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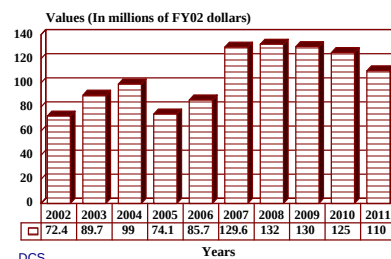
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Defense Communications Systems (DCS) - Archived 07/2003

Outlook

- Forecast International projects the US Department of Defense to spend some US\$1.05 billion on the DCS program over the next decade
- In 2002, expect Project 384 to continue payload specification change development
- In 2003, look for Project 253 to support Common Network Planning Software development for the Wideband Gapfiller System

Forecast Funding Levels
2002 - 2011



Orientation

Description. The Defense Communications Systems (DCS) program is a United States Department of Defense (DoD) endeavor. The DCS program supports defense-wide communications requirements for the day-to-day operations of the DoD.

Sponsor

Defense Information Systems Agency (DISA)
Arlington, Virginia

Joint Tactical Command, Control and Communications Agency (JTC3A)
Washington, DC

National Security Agency
Ft. Meade, Maryland

US Air Force
Material Systems Command
Electronic Systems Center
Hanscom AFB, Massachusetts
(Project 2317)

Rome Air Development Center
Griffiss AFB, New York
(Project 2317)

US Army
Communications-Electronics Command

Ft. Monmouth, New Jersey

Naval Regional Data Automation Center
Washington, DC

Naval Research Laboratory
Washington, DC

Contractors

DISA Contractors:

AT&T
Bell Laboratories
Holmdel, New Jersey

CCL Inc
Bethesda, Maryland
(DCS support)

Mobile Telesystems Inc
Gaithersburg, Maryland
(INMARSAT terminals)

Technology/Management & Analysis Corp
McLean, Virginia
(DCS support)

Navy Contractors:

Computer & Hi-tech Management Inc
McLean, Virginia 22102

Status. Ongoing research and development.

Total Produced. Not applicable.

Application. To support defense-wide communications requirements for the day-to-day operations of the US Department of Defense.

Price Range. Due to the developmental support nature of this program, price range is indeterminate.

Technical Data

Design Features. Due to the enormity of the DCS program – it includes every communications system currently in use or being developed by the US Armed Forces – technical data cannot be provided.

Variants/Upgrades

Overall, work performed under the DCS program is upgrade in nature. Work focuses on improving defense-wide communications for the day-to-day operations of the US Department of Defense.

Program Review

Background. The following programs are considered to be some of the major efforts undertaken by various services and agencies to improve defense-wide communications for the day-to-day operations of the US Department of Defense. This **Program Review** does not include all project efforts under the DCS program.

USAF Navy Programs

PE#0204163N: Fleet Communication

Project X0725, Communications Automation. Project X0725 provides automation and communication upgrades for US Navy Fleet tactical users. A key component of this project is the Naval Modular Automated Communications System II (NAVMACS II). NAVMACS II is the network Single Messaging Solution (SMS) for processing and distributing messages to the user's desktop.

In 1999, the project continued Data Multiplex System (DMS) Tactical Afloat research and development. In 2000, fleet development testing of the SMS was conducted. The project completed development of emerging technologies in 2001. These technologies included DMS 2.2 interface products.

In 2002, look for Project X0725 to conduct concept exploration and component advanced development for the Seabridge concept. Forecast International expects the project to initiate development and test efforts for multi-enclave messaging.

Project X1083, Shore-to-Ship Communications Systems. Project X1083 develops communications systems elements that provide command and control of deployed ballistic missile submarines. Besides enhancing the

ship-to-shore transmitting systems and shipboard receiver systems, this project was instrumental in the development of the Submarine Low Frequency/Very Low Frequency Versa Module Eurocard Receiver (SLVR) system (formerly the Compact Very Low Frequency Receiver system). Continuing evaluation of this communications system is provided through the Strategic Communications Assessment Program (SCAP).

In 1999, the project continued high voltage and antenna component development and testing. In 2000, a feasibility study was initiated to explore the use of low-cost composite exit bushings to replace aging, high-cost ceramic exit bushings. In 2001, Project X1083 continued high voltage and antenna component development and testing.

In 2002, look for the project to finish high voltage on-site testing and evaluation of composite bushings. The aim of the testing and evaluation is to develop a system to detect the onset of corona breakdown. Forecast International expects development and testing of MCS to be completed sometime in 2003.

Project X0795, Support of MEECN. Project X0795 supports the Minimum Essential Emergency Communications Network (MEECN). MEECN is a tri-service transmission system that ensures delivery of Emergency Action Messages (EAMs) to military strategic platforms. This project identifies, researches, and develops improvements to MEECN.

In 1999, Project X0795 continued crypto replacement coordination. The project continued the development of an improved MEECN Mode. In 2001, the project

investigated the applicability of commercial programmable crypto devices to the MEECN. Project X0795 also incorporated the Mode Standard design into the Mode Standard MEECN test bed for performance evaluation.

In 2002, look for Project X0795 to develop a non-AUTODIN based EAMs delivery system. In 2003, expect the project to incorporate transverse electric/magnetic antenna pattern combining methods into the improved MEECN Mode.

US Army Programs

PE#0303142A: Satellite Command (SATCOM) Ground Environment (SPACE)

This program element is comprised of a large number of projects. All projects concern the integration of satellite communications systems into the overall structure of the Defense Communications System (DCS). The following two projects receive approximately 85 percent of the funding within PE#0303142A:

Project 253, Defense Satellite Communications Systems. This project develops strategic and tactical ground subsystem equipment to support Joint Chiefs of Staff command, control, communications, and intelligence for the Defense Satellite Communications Systems (DSCS) program.

Project 253 achieved major milestones in 1999. The DSCS Integrated Management System (DIMS) Interface Software program completed testing its DIMS Version 2.0 software application in the first quarter of 1999. DIMS develops software that provides the capability to electronically disseminate network plans to monitoring and controlling subsystems and to retrieve and display subsystem monitoring data. In the third quarter of 1999 the Common Network Planning Software (CNPS) program was initiated. The CNPS program develops strategic and Ground Mobile Forces (GMF) satellite communications networks for DSCS satellites.

In 2001, Project 253 continued working on the DSCS Integrated Management System (DIMS) Software program. The project also continued its work on the Common Network Planning Software (CNPS) program in 2001. In 2002 and 2003, look for Project 253 to provide support to Common Network Planning Software development for the Wideband Gapfiller System.

Continuing upgrades for the DSCS ground terminals are vital. In June 2000, ITT Industries was awarded a US\$63 million contract to modernize the ground control segment of the DSCS program. The contract was awarded by the US Army Communications and

Electronics Command. Under the 10-year agreement, ITT will design, develop, and install network control terminals for the DSCS satellite ground environment. Look for the work to be completed by July 31, 2010.

Project 384, SMART-T. The Secure Mobile Anti-jam Reliable Tactical Terminal (SMART-T) will provide satellite interface to allow uninterrupted communications as advancing forces move beyond the line-of-site capability of the Army's Mobile Subscriber Equipment (MSE). This equipment will communicate at both low and medium data rates over the MILSTAR satellite constellation.

In 1999, Project 384 completed Network Control development efforts. In 2000, work to develop an Extremely High Frequency (EHF) satellite payload simulator was initiated. In 2001, the project completed Packet DAMA development efforts.

In 2002, expect Project 384 to continue payload specification change development. In 2003, look for the project to continue EHF development efforts.

US DISA Programs

PE#0302016K: National Military Command System (NMCS) Support

Project S32. Project S32 provides concept development, requirements definition, proof-of-principle experiments, rapid prototyping, technical specifications, systems engineering and integration, and technical assessments for NMCS command and control systems.

In 2000, Project S32 conducted engineering test and evaluation of NMCS upgrades. In 2001, the project conducted tests on the NCCS Automated Message Handling System (AMHS). In 2002 and 2003, look for Project S32 to continue Engineering & Evaluation (E&E) efforts on NMCS upgrade.

PE#0302019K: Defense Information Infrastructure Engineering & Integration

Project T62. Efforts under Project T62 will strengthen critical Defense Information Infrastructure (DII) technologies and programs. In 1999, T62 established a project team to develop the Joint Operational and Planning Execution System. In 2000, the project addressed new DII component requirements to include architectures and processes. In 2001, Project T62 developed a concept for the use of XML technology.

In 2002, expect Project T62 to develop enterprise services definitions. Also in 2002, look for the project to develop and pilot an enterprise services management framework for Application Engineering products. In 2003, anticipate Project T62 to perform DII component analysis.

PE#0303126K: Long Haul Communications

Project T82. This project performs assessments and proof of concept implementations to reduce the risks and delays of implementing new communications technologies. In 1999, Project T82 engineered the insertion of technology into the Defense Information Infrastructure. In 2000, engineering support for the Network Engineering Assessment Facility was provided. In

2001, Project T82 engineered the insertion of advanced network technology into the Defense Information System Network (DISN).

In 2002, look for the project to develop network topology design algorithms. In 2003, expect Project T82 to provide engineering support for the Network Engineering Assessment Facility.

Funding

US FUNDING							
	FY01		FY02		FY03		
	QTY	AMT	QTY	AMT	QTY	AMT	
RDT&E (US Navy)							
PE#0204163N							
Fleet Communication	-	14.0	-	23.8	-	12.6	
RDT&E (US Army)							
PE#0303142A							
SATCOM Ground Environment (SPACE)	-	38.3	-	44.6	-	72.2	
RDT&E (US DISA)							
PE#0302016K							
National Military Command System	-	0.6	-	1.0	-	1.1	
PE#0302019K							
Project T62	-	2.3	-	1.6	-	2.4	
PE#0303126K							
Project T82	-	1.3	-	1.4	-	1.4	
Total US DISA	-	4.2	-	4.0	-	4.9	
	FY04		FY05		FY06		
	QTY	AMT	QTY	AMT	QTY	AMT	
RDT&E (US Navy)							
PE#0204163N	-	12.9	-	15.0	-	16.7	- 15.8
RDT&E (US Army)							
PE#0303142A	-	81.0	-	53.7	-	63.6	- 108.3
RDT&E (US DISA)							
PE#0302016K	-	1.2	-	1.3	-	1.3	- 1.3
PE#0302019K							
Project T62	-	2.5	-	2.6	-	2.6	- 2.7
PE#0303126K							
Project T82	-	1.4	-	1.5	-	1.5	- 1.5
Total US DISA	-	5.1	-	5.4	-	5.4	- 5.5

All \$ are in millions.

Source: US Navy, US Army, and US DISA FY 2003 RDT&E Descriptive Summaries

Recent Contracts

<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
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<u>Contractor</u>	<u>Award (\$ millions)</u>	<u>Date/Description</u>
COMSAT Mobile Com.	5.4	February 1996 – An ID/IQ contract for International Maritime Satellite (INMARSAT) usage. (DCA200-95-R-0177)
AT&T	270.0	February 1996 – Contract for the DISN transition. (DCA200-96-D-0043)
Boeing	10.2	June 1996 – An ID/IQ contract with a ceiling price of US\$2 billion for the DISN support services global requirement. (DCA200-96-D-0065)
AT&T	5.6	July 1996 – Contract for a DS3 telecommunications circuit between Hickam AFB, Hawaii, & Camp Roberts, California, for July 1996 through July 2001. (DCA200-87-H-0024)
ITT Industries	63.0	June 2000 – ITT Industries awarded a contract by the US Army Communications and Electronics Command to modernize the ground control segment of the DSCS program.
Computer & Hi-Tech Management Inc	5.3	Jan 2001 – Computer & Hi-Tech Management Inc awarded an indefinite-delivery/indefinite-quantity, cost-plus-fixed-fee contract for computer and telecommunications services. Approximately 90 percent of the work covered will be for non-DoD customers, i.e., Veterans Administration, Internal Revenue Service, Secret Service, Coast Guard, and Library of Congress. Navy tactical systems and the Defense Communications Systems for the Naval Computer Telecommunications Area Master Stations (NCTAMS) sites are also covered under this contract. Contract includes options which, if exercised, would bring its cumulative value to US\$18,568,784. Work is expected to be completed by January 2004. SPAWAR Systems Center Charleston is the contracting authority (N65236-01-D-6818).

Timetable

<u>Year</u>	<u>Major Development</u>
1979	Phase I of Digital European Backbone completed
1984	1st segment of Digital European Backbone using DRAMA becomes operational
1988	Base Information Management Center completed
1990	Common long-haul/tactical digital switching standards developed
1991	DCS Digital System Standard revised to add rates above 64 kb/s
1992	DSCS III satellites deployed
1993	DoD-to-GOSIP protocol transition
1994	USAF Long Haul Communications transferred to C3 Applications program
1995	Systems upgrades and integration from analog to digital architecture
1996	Commercial satellite concepts monitoring initiated
1997	SSCN Phase II completed
1999	Complete SPEAKEASY airborne-transportable radio
2000	ITT Industries awarded a contract to modernize the ground control segment of the DSCS program
2001	Project X0725 completes development of emerging technologies
2002	Expect Project T62 to develop enterprise services definitions
2003	Look for Project T82 to provide engineering support for the Network Engineering Assessment Facility
2010	Modernization of ground control segment of the DSCS program scheduled for completion

Year Major Development

Worldwide Distribution

This is a **US Department of Defense** effort. Because the program supports the DoD's worldwide communications needs, there is some foreign involvement, basically derived from NATO requirements. This involvement includes the Digital European Backbone.

Forecast Rationale

The Defense Communications Systems (DCS) program is a United States Department of Defense (DoD) research and development program. The DCS program supports defense-wide communications requirements for the day-to-day operations of the DoD.

As indicated by the **Ten-Year Outlook** chart, Forecast International projects the US Department of Defense to spend some US\$1.05 billion on the DCS program over the next decade. This healthy spending is driven by the DoD's need for timely information.

Superior communications capabilities were a key factor in the successful outcome of early US military operations carried out in Afghanistan. The enormous amount of money to be spent on the DCS program over the next decade indicates the importance the US DoD is placing on its communications abilities to fight the War on Terrorism. Forecast International expects the Defense Communications Systems program to be well funded beyond 2011.

Ten-Year Outlook

ESTIMATED CALENDAR YEAR FUNDING (\$ in millions)													
Designation	Application	Thru 01	<u>High Confidence Level</u>				<u>Good Confidence Level</u>				<u>Speculative</u>		Total 02-11
			02	03	04	05	06	07	08	09	10	11	
DEFENSE COMM SYSTEMS	INTEGRATED COMMUNICATIONS (US DOD)	1075.100	72.400	89.700	99.000	74.100	85.700	129.600	132.000	130.000	125.000	110.000	1047.500