AD-A183 630 BATTLEFIELD AUTOMATION: ARMY EFFORTS TO AUTOMATE COMBAT SERVICE SUPPORT(U) GENERAL ACCOUNTING OFFICE WASHINGTON DC NATIONAL SECURITY AND.. 31 JUL 87 1/1

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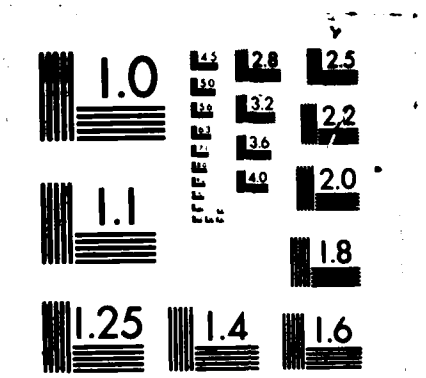
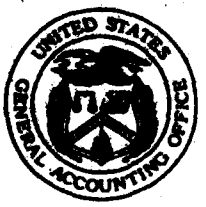


Report to the Honorable
[redacted] Jr., Chairman,
Subcommittee on Defense, Committee on
Appropriations, House of Representatives

BATTLEFIELD AUTOMATION

Army Efforts to Automate Combat Service Support



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General Accounting Office
Washington, D.C. 20548

National Security and
International Affairs Division

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July 31, 1987

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

Dear Mr. Chairman:

As requested in your October 30, 1986, letter, we reviewed the status of the Army's effort to automate combat service support (CSS) activities. Currently, the Army uses numerous manual and automated information gathering and reporting systems to manage CSS activities such as personnel, transportation, medical and maintenance records, ammunition and spare parts inventories, and finance and legal administration. These systems gather information at lower command levels and report it to higher command levels where it is accumulated, processed, and analyzed.

The Army expects to spend about $600 million to modernize its automated CSS activities at corps and theater levels and to automate manual systems at lower command levels. According to the program office, the modernized systems will use new technology to reduce system cost and size, to provide more efficient and user friendly software, and provide more efficient data communications capabilities. The new systems at the lower command levels will replace cumbersome, labor intensive, and time-consuming manual processes.

The CSS computers are commercial equipment modified for the tactical environment. The six CSS components discussed in this report are the Combat Service Support Control System (CSSCS), Corps and Theater Automatic Data Processing Service Center Phases-I and II (CTASC-I and II), Decentralized Automated Service Support Systems (DAS3), Tactical Army Combat Service Support Computer System (TACCS), and Unit Level Microcomputer System (ULMS). Table 1 shows the fielding schedules and the approximate quantity and cost of each component.

Table 1: CSS System Components' Quantity, Cost, and Schedule

Component	Initial fielding	Full fielding	Approx. quantity	Approx. cost (dollars in millions)
CSSCS	1991	1996	1,191	$153
CTASC-I	1983	1988	12	36
CTASC-II	1989	1994	64[a]	61
DAS3	1980	1986	330	213[b]
TACCS	1985	1993	14,050	281
ULMS	1988	1992	13,000	65[c]
Total				$596[b]

[a]The Army may seek approval for 40 or more additional units.

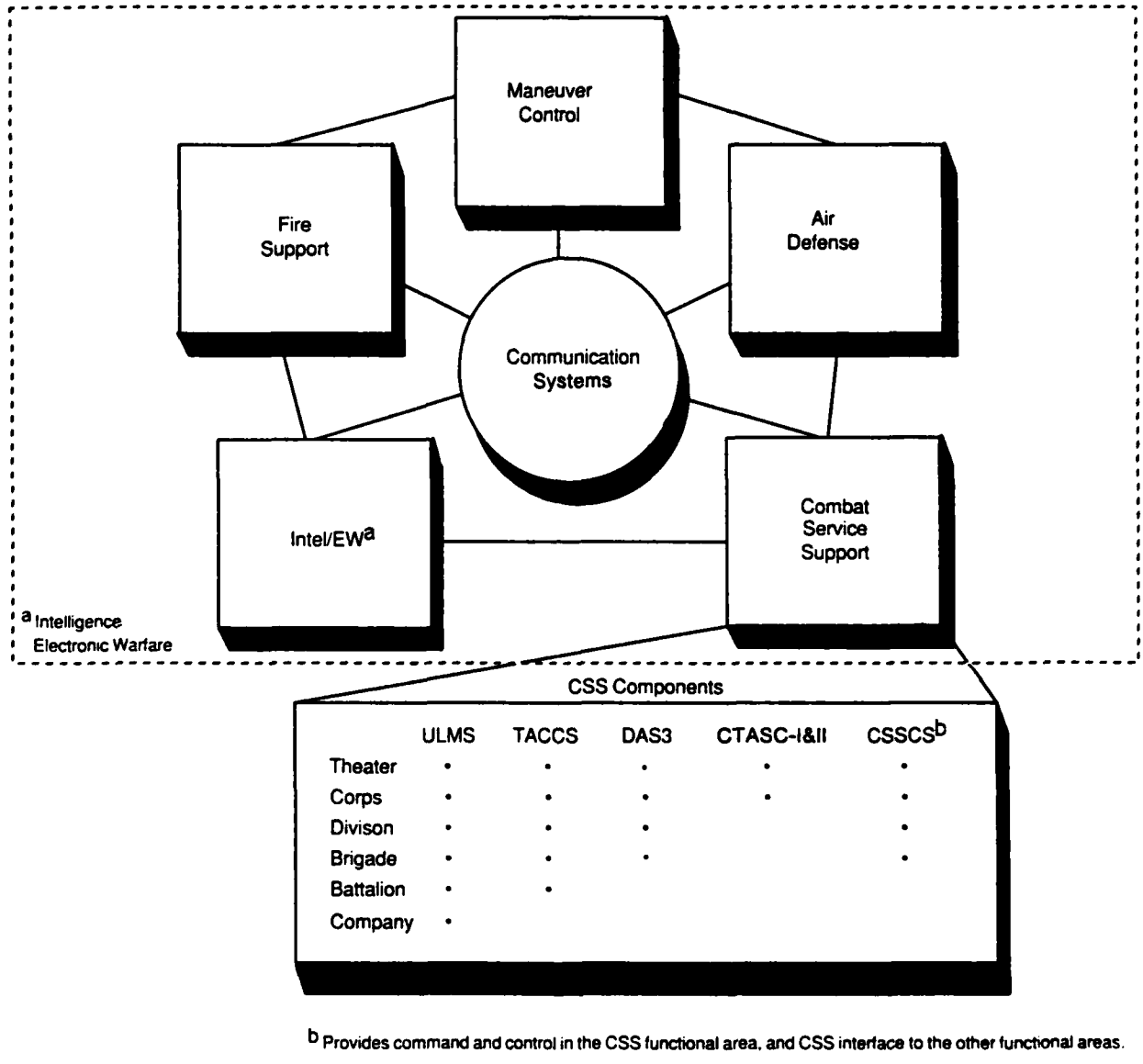
[b]DAS3 is excluded from total since it is an old system to be replaced by TACCS and CTASC-II, and is included here for information purposes only.

[c]Contractor estimates not yet available, but limited to $5,000 per computer.

CSS AUTOMATION AND THE ARMY TACTICAL COMMAND AND CONTROL SYSTEM

The Army plans to purchase a family of common computers to help avoid proliferation of equipment on the battlefield. This program, called the Army Command and Control System (ACCS) will supply computers and software to five major functional areas, including CSS. Figure 1 illustrates the relationship of the CSS and other functional areas.

Figure 1: ACCS' Battlefield Functional Areas



CSSCS

CSSCS is expected to collect, summarize, and organize the most important logistical, personnel, medical, and other information contained in the various CSS management systems. It will also support automated command and control capability in the CSS functional area.

CSSCS computers will be fielded from brigade up through the higher command levels and will be used

-- by the CSS commanders and their staff to perform command and control tasks;

-- to provide key information to the force level commanders at brigade, division, and corps levels to support decisionmaking and battle planning; and

-- by other battlefield functional areas such as intelligence, fire support, and air defense to prepare critical resource management information and battle status reports.

The Army plans to buy 1,191 CSSCS computers. They will be ruggedized and portable, maintained by Army personnel, and are scheduled to be fielded in the early to mid-1990s.

The program cost estimate for CSSCS has increased from about $100 million to about $153 million since 1986. According to the program office, the increase is due mostly to more accurate estimates of software requirements and to an increase in ACCS computer cost estimates. Table 2 shows CSSCS' estimated costs.

Table 2: CSSCS' Estimated Costs

Fiscal years					To	
1988	1989	1990	1991	1992	completion	Total
(dollars in millions)						
$8.8	$11.6	$15.6	$18.3	$25.2	$73.6	$153.1

The Army may soon have better ACCS computer cost estimates. ACCS cost proposals from prospective bidders in response to the May 1987 ACCS request for proposal are expected about September 1987.

CSSCS is in the concept definition phase and preliminary architecture definition work is expected to be completed by August 1987. Specific capabilities and equipment options will be determined as the program progresses and CSSCS architecture and software are developed. Table 3 shows CSSCS' schedule.

Table 3: CSSCS' Schedule

Milestone	Quarter	Fiscal Year
Concept definition began	3	1987
Early development to begin	1	1988
ACCS computer required for CSSCS development	2	1989
Initial fielding	3	1991
Initial operational capability	4	1991
Full-scale fielding	2	1992
Fielding completed	4	1996

CTASC-I

CTASC-I computers currently in use are large commercial mainframe units mounted in specially modified Army vehicles. They are located at corps and theater command levels to support centralized CSS functions. Seven CTASC-I computers have been purchased, and a contract for five more has been awarded. The total price for 12 CTASC-I computers is about $36 million, or about $3 million each.

Although CTASC-I computers are maintained by Army personnel with contractor support, program officials told us that the Army is considering all contractor maintenance, but no decision has been made yet.

CTASC-I is an interim program, and the computers will be replaced when CTACS-II becomes available.

CTASC-II

CTASC-II computers are to replace CTASC-I computers. However, they will be fielded in much larger numbers than CTASC-I in order to expand and diversify CSS automation at corps and theater command levels. The Army plans to buy at least 64 CTASC-IIs and may seek approval for 40 or more additional units.

CTASC-II computers are technologically superior, smaller, and less costly than CTASC-I computers. For instance, they will have about twice the mass storage capacity of CTASC-I computers. Also, instead of three large tractor trailers required for CTASC-I computers, each CTASC-II computer will require only two, or some combination of smaller vehicles. Furthermore, the Army estimates a CTASC-II computer will cost no more than $1 million compared to $3 million for a CTASC-I computer. The Army is considering whether to use all contractor maintenance support for CTASC-II, or to use Army personnel, but no decision has been made yet. Table 4 shows CTASC-II's estimated costs and table 5 shows the schedule.

Table 4: CTASC-II's Estimated Costs

Fiscal years					
1987	1988	1989	1990	1991	Total
(dollars in millions)					
$4.7	$10.6	$14.8	$15.9	$14.8	$60.8

Table 5: CTASC-II's Schedule

Milestone	Quarter	Fiscal year
Concept validation	3	1987
Production award	2	1988
Full-scale production	3	1989
Initial operational capability	4	1989
Fielding completed	-	1994

DAS3

The DAS3 currently in use is a ruggedized, van-mounted version of a commercial computer. It performs CSS tasks at brigade, division, corps, and theater command levels. About 330 DAS3 computers were fielded between 1980 and 1986, with the latest ones costing about $1 million each. The Army has directed that DAS3 be phased out as soon as possible. CTASC-II and TACCS, in addition to performing their own dedicated tasks, will eventually absorb DAS3 functions as well. However, the DAS3 will be needed at least through the early to mid-1990s because CTASC-II and TACCS equipment and software will not be fully available until then.

It might be difficult for the Army to keep DAS3 operating until the other systems can absorb all of its tasks. The DAS3 uses older technology, and some repair parts may become unavailable or available only at very high prices.

The parts problem is being addressed in two ways. The Army has already negotiated an agreement with the manufacturer for continued repair parts support for the DAS3. Also, upgrading some of the parts rather than trying to maintain them is being considered. This could be easier and less costly than maintaining some obsolete parts, and would have the added advantage of increasing computer capabilities as well.

TACCS

TACCS is portable and supports intermediate level CSS activities from battalion up through the higher command levels. Several thousand have already been deployed. It is considered to be an interim computer to be replaced by about the mid-1990s, the end of its expected useful life span.

TACCS is built with commercial quality electronic components, but the chassis is more robust and the computer includes electromagnetic interference and electromagnetic pulse protection. TACCS is also delivered with highly ruggedized carrying cases.

TACCS uses both commercially available software, as well as CSS software packages. Commercial software includes word processing, spread sheet, and data base systems. Several TACCS CSS software packages for supply, maintenance, personnel, and property book functions have already been accepted. Additional software will be developed for ammunition, transportation, medical, communications security, logistics, finance, and calibration management.

Table 6 shows TACCS' estimated cost and table 7 shows the program schedule.

Table 6: Estimated Costs

Fiscal years				
1986	1987	1988	To completion	Total
(dollars in millions)				
$42.3	$63.5	$53.9	$121.2	$280.9

Table 7: TACCS' Schedule

Milestone	Quarter	Fiscal year
Program approval	1	1983
Initial operational capability	3	1985
Full-scale production	1	1987
Fielding complete	-	1993

ULMS

ULMS will be a small microcomputer for automating lower level CSS tasks such as unit level logistics and medical administrative functions. It is basically a portable commercial computer provided with commercially available ruggedization for dust, shock, and moisture resistance. It will not include special electromagnetic interference protection. ULMS will be maintained by Army personnel.

About 13,000 ULMSs are expected to be bought for company level up through the higher command levels beginning in 1988. The final number purchased depends upon the demand that may develop within potential user units since the computer will be purchased with local unit discretionary funds.

The maximum amount local units are authorized to spend for individual computers is $5,000. Potential contractors are expected to provide better estimates about September 1987, in response to the ACCS request for proposal issued in May 1987.

ULMS will use a combination of commercially available software and software developed for specific CSS applications. Commercial software includes word processing, spread sheets, and data base management.

Two military software packages have been developed for ULMS, and others may be added. The Unit Level Logistics System will be used for spare parts inventory management and maintenance management reporting. A medical software package will be used for battlefield patient administration, including medical logistics, and whole blood accountability. Software for legal system and other specialized uses is also being considered.

Table 8 shows ULMS' schedule.

Table 8: ULMS' schedule

Milestone	Quarter	Fiscal year
Program approval	1	1982
Program development start	1	1984
Initial fielding	3	1988
Initial operational capability	4	1988
Full-rate production	4	1988
Final fielding under initial contract	-	1992

OBJECTIVE, SCOPE, AND METHODOLOGY

Our objective was to determine the status of the Army's efforts to automate CSS activities. We interviewed officials and reviewed various program documents at Fort Belvoir, Virginia; the Office of the Secretary of Defense; and at a contractor's office near Philadelphia, Pennsylvania.

We limited our review to hardware programs and did not review software development programs. We did, however, determine which software packages are associated with the hardware discussed in this report. Our review was performed from January 1987 to May 1987.

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We discussed information in this report with Army officials and have incorporated their comments where appropriate. Unless you publicly announce its contents earlier, we plan no further distribution of this fact sheet until 10 days from its issuance. At that time we will send copies to Army, DOD, and other interested parties and make copies available to others upon request.

If you need additional information or have any questions, please call me at 275-4841.

Sincerely yours,

Richard Davis

Richard Davis
Associate Director

(395067)

END

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