

**GAO**

Fact Sheet for the Chairman,  
Subcommittee on Defense, Committee on  
Appropriations, House of Representatives

May 1987

# SOFTWARE DEVELOPMENT

## Information on Department of Defense Central Design Activities



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**Information Management and  
Technology Division****B-227227**

May 20, 1987

The Honorable Bill Chappell, Jr.  
Chairman, Subcommittee on Defense  
Committee on Appropriations  
House of Representatives

Dear Mr. Chairman:

This report responds to the first part of your August 4, 1986, request that we conduct a review of the Department of Defense's central design activities (CDAs). Specifically, it provides the information your office requested on

- the number of central design activities in each military service and their purposes;
- the number of automated information systems, particularly those involving modernization or redesign efforts, supported by these activities; and
- the resources reflected in the Defense budget for these activities and the systems they support.

As agreed with your office, we will report later on whether or not CDAs enhance the likelihood of success for large modernization efforts and will identify opportunities, if any, to consolidate these activities.

CDAs are activities within each military service that are responsible for developing, testing, and subsequently maintaining automated information systems software used at more than one location. In order to gather information for our survey, we sent a request to the military services and the Defense Logistics Agency asking them to identify the name and total annual cost of each CDA, as well as information on the cost and type of automated information systems software supported by these activities. We did not specify elements of cost to include in their cost computations, nor did we validate the accuracy of the costs they submitted. Appendix I presents the results of our survey.

In August 1986, your Committee directed the Department of Defense to submit a special exhibit with the fiscal year 1988 budget submission in order to collect information about these activities and the systems they support. To implement this direction, in December 1986, the Office of the Secretary of Defense required the military services to separately report each CDA having annual expenditures of \$5 million or more and to

include each automated information system having annual expenditures of \$2 million or more. The request specified which cost elements were to be considered when responding. Appendix II contrasts the CDA information submitted by the military services for their fiscal year 1988 budget with the information gathered in our survey.

Although we used the same definition and reporting thresholds as the Office of the Secretary of Defense for reporting CDAs, our survey results differed from the Defense budget information. These inconsistencies included the number and cost of activities reported, as well as the number and cost of the automated information systems supported by these activities. For example, 12 activities with estimated fiscal year 1988 costs in excess of \$400 million were reported to us, but not identified in Defense's budget submission. We have not yet reconciled Defense's data with ours to determine the correct number of CDAs, the correct number of systems supported, or their true costs.

Our survey identified 46 activities that met both the Secretary's definition and the \$5 million reporting threshold. In comparison, the military services and the Defense Logistics Agency reported 39 activities in their budget submission, using this same definition and reporting criteria. Table 1 contrasts the number of activities identified by our survey with the numbers reported in the Defense budget.

**Table 1: Number of CDAs by Military Service<sup>a</sup>**

<b>Military service</b>	<b>GAO survey: Activities reported</b>	<b>Defense budget: Activities reported</b>
Air Force	8	9
Army	15	16
Defense Logistics Agency	3	2
Marine Corps	3	3
Navy	17	9
<b>Total</b>	<b>46</b>	<b>39</b>

<sup>a</sup>This table excludes four activities that may qualify as CDAs but were not reported to us or included in the Defense budget. We identified these four activities through a review of budget documents and other data.

Further, our comparison showed that only 34 of the activities reported to us were identified in the Defense budget submission; the remaining 12

activities were not. Finally, 5 of the activities included in the Defense budget were not reported in our survey results.<sup>1</sup>

We also requested each activity to provide information on the number and cost of system efforts they supported and to identify how many of these were system modernization efforts.<sup>2</sup> We used the same reporting criteria used in the Defense budget: systems with \$2 million or more in annual costs. In our survey, the military services reported 139 system efforts supported by CDAs. Of these, 75 were identified as undergoing partial or total modernization. In their budget submissions, the Army, Navy, and Defense Logistics Agency reported 62 system efforts supported by their CDAs. However, the Air Force and Marine Corps did not report any information on their systems in time to be included in this report. Defense officials told us that the Air Force did not submit the required system information until May 13, 1987, and that the Marine Corps had still not submitted it. Table 2 contrasts the number of systems identified in our survey with those included in the Defense budget.

**Table 2: Number of Automated Information System Initiatives Supported by Defense CDAs**

	GAO survey: Systems supported	Defense budget: Systems supported
<b>Military services</b>		
Air Force	49	•
Army	23	38
Defense Logistics Agency	8	8
Marine Corps	6	•
Navy	53	16
<b>Total</b>	<b>139</b>	<b>62</b>

We also requested information on the annual cost of each activity. CDA costs should include the total cost of all the system efforts they support. As reported for the 46 activities in our survey, the total estimated cost is \$1.52 billion in fiscal year 1988. In contrast, the military services' total estimated cost for the 39 CDAs reported in the Defense budget submission for fiscal year 1988 is \$1.01 billion. This \$510 million difference exists primarily for two reasons. First, 12 of the activities reported to us were not included in the Defense budget. Second, in 21 instances, the

<sup>1</sup>Four of these five activities were reported to us but were excluded because their estimated annual costs were less than \$5 million. The fifth activity was reported to us as one activity, but reported to Defense as two separate activities.

<sup>2</sup>System modernization efforts include the conversion or redesign of computer software.

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costs reported to us were different from the costs included in the budget for the same activity.

Defense officials offered two possible reasons for the reporting inconsistencies. First, as of May 1987, the budget data concerning the number and costs of CDAs and systems supported were still being updated. Second, Defense officials told us, and we confirmed in our activity visits, that there is a lack of required cost accounting procedures for ensuring that software development and maintenance costs are consistently recorded and reported. These procedures are required by Department of Defense Directive 7920.1, "Life Cycle Management of Automated Information Systems (AIS)."

In performing our study, we requested information from the Army, Navy, Air Force, Marine Corps, and the Defense Logistics Agency. We analyzed policy, organizational, budget, and systems documentation; made site visits to selected CDAs within these components; conducted interviews with officials responsible for managing these activities; and selectively validated the methods used to collect and report the data. Further information on our scope and methodology is contained in appendix III.

As you requested, we did not obtain official agency comments on a draft of this document. However, as arranged with your office, we are sharing the information we gathered with appropriate Defense officials. If you have any questions regarding the information in this document, please contact John Stephenson, Group Director, on 275-3188.

Sincerely,



William S. Franklin  
Associate Director



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**Abbreviations**

CDA	central design activity
DOD	Department of Defense
GAO	General Accounting Office

# GAO Survey Results: Department of Defense Central Design Activities and the Automated Information Systems They Support

This appendix presents the results from our survey of Department of Defense activities that have central design activity (CDA) responsibilities, including the number and location of these activities, their estimated costs for fiscal year 1988, and the number of staff employed at these activities. It also presents the number and estimated costs for automated information system initiatives, including system modernization efforts.

As shown in table I.1, our survey identified 46 activities having CDA responsibilities.<sup>1</sup>

**Table I.1: Number of Defense's Central Design Activities and Their Fiscal Year 1988 Estimated Costs, as Reported to GAO**

<b>Military Service</b>	<b>Number of activities</b>	<b>Estimated FY 1988 costs (000's Omitted)</b>
Air Force	8	\$496,050
Army	15	261,309
Navy	17	615,782
Marine Corps	3	74,885
Defense Logistics Agency	3	76,144
<b>Total</b>	<b>46</b>	<b>\$1,524,170</b>

The 46 activities reported a total of 139 automated information system efforts, each with estimated costs of \$2 million or more per year. Of these, 75 systems were identified as modernization efforts.<sup>2</sup> Table I.2 presents the number and estimated cost of automated information system initiatives and system modernization efforts, by military service.

<sup>1</sup>Our survey also identified 18 other activities that reported meeting the CDA definition. However, each had annual costs less than the \$5 million reporting threshold for this fact sheet. For fiscal year 1988, the total costs of these activities was reported to be approximately \$41 million.

<sup>2</sup>Modernization efforts involve one or more of the following project elements: (1) software redesign, which includes changes in the functional specifications for computer software programs; (2) software conversion, which involves transforming, without functional change, computer software so that it can operate on replacement ADP equipment; and (3) in some cases, capital replacement or replacement of ADP computer equipment.

**Appendix I**  
**GAO Survey Results: Department of Defense**  
**Central Design Activities and the Automated**  
**Information Systems They Support**

**Table I.2: Number and Estimated Cost of Automated Information Systems Initiatives, as Reported to GAO**

Military service	Automated information systems		System modernizations	
	Number	Estimated FY 1988 cost (000's Omitted)	Number	Estimated FY 1988 cost (000's Omitted)
Air Force	49	\$408,122	34	<sup>a</sup>
Army	23	164,681	2	\$5,572
Navy	53	551,268	28	408,937
Marine Corps	6	23,348	5	21,638
Defense Logistics Agency	8	57,922	6	47,489
<b>Total</b>	<b>139</b>	<b>\$1,205,341</b>	<b>75</b>	<sup>a</sup>

<sup>a</sup>Because the Air Force did not provide individual cost estimates for 14 of its 34 system initiatives, we were unable to determine how much of the Department of Defense's CDA funding will be spent on system modernization efforts in fiscal year 1988.

Table I.3 presents a matrix of the types of automated information systems supported by each of the military services.

**Table I.3: Types of Automated Information Systems Supported by Defense's Central Design Activities, as Reported to GAO**

Military service	Financial	Payroll/ personnel	Logistics/ supply	Telecommunications	Scientific/ engineering	Other
Air Force	X	X	X	X	X	X
Army	X	X	X	X	X	X
Navy	X	X	X	X	X	X
Marine Corps	X	X	X	X		X
Defense Logistics Agency	X	X	X	X	X	X

Table I.4 summarizes the estimated costs, staffing, and automated information systems for each of the 46 activities discussed in this appendix.

**Appendix I  
GAO Survey Results: Department of Defense  
Central Design Activities and the Automated  
Information Systems They Support**

**Table I.4: Defense's Central Design Activities and Automated Information System Summary Data, as Reported to GAO**

Activity name and location	Staffing	Estimated FY 1988 costs (000's Omitted)	Automated information systems			
			Modernization efforts		Modernization efforts	
			Total number	Estimated FY 1988 costs (000's Omitted)	Total number	Estimated FY 1988 costs (000's Omitted)
<b>Air Force</b>						
Intelligence Service, Bolling AFB, DC	25	\$29,628	5	\$29,628	2	\$ <sup>a</sup>
Logistic Command, Wright-Patterson AFB, OH	65	137,769	11	133,190	11	133,190
Space Command, Peterson AFB, CO	115	15,447	3	15,447	3	15,447
Accounting & Finance Center, Lowery AFB, CO	395	157,138	6	76,672	1	8,680
Electronic Security Command, San Antonio, TX	10	9,304	1	9,304	1	9,304
Manpower & Personnel Center, Randolph AFB, TX	359	19,093	3	19,093	3	19,093
Standard System Center, Gunter AFB, AL	2,053	112,140	16	112,140	12	<sup>a</sup>
Tactical Air Command, Langley AFB, VA	485	15,531	4	12,648	1	4,440
<b>Subtotal (8 activities)</b>	<b>3,507</b>	<b>496,050</b>	<b>49</b>	<b>408,122</b>	<b>34</b>	<sup>a</sup>
<b>Army</b>						
AMC/ALMSA:Auto.Log.Mgmt. Sys., St. Louis, MO	625	32,313	1	32,313	•	- 0 -
AMC/LCA:LOG.Control Activity, San Francisco, CA	231	11,571	1	11,571	•	- 0 -
HSC/HCSSA:Health Serv. Com. Sftw., Ft. Sam Houston, TX	241	15,454	3	7,364	•	- 0 -
AMCCOM:Arm.,Munition & Chemical Com., Dover, DE	206	14,885	1	8,253	•	- 0 -
CECOM:COMM. & Electronics Command, Ft. Monmouth, NJ	486	24,392	1	4,680	•	- 0 -
COE/EASA: Engineering Auto. Sup. Act., Washington, D.C.	135	6,605	1	2,158	•	- 0 -
AMC/LSSA: Log. Sys. Supp. Act., Chambersburg, PA	241	8,694	1	8,694	•	- 0 -
DESCOM: Depot System Command, Chambersburg, PA	259	8,800	1	2,040	1	2,040
ISEC: Info. Sys. Eng. Command—WWMCCS, Ft. Belvoir, VA	44	50,921	1	50,921	•	- 0 -
ISEC: Info. Sys. Eng. Command—CDB, Ft. Belvoir, VA	<sup>b</sup>	<sup>b</sup>	1	<sup>b</sup>	•	- 0 -
ISEC: Info. Sys. Eng. Command—CSSC, Ft. Belvoir, VA	124	11,781	2	6,688	•	- 0 -
ISEC: Development Center—Lee, Ft. Lee, VA	524	28,449	6	18,283	•	- 0 -
ISEC: Development Center—Wash., Falls Church, VA	350	27,489	3	11,716	1	3,532
ISEC: Development Center—Europe, Zelwbrucken, West Germany	372	14,576	•	- 0 -	•	- 0 -
MICOM: Missile Command, Redstone Arsenal, AL	124	5,379	•	- 0 -	•	- 0 -
<b>Subtotal (15 activities)</b>	<b>3,962</b>	<b>261,309</b>	<b>23</b>	<b>164,681</b>	<b>2</b>	<b>5,572</b>
<b>Navy</b>						
Naval Reserve Force, New Orleans, LA	6	\$8,752	2	\$8,752	1	\$2,669
Office of Comptroller, Pensacola, FL	183	19,446	3	16,967	3	16,967
Chief, Education & Training, Pensacola, FL	166	20,994	4	14,068	•	- 0 -

**Appendix I  
GAO Survey Results: Department of Defense  
Central Design Activities and the Automated  
Information Systems They Support**

Activity name and location	Staffing	Estimated FY 1988 costs (000's Omitted)	Total number	Automated information systems Modernization efforts		
				Estimated FY 1988 costs (000's Omitted)	Total number	Estimated FY 1988 costs (000's Omitted)
Naval Data Auto. Command, Jacksonville, FL	58	5,849	1	5,297	•	- 0 -
Military Sealift Command, Washington, D.C.	36	18,490	•	- 0 -	•	- 0 -
Naval Data Auto. Cmd—Washington, D.C.	234	39,712	6	20,485	5	19,225
Naval Medical Center, Washington, D.C.	10	9,163	1	1,377	•	- 0 -
Naval Supply Systems Command, Washington, D.C.	1,916	265,501	6	264,285	5	254,566
Naval Telecommunications Command, Washington, D.C.	115	14,945	3	13,920	3	13,920
Naval Military Personnel Command, Washington, D.C.	131	30,339	1	29,800	•	- 0 -
Naval Data Auto. Cmd—Norfolk, Norfolk, VA	102	6,021	1	4,882	•	- 0 -
Management Systems Support Office, Norfolk, VA	524	37,635	8	32,551	•	- 0 -
Naval Air Systems Command, Patuxent River, MD	137	34,327	6	34,276	3	23,689
Naval Sea Systems Command, Indian Head, MD	69	8,847	3	8,847	2	6,063
Office of Comptroller, NAFC, San Diego, CA	48	24,600	1	24,600	1	24,600
Naval Facilities Engineering Cmd., Port Hueneme, CA	30	6,559	1	6,559	1	6,559
Naval Supply Sys. Cmd—FMSO, Mechanicsburg, PA	1,065	64,602	6	64,602	4	40,679
<b>Subtotal (17 activities)</b>	<b>4,830</b>	<b>615,782</b>	<b>53</b>	<b>551,268</b>	<b>28</b>	<b>408,937</b>
<b>Marine Corps</b>						
Marine Corps CDPA—Albany, Albany, GA	345	30,979	1	13,061	1	13,061
Marine Corps CDPA—Kansas City, Kansas City, MO	404	20,331	2	3,216	2	3,216
Marine Corps CDPA—Quantico, Quantico, VA	259	23,575	3	7,071	2	5,361
<b>Subtotal (3 activities)</b>	<b>1,008</b>	<b>74,885</b>	<b>6</b>	<b>23,348</b>	<b>5</b>	<b>21,638</b>
<b>Defense Logistics Agency</b>						
Systems Automation Office, Columbus, OH	727	54,261	7	52,142	5	41,709
Defense Auto. Addressing Sys. Office, Dayton, OH	156	15,946	•	- 0 -	•	- 0 -
Defense Logistics Service Center, Battle Creek, MI	135	5,937	1	5,780	1	5,780
<b>Subtotal (3 activities)</b>	<b>1,018</b>	<b>76,144</b>	<b>8</b>	<b>57,922</b>	<b>6</b>	<b>47,489</b>
<b>Total (46 activities)</b>	<b>14,325</b>	<b>\$1,524,170</b>	<b>139</b>	<b>\$1,205,341</b>	<b>75</b>	<b><sup>a</sup></b>

<sup>a</sup>Because the Air Force did not provide individual cost estimates for 14 of its 34 system initiatives, we were unable to determine how much the Department of Defense will spend on system modernization efforts in fiscal year 1988.

<sup>b</sup>Cost estimates for this activity were not provided for fiscal year 1988.

# Comparison of Central Design Activity Data Provided to GAO and the Department of Defense by the Military Services

In December 1986, the Department of Defense required the military services to submit budget information for fiscal year 1988 on their central design activities. The Department wanted the military services to report on activities that cost more than \$5 million a year and, at a minimum, had responsibility for supporting automated information systems in use at more than one location. The Department also wanted these activities to report on systems costing more than \$2 million in a year. (These reporting requirements are the same as we used to report our central design activity data in this report.)

Table II.1 contrasts Defense data on central design activities as reported by the military services to GAO and in the Defense budget.

**Table II.1: Comparison of Defense Central Design Activity Data, as Reported to GAO and in the Defense Budget<sup>a</sup>**

Military service	GAO survey		Defense budget	
	Number of activities	Estimated FY 88 cost (000's Omitted)	Number of activities	Estimated FY 88 cost (000's Omitted)
Air Force	8	\$496,050	9	\$392,193
Army	15	261,309	16	268,456
Navy	17	615,782	9	222,174
Marine Corps	3	74,885	3	48,708
Defense Logistics Agency	3	76,144	2	76,350
<b>Total</b>	<b>46</b>	<b>\$1,524,170</b>	<b>39</b>	<b>\$1,007,881</b>

<sup>a</sup>Thirty-four of these activities were reported both to us and in the Defense budget. The difference in the number of activities reported is composed of 12 activities reported to us that were not included in Defense's 39, and 5 reported in the Defense budget that were not included in our 46.

We also compared how the military services reported automated information system efforts costing over \$2 million. As shown in table II.2, the CDAs reported 139 system efforts to us. The Army, Navy, and Defense Logistics Agency reported 62 systems supported by their CDAs to Defense, while the Air Force and Marine Corps CDAs did not report individual system cost data to Defense.

**Appendix II  
Comparison of Central Design Activity Data  
Provided to GAO and the Department of  
Defense by the Military Services**

**Table II.2: Comparison of Data on  
Defense's Automated Information  
System Initiatives, as Reported to GAO  
and in the Defense Budget**

Military service	GAO survey		Defense budget	
	Systems reported	Estimated FY 88 cost (000's Omitted)	Systems reported	Estimated FY 88 cost (000's Omitted)
Air Force	49	\$408,122	•	•
Army	23	164,681	38	178,195
Navy	53	551,268	16	168,308
Marine Corps	6	23,348	•	•
Defense Logistics Agency	8	57,922	8	71,538
<b>Total</b>	<b>139</b>	<b>\$1,205,341</b>	<b>62</b>	<b>•</b>

Table II.3 provides a summary comparison of the CDA and automated information systems data as reported to us and in Defense's budget submission. The table lists each activity, its estimated costs, and the total number and cost of systems efforts each supports. It also includes four activities that were not reported by the military services as CDAs because, according to activity officials, they did not believe that they were required to report. On the basis of our review of budget documents and other available information describing these activities, we have included them as potential CDAs.

**Appendix II  
Comparison of Central Design Activity Data  
Provided to GAO and the Department of  
Defense by the Military Services**

**Table II.3: Summary Comparison of Reported Central Design Activities and Automated Information Systems Data for Fiscal Year 1988, as Reported to GAO and in the Defense Budget**

Activity name and location	Estimated cost reported to GAO (000's Omitted)	Estimated cost reported by DOD (000's Omitted)	Automated information systems			
			Reported to GAO		Reported by DOD	
			Number	Cost (000's Omitted)	Number	Cost (000's Omitted)
<b>Air Force</b>						
Intelligence Service, Bolling AFB, DC	\$29,628	\$ •	5	\$29,628	•	\$ •
Logistic Command, Wright-Patterson AFB, OH	137,769	131,370	11	133,190	•	•
Space Command, Peterson AFB, CO	15,447	•	3	15,447	•	•
Accounting & Finance Center, Lowery AFB, CO	157,138	80,466	6	76,672	•	•
Electronic Security Command, San Antonio, TX	9,304	•	1	9,304	•	•
Manpower & Personnel Center, Randolph AFB, TX	19,093	19,922	3	19,093	•	•
Standard System Center, Gunter AFS, AL	112,140	98,268	16	112,140	•	•
Tactical Air Command, Langley AFB, VA	15,531	20,577	4	12,648	•	•
Systems Command, Andrews AFB, MD <sup>a</sup>	2,459	8,506	1	2,459	•	•
Military Airlift Command, Scott AFB, IL <sup>a</sup>	1,042	10,462	•	•	•	•
11 Strategic Air Command, Offutt AFB, NE <sup>a</sup>	1,858	8,749	•	•	•	•
Command and Control Systems Office, Tinker AFB, OK <sup>a</sup>	•	13,873	•	•	•	•
Seventh Communications Group, Washington, D.C. <sup>c</sup>	•	•	•	•	•	•
<b>Subtotal (13 activities)</b>	<b>501,409</b>	<b>392,193</b>	<b>50</b>	<b>410,581</b>	<b>•</b>	<b>•</b>
<b>Army</b>						
AMC/ALMSA: Auto. Log. Mgmt. Sys., St. Louis, MO	32,313	32,313	1	32,313	1	\$32,313
AMC/LCA: LOG.Control Activity, San Francisco, CA	11,571	11,571	1	11,571	1	11,571
HSC/HCSSA: Health Serv. Com. Sftw., Ft. Sam Houston, TX	15,454	15,454	3	7,364	2	5,794
AMCCOM: Arm. Munition & Chemical Com., Dover, DE	14,885	14,885	1	8,253	1	8,253
CECOM:COMM. & Electronics Command, Ft. Monmouth, NJ	24,392	24,392	1	4,680	•	•
COE/EASA: Eng. Auto. Sup. Act., Washington, D.C.	6,605	6,605	1	2,158	1	2,158
AMC/LSSA: Log. Sys. Supp. Act., Chambersburg, PA	8,694	12,511	1	8,694	1	8,984
DESCOM: Depot System Command, Chambersburg, PA	8,800	9,000	1	2,040	2	3,400
ISEC: Info. Sys. Eng. Cmd—WWMCCS, Ft. Belvoir, VA	50,921	50,921	1	50,921	1	50,921
ISEC: Info. Sys. Eng. Cmd—CDB, Ft. Belvoir, VA	•	•	1	•	1	•
ISEC: Info. Sys. Eng. Cmd—CSSC, Ft. Belvoir, VA	11,781	11,781	2	6,688	5	11,781
ISEC: Development Center Lee, Ft. Lee, VA	28,449	28,449	6	18,283	8	20,601
ISEC: Development Center Wash., Falls Church, VA	27,489	27,483	3	11,716	12	19,607
ISEC: Dev. Cntr. Eur., Zelwbrucken, W. Germany	14,576	14,576	•	•	1	•
MICOM: Missile Command, Redstone Arsenal, AL	5,379	5,379	•	•	•	•
TECOM: Test and Evaluation Command, Aberdeen, MD <sup>a</sup>	3,136	3,136	1	2,812	1	2,812
Army Finance & Acc. Cntr., Ft. Benjamin Harrison, IN <sup>c</sup>	•	•	•	•	•	•
<b>Subtotal (17 activities)</b>	<b>264,445</b>	<b>268,456</b>	<b>24</b>	<b>167,493</b>	<b>38</b>	<b>\$178,195</b>



**Appendix II  
Comparison of Central Design Activity Data  
Provided to GAO and the Department of  
Defense by the Military Services**

Activity name and location	Estimated cost reported to GAO (000's Omitted)	Estimated cost reported by DOD (000's Omitted)	Automated information systems			
			Reported to GAO		Reported by DOD	
			Number	Cost (000's Omitted)	Number	Cost (000's Omitted)
<b>Navy</b>						
Naval Reserve Force, New Orleans, LA	\$8,752	•	2	\$8,752	•	\$ •
Office of Comptroller, Pensacola, FL	19,446	14,945	3	16,967	2	14,945
Chief, Education & Training, Pensacola, FL	20,994	6,036	4	14,068	•	•
Naval Data Auto. Cmd—Jacksonville, Jacksonville, FL	5,849	•	1	5,297	•	•
Military Sealift Command, Washington, D.C.	18,490	•	•	•	•	•
Naval Data Auto. Command, Washington, D.C.	39,712	28,372	6	20,485	1	3,605
Naval Medical Center, Washington, D.C.	9,163	•	1	1,377	•	•
Naval Supply Systems Command, Washington, D.C.	265,501	•	6	264,285	•	•
Naval Telecommunications Command, Washington, D.C.	14,945	•	3	13,920	•	•
Naval Military Personnel Command, Washington, D.C.	30,339	9,878	1	29,800	1	9,339
Naval Data Auto. Cmd—Norfolk, Norfolk, VA	6,021	•	1	4,882	•	•
Management Systems Support Office, Norfolk, VA	37,635	53,921	8	32,551	3	53,917
Naval Air Systems Command, Patuxent River, MD	34,327	23,200	6	34,276	3	21,900
Naval Sea Systems Command, Indian Head, MD	8,847	8,888	3	8,847	•	•
Office of Comptroller, NAFC, San Diego, CA	24,600	•	1	24,600	•	•
Naval Facilities Engineering Cmd., Port Hueneme, CA	6,559	5,935	1	6,559	•	•
Naval Supply Sys. Cmd—FMSO, Mechanicsburg, PA	64,602	70,999	6	64,602	6	64,602
Navy Finance and Accounting, Cleveland, OH <sup>c</sup>	•	•	•	•	•	•
Ship Research & Development Center, Bethesda, MD <sup>c</sup>	•	•	•	•	•	•
<b>Subtotal (19 activities)</b>	<b>615,782</b>	<b>222,174</b>	<b>53</b>	<b>551,268</b>	<b>16</b>	<b>168,308</b>
<b>Marine Corps</b>						
Marine Corps CDPA—Albany, Albany, GA	30,979	16,205	1	13,061	•	•
Marine Corps CDPA—Kansas City, Kansas City, MO	20,331	17,115	2	3,216	•	•
Marine Corps CDPA—Quantico, Quantico, VA	23,575	15,388	3	7,071	•	•
<b>Subtotal (3 activities)</b>	<b>74,885</b>	<b>48,708</b>	<b>6</b>	<b>23,348</b>	<b>•</b>	<b>•</b>
<b>Defense Logistics Agency</b>						
Systems Automation Office, Columbus, OH	54,261	60,404	7	52,142	7	57,982
Defense Auto. Addressing Sys. Office, Dayton, OH	15,946	15,946	•	•	1	13,556
Defense Logistics Service Center, Battle Creek, MI	5,937	•	1	5,780	•	•
<b>Subtotal (3 activities)</b>	<b>76,144</b>	<b>76,350</b>	<b>8</b>	<b>57,922</b>	<b>8</b>	<b>71,538</b>
<b>Total (55 activities)</b>	<b>\$1,532,665</b>	<b>\$1,007,881</b>	<b>141</b>	<b>\$1,210,612</b>	<b>•</b>	<b>•</b>

<sup>a</sup>These five activities were reported in the Defense budget submission, but are not included in the 46 activities reported in Appendix I.

<sup>b</sup>Estimated cost for this activity was not reported for fiscal year 1988.

<sup>c</sup>These 4 activities were not reported to GAO or in the Defense budget, but appear to have central design activity responsibilities, based on our review of budget documents or other available information.

# Scope and Methodology

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In order to gather the information needed for our survey, we sent a request for information to organizations within each military service which, at a minimum, have responsibility for supporting automated information system software in use at more than one location. Software support is further defined as:

- designing, converting, coding, testing, documenting or subsequently maintaining/modifying computer operations or applications software for use.
- creating, reproducing, disseminating/transmitting the above computer software and documentation for each authorized release of the computer software.
- providing technical assistance and corrective programming action on computer trouble calls on the above computer software.

The information we requested included the name, location, and mission/function of each organization and its automated information systems; identification of which automated information systems were involved in modernization efforts; the number and type of government and contractor staff supporting these activities/ systems; and the estimated costs for fiscal years 1986-1988.

The request for information was sent to 142 locations throughout the Army, Navy, Marine Corps, Air Force, and the Defense Logistics Agency as identified to us by the military services liaison officials. We contacted a broad spectrum of activities throughout the Department of Defense to determine whether any activities not previously identified as a CDA met the new definition and reporting criteria.

We requested a response from each activity meeting the CDA definition with expenditures of \$1 million or more in a given fiscal year. However, after we began our survey, the Office of the Secretary of Defense also required the military services to report on CDAs but set the reporting criteria at \$5 million or more in annual expenditures. To provide a basis for comparing our data with the Defense budget, we have presented only those activities that the military services reported to us with estimated costs of more than \$5 million per year.

We conducted site visits at 17 Department of Defense locations. At each software development activity, we interviewed officials responsible for the activity and officials who had prepared the response to our survey. We obtained and analyzed documentation on the mission, organization, policy, and automated information systems development procedures at

these locations. We attempted to verify the data provided to us by reviewing source documents and manually-derived computations. Additionally, we telephoned those locations reporting no CDAs to ensure that they understood the reporting criteria.

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### Limitations on Data Reliability

We identified the following limitations on our data, which affected the completeness and accuracy of the responses we received:

- A number of responses included only summarized information for certain data or incomplete data.
- The methods used by some activities to gather and report data on automated information systems relied upon manually-derived calculations and were subject to human error.
- In some instances, software maintenance costs and software modernization costs were not identified separately. In addition, Defense officials defined which elements of cost should be included and reported as total costs, while we requested the activities to report total costs without specifying which elements should be considered. As a result, we were not able to specifically identify the cost of systems modernization efforts.

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### Comparison of GAO Survey Data to Other Information Sources

After compiling the responses we received from the military services, we compared them to estimated cost and staff data for automated information systems and CDAs as reported by the military services for Defense's fiscal year 1988 budget submission. We also compared the Department of Defense's lists of major systems (prepared by the Major Automated Information System Review Council in October 1986, February and March 1987) to those identified in the fiscal year 1988 Defense budget and to those reported to us for this report.

The work for this report was performed between September 1986 and April 1987.



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