

RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)							DATE February 1999			
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/BA 3					R-1 ITEM NOMENCLATURE Advanced Concept Technology Demonstrations PE 0603750D8Z					
COST (In Millions)	FY1998	FY1999	FY2000	FY2001	FY2002	FY2003	FY2004	FY2005	Cost to Complete	Total Cost
Total Program Element (PE) Cost	74.756	88.598	117.969	119.298	121.149	123.497	126.080	128.725	Continuing	Continuing
ACTDs/P523	74.756	88.598	117.969	119.298	121.149	123.497	126.080	128.725	Continuing	Continuing

(U) **A. Mission Description and Budget Item Justification**

(U) **BRIEF DESCRIPTION OF ELEMENT:** The Department of Defense recognizes the need to rapidly develop and field new technological capabilities, and to explore new and innovative operational and organizational concepts associated with those capabilities. Such advances are critical to the objective of achieving a “revolution in military affairs” to support the Chairman’s *Joint Vision 2010*. Advanced Concept Technology Demonstrations (ACTDs) are low risk vehicles for pursuing that objective. ACTDs are capability demonstration and evaluation programs in which the development and employment of technology and innovative, operational concepts by the military user are the primary focus. The demonstrations involve a material development organization that develops the technology, and a warfighting organization responsible for assessing the military utility. In addition to stimulating innovation, ACTDs offer three other significant opportunities. They provide experienced combat commanders with an opportunity to develop operational concepts and operational requirements to fully exploit the capabilities being evaluated. They allow the users an opportunity to assess the military utility of the proposed capability prior to a major acquisition decision. They also provide the Services with a mechanism for compressing acquisition cycle time, thus significantly improving their response to priority operational needs. As such, ACTDs are at the foundation of the DoD acquisition reform process. In FY 1999, ACTDs also became an integral part of the Joint Warfighter Experimentation process. U.S. Atlantic Command’s (ACOM) Joint Experimentation Plan 99 identified twelve ACTDs in its near-term experimentation matrix. The Deputy Under Secretary of Defense (Advance Systems and Concepts) (DUSD/ASC) is working closely with ACOM in preparing Campaign Plan 00 to insure ACTD work to integrate technology and develop new concepts of operation is fully leveraged and integrated into future joint experiments.

(U) Other sources provide most of the funding for ACTDs. Funding from this program element, typically 10 to 20%, is used: 1) to support actual demonstrations and exercises, 2) to provide hardware to demonstrate military utility, and 3) to fund interim capability operations and support for two years after the “operational demonstration phase” of the ACTD. This two-year phase provides the operators with adequate time to continue to address the issues of supportability, maintainability and training identified by the ACTD.

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(U) Both the Science and Technology (S&T) and the warfighter communities submit candidate ACTDs in January of each year. The candidates proposed by the S&T community reflect technological opportunities that have been enabled by recently demonstrated technology. The candidates proposed by the warfighter community (Joint Chiefs of Staff (JCS), Unified Commanders in Chief (CINCs), Service operational organizations) respond to a deficiency in military capability or to an emerging military need. For each candidate, it is necessary to confirm that the proposed concept is based on technology that is sufficiently mature, and that the capability addresses a priority military need.

(U) The maturity of the technology associated with the proposed capability is assessed by the Deputy Under Secretary of Defense (Advanced Systems and Concepts (DUSD (ASC))), with assistance of senior members of the science and technology community (known as the Breakfast Club). The Joint Requirements Oversight Council (JROC) determines the military need by prioritizing the ACTD candidates. The principal management tool for the ACTD is the ACTD Management Plan. Each approved ACTD will be described in a top-level document that provides details of the demonstration/evaluation, the main objectives, approach, critical events, measures of success, transition options, participants, schedule, and funding.

(U) The typical timeline of two-to-four years for the operational demonstration phase of an ACTD is compressed compared to normal timelines for fielding an operational capability. These shorter schedules are made possible by the fact that the ACTDs incorporate mature or nearly mature technology and, therefore, forgo time consuming technology development and technical risk reduction activities. At the end of the ACTD, the user sponsor is able to determine if the capability provided by current technology has sufficient utility to warrant procurement; if there are significant shortcomings, either to pursue an advanced technology demonstration to improve performance, or not to pursue the technology any further at this time. In cases where the operational user is satisfied the prototype has significant utility, the prototype can be used as an interim capability and then move quickly to enter the formal acquisition process and to acquire quantities to fully satisfy the need.

(U) The request for Fiscal Year 2000 candidate ACTDs was issued October 1998. Proposals were received from the CINCs, Services, other Department of Defense Agencies, and industry in January 1999. Candidates are organized into the *Joint Vision 2010* focus areas of Dominant Maneuver, Precision Engagement, Full Dimensional Protection and Focused Logistics. Plans are being finalized with the Joint Staff to begin the process of identifying and reviewing the candidates for FY 2000 ACTDs in February/March 1999. Funding for FY 2000 ACTDs is approximately \$10 million.

(U) **PROGRAM ACCOMPLISHMENTS AND PLANS:**

(U) **FY 1998 Accomplishments:** All ACTDs initiated in FYs 1995, 1996 and 1997 have been reviewed for objectives, content and management. This includes in-depth review by some of the ACTD operational sponsors such as United States Atlantic Command (ACOM). Fourteen new ACTDs were started in FY 1998: Adaptive Course of Action, Command, Control, Communications and Intelligence (C4I) for Coalition Warfare, High Power

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Microwave, Information Assurance: Automated Intrusion Detection Environment, Joint Biological Remote Early Warning System, Joint Continuous Strike Environment, Joint Modular Lighter System, Line of Sight Anti-Tank System, Link-16, Migration Defense Intelligence Threat Data System, Precision Target Identification, Space Based Space Surveillance Operations, Theater Precision Strike Operations and Unattended Ground Sensors. The selection process for FY 1999 ACTDs began in October 1997. Thirteen final ACTD candidates, of the 37 received from the Unified Commands, the Services and Defense agencies, were considered for final selection. Candidates covered a broad range of technologies and needs, including logistics, intelligence, medical protection and telemedicine, information technology, mission planning, battle damage assessment, automated maintenance, personnel recovery and air defense. These candidates were evaluated for technical maturity by the Breakfast Club and for operational need and utility by the Joint Staff Joint Warfare Capability Assessment (JWCA) process. The JROC then prioritized these thirteen candidates and eleven were finally selected based upon funding availability. In order to validate technical maturity, program planning and program management, each final candidate underwent a one-day comprehensive review (termed a 'final scrub') prior to final selection and ACTD start in early FY 1999. FY 1998 funds were transferred to the executing services/agencies in the amount of \$74.756 million.

(U) 1998 accomplishments include:

FY 1995 Starts:

- Advanced Joint Planning (AJP): Developed software tools that provide the insight into readiness of component forces and the ability to manage Time Phased Force Deployment Data (TPFDD) demonstration on a daily basis at U.S. Atlantic Command (ACOM). Utility of these tools (Time-Phase Force Deployment Data Editor (TPEdit), Force Modular Editor (FMEdit), Force Module Editor (FMEdit), Course of Action Selection Tool (COAST), Target, Automated Joint Monthly Readiness Review (AJMRR), and the Joint Readiness Assessment Management System (JRAMS)) has been successfully completed. TPEdit, FMEdit, COAST, and Target have been delivered to Defense Information Systems Agency (DISA) D6 for final testing and fielding. JRAMS has been distributed to several CINCs for demonstration of improved responsiveness and accuracy of the CINC readiness assessment. Both JRAMS and AJMRR were delivered to DISA D6 in November 1998.
- High Altitude Endurance Unmanned Aerial Vehicles (HAE-UAV): Successful first flights for both Global Hawk and DarkStar air vehicles were conducted. Global Hawk Air Vehicles #1 and #2 have flown a total of ten air worthiness and payload test flights at Edwards AFB CA for a total of 50.4 hours. Eight of the ten flights have reached altitudes in excess of 50,000 feet. The latest flight was the first payload mission on 22 Jan 99; the Global Hawk Integrated Sensor Suite (which includes three different types of sensors) successfully used these sensors to gather 'spot' and 'swath' imagery, and also transmitted the imagery via satellite communications to a ground station in San Diego CA. DarkStar has completed five successful airworthiness test flights to date totalling 6.1 hours. Four of the flights went to 5000 feet in altitude; the latest flight on 9 Jan 99 flew for 2.7 hours and 25,000 feet in altitude
- Joint Countermine (JCM): Completed Phase II and the second demonstration during MARCOT/Unified Spirit 98 on 6-26 June 1998 in Stephenville, Newfoundland, Canada. Demonstrated ten novel systems, C4I integration, and legacy systems during the operational exercise. A

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"quick look" analysis report and operational assessment has been prepared. In addition in August 1998, ACOM sponsored Warfighter Analysis Laboratory Experiment to allow warfighters to apply lessons learned during a simulated exercise. Several land based countermine systems were also demonstrated in JTFEX 98-1 at Fort Bragg, North Carolina in February 1998. ACOM published its military utility assessment in October 1998.

- Precision Signals Intelligence (SIGINT) Targeting System (PSTS): Completed a final demonstration phase in Korea in September 1998. The PSTS integrated airborne and National SIGINT to achieve accurate geolocation of emitters. The demonstration included upgraded capabilities for the U.S. Army GUARDRAIL system, processing software and communications links. The ACTD leaves a limited operator capability and transitions into a long-term program to upgrade all airborne and National SIGINT systems to provide precision geolocation of Electronics Intelligence (ELINT) and Communications Intelligence (COMINT) emitters.
- Rapid Force Projection Initiative (RFPI): Completed the full scale demonstration phase in August 1998. This demonstration incorporated new sensor, shooter and command and control technologies into the nation's light, first-to-fight forces. The demonstration concluded with a large free-play engagement between a brigade of the 101st Air Assault Division and a combination of real and virtual opposing forces. The new capabilities that were demonstrated included the Hunter Sensor Suite, Remote Sensory, Integrated Acoustic System, High Mobility Artillery Rocket System (HIMARS), Automated 155 Howitzer and digital command and control in the form of a Light Digital Tactical Operations Center (LDTOC). These components will be entering an interim capability and transition phase.
- Synthetic Theater of War (STOW): Participated in a major operational exercise in support of ACOM and began transition of STOW technologies to the Joint Simulation System (JSIMS) and the Services. In all supported events to date, STOW has been distributed among many sites that interface to it via operational command, control, communications, computers and intelligence (C4I) systems. This integration allows realistic interaction between real-world planning and simulated combat implementation. STOW has achieved new milestones in the number and fidelity of entity-level simulations.

FY 1996 Starts:

- Air Base/Port Biological Detection: Conducted Aerosol Background Environmental Sampling at four U.S. installations in Central Command (CENTCOM)/Pacific Command (PACOM) areas of responsibility. At CENTCOM request, the ACTD prototype network was deployed for Operation Desert Thunder. It was operational for 24 hours a day, ran for over 3000 hours with zero network false alarms, and less than one half of a percent of false positives. In addition, the Mark-III sensors have been reduced 25% in size and 35% in weight.
- Battlefield Awareness and Data Dissemination (BADD): Installed a software package at multiple sites providing an integrated environment of broadcast management, information dissemination management, and battlefield awareness service that provide near-real-time imagery, geographic and video products at transfer rates ranging from hundreds-to-thousands of times faster than current capability. Secured user involvement via a series of jointly designed, operationally realistic assessments. Continued efforts to transition BADD products to selected national, joint and service infrastructure programs.

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- **Combat Identification (CID):** Conducted Virtual Integration Exercise (VIE) using the distributed interactive simulation systems at Fort Knox (ground components and forward air controllers), Fort Rucker (helicopters), and Armstrong Laboratories (fixed wing aircraft) all executing operations at the same time over a National Training Center (NTC) terrain data base. Conducted Combat ID Exercise (CIDEX) at Fort Hood with the Digitized Brigade for the military utility assessment of Battlefield Combat Identification System (BCIS) Ground and BCIS Helicopter. Conducted Combat ID Interoperability Demonstration (CIDID) at Fort Huachuca to assess interoperability of combat ID architecture. De-installed BCIS from the 4th Infantry Division at Fort Hood. Provided data in support of the decision to transition BCIS and Situational Awareness Data Link (SADL) to production.
- **Combat Vehicle Survivability (CVS):** Completed technical and operational field tests. Analyzed field test data, which indicated that the technology has significant military utility. Performed CASTFORM modeling to extrapolate technology's utility to larger engagements. Designed and tested improved critical technology subsystem. Conducted extended user tests of subsystem on an operational platform. Redesigned critical technology subsystem to allow for 'use as needed' capability, instead of being permanently installed.
- **Counterproliferation I (CP I):** Conducted several demonstrations and tests against a hardened surrogate chemical weapons production facility. These included successful demonstrations of the Hard Target Smart Fuze (HTSF) and Advanced Unitary Penetrator (AUP), sensors, targeting and hazard prediction tools, with live ordinance dropped from F-15Es and F/A-18s. The Inertial Terrain Aided Guidance (ITAG), which provides a launch and leave, adverse weather precision guidance system, had its first successful test. The Integrated Munitions Effectiveness Assessment (IMEA) is being used to support European Command (EUCOM) targeting activities. Standoff capability is an integral component of CP II (see FY97 starts) which is focusing on Tactical Land Attack Missile and Conventional Air Launched Cruise Missile. The Tactical Unattended Ground Sensor (TUGS) system and the Tactical Forward Looking Infrared (FLIR) Pod Modification (TFPM) capabilities were successfully included in the demonstrations and showed enhanced capabilities for target characterization and battle damage assessments (BDA).
- **Joint Logistics (JL):** Phase II constructed web-based Joint Logistics decision support tools. Focus was placed on connectivity into emerging data bases, operations planning systems and communications networks. These advanced logistics planning capabilities were demonstrated in exercises, then transitioned to the CINCs for true field use.
- **Miniature Air Launched Decoy (MALD):** Completed tooling development for air vehicle fabrication, assembly, ground integration and testing.
- **Navigation Warfare (NavWar):** Exercises used prevention and protection equipment developed by the Navigation Warfare ACTD. Squad-sized exercises were carried out at White Sands Missile Range, New Mexico, Fallon Naval Air Station, Nevada and Camp Lejeune, North Carolina. Large-scale exercises were carried out at Fort Bragg, North Carolina (Purple Dragon) and Fallon Naval Air Station, Nevada. These large-scale exercises have begun the process of training and CONOPs development necessary to deal with Advanced Navigation Systems on a stressed battlefield in the fog of war.
- **Semi-Automated Imagery Processing (SAIP):** Deployed the enhanced SAIP system, which added several new capabilities. The first formal military utility assessment was held in June 1998. This two-week field exercise included Army and Air Force participation, with SAIP processing live real-time imagery from the U-2 aircraft. This exercise clearly demonstrated the advantages of SAIP-aided imagery analysis over unaided

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analysts. Results showed SAIP is critical to handling ever-increasing volumes of imagery products.

- Tactical Unmanned Aerial Vehicle (TUAV): Military utility assessment for joint land force components, which included the Army and Marine Corps, concluded in July 1998. Conducted 184 flights without a Class A or B mishap. Conducted 31 flights with autolandings. Conducted seven flights with an endurance of greater than three hours. Maximum range demonstrated was 205 kilometers. Commenced the interim capability period.
- Theater High Energy Laser (THEL): Currently undergoing testing of the laser system at the Capistrano Test Site in California. End-to-end testing of the pointer/tracker system alignment was completed. Initial command, control, communications and intelligence (C3I) and radar testing was completed at White Sands Missile Range. THEL site construction at the site was initiated. This is a joint ACTD with Israel.

FY 1997 Starts:

- Chemical Add-On to Air Base/Port Bio Detection: The chemical sensor hardware interface was successfully demonstrated and evaluated at Dugway Proving Grounds and was deployed with the prototype Airbase/Port Biological Detection ACTD to Kuwait at CENTCOM request to support Operation Desert Thunder.
- Consequence Management (CM): In December 1997, the Army Technical Escort Unit (TEU) and USMC Chemical Biological Incident Response Force (CBIRF) responded to a simulated domestic terrorist scenario involving release of various biological simulants in a large U.S. city. This was the final and very successful demonstration for this ACTD. The TEU and CBIRF were equipped with existing and emerging bio-detection technologies. These technologies were evaluated for their usefulness and ability to be operated by both units. The final technical review and report were completed this year.
- Counterproliferation II (CP II): The design was completed with elements including: stand-off penetrators (enhanced warhead penetration performance and fuzing options); enhanced payloads (reduce collateral effects by either neutralizing the agent or mitigating release and dispersion); combat assessment (assess collateral effects generated by attack on a chemical related facility); and enhanced planning tools (institutionalize end-to-end nuclear, chemical or biological related target planning support for warfighting commands).
- Extending the Littoral Battlespace (ELB): A Systems Integration Lab (SIL) at the Space Warfare (SPAWAR) Systems Center, was established, along with a hardware and systems integration testbed aboard USS Coronado. These two testbeds will support integration, testing and demonstration for the command and control elements, as well as rapid transition/acquisition support. An industry team was awarded a competitive contract to be the Systems Engineer and Integrator. Detailed analysis and evaluation of candidate-enabling technologies was conducted. The first Major Systems Demonstration (MSD I) was definitized and detailed planning and coordination were executed. Initial integration tests were successfully conducted with a commercial off-the-shelf wireless network, sensors, fires and targeting, and command and control applications.

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- Information Operations Planning Tools (IOPT): Due to cancellation of CENTCOM's Internal Look exercise in FY 1998, a series of mini evaluations were held. The first exercise, AVENGING SURF 98, was held in July 1998 for CENTCOM, and its components, to evaluate in-garrison and initial crisis planning. It provided a positive feedback environment for CENTCOM, Central Air Forces (CENTAF), Navy and Army participants. This first demonstration in an operational oriented scenario allowed the ACTD to obtain critical data on how the tool would be used by geographically separated units. The second assessment was the USAF's EFX in September 1998. Transition discussions for the ACTD are on going with Air Combat Command (ACC) and Air Force Materiel Command (AFMC), as well as representatives from the other service information warfare (IW) centers of excellence. In August 1998, the initial operational capability of the IOPT was installed at CENTCOM, Central Air Forces (CENTAF), Joint Command and Control Warfighting Center (JC2WC), and the Air Force Information Warfare Center (AFIWC).
- Integrated Collection Management (ICM): The first system demonstration was completed. Completed Phase I prototype design and development.
- Joint Advanced Health and Usage Monitoring System (JAHUMS): Awarded and completed nine contracts for Phase I concept definition studies for twelve technology modules. Conducted critical design review of baseline system.
- Military Operations in Urban Terrain (MOUT): Completed technology assessment process that enables the rapid identification of technology candidates and evaluates them against the user-developed criteria to enable a rank ordering of each candidate's ability to meet the requirements. Conducted product and user qualification testing and experimentation for three Army and two U.S. Marine Corps experiments. Conducted a complete technology risk assessment for all 32 user requirements and developed courses of action to mitigate or eliminate the risks. Conducted an excursion of MOUT technology products with RFPI. Instrumented MOUT sites at Fort Benning (Army) and Camp Lejeune (USMC) to facilitate non-intrusive data collection and to assist in generating data for modeling and simulation assessments of military utility.
- Rapid Terrain Visualization (RTV): Conducted detailed technical and operational study to select optimum radar and platform for collection of high-resolution digital elevation data. Merged linear and spatial feature data into a fully integrated data set using prototype battlefield visualization database generation software and generated tailored databases for terrain analysis workstations. Demonstrated baseline semi-automated feature extraction capability using commercial satellite imagery. Demonstrated prototype RTV systems in the Joint Precision Strike Demonstration (JPSD) Integration and Evaluation Center (IEC) and obtained data to evaluate measures of effectiveness. Participated in Division XXI advanced warfighting experiments (AWE) in support of III Corps and 101st warfighting experiments (WFX) in support of the XVIII Airborne Corps. Installed and demonstrated version 2.0 of semi-automated topographic data generation software at XVIII Airborne Corps testbed and III Corps topographic units.

FY 1998 Starts:

- Adaptive Course of Action (ACOA): Completed knowledge acquisition and initial base lining of PACOM planning operations. Started CINC-level software integration. Produced a World Wide Web-based Visual Demonstration of the ACOA vision and concept of operations to include descriptions of technologies and applications to be used to achieve the goals set forth in the ACOA Management Plan.

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- C4I for Coalition Warfare (C4ICW): The objective is enhanced interoperability of US Army command and control (C2) systems with the United Kingdom, France, Germany, Italy and Canada. This is being accomplished through two multilateral formats with the listed countries. The process uses both NATO standardized message formats and database replications. A series of coalition demonstrations/AWEs are in the early planning stage. This ACTD has developed the process for passing coalition ground force data to other Service's systems. The capability will be integrated into and supported in the Army Battle Command System (initially Maneuver Control System (MCS)) as part of the planned fielding of Army Command Battle System (ABCS) software upgrades. DISA accepted the ACTD data elements and definitions for the next GCCS build to enhance both the land element of the common operational picture and potential for interoperability with coalition partners.
- High Power Microwave (HPM): Demonstrated an operational information warfare attack capability, packaged for tactical operations. Contract for construction of demonstration modules was awarded in September 1998.
- Information Assurance: Automated Intrusion Detection Environment (IA:AIDE): Conducted first demonstration in September at seven sites, with two-level reporting to DISA's Global Operations System Center.
- Joint Biological Remote Early Warning System (JBREWS): Completed system and critical design reviews. Commenced fabrication of systems.
- Joint Continuous Strike Environment (JCSE): Completed design and integration of technology models. Commenced design integration into the Global Command and Control System (GCCS) and relevant service systems. Conducted first in a series of user demonstrations. Began refinement of CONOPS.
- Joint Modular Lighter System (JMLS): Provides operational capability to move warfighting materiel from ship-to-shore in Sea State 3. Will significantly increase system life and reduce required maintenance. Proposals for design of a lightweight, affordable, Sea State 3-capable system were evaluated and multiple contracts for most promising designs were awarded in March 1998.
- Line-of-Sight Anti-Tank (LOSAT): Contract was awarded in April 1998. Completed missile guidance electronics design updated in preparation for incorporation of the inertial measurement unit (IMU). Fabricated hardware and updated operational and test software for missile guidance electronics verification tests. Initiated update of weapon system, fire unit and missile hardware and software requirements. Initiated design concepts for fire unit electronics and missile aft-looking receiver (ALR).
- Link - 16: Demonstrated a joint, integrated capability to pass tactical information seamlessly among Link-16 and variable message format-based tactical data link networks, which are currently separated both in message format and physical wavelength. Software has been developed to exchange tactical information between the networks and their physical devices, as well as the specific message sets required for this exchange. Capability was demonstrated in a controlled environment.
- Migration Defense Intelligence Threat Data System (MDITDS): Operational planning with EUCOM, Defense Special Weapons Agency (DSWA), J34, and the Defense Intelligence Agency (DIA) is ongoing. Cross-network data transitioning to support warning, threat, and vulnerability assessment is underway. Threat assessment/summary software was delivered in September 1998. The operational management team is currently planning a fall 1998 force protection exercise to help determine functional requirements of future MDITDS modules. The

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EUCOM Special Assistant for Security Matters recently put a theater-specific vulnerabilities database on-line. The ACTD will incorporate this as the core to the 'blue' information/decision support interface and proliferate it globally.

- Precision Targeting Identification (PTI): Conducted preliminary demonstration of the potential of laser radar (LADAR) and 3rd generation forward-looking infrared (FLIR) technologies to increase search area and obtain low-probability of intercept, precise target location and identification. Prepared for demonstrations of capability in the counter-drug mission area aboard a modified U.S. Navy P-3 Orion. Capability is applicable to other platforms and missions requiring precise target identification.
- Space Based Space Surveillance Operations (SBSSO): Integration of the MSX sensor into the Space Surveillance System was achieved with dramatic improvement in system performance for high altitude surveillance.
- Theater Precision Strike Operations (TPSO): Commenced system integration and evaluation. Began United States Forces - Korea exercise support.
- Unattended Ground Sensors (UGS): A series of demonstrations were conducted using hand-employed sensors.

(U) **FY 1999 Plans:** Transition those ACTDs that have successfully demonstrated military utility and been determined to warrant acquisition. Continue development and operational demonstration of the remaining FY 95/96/97/98 ACTDs, and start new FY 1999 ACTDs in accordance with planned schedules. Continue the annual process of developing and structuring new candidate ACTDs to rapidly address user needs and address issues identified in *Joint Vision 2010*. DUSD(ASC) is coordinating with the Joint Staff's Joint Warfighting Center to identify candidate ACTDs that will become an integral part of the Joint Warfighter Experimentation process and help implementation of the Chairman's *Joint Vision 2010*. Support the respective services and agencies to complete the Year 2000 assessment and necessary remediation of each ACTD to insure that the ACTD products are Year 2000 compliant. Funding will continue for all active previous ACTDs, including the new FY 1999 ACTDs, for a total of \$88.598 million.

(U) Other significant plans for FY 1999 are:

FY 1995 Starts:

- Advanced Joint Planning : The Automated Joint Monthly Readiness Review (AJMRR), and the Joint Readiness Assessment Management System (JRAMS) will complete transition into the Global Command and Control System (GCCS) common operating environment (COE). Final TPedit, FMedit, COAST and target enhancements will be delivered to DISA D6. Conclude interim capability period.
- High Altitude Endurance UAVs: Global Hawk and DarkStar unmanned air vehicles will complete their air worthiness and sensor payload test flights, and then commence operational field demonstrations, exercises, and possible contingency deployments, enabling early user involvement to evaluate military utility. A total of four Global Hawks and three DarkStars are planned to take part in the operational demonstrations, along with two complete sets of the associated Common Ground Segment equipment.
- Joint Countermine: Provide those technologies that demonstrated utility to ACOM for continued operations and evaluation during the residual

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phase. Joint Countermine Operational Simulation (JCOS) will transition to STOW, and the Countermine C4I will begin transition to GCCS. Several of the novel systems will transition into acquisition and other ongoing PM programs. Transition efforts for the remaining novel systems will be evaluated and coordinated with user and service agencies.

- Precision SIGINT Targeting System: Commence interim capability period.
- Rapid Force Projection Initiative: Conclude simulation activities and testing. Continue follow-on training and commence interim capability period.
- Synthetic Theater of War: Conduct additional mission rehearsal and training exercises in support of ACOM and continue technology transition to Joint Simulation System (JSIMS) and the Services simulation system. Conclude interim capability period.

FY 1996 Starts

- Airbase/Port Biological Detection System: Residuals will be incrementally fielded to sites in two theaters in this year and FY2000. Residuals consist of : detection network, C4I connectivity and downwind hazard prediction, unmasking procedures, commercial half-mask test, decontamination equipment, and contamination detection kit.
- Battlefield Awareness and Data Dissemination: Complete the assessment of operational utility. Transition of BADD products to operational users as part of the collaborative assessments carried out using distributed service (Army, Navy, Air Force and Joint) sites. Effort will continue to allow products to be integrated into the Defense Information Infrastructure (DII) Common Operating Environment (COE) and GCCS. Service interaction to refine and extend BADD capabilities will also continue.
- Combat Identification: Complete military utility assessment report. Conduct Single Channel Ground and Airborne Radio System (SINCGARS) System Improvement Program (SIP)+ and SINCGARS SIP+ Forward Operating Forward Air Controller (FOFAC) operational tests. Install Battlefield Combat Identification System (BCIS) trainers as leave-behind assets at Ft Hood's Command and Control Technical Training (CCTT) facilities. Continue leave-behind assessments for BCIS, SINCGARS SIP+, SINCGARS SIP+ FOFAC, Situational Awareness Data Link (SADL) and SADL Forward Air Controller (FAC). Conclude interim capability period and end the ACTD.
- Counterproliferation I: With the delivery of the residuals (HTSF, AUP, IMEA, TUGS, and TFPM), CP I moves into residual support mode to EUCOM. HTSF will begin EMD, and transition activities for other CP I elements will continue. This ACTD will continue to support exercises and CONOPS development for EUCOM.
- Joint Logistics: Phase II will continue building additional capability into the web-based Joint Logistics decision support tools. The focus will be on force capability assessment, logistics course of action planning analysis, connectivity into emerging data bases, operations planning systems and execution monitoring. These advanced logistics capabilities will be demonstrated in exercises and then transitioned to the CINCs for field use.
- Miniature Air Launched Decoy: First flight is scheduled for late 1998. Completion of flight demonstrations will follow, where operational users will evaluate military utility in preparation for the user assessment and recommendation. Complete operational demonstration of the decoy with a

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user assessment of military utility. Interim capability period will commence.

- Navigation Warfare: Revise CONOPS. Commence interim capability period.
- Semi-Automated IMINT Processing: Integration and field testing will continue to achieve transition system objectives and to support the U-2 Advanced Synthetic Aperture Radar System (ASARS-2), and the ASARS-2 Improvement Program. The second SAIP military utility assessment will be held in January 1999. SAIP will process SAR imagery from both the U2 and Global Hawk aircraft in an operational scenario. Transition planning with the Air Force and Army will continue, and residual capabilities will be delivered to both services.
- Tactical UAV: Continue interim capability period.
- Theater High Energy Laser: System will begin laser set-up and assembly, followed by system integration and functional testing at the HELSTAF facility at White Sands Missile Range in October 1998. System testing with single and salvo engagements of Katyusha rockets will be conducted during January-March 1999. At the conclusion of the testing at HELSTAF in mid-FY 1999, the THEL system will be shipped to Israel for development of operational concepts, training and deployment along the northern border.

FY 1997 Starts

- Chemical Add-On to Air Base/Port Biological Detection: Residuals will be incrementally fielded to sites in two theaters in this year and FY2000. Residuals consist of the chemical sensors fully integrated into the Airbase/Port reporting, display and command and control network.
- Consequence Management: Integration into operations of user selected technologies will continue, as will CONOPS refinement. This is the concluding year for the ACTD's demonstration and residual period and ends the ACTD.
- Counterproliferation II: Selection will occur between the United Kingdom (UK) Broach and the ACTD Advanced Unitary Penetrator (AUP) for Conventional Air-Launched Cruise Missile. Continue Tactical Land Attack Missile (TLAM) penetrator integration and standoff platform designs. Test and evaluate a dual-drop tactic with AUP from an F-117. Evaluate chemical point detector. New CONOPS development will start for standoff counter force operations.
- Extending the Littoral Battlespace: Conduct MSD I in the third quarter FY 1999. MSD I will stress the ability to operate after deeply penetrating the littoral while leaving all heavy support and infrastructure afloat, literally expanding the littoral battlespace by tens of thousands of square miles. MSD I will be conducted during Operation Kernel Blitz 99 using the Third Fleet and First Marine Expeditionary Force as operational forces supported by other U.S. Pacific Command component forces. Post-MSD I activities will include initial military utility assessment and determination of interim residual and/or transition opportunities.
- High Power Microwave: Conduct user assessment of the HPM capability.
- Information Operations Planning Tool: Participate in EFX 99 and another joint exercise so that Air Intelligence Agency (AIA)/AFIWC and CENTCOM can further refine operational requirements and enhance the capability of the tool. CENTCOM will use the IOPT to allow real time update of Information Operations Plans by CENTAF and JC2WC. Naval Information Warfare Agency (NIWA) plans to install an IOPT and start computer-based training and familiarization for their Navy Central (NAVCENT) support elements. Based on inputs from M, space information

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operations (IO) concepts and requirements for IO planning will be rolled into the tool. Work to provide segmentation into DII/COE will take place. Further investigation and implementation of a new mapping tool, collaboration capability and interface to MIDB 2.0 will take place.

- Integrated Collection Management: Complete Phase II process re-engineering and prototype design. Commence first military utility assessment.
- Joint Advanced Helicopter Usage and Monitoring System: Phase II design, fabrication and testing of technology module board level designs. Acquire, install and test baseline system on the aircraft.
- Military Operations in Urban Terrain: Complete four-to-six Army and three-to-four Marine experiments. Assess MOUT operational concepts, tactics, techniques and procedures. Conduct down-selection for best-in-class prototype hardware and software based on operational performance, user acceptance, technical risks and affordability. Implement systems integration, interoperability assessments, and diagnoses of advanced technology candidate products. Conduct joint company-level integrating experiments for interoperability assessments and refinement. Develop plans for MOUT Advanced Concepts Excursion to demonstrate and evaluate more advanced science and technology (S&T)-based technologies for application in a MOUT environment. Conduct modeling and simulation to quantify military utility of advanced technology candidate products.
- Rapid Terrain Visualization: Acquire and process high-resolution digital elevation data set and commercial satellite imagery in direct support of XVIII Airborne Corps WFXs. Exploit multi-spectral and radar imagery to accelerate the terrain feature extraction process using the prototype RTV database generation system. Continue iterative upgrade of workstations and software at XVIII Airborne Corps and III Corps. Demonstrate RTV process in the Integration and Evaluation Center (IEC), including capabilities for rapid elevation data collection and semi-automated extraction of feature data. Continue demonstration of selected RTV capabilities from XVIII Airborne Corps to III Corps elements for further user evaluation. Complete modifications to DeHavilland DHC-7 aircraft, including installation and integration of RTV Infrared Synthetic Aperture Radar (IFSAR) sensor and onboard processing capability. Develop an RTV Transition Plan to address transition of the ACTD products into the acquisition process.

FY 1998 Starts:

- Adaptive Course of Action: Continue CINC-level software integration. Demonstrate the ACOA concept of collaborative planning operations at PACOM and three remote sites in December 1998. This demonstration will also test the military utility of the Web Based Planner, ODYSSEY, and LEIF. If military utility is proven, these applications will progress toward acquisition and delivery to the Global Command and Control System in the April 1999 time frame.
- C4I for Coalition Warfare: The basic message gateway and the data replication mechanism will be tested. The basic message gateway will be integrated into the Maneuver Control System, V12.1, as part of the initial ACTD residual. The developed international data structure will be embedded in the common database for the Army Battle Command System upgrade for the First Digitized Division.
- Joint Biological Remote Early Warning System: Fabrication of ACTD systems and test design plan will be completed. A series of military utility assessments and tests will be held at Dugway Proving Grounds in the 3rd and 4th quarters.

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- Information Assurance: Automated Intrusion Detection Environment: Continue sensor bridge development. Install additional sensors at 15 sites and implement database and design changes for new sensors. Instrument nine additional sites for an end-of-year demonstration.
- Joint Continuous Strike Environment: Participate in joint theater exercise and continue concept of operations refinement. Incrementally develop four modules (target prioritization, weapons availability monitoring, weapons-target pairing and airspace deconfliction), test, and begin integration into Global Command and Control System and Service fire support systems.
- Joint Modular Lighter System: Conduct system critical design review and begin hardware fabrication. Conduct unit-level training and demonstrations in the Norfolk/Virginia Beach area.
- Line-of-Sight Anti-Tank System: Integrate IMU with missile guidance electronics and conduct verification tests. Complete update of weapon system, fire unit and missile hardware and software requirements. Complete fire unit electronics and missile ALR preliminary designs and initiate breadboard testing. Complete missile structural design. Conduct initial program design review and initiate fire unit and missile long lead time procurement. Initiate fire unit operational and test software development effort.
- Link-16: Conduct system tests at the Joint Battle Center and a demonstration test and warfighter assessment/operational demonstration. Begin interim capability period.
- Migration Defense Intelligence Threat Data System: The vulnerability assessment module will be completed, MDITDS will be installed with the Joint Guard Tactical Operations Authority (TOA), and the threat summary capability will be incrementally integrated into the system for evaluation. EUCOM will conduct an exercise to gather user functional requirements for future software deliveries and modifications to existing modules. Delivery and testing of the cross-network and deployable information transitioning will occur.
- Precision Targeting Identification: Conduct crew training and user utility operations.
- Space Based Space Surveillance Operations (SBSSO): Conduct additional user demonstration.
- Theater Precision Strike Operations (TPSO): Commence three-year series of annual user demonstrations. Conduct Continental United States (CONUS)/ Outside Continental United States (OCONUS) baseline demonstration.
- Unattended Ground Sensors (UGS): Conduct air-dropped sensor emplacement demonstrations and tests are planned.

FY 1999 Starts:

- Battle Damage Assessment (BDA) in Joint Targeting Toolbox (BDA in JTT): Integrate and demonstrate an advanced technology-based BDA capability to provide functional damage assessments measured against stated objectives, related objectives and the desired end state. The ACTD will address current problems in the BDA process: labor intensive/mainly manual; lacks timeliness and accuracy; focus on physical damage limits depth of analysis; BDA collection outstrips analysis capability.
- Coherent Analytical Computing Environment (CACE): The objective is to significantly reduce Joint Strike Force Program total cost of ownership (TOC) by: developing and evaluating a proof of concept analytical computing environment for decision support purposes and providing a marked improvement in the quantity, quality, timeliness, and utility of mission-critical logistics information available to the chain of

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command and supporting agencies and authorities. This fiscal year, the CACE system will be developed and integrated in two Fleet Harrier II squadrons, creating a shared data/information environment.

- Common Spectral MASINT Exploitation Capability (COSMEC): Use COSMEC to test data from a sensor, e.g., LASH or SYERS, in conjunction with a domestic exercise, such as ASCIET or RED FLAG, to determine the utility of spectral capabilities and products for the warfighter.
- Compact Environmental Anomaly Sensor II (CEASE II): The objective is to develop a three pound, four-inch cube of miniaturized environmental sensors and integrate it with a critical satellite for launch into a geosynchronous orbit prior to Solar Max. Provide the capability of warnings of dangerous space environment conditions to allow for spacecraft safing. Provide environmental data to speed anomaly resolution and to reduce downtime. The system will be built and tested during this fiscal year.
- Force Medical Protection Chemical/Biological Dosimeter: Conduct field evaluation of Phase I prototype passive chemical sampler and develop concept of employment, using simulated Phase II samplers. Conduct technical evaluation of Phase II candidate technologies and select technologies for integration into Phase II sampler.
- HUMINT and Counterintelligence Support Tools: The objectives are to: 1) demonstrate, integrate and assess tools to enhance national-to-tactical HUMINT and CI targeting, dissemination and collection; and 2) improve strategic-to-tactical concepts of operation and architecture.
- Joint Medical Operations - Telemedicine (JMO-T): Demonstrate interoperability of joint telemedicine teams. Determine requirements for standard tactics, techniques and procedures for JMO-T employment forward of the theater hospital using modeling and simulation. Demonstrate feasibility of a tactical communication network (TCN) to provide cost effective data transport far forward.
- Joint Theater Logistics (JTL): The objective is to initiate the migration from Federated Combat Support Joint Decision Support Tools, and CINC, Service and agency applications, to integrated information displays in support of the joint warfighter.; to enhance command and control of combat support at the joint task force level; and, to develop and support a transition strategy for ongoing operations and maintenance. Complete initial integration and migration planning this fiscal year.
- Personnel Recovery (PR) Mission Software System Integration and Fielding: The objective is to transition from a paper-based PR response to an integrated GCCS software suite with point-and-click mission interface. Provide Joint Search and Rescue Centers with PR mission software and hardware. Participate this year in the PACOM Cobra Gold exercise.
- Small Unit Logistics (SUL): Small Unit Logistics: Tactical deployment of decision support tools and a logistics information system via web-based technologies, reducing the logistics response time. Commence a two-year software integration and an incremental lead-service exercise evaluation. First year emphasis on supply and maintenance software systems.
- Theater Air Missile Defense Interoperability (TAMDI): Demonstrate the capability to interface Patriot radar measurements data with the Cooperative Engagement Capability (CEC) composite air picture. Demonstrate real-time target track data exchange between AEGIS and PATRIOT weapons systems.

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(U) **FY 2000 Plans:** Continue the process of transitioning and initiating ACTDs. Numerous demonstrations will be conducted for those ACTDs initiated in previous years. All FY 1995 and 1996 ACTD demonstrations should be completed during this period, along with most of the FY 1997 and some FY 1998 ACTD demonstrations. Funding will continue for active ACTDs initiated in FY 1995, 1996, 1997, 1998 and 1999 (\$107.740 million total for all prior year ACTDs) that have not been completed or transitioned to acquisition programs. Funding available for initiating new FY 2000 ACTDs, after subtracting for previous years ACTDs, will be approximately \$10.229 million. (\$117.969 million).

(U) Other significant plans for FY 2000 are:

FY 1995 Starts:

- High Altitude Endurance UAVs: Commence interim capability period.
- Joint Countermine: Continue to support user assessments to obtain additional feedback on military utility and maintainability and continue to coordinate transition plans. Conclude the interim capability period and end the ACTD.
- Rapid Force Projection Initiative: Conclude interim capability period and end the ACTD.
- Precision SIGINT Targeting System: Conclude interim capability period and end the ACTD.
- Synthetic Theater of War: Conclude interim capability period and end the ACTD.

FY 1996 Starts:

- Air Base/Port Biological Detection: Continue residual maintenance, training and field support at sites in two theaters.
- Battlefield Awareness and Data Dissemination: Continue enhancements as high payoff capabilities emerge from the technology base. Refine development based on operational warfighter input. Prepare capability for final transition.
- Combat Identification: Interim capability assets will be supported for a last year of continued operation and to obtain additional user feedback on military utility and maintainability. Continued operational support provides a mechanism which critical features for the continued development of Combat Identification identify technologies.
- Counterproliferation I: Support residuals for further operational feedback to assist system engineering, integration and production activities. Continue to support exercises and concept of operations (CONOPS) development for EUCOM. Complete interim capability period and end the ACTD.
- Information Operations Planning Tool: Continue to integrate tools and conduct an operational demonstration. Refinement of the CONOPs based on the field demonstration in FY98 will occur, and an assessment of the INTERNAL LOOK 98 demonstration will be made.
- Joint Logistics: Continue joint demonstrations and military utility assessments. Commence interim capability period.
- Miniature Air-Launched Decoy: Continue interim capability period.
- Navigation Warfare: Continue interim capability period.

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- Semi-Automated Imagery Processing: The Army vehicle version and the Air Force rack version of the SAIP residuals will be supported, CONOPS revised and transition plans finalized. This is the final year of SAIP demonstration and interim capability period and ends the ACTD.
- Tactical UAV: Conclude interim capability period.
- Theater High Energy Laser: Maintain operational use in Israel.

FY 1997 Starts

- Chemical Add-On: Residual maintenance, training and field support will continue at sites in two theaters.
- Counterproliferation II: Continue stand-off platform, penetrator and fuze tests against a surrogate soft biological facility. Continue mini-UAV and dispenser pods integration for collateral effect assessment. Demonstrate new weapon delivery tactics to achieve penetration into hard facilities containing NBC materials. Fabricate EMD prototypes and begin test program for the TLAM penetrator.
- Extending the Littoral Battlespace: Assessment of MSD I, lessons learned, continued technology search and evaluation and preparation for MSD II will be conducted.
- Information Operations Planning Tool: User evaluation will continue, in part via demonstration, during BLUE FLAG 00-1. AFIWC will consider integration of other IO tools developed under their concept exploration/development initiative. Sustainment and support of the IOPT will be provided to CENTCOM and CENTAF.
- Integrated Collection Management: Complete Phase II prototype development, operational development tests and the second military utility assessment.
- Joint Advanced Health and Usage Monitoring System: Complete system installations, conduct training for operational and maintenance crews and begin operational demonstration.
- Military Operations in Urban Terrain: Conduct MOUT Advanced Concepts Excursion. Complete systems integration assessments and refinements. Acquire products and prototypes for the culminating demonstration (CD) and for interim operational capability. Complete New Equipment Training (NET) for CD. Conduct the Advanced Concept Excursion. Conduct the MOUT Culminating Demonstration.
- Rapid Terrain Visualization: Complete integration and testing of high-resolution elevation data collection capability on DeHavilland DHC-7 aircraft. Demonstrate integrated end-to-end RTV process. Acquire and process digital terrain data using DHC-7 collection platform and commercial satellite sources in direct support of XVIII Airborne Corps WFXs. Complete upgrade of workstations and software to objective capability in the IEC and XVIII Airborne Corps and evaluate in a WFX. Extend upgrades and capabilities to topographic units within III Corps.

FY 1998 Starts

- Adaptive Course of Action: Continue CINC-level software integration. Conduct a multi-CINC user demonstration. Continue to evaluate applications within ACOA for early transition to the Global Command and Control System on a 12-to-18 month cycle.

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- C4I for Coalition Warfare: Conduct a demonstration, in the context of a coalition command post exercise, of the integrated message gateway. Data replication mechanism development and testing will be completed. Message formats will be fielded in the maneuver control system (MCS).
- Information Assurance: Automated Intrusion Detection Environment: Integrate an additional 15 sensors into the G-2 environment and an additional nine sites. Sensors and data correlation will be fine tuned to reduce false alarm rates. Hardware and software upgrades for all the ACTD sites will be purchased and installed. All additional installation and training will be completed. Final reports documenting the entire ACTD will be written and formalized. A final demonstration of the entire system will be conducted.
- Joint Biological Remote Early Warning System: Residual assets (Sentry Units (SU), Sample Identification Units (SIU), and Sensor Network Command Post (SNCP) Units) will provide remote detection and warning of biological agents for a Brigade-size assembly area and will be installed and supported in theater. CONOPS development will continue.
- Joint Continuous Strike Environment: Participate in joint and combined theater exercises and continue concept of operations refinement. Complete four modules (target prioritization, weapons availability monitoring, weapons-target pairing and airspace deconfliction), testing, and integration into Global Command and Control System and Service fire support systems. Hold final military utility assessment.
- Joint Modular Lighter System: Conduct joint and unit demonstrations. Commence interim capability period.
- Line-of-Site Anti-Tank: Complete fire unit and missile detail level design and analysis. Hardware tooling and fabrication will begin. Complete fire unit operational and test software design; initiate code development and test. Complete update of missile operational software requirements and initiate software update. Complete update of existing Virtual Prototype Simulator (VPS) and initiate fabrication of second unit. Complete hardware-in-the-loop and closed loop simulation software upgrades and initiate hardware integration.
- Link-16: Continue interim capability period.
- Migration Defense Intelligence Threat Data System: The threat summary and debriefer's associate components will be completed, integrated and tested. The collection interface elements will be developed and tested. Military utility assessment will be conducted.
- Precision Target Identification: Upgrades are planned to the baseline Over-the-Horizon Airborne Sensor Information System (OASIS), which will have been flown operationally in FY99. This C4I upgrade will provide Fleet connectivity to permit processing of external target track information to generate pointing directions for the AVX-1(x) PTI subsystem in addition to providing the compatible data link formats such as OTH-T Gold and TRAP. Delivery and integration support with the United Kingdom's Tornado testbed is also planned for completion.
- Space Based Space Surveillance Operations (SBSSO): Conduct final user demonstration and commence interim capability period.
- Theater Precision Strike Operations (TPSO): Complete second of three user demonstrations in conjunction with Ulchi Focus Lens Exercise.
- Unattended Ground Sensor (UGS): Commence interim capability period.

FY 1999 Starts

- Battle Damage Assessment (BDA) in Joint Targeting Toolbox: A subset of the components of the functional assessment approach will be integrated. These components include: data retrieval, filtering and indexing; target and target system models; and their functional aggregation.

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Review and validation will be done by J2-T, 497IG, and the Joint Targeting Tools Users' Group Beta test.

- Coherent Analytical Computing Environment: Incorporation of reasoners/intelligent agents in proof-of-concept squadrons, creating a CACE. Provide residual, shared data/information environment architecture/software to entire USMC Harrier community. Provide JSF Program Office impact assessment.
- Common Spectral MASINT Exploitation: Demonstrate the utility of spectral data with operational assets, such as SYERS/CARS or LANDSAT/EAGLE VISION, during a theater-level exercise, such as FOAL EAGLE, UNION FLASH or TRAIL BLAZER.
- Compact Environmental Anomaly Sensor II: Complete system integration on critical satellite systems and conduct system launch.
- Force Medical Protection Chemical/Biological Dosimeter: Technical evaluation of Phase II sampler. Demonstrate real-time chemical sampler with biological agent collection capabilities. Conduct utility assessment at the CINC level.
- Human Intelligence (HUMINT) and Counterintelligence (CI) Support Tools: Model and evaluate collection tools. Procure and evaluate dissemination tools. Conduct single echelon user tests.
- Joint Medical Operations – Telemedicine: Demonstrate effectiveness of integrated JMO-T capability to satisfy user measures of effectiveness in a joint, capstone utility assessment.
- Joint Theater Logistics: Migrate federated applications to integrated information software capability.
- Personnel Recovery Mission Software: Conduct CENTCOM integration.
- Small Unit Logistics: Continue system integration to include tactical distribution and health services. Deploy the web-based system in a joint exercise showing the inter-operable material readiness information system, maintenance application, and the tactical intermediary logistics operations center. Assess performance for replacing tactical footprint and inventory with speed and information.
- Theater Air Missile Defense Interoperability: Demonstrate the ability to pass target track information to a PATRIOT weapons system to initiate an intercept (launch weapon) in advance of the PATRIOT radar detecting and tracking the target.

(U) **FY 2001 Plans:** Continue the process of transitioning and initiating ACTDs. Numerous demonstrations will be conducted for those ACTDs initiated in previous years. Most FY 1995 and 1996 ACTDs will be fully completed (end of interim capability period) during this year. All FY 1997 ACTD demonstrations should be completed, along with most of the FY 1998 and some FY 1999 ACTDs. Funding will continue for active ACTDs initiated from FY 1996 through FY 2000 (\$89.170 million total for all 96-99 ACTDs and an estimated \$20 million for FY 00) that have not been completed or transitioned to acquisition programs. Funding available for initiating new FY 2001 ACTDs, after subtracting for previous year ACTDs, will be approximately \$10.128 million. (\$119.298 million).

(U) Other significant plans for FY 2001 are:

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FY 1995 Starts

- High Altitude Endurance UAVs: Conclude the interim capability period and end the ACTD.

FY 1996 Starts

- Airbase/Port Bio Detection: Continue residual maintenance, training and field support at four sites in two theaters. Conclude the demonstration and interim capability period and end the ACTD.
- Battlefield Awareness Data Dissemination: Conclude interim capability period and end the ACTD. Handoff capability to DISA for potential fielding to operational users.
- Joint Logistics: Continue joint demonstrations and interim capability period.
- Miniature Air-Launched Decoy: Conclude the interim capability period and end the ACTD.
- Navigation Warfare: Conclude interim capability period and end the ACTD.

FY 1997 Starts

- Chemical Add-On to Airbase/Port Bio Detection: The ACTD demonstration and interim capability period conclude this year and end the ACTD.
- Counterproliferation II: Evaluate Conventional Air-Launched Cruise Missile (CALCM) with AUP against surrogate hard chemical facility. Complete integrated munitions effectiveness assessment tools and perform end-to-end validation for the CP II demonstrations. Complete weaponization and qualification.
- Extending the Littoral Battlespace: Conduct MSD II in second quarter FY 2001 followed by a rapid military utility assessment and potential transition to acquisition of accepted residual systems.
- Information Operations Planning Tools: Residual support will continue and transition plans finalized. The IOPT will support CENTCOM in INTERNAL LOOK 01, CENTAF in Blue Flag 01-1, and EFX 01. Provide IOPT capability to other IO related programs in various services. This is the last year for the ACTDs demonstration and interim capability period and ends the ACTD.
- Integrated Collection Management: Complete Phase III prototype design and development. Conclude third military utility assessment.
- Joint Advanced Helicopter Usage and Monitoring System: Complete operational demonstration. Conduct health and usage monitoring system (HUMS) technology assessment and cost/benefit analysis.
- Military Operations in Urban Terrain: Commence interim capability period.
- Rapid Terrain Visualization: Conclude interim capability support period and end the ACTD.

FY 1998 Starts

- Adaptive Course of Action: Complete integration, hardening and transition into the GCCS/Leading Edge Services (LES). Begin interim capability maintenance and sustainment phase.

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- C4I for Coalition Warfare: A major United States, United Kingdom, France, Germany, Italy and Canada demonstration of the coalition interoperability gained with ACTD message formatting and database replication will be held. This will be in the form of a Command Post Exercise. The developed capability will be fully integrated into the Maneuver Control System (MCS) for fielding during FYs 2001/2002. A decision will be made on the wider integration of capability into other ABCS systems. An initial test of passing coalition ground force data to other service's systems is also projected.
- Information Assurance: Automated Intrusion Detection Environment: Commence interim capability period.
- Joint Biological Remote Early Warning System: In this final year of the residual phase, support will continue for the brigade-size capability.
- Joint Continuous Strike Environment: Install and support residual software with Service fire support systems and GCCS. Provide capabilities to other programs, e.g., Extending the Littoral Battlespace and Theater Precision Strike Operations ACTDs.
- Joint Modular Lighter System: Continue interim capability period.
- Line-of-Site Anti-Tank: Complete fire unit and missile assembly designs and conduct final program design review. Begin integration of fire unit, including the integration of weapon system software. Missile software integration will be completed and hardware integration will be initiated. Complete update of digital and hardware-in-the-loop simulations. Operational procedures and training guides will be completed. Training device development and preparations for first Battle Lab Warfighting Experiment will also be completed.
- Link-16: Conclude interim capability period and end the ACTD.
- Migration Defense Intelligence Threat Data Systems: The vulnerability assessment, threat summary and auto data tagging will be installed for the residual period. The collection interface will have a field demonstration and evaluation.
- Precision Target Identification: The full PTI system will be deployed in the Fleet after final modifications to the laser radar (LADAR) in this budget year. Specifically, final repackaging of the LADAR and integration on the AVX-1(x) optical station are planned. The full sensor system will be tested initially at contractor facilities to ensure successful LADAR operation prior to installation on a brass board optical station at the Naval Air Warfare Center – Annapolis Division (NAWCAD) facility. Next, the system will be integrated on a testbed aircraft. Following a successful triumvirate, PTI will be integrated as an AVX-1(x) configuration co-aligned with the mid-wavelength infrared (MWIR) camera in the acquisition turret for operational deployment.
- Space Based Space Surveillance Operations: Conclude interim capability period and end the ACTD
- Theater Precision Strike Operations: Complete third in series of user demonstrations/evaluations.
- Unattended Ground Sensors: Conclude interim capability period and end the ACTD.

FY 1999 Starts

- Battle Damage Assessment in Joint Targeting Toolbox: Additional components will be integrated. These include: comparison of combat objectives with actual results and BDA report generation. A military utility assessment will be conducted in a CENTCOM joint exercise.

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- Coherent Analytical Computing Environment: Extend reasoners/intelligent agents to group, wing and Headquarters USMC. Provide CACE architecture to USMC aviation community. Update JSF Program Office impact assessment.
- Common Spectral MASINT Exploitation: Commence maintenance and sustainment of a COSMEC interim capability
- Compact Environmental Anomaly Sensor II: Demonstrate mission support.
- Force Medical Protection Biological/Chemical Dosimeter: Transition system to the CINC level.
- Human Intelligence (HUMINT) and Counterintelligence (CI) Support Tools (HCIST): Assess CONOPS, equipment and architecture in Joint Warfighting exercise. Conduct OCONUS real-world military utility assessment and operational evaluation.
- Joint Medical Operations – Telemedicine: Transition an interim capability for the CINC or designated component surgeon.
- Joint Theater Logistics: Complete integrated operations and combat service support operations center capability.
- Theater Air Missile Defense Interoperability: Conduct user assessment of the AEGIS/PATRIOT integrated air picture capability.

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(U) ACQUISITION STRATEGY: Not Applicable

(U) B. <u>Program Change Summary</u>	<u>FY1998</u>	<u>FY1999</u>	<u>FY2000</u>	<u>FY2001</u>	<u>Total Cost</u>
Previous President's Budget	77.455	116.330	133.768	122.209	Continuing
Appropriated Value		89.830			Continuing
Adjustments to Appropriated Value					
a. Congressionally Directed undistributed reduction	(2.699)	(1.232)			
b. Rescission/Below-threshold Reprogramming, Inflation Adjustment					
c. Other			(15.799)	(2.911)	Continuing
Current President's Budget	74.756	88.598	117.969	119.298	Continuing

Change Summary Explanation:

(U) Funding: Changes in FY 1999 were due to congressionally directed undistributed reductions. FY2000 and FY20001 adjustments were based on programmatic revisions.

(U) Schedule:

(U) Technical:

(U) C. Other Program Funding Summary Cost : Not Applicable

(U) D. Acquisition strategy Not Applicable

(U) E: Schedule Profile: Not Applicable

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RDT&E BUDGET ITEM JUSTIFICATION SHEET (R-2 Exhibit)		Date: February 1999
APPROPRIATION/BUDGET ACTIVITY RDT&E, Defense-wide/BA 3	R-1 ITEM NOMENCLATURE ADVANCED CONCEPT TECHNOLOGY DEMONSTRATIONS PE 0603750D	

(U) E. PE Funding for FY 1995 ACTDs:

<u>ACTD</u>	<u>FY 1998</u>	<u>FY1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Advanced Joint Planning**	1.390	1.200	.300	0
Cruise Missile Defense Phase I*	0	0	0	0
Joint Countermine**	6.530	1.440	.390	0
High Altitude Endurance Unmanned Aerial Vehicle	0	0	0	0
Kinetic Energy Boost Phase Intercept*	0	0	0	0
Medium Altitude Endurance Unmanned Aerial Vehicle*	0	0	0	0
Precision SIGINT Targeting System**	.960		0	0
Rapid/Counter Multiple Launcher*	0	0	0	0
Rapid Force Projection Initiative**	0	0		0
Synthetic Theater of War**	2.140	.600	0	0

*Completed

** Completed the demonstration phase of the ACTD

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(U) E. PE Funding for FY 1996 ACTDs

<u>ACTD</u>	<u>FY 1998</u>	<u>FY 1999</u>	<u>FY 2000</u>	<u>FY 2001</u>
Airbase/Port Biological Detection	1.070	1.200	1.300	2.800
Battlefield Awareness and Data Dissemination	4.280	2.400	2.600	0
Combat Identification**	4.280	2.400	1.280	0
Combat Vehicle Survivability**	1.200	0	0	0
Counterproliferation I	1.080	5.280	6.500	2.000
Counter Sniper*	0	0	0	0
Joint Logistics	1.600	.0	0	0
Joint Readiness Extension to Advanced Joint Planning ***	0.320	.0	0	0
Low Life Cycle Cost, Medium Lift Helicopter*	0	0	0	0
Miniature Air Launched Decoy	0.750	.600	1.600	2.450
Navigation Warfare	4.170	.360	0	0
Semi-Automated IMINT Processing	2.140	2.400	0	0
Tactical UAV**	0	0	0	0
Theater High Energy Laser	0	0	0	0

*Completed

** Completed the demonstration phase of the ACTD

*** Completed the demonstration phase of the ACTD and incorporated into the Advanced Joint Planning ACTD

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(U) E. PE Funding for FY 1997 ACTDs

ACTD	FY 1998	FY 1999	FY 2000	FY 2001
Chemical Add-On to Biological Detection	1.070	0	.700	1.000
Consequence Management*	0	0	0	0
Counterproliferation II	0	5.400	10.300	7.400
Extending the Littoral Battlespace	2.200	6.000	6.400	9.000
Information Operations Planning Tool	2.140	2.728	1.300	1.800
Integrated Collection Management	1.070	1.200	1.300	1.800
Joint Advanced Health and Usage Monitoring System	4.280	4.800	5.300	1.800
Military Operations in Urban Terrain	5.400	0	0	0
Rapid Terrain Visualization	1.600	2.400	3.900	5.400

* Completed

**Completed the demonstration phase of the ACTD

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(U) E. PE Funding for FY 1998 ACTDs

ACTD	FY 1998	FY1999	FY 2000	FY 2001
Adaptive Course of Action	2.900	4.800	5.200	2.200
C4I for Coalition Warfare	.430	1.920	3.000	2.600
High Powered Microwave	.750	.600	1.500	.500
Information Assurance: AIDE	3.210	3.600	5.200	3.600
Joint Bio Remote Early Warning System	0	0	2.600	5.400
Joint Continuous Strike Environment	.960	1.560	2.600	2.000
Joint Modular Lighterage System	3.800	4.260	.070	0
Line-of-Sight Anti-Tank	5.276	8.400	6.400	1.800
Link 16	1.230	.600	1.300	2.000
Migration Defense Intelligence Threat Data System	.430	.960	1.100	.540
Precision Targeting Identification	2.300	2.700	3.500	1.080
Space Based Space Surveillance Operations	.750	.840	.900	0
Theater Precision Strike Operations	1.070	4.900	7.050	9.000
Unattended Ground Sensors	1.980	2.160	3.200	4.600

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(U) E. PE Funding for FY 1999 ACTDs

ACTD	FY1999	FY 2000	FY 2001
Battle Damage Assessment in the Joint Targeting Toolbox	.480	.600	.400
Coherent Analytical Computing Environment	0	.640	.900
Common Spectral MASINT Exploitation Capability	1.200	2.300	1.200
Compact Environment Anomaly Sensor	0	0	.100
Force Medical Protection	.420	1.500	2.200
Human Intelligence and Counterintelligence Support Tools	.600	2.000	1.600
Joint Medical Operations Telemedicine	2.040	3.070	1.000
Joint Theater Logistics	1.800	2.000	1.000
Personnel Recovery Mission Software	.750	1.800	2.100
Small Unit Logistics	1.200	1.640	1.000
Theater Air and Missile Defense Interoperability	2.400	5.400	6.900