CORPORATE EXECUTIVE INFORMATION SYSTEM (CEIS)

ASD(HA) ACAT IAM Program		**Prime Contractors**
Total Number of Systems:	150 Sites	EDS and SAIC
Total Program Cost (TY$):	$423M	
Average Unit Cost (TY$):	$2.8M	
Full-rate Production:	4QFY97	

SYSTEM DESCRIPTION & CONTRIBUTION TO JOINT VISION 2010

The Corporate Executive Information System (CEIS) is a tri-Service system for integrating executive information support across the Military Health System (MHS). It will support the clinical, financial, and management needs of military treatment facilities (MTFs), tri-Service Health Care (TRICARE) Lead Agents, Service Intermediate Commands, the three military department Surgeons General, and the Office of the Assistant Secretary of Defense (Health Affairs) [ASD(HA)]. CEIS integrates a commercial-off-the-shelf executive information system and a commercial-off-the-shelf decision support system. The executive information system offers a top-down view of the health care enterprise, integrating data from many sources, producing reports, and linking decision makers. The decision support system provides a single source of integrated, patient-level information to the health care enterprise, incorporating clinical, financial, and administrative data. There is a large active user community (over 7,000 users) within DoD, with user organizations ranging from small community hospitals to multi-facility health care enterprises.

The CEIS architecture includes two major groups of servers: (1) "data warehouses" of integrated data base servers housing repositories of health services data integrated from major MHS operational automated information systems; and (2) "data marts" of distributed servers housing patient-level care data and pre-approved information products that evaluate and assist in improving MHS. Currently, CEIS is based on a distributed client-server processing architecture built around TRICARE regional data bases fed by selected central data bases and data bases located at MTFs. A single Enterprise Data Warehouse will soon replace the regional data bases.

The core of the CEIS architecture is an open relational data base management system that fuses information into a single authoritative and consistent source. CEIS does not manufacture data; it extracts "evaluation" data from source data collection systems and integrates it in the data warehouse. Some of the source data collection system feeds are local to individual MTFs, while others are centralized systems serving multiple locations. CEIS supports ***Joint Vision 2010*** by providing health care managers and providers with the capability to collect, process, and disseminate an uninterrupted flow of medical information. It enhances ***information superiority*** by providing decision makers with accurate information in a timely manner, allowing them to be more effective and efficient in providing health services.

BACKGROUND INFORMATION

CEIS is being acquired for MHS by ASD(HA), with the Army Surgeon General designated as Executive Agent for the acquisition. The new system was originally intended to subsume the functionalities of eight legacy systems. Seven of these systems have already been turned off, but CEIS has now become the target system for the migration of all systems within the Executive Information/Decision Support area of MHS. It will eventually be deployed to about 150 locations, and is considered critical to the effective management of DoD's TRICARE program, which has been implemented worldwide.

TEST & EVALUATION ACTIVITY

No OT&E has been conducted since 1997. A Government Installation and Acceptance Test (GIAT) was conducted in June of that year. This was a two-phase, combined DT/OT effort. OPTEC, the independent OTA, participated in the first phase of the GIAT, observing DT&E and gathering selected information for assessment. OPTEC then conducted a dedicated OT phase in June and July 1997, with most of the data provided by the users. During this phase, OPTEC collected operational data at 14 test sites and conducted user desk audits for qualitative data. OPTEC also evaluated the quality of system manuals and documents.

TEST & EVALUATION ASSESSMENT

GIAT results (both OT and DT) were unusually positive for an emerging system. CEIS V1.0 was judged to be operationally effective and operationally suitable. The system achieved its mission performance, interoperability, reliability, availability, maintainability, and logistics support requirements documented in the ORD. It conforms to the standards specified in the Defense Information Infrastructure Common Operating Environment documentation. CEIS also meets its system-level security

requirements, has received its security accreditation, and possesses adequate means to protect continuity of operations. The system enjoys a high level of support from its users.

CONCLUSIONS, RECOMMENDATIONS, LESSONS LEARNED

Combined DT/OT proved to be a very effective testing methodology for CEIS, as it can be for other automated information systems. For a system like CEIS, in which both DT and OT took place at a relatively large number of test sites (14 MTFs), much of the DT data could also be used to evaluate performance in the operational environment, particularly since it was supplemented by information obtained directly from the users. In the case of CEIS, it was possible to obtain most of the quantitative data electronically; and with combined DT/OT, the cost of testing (both dollars and people) was significantly lower than it might have been.

Despite the early success of CEIS V1.0, progress has been slow in developing the next increment, V2.0. Whereas V1.0 was fielded to only two organizational levels (MTFs and TRICARE Lead Agents), V2.0 will be fielded to three additional levels [ASD(HA), Surgeons General, and Intermediate Commands]. V2.0 will provide a global view of MHS, providing access to more information and allowing users to see across TRICARE regional boundaries. Incorporating the commercial-off-the-shelf *Business Objects* application will primarily change the types of reports from standardized ("canned") to *ad hoc*. Unfortunately, the architectural changes necessitated by these requirements were daunting and delayed the program by more than a year. However, the same combined DT/OT testing methodology that worked well with V1.0 should prove to be effective with V2.0 as well. The original TEMP was approved by DOT&E in June 1997. A thoroughly updated version for V2.0 will soon be submitted to DOT&E for approval. OT&E of CEIS V2.0 is scheduled for 2QFY00.