirements for geospatial metadata, metadata examples, and lists sources for additional information.

Air Force

The Air Force Civil Engineer opted to postpone implementing EO 12906 requirements until DoD guidance provided the framework for responding to the Executive Order. Based on this decision, no specific guidance, training, or implementation strategy has been issued to installation Air Force Civil Engineers dealing with execution of EO 12906 requirements.

Corps of Engineers

USACE has formal policy (an Engineer Regulation) and technical guidance (an Engineer Manual) outlining the requirements of Executive Order 12906 for Commands having civil works, military constructions, and environmental restoration responsibilities.

USACE held two Metadata workshops in 1997. One of the workshops was held at the USACE/NOAA Surveying, Mapping and Remote Sensing Conference Tri-Service CADD/GIS Symposium. Five workshops are scheduled for 1998.

USACE has a geospatial data web site with links to the FGDC web site.

Defense Logistics Agency

DLA has made the appropriate Field Activities aware of NSDI and encouraged them to actively participate with federal and non-federal organizations.

Goal 2: Develop common solutions for discovery, access, and use of geospatial data in response to the needs of diverse communities. *Clearinghouse, tools, technology*

Army

No NSDI Clearinghouse Node presently serves Army installation metadata. The Tri-Service CADD/GIS Technology Center will establish and operate an NSDI Node, beginning January 1998.

Concurrently, the USACPW has established a GIS system registry to identify installation points of contact. This will be used to identify installation managers responsible for metadata preparation. USACPW will also authenticate installation metadata files to the Tri-Service NSDI node.

No installation GIS datasets are presently documented. Several installations have indicated an interest in doing so, once the NSDI node is operational.

Directive instructions will be provided, based on the experience of these test installations.

Navy

In the Life Cycle Management review and approval process for geographic information systems acquisitions, the Naval Facilities Engineering Command (NAVFAC) specifies as a condition of information systems approval that any geographic data acquired for the systems be documented according to the FGDC metadata standard in compliance with Executive Order 12906.

The Tri-Service CADD/GIS Technology Center will establish and operate an NSDI Node, beginning January 1998.

The Naval Research Laboratory, Monterey, CA has implemented an online Department of Defense Master Environmental Library (MEL) at URL: <http://www-mel.nrlmry.navy.mil/>

MEL allows access to both metadata and the data itself for atmospheric, oceanographic, terrain, or near space data. MEL is sponsored by the Defense Modeling and Simulation Office, and the Executive Agents for the project are the Oceanographer of the Navy, the Air Force Combat Climatology Center, and the Terrain Modeling Project Office.

Air Force

Corps of Engineers

The Corps has an NSDI Clearinghouse Node and USACE Commands are required to serve metadata and check the clearinghouse prior to starting a project. Currently, the Corps is serving over 2000 metadata files on the USACE NSDI Clearinghouse Node.

To aid USACE Commands in metadata creation, the Corps has developed a metadata generation tool, Corpsmet95, and distributes it freely to all Corps Commands and the general public.

Defense Logistics Agency

DLA is currently surveying the Agency's available public data to determine if it is appropriate geospatial data and what Metadata needs to be developed. DLA is also collecting data and developing plans to document existing data.

Goal 3: Use community-based approaches to develop and maintain common collection of geospatial data for sound decision-making. *Standards*

Army

The Army actively participates in FGDC standards development through USACPW's involvement in the Facility Management Committee.

Participation in state and local committees, as well as direct coordination with local planning organizations, has been encouraged, both as a means of reducing data collection costs and providing spatial thematic analysis crossing installation boundaries.

Navy

The Tri-Service Spatial Data Standards, which are maintained in harmony with FGDC standards, have been adopted by many non-federal government entities, who provide feedback.

Air Force

The Air Force Civil Engineer has made significant contributions in the development of the TSSDS developed by the Tri-Service CADD/GIS Center. Each version release of the TSSDS made by the Tri-Service Center to Air Force installations has been accompanied with an Air Force Civil Engineer memorandum mandating use of the standards for projects under development.

Corps of Engineers

In addition to using the TSSDS, USACE participates on the following FGDC subcommittees to develop standards: Cadastral and Demographic Data, Bathymetric, Geodetic, Ground Transportation, Facilities Working group, Standards Working Group, and the Ad-hoc Metadata working group. USACE is also a member of the Coordination Group and a DoD Co-Member of the FGDC Steering Committee.

Defense Logistics Agency

DLA is actively participating in the efforts of the Tri-Service CAD/GIS Center's Executive Working Group.

Goal 4: Build relationships among organizations to support the continuing development of the NSDI. *Data sharing activities*

Army

The Tri-Service oversight committees (Field Working Groups, Field Technical Advisory Group, and Executive Working Group) provide an excellent basis for sharing GIS development experience, while the standards themselves provide a common base for dataset development. The process of standards development has in itself contributed significantly to greater commonality between defense agency data systems (possibly more so than comparable DISA efforts).

Joint Land Use Studies and local master planning initiatives have also served as a basis for increased cooperation in data collection. While some anecdotal information is available, the extent of this cooperation is unknown.

Navy

A Tri-Service committee has produced a draft DOD directive for implementation of Executive Order 12906 within the Department of Defense. The draft directive is intended to provide consistent guidance for all elements of the Department of Defense with respect to geographic information sharing and standards.

Air Force

Air Force representatives have actively participated in preparing the draft DoD directive implementing EO 12906.

Corps of Engineers

Many of the Corps Commands participate on local GIS councils and purchase data in joint effort with federal as well as state and local governments. Some are formal purchasing agreements, others are more informal data exchanges.

Over the past year, the Corps has purchased data with Massachusetts State, Hampton Roads Planning District, NY State Department of Environmental Conservation (DEC), the Hudson River Foundation, Nassau County NY, Suffolk County NY, New Jersey State DEC, New York State, Lewiston ID, Clarkston WA, Pasa WA, Richland WA, Santa Clara Valley Water District, Louisiana Oil Spill Coordinator's Office, Michigan Dept of Natural Resources, Michigan Dept of Agriculture, Michigan Dept of Transportation, Michigan Dept of Environmental Quality, Arkansas State, Arkansas Soil and Water Conservation Commission, Florida State, Allegheny County PA, Univ. Of Pittsburgh, Pittsburgh Port Authority, Franklin County OH, McDowell County WV, and Grundy VA.

The Corps is also actively participating on Southwestern PA GIS Council, Oklahoma GIS Council, Arkansas GIS Users group, Improving Michigan's Access to Geographic Information Networks (IMAGIN), Idaho Geographic Information Advisory

Committee, Savannah Area GIS (SAGIS) Consortium, Nebraska GIS Steering Committee, New Jersey's State Mapping Advisory Committee (SMAC), New York State GIS Coordination Program, New York State GIS Coordination Program, New York City Area Data Working Group - the Geographic Information Systems and Mapping Operation (GISMO), and Long Island GIS (LIGIS) users group.

Defense Logistics Agency

DLA is actively participating with the Census Bureau in their planning efforts for Census 2000 by providing maps of the DLA controlled installations.

**Goal 1:
Training/
Education**

	Guidance	FGDC Briefings	Web Pages	Establish	Populate: Metadata	Use	Develop	Partners	Councils
Army									
Navy									
Air Force									
Corps									
DLA									

Partial Implementation