

Operational Test and Evaluation, Defense (OT&E,D)

Fiscal Year (FY) 2009 Budget Estimates

February 2008



Research, Development, Test and Evaluation, Defense-Wide

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FY 2009 Budget Estimates Submission

Exhibit R-1, RDT&E Programs

OPERATIONAL TEST AND EVALUATION, DEDEFENSE WIDE APPROPRIATION (0460)

<u>R-1 Line Item No.</u>	<u>Program Element Number</u>	<u>Item</u>	<u>Budget Activity</u>	(Dollars in Thousands)		
				<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
1	0605118OTE (U)	Operational Test and Evaluation	6	49,971	48,318	53,196
2	0605131OTE (U)	Live Fire Test and Evaluation	6	11,203	11,062	11,572
3	0605814OTE (U)	Operational Test Activities and Analyses	6	<u>119,030</u>	<u>118,887</u>	<u>124,004</u>
Total	Operational Test and Evaluation, Defense Wide			180,204	178,267	188,772

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Exhibit R-2, RDT&E Project Justification						February 2008	
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY 6 (RDT&E MANAGEMENT SUPPORT)			OPERATIONAL TEST AND EVALUATION (OT&E) PROGRAM ELEMENT (PE) 0605118OTE				
Cost (\$ In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
PE 0605118OTE	49.971	48.318	53.196	54.358	54.456	55.339	56.267

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

The Director of Operational Test and Evaluation (DOT&E) is responsible under Title 10, United States Code, for policy and procedures for all aspects of operational test and evaluation (OT&E) within the Department of Defense (DoD). Particular focus is given to OT&E that supports major weapon system production decisions for acquisition programs included on the Office of the Secretary of Defense (OSD) Test and Evaluation Oversight List that is prepared and approved annually on a calendar year basis. Each year there are roughly 300 programs on the oversight list including all Major Defense Acquisition Programs (MDAP) and Major Automated Information Systems (MAIS). Major Defense Acquisition Programs may not proceed beyond low-rate initial production (BLRIP) until OT&E of the program is complete. DOT&E is involved early in the planning phase of each program to ensure adequate testing is planned and executed. Key elements of DOT&E's oversight authority include:

- The approval of component test and evaluation master plans (TEMPS).
- The approval of component OT&E Test Plans (TPs).
- Oversight of Military Department preparation for and conduct of field operational tests; analysis and evaluation of the resultant test data; assessment of the adequacy of the executed test and evaluation programs; and assessment of the operational effectiveness and suitability of the weapon systems.
- Reporting results of OT&E that support BLRIP decisions to the Secretary of Defense and Congress, as well as providing an annual report summarizing all OT&E activities and the adequacy of test resources within DoD during the previous fiscal year.

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DOT&E also oversees and resources OT&E community efforts to plan and execute joint operational evaluations of information assurance and interoperability of fielded systems and networks during major combatant command and Service exercises, and reports the trends and findings in the annual report.

This Program Element includes funds to obtain Federally Funded Research and Development Center (FFRDC) support in performing the described tasks as well as travel funds to carry out oversight of the OT&E program.

This program element is budgeted in Budget Activity 6, RDT&E Management Support, to support DOT&E for oversight of operational test and evaluation of the Department's weapon systems.

Accomplishments/Planned Program:

FY 2007 Accomplishments:

Operational Test and Evaluation Oversight:

Provided Operational Test and Evaluation inputs for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary Reports for those programs designated for oversight by DOT&E and the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (OUSD(AT&L)). Key elements of DOT&E oversight authority were identified in the Calendar Year 2007 OSD Test and Evaluation Oversight List.

Information Assurance and Interoperability Evaluations:

Assessments were performed for 20 Combatant Command and Service exercises. Warfighter and system responses to computer network attack (ability to protect, detect, react, and restore) were observed and assessed in most events. Fiscal Year 2007 information assurance assessments included trend analyses compared with prior year results, both within and across combatant commands. Interoperability assessments were performed in selected theaters, and a new approach was identified to improve the quality and quantity of interoperability assessments. Six operational assessments were performed in support of units deploying to Iraq and Afghanistan. Findings across the assessment program were shared with several DoD enterprise solution steering groups for solutions to complex problems and shortfalls. The assessment database was modified to track information assurance and interoperability problems identified during acquisition OT&E. Steps were taken towards the portrayal of advanced threats in FY 2008 events, and evaluation support was provided to a joint exercise focused on the development of enhanced defensive tactics, techniques,

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and procedures that will be needed to defend against these threats.

FY 2008 Plans

Operational Test and Evaluation Oversight:

Provide Operational Test and Evaluation inputs for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary Reports for those programs designated for oversight by DOT&E and OUSD(AT&L). Key elements of DOT&E oversight authority will be identified in the Calendar Year 2008 OSD Test and Evaluation Oversight List.

Information Assurance and Interoperability Evaluations:

Assessments will continue for approximately 20 Combatant Command and Service exercises. Full assessment of warfighter responses to computer network attack (ability to protect, detect, react, and restore) will be captured in most events, and assessments will be expanded to include observation and assessment of response actions. Portrayal of advanced threats will be included in two to four events, with special emphasis on stressing the network Continuity of Operations Plan. Evaluation support to development of enhanced defensive tactics, techniques, and procedures will continue. Three operational assessments are planned in support of units deploying to Iraq and Afghanistan. A “use case” event will be planned on the Information Operations Range to assess the range’s ability to support computer-network-defense and information-assurance assessments with added realism and required security. Fiscal year 2008 information assurance evaluations will include trend analyses compared with prior year results, both within and across combatant commands. Interoperability evaluation trends will also be identified. Findings will be shared with enterprise solution steering groups for solutions to complex problems and shortfalls, with feedback on program and policy effectiveness, and suitability of solutions. Acquisition OT&E results will be used to guide the planning and execution of exercise assessments.

FY 2009 Plans:

Operational Test and Evaluation Oversight:

Provide Operational Test and Evaluation inputs for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary Reports for those programs designated for oversight by DOT&E and OUSD(AT&L). Key elements of DOT&E’s oversight authority will be identified in the Calendar Year 2009 OSD Test and Evaluation Oversight List.

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Information Assurance and Interoperability Evaluations:

Assessments will continue for approximately 20 Combatant Command and Service exercises. Full assessment of warfighter responses to computer network attack (ability to protect, detect, react, and restore) will be captured in most events. Portrayal of advanced threats will be included in most events, and evaluation support to development of enhanced defensive tactics, techniques, and procedures will continue. Selected assessments may include events executed on the Information Operations Range for added operational realism and required security. Assessment support to units deploying to Iraq and Afghanistan will continue as needed. Fiscal year 2009 information assurance and interoperability evaluations will include trend analyses compared with prior year results, both within and across combatant commands. Findings will be shared with enterprise solution steering groups for solutions to complex problems and shortfalls.

B. (U) PROGRAM CHANGE SUMMARY

(\$ in Millions)	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY 2008 President's Budget	49.971	48.627	53.466
Current Budget Submit	49.971	48.318	53.196
Total Adjustments		-.309	-.270
Congressional general reductions		(-.309)	
Economic Adjustments			(-.270)

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C. (U) **OTHER PROGRAM FUNDING: NA**

D. (U) **ACQUISITION STRATEGY: NA**

E. (U) **PERFORMANCE METRICS:**

Performance Measure: Percentage of required operational test planning documents, assessments, and reports applicable to acquisition programs on the OSD Test and Evaluation Oversight List and other special interest programs/legacy systems that are completed and delivered to the appropriate decision makers on time.

Actual Performance and Goals:

Operational Test and Evaluation	FY 2007 Actual	FY 2008 Goal	FY 2009 Goal
On-Time Completion Rate	88%	91%	91%

The on-time completion rate was computed on the basis of the number of required products that were submitted within established time standards relative to the total number of such products that fell due during the fiscal year. Products included in the measure include beyond low-rate initial production reports, Test Plans, and Test and Evaluation Master Plans for operational test and evaluation oversight as well as assessment plans, “quick look” reports, and final reports for the information assurance and interoperability testing associated with scheduled test events. DOT&E plans to achieve its on-time completion rates for FY 2008 and FY 2009 through continued management emphasis on timely delivery of required products to customer activities.

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Exhibit R-2, RDT&E Project Justification							February 2008
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY 6 (RDT&E MANAGEMENT SUPPORT)				LIVE FIRE TEST AND EVALUATION (LFT&E) PROGRAM ELEMENT (PE) 0605131OTE			
Cost (\$ In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
PE 0605131OTE	11.203	11.062	11.572	11.921	12.210	12.460	12.645

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

This Program Element (PE) directly supports the statutory requirements in Title 10, United States Code, for oversight of Live Fire Test and Evaluation (LFT&E). The primary objective of LFT&E is to assure that the vulnerabilities and survivability of Department of Defense (DoD) crew-carrying platforms and the lethality of our conventional munitions are known and acceptable before entering full-rate production. Live Fire Test and Evaluation encompasses realistic tests involving actual United States and foreign threat hardware or, if such hardware is not available, acceptable surrogate threat hardware to identify and correct design deficiencies early in the development process. A completed LFT&E program and test report is required before programs proceed beyond low-rate initial production (BLRIP). Live Fire Test and Evaluation also includes realistic modeling and simulation (M&S) to examine survivability and lethality attributes not assessed during testing. The LFT&E program is essential, especially in view of the escalating costs of technologically sophisticated weapons systems.

The LFT&E program element also supports the DoD Joint Live Fire (JLF) Program. Joint Live Fire began in 1984 under an Office of the Secretary of Defense charter to test fielded front-line combat aircraft and armor systems for vulnerabilities, as well as test fielded weapons, both United States and foreign, for lethality against their respective targets.

This program element includes funds to obtain Federally Funded Research and Development Center (FFRDC) expertise to perform analyses in support of described tasks, as well as travel funds to carry out the LFT&E program.

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This program element is budgeted in Budget Activity 6, RDT&E Management Support, to support LFT&E management activities for the oversight of RDT&E of new systems, as well as RDT&E of fielded systems.

Accomplishments/Planned Programs:

FY 2007 Accomplishments:

Major Test and Evaluation Programs:

Provided Live Fire Test and Evaluation input for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary reports, and BLRIP reports for those programs designated for oversight by the Director of Operational Test and Evaluation (DOT&E) and the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (OUSD(AT&L)). The oversight list is developed and approved annually.

Joint Live Fire Programs:

Conducted tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire programs to support DOT&E and warfighter needs. These test requirements resulted from systems being exposed to new threats, used in unanticipated tactics, or being operated in new combat environments, and the subsequent need for a performance assessment. Projects included:

- CH-53 Drive Train
- CF-6 Engine Vulnerability to MANPADS
- Kiowa Warrior Cockpit-Aircrew Ballistic Vulnerability
- Kiowa Warrior Fuel System Ballistic Vulnerability
- Kiowa Warrior Rotor Control Subsystem Vulnerability
- Foreign Unguided Rocket Lethality
- AH-64 Fire Extinguishing Technology Evaluation
- Fragment Restraint Solution for HH-60A/L Medevac OBOGGS
- C-130 Flare Bucket
- Personnel Incapacitation Assessments of V-shaped hull vehicles
- Improvised Explosive Device (IED) Blast/Fragment Arena test and characterization
- Military Operations in Urban Terrain Weapons Effects Secondary Debris test

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Joint Live Fire Programs (Continued):

- Blast data & Validation for JTCG/ME Database
- Penetration Data Collection for Large Fragments
- U. S. Small Arms Effectiveness vs. Threat Body Armor
- 30mm Ammunition vs. Threat ERA Characterization
- Penetration Characterization for Titanium Fragments
- Test Alternatives to Explosive UNDEX
- Submarine Susceptibility to Mines
- Hydraulic Equipment Fragility
- Survivability of Ships Built to Commercial Standards
- Ship Shock Trial Alternatives
- Shipboard Space Fire Testing
- Recoverability in Network Fire Simulation
- Fiber Optic Network Fire Test Facility
- Legacy helmet testing

FY 2008 Plans:

Major Test and Evaluation Programs:

Provide Live Fire Test and Evaluation input for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary reports, and BLRIP reports for those programs designated for oversight by DOT&E and OUSD(AT&L). The oversight list is developed and approved annually.

Joint Live Fire Programs:

Conduct tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire programs to support DOT&E and warfighter needs. These test requirements will result from systems being exposed to new threats, used in new unanticipated tactics, or being operated in new combat environments, and the subsequent need for a performance assessment. Planned projects include:

- AH-64 Fire Extinguishing Technology Evaluation

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Joint Live Fire Programs (Continued):

- CH-46 Fuel Line Protection
- H-60 Main Rotor Mast and Mast Extension Evaluation
- H-60 Main Dry Bay Fire Protection and Vulnerability
- Rocket Motor Vulnerability to High Energy Incendiary
- MANPADS Miss Distance Assessment
- Validation of Fire Predictions
- Ballistic Testing of BMI Composite
- Fuel Ingestion Characterization
- IED Characterization for Blast & Fragment (bundled/buried)
- External Blast/Full Vehicle Blast and Validation
- Standardized Testing of Advanced Combat Helmet
- IED versus Tactical Wheeled Vehicle Fuel Tanks
- MOUT Weapons Effects Secondary Debris Test
- Penetration Data Collection for Large Fragments
- Dual Use Manufactured Mannequin with instrumentation
- Penetration Characteristics Tire Test (MRAP)
- Diesel Submarine Underwater Explosions
- Submarine Survivability versus Mines
- Ship Shock Trial Alternatives
- Test Alternatives to Explosive Underwater Events
- Well Deck/Vehicle Stowage Fire Protection
- Damage Control Response Metrics
- Network Fire Model Enhancements
- Mine Exploitation
- Ship Survivability and Equipment Fragility
- Survivability of Ships Built to Commercial Standards

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FY 2009 Plans:

Major Test and Evaluation Programs:

Provide Live Fire Test and Evaluation input for Test and Evaluation Master Plans, Test Plans, System Acquisition Reports, Defense Acquisition Executive Summary reports, and BLRIP reports for those programs designated for oversight by DOT&E and OUSD(AT&L). The oversight list is developed and approved annually.

Joint Live Fire Programs:

Conduct tests of fielded systems not previously tested under Air, Land, or Sea Joint Live Fire programs to support DOT&E and warfighter needs. These test requirements will result from systems being exposed to new threats, used in new unanticipated tactics, or being operated in new combat environments, and the subsequent need for a performance assessment.

B. (U) PROGRAM CHANGE SUMMARY

(\$ in Millions)	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY 2008 President's Budget	11.203	11.133	11.572
Current Budget Submit	11.203	11.062	11.572
Total Adjustments		-.071	
Congressional general reductions		(-.071)	

C. (U) OTHER PROGRAM FUNDING: NA

D. (U) ACQUISITION STRATEGY: NA

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E. (U) PERFORMANCE METRICS:

Performance Measure: Percentage of required live fire test planning documents, assessments, and reports applicable to acquisition programs on the OSD Test and Evaluation Oversight List and other special interest programs/legacy systems that are completed and delivered to the appropriate decision makers on time. Percentage of required live fire test planning documents, assessments, and reports applicable to acquisition programs on the OSD Test and Evaluation Oversight List and other special interest programs/legacy systems that are completed and delivered to the appropriate decision makers on time.

Actual Performance and Goals:

Live Fire Testing	FY 2007 Actual	FY 2008 Goal	FY 2009 Goal
Actual On-Time Completion Rate	88%	91%	91%

The on-time completion rate was computed on the basis of the number of beyond low-rate initial production live fire test and evaluation reports, Joint Live Fire Quick Look Reports, and Joint Live Fire Test reports that were submitted within established time standards relative to the total number of such products that fell due during the fiscal year. DOT&E plans to achieve its goals for FY 2008 and FY 2009 through continued management emphasis on timely delivery of required reports to customer activities.

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Exhibit R-2, RDT&E Project Justification				February 2008			
OPERATIONAL TEST AND EVALUATION, DEFENSE (0460) BUDGET ACTIVITY 6 (RDT&E MANAGEMENT SUPPORT)			OPERATIONAL TEST ACTIVITIES AND ANALYSES (OT&A) PROGRAM ELEMENT (PE) 0605814OTE				
Cost (\$ In Millions)	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011	FY 2012	FY 2013
PE 0605814OTE	119.030	118.887	124.004	126.661	129.389	131.316	133.272

A. (U) MISSION DESCRIPTION AND BUDGET ITEM JUSTIFICATION

This program element consists of two programs: **Test and Evaluation** (T&E) programs and **Test and Evaluation Independent Activities**.

The **Test and Evaluation** programs are continuing efforts that provide management and oversight of test and evaluation functions and expertise to the Department of Defense (DoD). The Test and Evaluation programs consist of five activities: Joint Test and Evaluation (JT&E); Threat Systems (TS); Center for Countermeasures (The Center); Joint Technical Coordinating Group for Munitions Effectiveness (JTTCG/ME); and Joint Aircraft Survivability Program (JASP).

Joint Test and Evaluation projects are test and evaluation activities conducted in a joint military environment that develop process improvements. These multi-Service projects, chartered by the Office of the Secretary of Defense (OSD) and coordinated with the Joint Staff, appropriate Combatant Commanders (COCOM), and the Services, provide non-materiel solutions that improve joint interoperability of Service systems; technical and operational concepts; joint operational issues; development and validation of joint test methodologies; and test data for validating models, simulations, and test beds. The JT&E projects address relevant joint war fighting issues in a joint test and evaluation environment by developing and providing new tactics, techniques, and procedures to improve joint test capabilities and methodologies.

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Threat Systems activity, based on a memorandum of agreement between the Director, Operational Test and Evaluation (DOT&E) and the Defense Intelligence Agency, provides DOT&E support in the areas of threat resource analysis, intelligence support and threat systems investments. Threat Systems provides threat resource analyses on the availability, capabilities and limitations of threat representations (threat simulators, targets, models, United States (U.S.) surrogates, and foreign materiel) and analysis of test resources used for operational testing to support DOT&E's assessment of the adequacy of testing for those programs designated for oversight by DOT&E and the Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (OUSDA(AT&L)). Threat Systems provides DOT&E assessment officers with program specific threat intelligence support. Threat Systems also funds management, oversight, and development of common-use threat specifications for threat simulators, threat representative targets, and digital threat models used for test and evaluation.

Threat Systems provides DOT&E assessment officers with program specific threat intelligence support by sponsoring threat analysis briefings in response to program technical issues, initiating DOT&E intelligence production requirements, and conducting liaison with the intelligence community. It also provides focused investments to apply new technologies and innovations for increased threat realism for Test and Evaluation including hardware/software development of threat simulators, targets, digital threat models, threat surrogates, foreign materiel, and hardware-in-the-loop simulations

The **Center for Countermeasures**, a Joint Service Countermeasure (CM) Test and Evaluation Center, serves as DoD's independent tester for countermeasure assessments of U.S. and foreign precision guided weapons and sensor systems, countermeasures, counter-countermeasures (CCMs), and warning devices. The Center provides assessments, including test activities, analysis of test results, and consulting expertise that benefits the Services, joint activities, Test and Evaluation Agencies, the Intelligence Community, Homeland Defense, Operation Iraqi Freedom, and Operation Enduring Freedom (quick reaction response). The Center identifies current weaknesses and limitations of systems and, through carefully developed test and assessment methodologies, provides the basis for understanding how systems might be affected by countermeasures on the battlefield. The Center's staff and countermeasure knowledge base, developed for more than 35 years, provides the DoD acquisition community and the Combatant Commanders with the information and expertise necessary for survival of U.S. forces on the modern battlefield.

The Joint Logistics Commander's **Joint Technical Coordinating Group for Munitions Effectiveness** was chartered more than 30 years ago to serve as DoD's focal point for munitions effectiveness information Joint Munitions Effectiveness Manuals (JMEm) on all major non-nuclear U.S. weapons. JTTCG/ME authenticates weapons effectiveness data for use in training, systems acquisition, weapon procurement, and combat modeling and simulation. JMEm are used by the Armed Forces of the U.S., NATO,

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and other allies to plan operational missions, support training and tactics development, and support force-level analyses. JTCG/ME also develops and standardizes methodologies for evaluation of munitions effectiveness and maintains databases for target vulnerability, munitions lethality, and weapon system accuracy. Operational lessons learned (Operations Enduring Freedom and Iraqi Freedom), Combatant Commands, Services, Military Targeting Committee, and Operational Users Working Groups input for specific weapon-target pairings and methodologies continue to drive JMEM requirements and development processes. Fiscal Year 2009 funding will be used to develop target geometry models (e.g., surface mobile/fixed, air, hard/deeply buried, and ship targets) and vulnerability data. These data will be combined with weapons characteristics, delivery accuracies, and methodology enhancements to produce effectiveness indices and collateral damage estimates for the specific weapon-target pairings in support of capability-based JMEMs.

The **Joint Aircraft Survivability Program (JASP)** is the DoD's focal point for joint service enhancement of military aircraft non-nuclear survivability. The JASP is chartered by the commanders of the Navy Naval Air Systems Command, Army Aviation and Missile Command, and Air Force Aeronautical Systems Center to coordinate and conduct RDT&E to improve military aircraft survivability, develop and standardize aircraft survivability modeling and simulation (M&S), facilitate information exchange on aircraft survivability, and support aircraft survivability education for the DoD and U.S. aircraft community. Each chartering command provides a senior aircraft survivability expert for the JASP Principal Members Steering Group (PMSG), which guides the program and approves projects for funding. The JASP assesses and reports on combat damage incidents through the Joint Combat Assessment Team (JCAT); serves as the Executive Agent for the Joint Live Fire Aircraft Systems Program managed by DOT&E's Live Fire Test and Evaluation directorate; and is also an Executive Agent for the Survivability Vulnerability Information Analysis Center (SURVIAC), the repository for aircraft survivability information.

The **Test and Evaluation Independent Activities** program is the only source of funding for DOT&E studies, analyses, and management to provide continuing support of policy development oversight of the DoD test and evaluation practices, infrastructure and resources; and transformation of test methods and infrastructure to ensure future defense systems provide necessary joint warfighting capabilities. Studies and analyses examine the implications and consequences of current and proposed policy, plans, operations, strategies, and budgets and are essential for the accomplishment of the DOT&E mission. This program element funds travel in support of its activities.

This program element is budgeted in Budget Activity 6, RDT&E Management Support, to support management activities for DOT&E oversight responsibility for test and evaluation and test and evaluation resources.

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Accomplishments/Planned Program:

FY 2007 Accomplishments:

Joint Test and Evaluation (JT&E)

In Fiscal Year (FY) 2007 JT&E continued nine Joint Test projects and initiated three new tests approved by its Senior Advisory Council and continued five Quick Reaction Tests (QRT) and initiated three new QRTs approved by its Executive Steering Group. The JT&E Program oversees the addition of three new feasibility studies, from which new Joint Tests are selected, and three new QRTs each fiscal year. On a continuing basis, JT&E reviews nominations for new projects, manages on-going projects, ensures debriefing of closing projects, distributes final reports, and transitions programs to Service organizations as appropriate.

Joint Space Control Operations-Negation Joint Test closed in FY 2007 after three years of testing. It produced planning and assessment procedures that were incorporated into various mission contingency plans and also updated training curricula for several Government and Service schools. Operationally, it produced the “Reconnaissance, Surveillance, and Target Acquisition Intelligence Handbook”, and “Strategic Instruction on Risk Assessment, Risk Mitigation and Deconfliction of Space Control Activities”.

The following QRTs closed in FY 2007. The Joint Interoperability for Maritime Interdiction QRT conducted testing to improve use of the Link 16 among joint assets carrying out the maritime interdiction mission. The Joint Shipboard Ammunition and Ammunition Board QRT streamlined the identification and cataloging processes for non-Navy joint ordnance aboard ship to make joint training and operations safer. It also provided input to Ordnance Pamphlet 4 and Joint Publication 3-04 that manage shipboard operations. The Joint Counter Remote Control Improvised Explosive Device (IED) Electronic Warfare QRT produced a training handbook to improve employment of counter radio-controlled IED electronic warfare (CREW) jammers by the warfighter to minimize lives lost to IED attacks.

Provided analytical support for test adequacy issues for those programs designated for oversight by DOT&E and OUSD(AT&L). This includes oversight of Service threat representation developments and acquisitions, oversight and analysis of service prepared threat representation validation reports, participation in technical and programmatic reviews, and documenting threat resource descriptions and technical characteristics in the Automated Joint Threat Systems Handbook.

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Threat Systems:

In FY 2007, the Threat Systems activity continued oversight of Service threat representation developments and validation reports. In addition, the Threat Systems activity participated in test planning working group meetings, special studies conducted by the Test Resource Management Center, a follow-on to a Threat Systems initiative to define infrared test and evaluation infrastructure necessary to adequately test infrared missile warning and countermeasure equipment, initiated an effort to define methodologies to test against advanced surface-to-air systems, sponsored a joint OSD and Services Target Control Study Group to identify opportunities for range and target control system interoperability, addressed current and future full scale aerial target and anti-ship cruise missile target adequacy issues, and initiated an effort to determine what existing threat test assets can and should be modernized. These activities help DOT&E carry out its Title 10 responsibilities to assess test adequacy and determine whether testing is realistic and suitable and promotes common solutions to Service threat representation needs.

Center for Countermeasures (The Center)

The Center tested, analyzed, and reported on more than 25 U.S. and foreign precision guided weapon systems/components in a Countermeasure (CM) environment as well as CM and threat-warning systems and other programs. Each program supported received an independent assessment of findings and test support for CM/CCM evaluations. Approximately 28 percent of the programs were under DOT&E oversight; 40 percent were countermeasure systems or smaller weapons and sensor programs that did not meet oversight criteria; 16 percent were foreign systems; and 16 percent of The Center's efforts were in direct support of the warfighter involved in Operation Iraqi Freedom (OIF) and Operation Enduring Freedom (OEF). Support was distributed across all the Services, as well as intelligence agencies and government technology developers.

The Center improved its testing capability with the oversight and delivery of the Joint Mobile Infrared Countermeasure Test System and the development of two new general purpose test vans. The Center provided expertise to many organizations and was actively involved in the following panels: The Technical Coordination Panel, Foreign Material Exploitation Working Group, Precision Strike Association, Air Force Directed Energy Task Force – Laser, Joint Expendable Countermeasures Working Group, Future Combat Systems Integrated Product Team, JCTG/ME Working Group, Universal Joint Task List/Joint Training Requirements Analysis Team (UJTL/JTRAT) Working Group, Infrared Countermeasures Test Resource Requirements Study, Infrared Countermeasures Multi Sensing Symposia Working Group and the Joint Aircraft Survivability Program.

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Joint Technical Coordinating Group for Munitions Effectiveness (JTTCG/ME):

In order to enable operational commanders, DoD targeteers, weaponeers, and planners to prosecute the Global War on Terror, the JTTCG/ME developed and released JMEM Weaponeering System (JWS) v1.2 in May 2007 and Joint-Antiair Combat Effectiveness System (J-ACE) Air Superiority (AS) v3.2.1 in compact disk (CD) format on January 2007. JWS v1.2 provided additional Combatant Command targets and other critical data and methodology fixes to warfighters. This CD included approximately 354 new targets with associated effectiveness data (20 surface mobile, 10 ships, 5 small boats, 17 submarine targets, 4 aircraft, and 298 surrogate/estimated targets); new/updated warhead data, (BLU-113, BLU-109, BLU-122, BLU-116, BLU-126, Small Diameter Bomb (SDB), and AGM-114N); and added SLAM/ER and XM31 GMLRS data. J-ACE: AS v3.2.1 added 5 additional threat Anti-air missile models, 2 threat surface-to-air missiles (SAM), and a new rotary wing aircraft survivability data viewer.

To support Combatant Command (COCOM) requirements, JTTCG/ME: (i) continuously provided support to COCOMs, Services, Joint Staff (J8), OUSD(AT&L), and DIA; (ii) reviewed/prioritized 2007 DoD Munitions Requirements Process document and new COCOM requirements through June-July 2007 data call; (iii) continued work with intelligence community (i.e., National Ground Intelligence Center, National Air and Space Intelligence Center, Missile and Space Intelligence Center, Office of Naval Intelligence, and DIA) to collect intelligence data for Target Geometry Model development; and (iv) produced JMEM data for high-priority COCOM targets using full vulnerability/lethality analyses (~50) and surrogation techniques/methodologies (~100).

Other critical JMEM activities conducted were: (i) release of Advanced Joint Effectiveness Model (AJEM) v2.10, v2.11, and v2.12; (ii) methodology enhancement to evaluate collateral damage and weapons effects against above/below ground hardened target structures to include Military Operation in Urban Terrain (MOUT); and (iii) implementing fixes, improvements/enhancement, and accreditation of operational tools for JWS v2.0 based on warfighter requirements (PVTM, JGEM, BAM, HTM, BAS, TARCUM, JAAM, FATEPEN, BAS and JMAE, etc.). The JTTCG/ME continuously measured performance on all FY 2007 projects based on the delivery of the final product. In FY 2007, there were 206 specific deliverables.

Joint Aircraft Survivability Program (JASP):

In FY 2007 the JASP conducted 48 RDT&E projects through about a dozen organizations across the country. Twenty-six projects were new starts and 22 were continuing multi-year projects from the previous fiscal year. Susceptibility reduction projects addressed the improvement of missile warning technologies and techniques, reducing the cost and weight of directed energy infrared

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countermeasure systems, enhancing survivability against radio frequency guided threats, and an initial look at active protection (hit-to-kill) systems on low/slow flying aircraft requirements. Vulnerability reduction projects continued collecting data and developing high-fidelity models for the design of ballistically tolerant aircraft, developing lighter and more effective aircraft armor solutions including transparent armor, investigating new fuel/fire protection technologies, and applying survivable engine control techniques to the T-700 turbo-shaft engine. Aircraft survivability modeling and simulation projects continued to improve vulnerability endgame capability and credibility, document warfighter requirements for aircraft survivability data, integrate Defense Intelligence Agency threat missile models into threat engagement codes and complete demonstration of the JASP Integrated Survivability Assessment (ISA) process for the multi-mission maritime aircraft program.

The Joint Combat Assessment Team (JCAT) continued to support the Marine Corps, Army, and Air Force in Operations Iraqi Freedom and Enduring Freedom; train warfighters on threat effects and combat damage assessment before and during deployment; and report their findings to combatant commanders and the DoD science and technology and acquisition communities. In 2007 the JCAT completed more than 120 assessments of ballistic damage to US military aircraft in Operation Iraqi Freedom alone. The JASP continued to support aircraft survivability education and information exchange through internet sites (restricted access and classified), by publishing the Aircraft Survivability Newsletter, developing educational materials, and conducting training for the DoD and its contractors.

Test and Evaluation Independent Activities:

Provided analysis and analytical support for the Director, Operational Test and Evaluation, Title 10, United States Code, roles and responsibilities with regard to operational and live fire test and evaluation as the principal adviser to the Secretary of Defense and the Under Secretary of Defense for Acquisition, Technology, and Logistics and as the principal test and evaluation official within the senior management of the DoD. Supported the Director's operational and live fire test resource requirements for the statutory biennial strategic plan reflecting the needs of the Department with respect to test and evaluation facilities and resources, as well as developing technical alternatives on issues affecting test and evaluation resources and infrastructure. Procured administrative support to carry out oversight of DOT&E programs as well as provide accounting and financial management capability to DOT&E.

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FY 2008 Plans:

Joint Test and Evaluation (JT&E):

In FY 2008 the JT&E program will have seven on-going projects and additional new projects as approved by its Senior Advisory Council and Executive Steering Group. The following two projects are schedule to close down in FY 2008. The Joint Fires Coordination Measures Joint Test is working on new tactics, techniques and procedures to standardize establishing a joint fires area using current command and control systems. To date it has provided input into various joint fires area publications. The Joint Integrated (Interagency and International) Command and Control for Maritime Homeland Defense Joint Test assesses joint command and control processes at the combatant command level to facilitate improved decision-making and operational employment of joint, intergovernmental, and multinational assets against identified maritime threats to the continental U.S. On a continuing basis, the office of Joint Test and Evaluation reviews nominations for new projects, manages on-going projects, ensures that closing projects are debriefed, distributes final reports, and transitions to Service organizations as appropriate.

Threat Systems

In FY 2008, the Threat Systems activity will conclude its efforts in defining the infrared test and evaluation infrastructure necessary to test missile warning and countermeasures equipment; conduct design studies for testing against advanced surface-to-air missile systems; initiate threat modeling and simulation efforts to standardize threat models used for test and evaluation; complete a four year effort to improve the availability of threat representative multi-spectral mobile ground targets; continue to sponsor the joint OSD and Services Target Control Study Group efforts to gain target control system interoperability; co-chair a combined tri-service and OSD 5th generation aerial target study that will examine future test requirements, conceptual designs, and improvements to the current government cost models. In addition, the Threat Systems activity will continue test planning working group participation, conduct special studies and provide current intelligence support tailored to specific U.S. weapon systems acquisition. These activities help DOT&E carry out its Title 10 responsibilities to assess test adequacy and determine whether testing is realistic and suitable and promotes common solutions to Service threat representation needs.

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Center for Countermeasures (The Center):

The Center will test, analyze, and report on more than 25 U.S. and foreign precision guided weapons systems (PGW)/ components in a CM environment as well as CM and threat-warning systems and other programs. Each program will receive an independent assessment of findings and test support for CM/CCM evaluations. Approximately 44 percent of the anticipated programs are under DOT&E oversight; 30 percent are smaller programs that do not meet oversight criteria; 11 percent are foreign systems; and 15 percent of The Center's efforts will be in direct support of the warfighter participating in OIF and OEF. The Center's support is distributed across all the Services, as well as intelligence agencies and government technology developers.

The Center will provide expertise to many organizations and will be actively involved in the following panels: the Technical Coordination Panel, Foreign Material Exploitation Working Group, Precision Strike Association, Air Force Directed Energy Task Force – Laser, Joint Expendable Countermeasures Working Group, Future Combat Systems Integrated Product Team, JCTG/ME Working Group, UJTL/JTRAT Working Group, Infrared Countermeasures Test Resource Requirements Study, Infrared Countermeasures Multi Sensing Symposia Working Group, and the Joint Aircraft Survivability Program.

Joint Technical Coordinating Group for Munitions Effectiveness (JTTCG/ME):

In support of operational commanders, DoD targeteers, weaponeers, and planners, the office of JTTCG/ME will develop and release JMEM Weaponeering System (JWS) v2.0 in June 2008 and Joint-Antiair Combat Effectiveness System (J-ACE) Air Superiority (AS) v4.0 in April 2008. JWS v2.0, a capabilities-based JMEM, will provide a single weaponeering process (“one-stop shop” weaponeering) by integrating air-to-surface and surface-to-surface methods; provide the capability to “sanitize” for easy release to foreign customers and coalition partners; and improve external interfaces for Mission Planning Systems and other external JMEM users. Additionally, JWS v2.0 will include approximately 100 new targets with associated effectiveness data. J-ACE: AS v4.0 will have additional air-to-air missile effectiveness models (PL-2, -2A, -5B/C, -7, A-Darter, ASRAAM, Astra, IRIS-T, Matra Super 530F, Python 5, etc); surface-to-air missile effectiveness models (SA-20, -12, -5, -15, and -18, etc.); rotary wing aircraft survivability data (AH-1W, AH-6M, and CH-47D/F, etc.); and initial countermeasure system performance data.

JTTCG/ME will continue to develop JMEM data for most critical Combatant Commander identified systems, reduce CD update cycles through incremental updates, and develop tri-Service JMEM operation tools for JMEM/FX and IO programs. In summary, JTTCG/ME will continue to: (i) implement a capabilities-based JMEM, accounting for newly fielded systems employing traditional and

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non-traditional damage mechanisms; (ii) expand existing databases to incorporate newly fielded weapons (i.e., Air-to-Surface, Surface-to-Surface Direct/Indirect Fire, and Anti-air); (iii) enhance collateral damage methods; (iv) improve methods for estimating weapons effects against above/below ground hardened target to include MOUT structures; and (v) improve connectivity to real time planning systems assessing time sensitive targets.

Joint Aircraft Survivability Program (JASP):

In FY 2008 the JASP office will continue work on 23 multi-year RDT&E projects and initiate 27 new projects as approved by the JASP Principal Members Steering Group and OSD. Susceptibility reduction projects will address improving directed energy infrared countermeasures, electronic countermeasures technology and techniques, aircrew situational awareness and immediate warfighter needs. Vulnerability reduction projects will continue to address requirements for lighter and more effective armor, fuel containment and fire suppression, and initiate new efforts investigating vulnerability reduction techniques and technologies for aircraft flare systems and aircrew/passenger protection. Aircraft survivability modeling and simulation (M&S) projects will continue to improve survivability M&S credibility, refine warfighter requirements for aircraft survivability and develop methodology and processes to satisfy those requirements, integrate DIA threat missile models into threat engagement codes, initiate new efforts to improve the assessment of aircraft crew and passenger injury, and address M&S requirements identified by the joint aircraft survivability community.

The JCAT will continue to support the Marine Corps, Army, and Air Force by assessing combat damage incidents as required, train warfighters on threat effects and combat damage assessment, and report their findings to combatant commanders and the DoD science and technology and acquisition communities. The JASP will continue supporting aircraft survivability education and information exchange through internet sites (restricted access and classified) by publishing the Aircraft Survivability Newsletter, developing educational materials, and conducting training for the DoD and their contractors. The JASP office will initiate, continue and complete other projects as approved by the JASP Principal Members Steering Group and OSD/DOT&E.

Test and Evaluation Independent Activities:

Provides continuing analysis and analytical support for the Director, Operational Test and Evaluation, Title 10, United States Code, roles and responsibilities with regard to operational and live fire test and evaluation as the principal adviser to the Secretary of Defense and the Under Secretary of Defense for Acquisition, Technology, and Logistics and as the principal test and evaluation

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official within the senior management of the DoD. Supports the Director's operational and live fire test resource requirements for the statutory biennial strategic plan reflecting the needs of the Department with respect to test and evaluation facilities and resources, as well as developing technical alternatives on issues affecting test and evaluation resources and infrastructure. Procures administrative support to carry out oversight of DOT&E programs as well as provide accounting and financial management capability to DOT&E.

FY 2009 Plans:

Joint Test and Evaluation (JT&E):

In FY 2009, JT&E will have five projects closing down. It will have three on-going Joint Tests begun in FY 2007 and new, yet to be determined, projects initiated in FY 2008. The tests closing down in this fiscal year work on a broad range of issues, from joint test methods and processes to War on Terror activities. By the time it closes in FY 2009, the Joint Test and Evaluation Methodology project will have produced the guidelines and procedures for conducting live, virtual, and constructive operational testing simulating joint military operations, which will allow the Services to test like they fight. The Joint Mobile Network Operations project, which will close in FY 2009, will have helped the Services integrate mobile networks so that any Service member can cross through any Service mobile network and to access data and services. These projects are now in the early stages of testing and do not have substantial test products to report. The Joint Electronic Protection for Air Combat Joint Test, an on-going test, is developing the systems architecture and processes that will allow a pilot to receive information from joint military assets when the pilot's electronic equipment is being jammed. On a continual basis, JT&E reviews nominations for new projects, manages on-going projects, ensures that closing projects are debriefed, distributes final reports, and transitions to Service organizations as appropriate.

Threat Systems

In FY 2009, the Threat Systems activity will examine how to most effectively test ultra high frequency/very high frequency systems; continue to address testing against advanced threats; continue test planning working group participation, conduct special studies and provide current intelligence support tailored to specific U.S. weapon systems acquisition; examine infrared and laser jamming/ disabling attack on space systems and threat GPS jamming; continue improvements to existing threat systems, simulators and signatures; continue with the second year of a four-year project to integrate current intelligence community-based missile models into all DoD Hardware-In-The-Loop countermeasure test facilities; improve end-to-end testing of blue threat warning and countermeasures systems; investigate new cost effective target scoring technologies, and continue efforts to ensure the adequacy of

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full scale aerial target testing. These activities help DOT&E carry out its Title 10 responsibilities to assess test adequacy and determine whether testing is realistic and suitable and promotes common solutions to Service threat representation needs.

Center for Countermeasures (The Center):

The Center will test, analyze, and report on more than 25 U.S. and foreign PGW systems/components in a CM environment as well as CM and threat-warning systems and other programs. Each program supported will receive an independent assessment of our findings and test support for CM/CCM evaluations. Approximately 44 percent of the anticipated programs are under DOT&E oversight; 30 percent are smaller programs that do not meet oversight criteria; 11 percent are foreign systems; and 15 percent of The Center's efforts will be in direct support of the warfighter. The Center's support is distributed across all the Services, as well as intelligence agencies and government technology developers.

The Center will provide expertise to many organizations and will be actively involved in the following panels: the Technical Coordination Panel, Foreign Material Exploitation Working Group, Precision Strike Association, Air Force Directed Energy Task Force – Laser, Joint Expendable Countermeasures (JECM) Working Group, Future Combat Systems Integrated Product Team, JMEM/ME Working Group, UJTL/JTRAT Working Group, Infrared Countermeasures Test Resource Requirements Study, Infrared Countermeasures Multi Sensing Symposia Working Group and the Joint Aircraft Survivability Program.

Joint Technical Coordinating Group for Munitions Effectiveness (JTTCG/ME):

In support of operational commanders, DoD targeteers, weaponeers, and planners, the JTTCG/ME will develop and release JMEM Weaponeering System (JWS) v2.01 and Joint-Anti-air Combat Effectiveness System (J-ACE) Air Superiority (AS) v4.x.

JTTCG/ME will continue to: (i) develop JMEM data for most critical Combatant Commander identified systems; (ii) reduce CD update cycles through incremental updates; (iii) develop tri-Service JMEM operational tools for JMEM/FX and IO programs; (iv) implement a capabilities-based JMEM, accounting for newly fielded systems employing traditional and non-traditional damage mechanisms; (v) expand existing databases to incorporate newly fielded weapons (i.e., Air-to-Surface, Surface-to-Surface Direct/Indirect Fire, and Anti-air); (vi) enhance collateral damage and hardened target structure methodology; and (vii) provide connectivity to real time planning systems assessing time sensitive targets.

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Joint Aircraft Survivability Program (JASP):

In FY 2009 the JASP will continue work on a minimum of 24 multi-year RDT&E projects and initiate new projects as approved by the JASP Principal Members Steering Group and OSD/DOT&E. Susceptibility reduction projects will address improving directed energy infrared countermeasures, electronic countermeasures technology and techniques, aircrew situational awareness, and immediate warfighter needs. Vulnerability reduction projects will continue to address requirements for lighter and more effective armor, fuel containment, fire suppression; aircraft flare systems and aircrew and passenger protection. Aircraft survivability M&S projects will continue to improve survivability M&S credibility, address warfighter requirements for survivability data, integrate DIA threat missile models into threat engagement codes, improve the assessment of aircrew and passenger injuries, and address M&S requirements identified by the joint aircraft survivability community.

The JCAT will continue to support the Marine Corps, Army and Air Force by assessing combat damage incidents as required, train warfighters on threat effects and combat damage assessment and report their findings to combatant commanders and the DoD science and technology and acquisition communities. The JASP will continue supporting aircraft survivability education and information exchange through internet sites (restricted access and classified) by publishing the Aircraft Survivability Newsletter, developing educational materials and conducting training for the DoD and their contractors. The JASP will initiate, continue and complete other projects as approved by the JASP Principal Members Steering Group and OSD/DOT&E.

Test and Evaluation Independent Activities:

Provides continuing analysis and analytical support for the Director, Operational Test and Evaluation, Title 10, United States Code, roles and responsibilities with regard to operational and live fire test and evaluation as the principal adviser to the Secretary of Defense and the Under Secretary of Defense for Acquisition, Technology, and Logistics and as the principal test and evaluation official within the senior management of the DoD. Supports the Director's operational and live fire test resource requirements for the statutory biennial strategic plan reflecting the needs of the Department with respect to test and evaluation facilities and resources, as well as developing technical alternatives on issues affecting test and evaluation resources and infrastructure. Procures administrative support to carry out oversight of DOT&E programs as well as provide accounting and financial management capability to DOT&E.

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B. (U) PROGRAM CHANGE SUMMARY

(\$ in Millions)	<u>FY 2007</u>	<u>FY 2008</u>	<u>FY 2009</u>
FY 2008 President's Budget	119.030	120.504	124.004
Current Budget Submit	119.030	118.887	124.004
Total Adjustments		-1.617	
Congressional General Reductions		(-1.617)	

C. (U) OTHER PROGRAM FUNDING: NA

D. (U) ACQUISITION STRATEGY: NA

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E. (U) PERFORMANCE METRICS:

Performance Measure: Percentage of required products, such as test planning documents, munitions effectiveness manuals, tactics-techniques-procedures, threat characteristics, assessments, and reports that are developed and delivered to program managers and customers on time.

Actual Performance and Goals:

Operational Test Activities and Analyses	FY 2007 Actual	FY 2008 Goal	FY 2009 Goal
On-Time Completion Rate	76%	82%	88%

The on-time completion rate was computed on the basis of the number of required products that were submitted within established time standards relative to the total number of such products that fell due during the fiscal year. DOT&E plans to achieve its goals for FY 2008 and FY 2009 through increased management emphasis on timely delivery of required products to customer activities.