EVALUATION AND TEST DESIGN

1. Introduction.

a. Army testing encompasses a wide variety of tasks, ranging from closely controlled laboratory bench tests through controlled free play force-on-force tactical tests. Tests answer questions which cannot be answered by other sources such as inspections, studies, simulations, and war games. Issues, criteria, and risk are part of each test, evaluation, and decision making event. The issues to be tested determine the purpose and objectives of each test, which in turn determine the type of test needed.

b. This period of instruction will involve a discussion of the concepts, policies, and procedures used to plan and conduct evaluations or assessments in the materiel acquisition process.

2. Objectives.

a. Describe continuous evaluation and explain how it applies to the Life Cycle Model (LCM).

b. Describe the concepts of Critical Operational Operational Issues and Criteria (COICs).

c. Explain the purpose of and procedures used by the Test Integration Working Group (TIWG) and the Test Schedule and Review Committee (TSARC).

d. Differentiate among the supporting documentation that supports materiel evaluation.

3. Evaluation.

a. Broadly defined, evaluation is the process of determining the worth or value of a course of action through comparison. In materiel acquisition, evaluation is a subjective determination of a system's or a concept's military value and potential based on results from operational and/or developmental testing; reliability analysis; human factors studies; and/or simulations and war games.

b. The development of evaluation process allows an objective assessment. Objectivity and independence in the evaluation process support decision making. Data used for evaluation comes from an entire spectrum of tests: operational, developmental, concept evaluation, innovative, technical feasibility, joint, production, product improvement, nondevelopmental item (NDI), on-site user tests, and other analyses (i.e., studies and computer modeling). Although all significant data is of interest, the evaluation plan should not require duplicative testing. Testing identifies, while evaluation assess and evaluates technical performance, system operational effectiveness and suitability. By using test and evaluation, the program risks surface. Critical Operational Issues and Criteria (COIC) identified in the Test and Evaluation Master Plan (TEMP) by the combat developer are the foundation for assessments. Sufficient test and evaluation before each major decision point

ensures that the major objectives of one phase have been met and issues addressed before the next phase begins. Quantitative data must show that the major objectives have been met and that system performance supports progressing to the next acquisition phase.

3. Evaluation Process. The three products of the evaluation process are the developmental Independent Evaluation Report (IER), the developmental Independent Assessment Report (IAR), and the Operational Evaluations and Assessments.

a. The IER is a formal document of record based on test data from a myriad of sources. AMSAA support major decision reviews beginning at MS II. Under the C2E process, independent evaluators periodically update their system evaluation. This update allows for assessment of COICs, risks that the system under test will meet the approved requirements, and adequacy of testing (is enough enough?).

b. The IAR, a TECOM document, is a basic engineering and mathematical of test data on RAM, ILS, Human Factors Engineering (HFE), survivability, MANPRINT, and safety. The IAR DOES NOT address battlefield significance and contribution.

c. Operational Evaluation and Assessments determination is the ACAT status. Normally, OPTEC combines the Independent Evaluation Report (IER) with the Test Report (TR) to get the Test and Evaluation Report (TER). For systems not selected for full evaluation, OEC writes a TER(AE), abbreviated version, which is a TR with evaluative content. Assessments from operational evaluators are less formal than TERs. These assessments usually report the results of EUTE or FDTE. If scheduling, test constraints, decision making requirements, or other factors preclude a comprehensive operational evaluation, then OEC prepares the operational assessment.

4. Philosophy of Test and Evaluation.

a. Extent. The prerequisite for testing is answering the question: "What don't we know, that we need to know, that can be found out only by testing?" We test because we have mandated requirements, to learn and improve on the process or product, to prove operational capability, and to support the decision process. Test planning considers the amount, depending on the situation, with agreement from the acquisition community. Although the time spent is only a small fraction of the complete acquisition cycle, the influence of testing is significant. Recently, due to the amount of procurement dollars available to the Army, major systems acquisition is too expensive. Today, most acquisitions are modifications to existing systems. Testing allows either strategy to proceed through the life cycle model with a higher probability of success. The review by evaluators, experienced in their field, helps the PM determine where, and when, to concentrate the emphasis for program success. Generally, where testing was adequate and complete, systems have gone to production and deployment sooner than anticipated, thus saving time and money, and with favorable results reflected in the field. Unnecessary duplication of testing efforts, facilities, or programs must be avoided and is a responsibility of all participants. T&E supports the objective of reducing acquisition time, using the continuous evaluation concept. The entire acquisition team (material developer, combat developer, independent evaluators, test agencies, logisticians

and contractors) must form as early as possible to start planning for the test and evaluation of the system. Through integrated planning by the entire team, unwarranted duplicative testing does not occur, maximum use of contractor data takes place (less Government duplication of contractor tests conducted during the design and component qualification program), and greater use is made of component qualification testing.

b. Continuous Evaluation. C2E and Continuous Evaluation are synonymous.

(1) The goal is achieving an open and continuous flow of information to all levels of decision makers. From a common data base, the acquisition team extracts data to the degree needed to support the process appropriate to their level. The contractor, as system designer, needs the most data to evaluate his design and make changes as necessary to ensure that critical design goals are achieved. The major subordinate command, project manager and independent evaluator do not need quite as much detailed data as the contractors, but they do need a sufficient level of information to be able to continually assess the system status and provide guidance to the contractor. The next level, Army Materiel Command (AMC) or other major command (MACOM), requires less detail as the focus is on critical issues and taking appropriate management action when the risk increases. At this level, shifting resources helps manage high risk areas. The Army Staff requires information on major or Designated Army Programs (DAP's) systems, evaluating their readiness to proceed into the next life cycle phase. The heart of the issue is the flow of data. All members of the acquisition team must have access to the common data base. The type or detail of data required decreases as you move up the pyramid.

(2) To implement the Continuous Evaluation Concept we envision a number of tools that will be used at all levels within the materiel acquisition community.

(a) First among these is the Major Subordinate Command/Project Manager (MSC/PM) Evaluation Plan. This is a life cycle plan that lays out the entire evaluation scheme for a system. This is a "who, what, when, and how" plan. The plan identifies each critical issue being evaluated; the method for obtaining the required data (e.g., test, model, simulation); who uses the data to perform the evaluation; and when the evaluation of that element occurs.

(b) The Test Integration Working Group (TIWG) is the primary means for ensuring that a truly integrated test cycle. The primary purpose of the TIWG is to achieve test integration by optimizing expertise, instrumentation, facilities, simulation, and models to reduce costs. The TIWG must be chartered as early as possible, for every program, in concept evaluation to ensure involvement of each member of the acquisition team in all test planning. Frequently, a minor change in test structure or addition of specific instrumentation can provide data to meet the needs of other agencies, avoiding the necessity of doing another test to collect the data. Although the TIWG is not a decision making body, it is the forum to coordinate and solve routine problems. The PM normally establishes and chairs the TIWG. If a PM has not been appointed, the functional proponent or combat developer establishes it until the PM is appointed. The TIWG helps facilitate the early development of the TEMP, assisting in the finalizing the critical technical parameters and COICs, and finalizes the T&E

for the AS. After the first initial meeting, critical members identified will be on the TIWG charter, empowered by their command to provide command positions. Subgroups, as necessary and when formed, concentrate on particular areas like RAM, T&E, ILS, etc.

(c) Another tool of C2E is the HQ Test Information Center (TIC). TIC serves as a central point with AMC HQ for test information. Available to the acquisition team members, this data serves as a common denominator of test status. The data for the TIC will be management level extracts from the common data base.

The tools and philosophy discussion should generate questions of how the process works. Let's look at the process.

Step 1. If, after a continuing review, a functional proponent (FP), notices an operational deficiency, the FP writes an ORD, including thresholds and objectives for CSCs.

Step 2. If needed, the five-page MNS identifies the mission and threat analysis, nonmateriel alternatives, potential materiel alternatives, and constraints by infrastructure, treaties and environment. The MNS forms the basis for the initial identification of the critical issues to be tested later.

Step 3. The program is in CEP. The CD and MD now agree they need R&D funding for further development (maybe after the CD uses OMA funds for a FDTE). The MS I review will require a TEMP. The TEMP identifies critical <u>technical</u> characteristics and critical <u>operational</u> issues.

Step 4. The Developmental T&E community commits to testing the technical issues, while OPTEC commits to the operational issues. Tests are tailored, and the TIWG process completes the TEMP, including the T&E section. The Office of the Under Secretary of the Army requires the issues and criteria to be in the COIC format for TEMP approval. But, what are COICs and what's their purpose?

5. Critical Operational Issues And Criteria (COIC). COICs are decision maker key operational concerns, with bottom line standards of performance. COICs are not pass/fail absolutes, but may delay or stop the MS decision unless the PM provides convincing evidence of operational effectiveness and suitability to the decision maker. Issues are key operational concerns, expressed as questions, which, when answered completely and affirmatively, signify a system is ready for transition at the MS III production decision. Criteria are standards of operational performance which, when achieved, signify a satisfied issue.

a. FOCUS and Timing. With information from the MNS, ORD, and COEA, the special task force/MD/PM prepares the COIC to include in the TEMP approved prior to MS I. If the COEA or ORD changes, then the COICs need an update prior to a MS II decision. Since COICs focus on the MS III production decision, revisions should only occur when there is significant program redirection, Preplanned product improvements, or other requirements from an updated MNS or ORD.

The MNS is the basis for the Issues, which remain stable during the acquisition process. The criteria reflect the maturity of the operational requirement, thus, they may be soft initially (MS I), but become firm standards for MS II. For nonmajor systems, technical issues are identified by the materiel developer and operational issues are identified by the combat developer.

6. Test Criteria.

Examples are: "The maximum weight shall not be greater than 5 pounds." and "The item shall withstand the humidity extremes specified in MIL-STD-170."

(1) The purpose of test criteria is to provide a basis for comparative analysis of actual versus required performance. Criteria should be related to and evolve from critical issues.

(2) Criteria are not established as "pass or fail" but are used as guides in assessing whether the program is progressing satisfactorily and for use in designing as economical test plan.

(3) Criteria are included in the Independent Evaluation Plan (IEP), used for information in the Request For Proposal (RFP),tested in DT and OT, evaluated in the Independent Evaluation Report (IER), and validated in the COEA..

7. Common Data Base.

a. An automated common data base residing at the Army Test and Evaluation Command (ATEC) will be established for each acquisition program. This data base is to assist in the implementation of Continuous Evaluation by allowing all participants to access all test and evaluation data throughout the life cycle. The materiel developer is responsible for establishing this common data base for each acquisition program and assuring that inputs from all test and evaluation efforts conducted by the government (testers, evaluators, developers, logistician) and the contractor are entered. The contractor is required to update continuously as the data becomes available.

b. Essential to the success of the common data base concept is the free and open exchange of data on a day-to-day basis. The common data base will include test schedules, sample sizes, a summary of the latest critical/major test incidents, independent evaluators' assessments of the attainment of critical test issues, reliability growth charts, corrective action milestones, and PM assessments of the corrections needed for the critical/major test incidents.

c. A key component of the data base is the tracking of actual system test performance against all critical performance parameters (e.g., speed required, reliability, availability and maintainability, and system weight) from the requirements document or specification. Changes to requirements will document the date and organization or individual responsible for the changes.

8. Test Integration Working Groups.

a. The materiel developer for each system assures that test and evaluation planning is accomplished through a Test Integration Working Group (TIWG). The purposes of the TIWG are: to use appropriate test expertise, instrumentation, facilities, simulations, and models to implement evaluation; to integrate test requirements; accelerate the TEMP coordination process; mutually resolve cost and scheduling problems; provide a forum to assist those responsible for test and evaluation documentation and execution; and insure that test and evaluation planning, execution, and reporting are directed toward common goals. The TIWG supports continuous evaluation by accomplishing earlier, more detailed, and continuing test and evaluation documentation, planning, integration, and sharing of data. **The TIWG, is chaired by the Program Manager, and is the forum for test coordination among all members of the acquisition team.**

b. The TIWG should be established upon receipt of the Milestone 0 Acquisition Decision Memorandum (ADM), to prepare the initial TEMP and address the test and evaluation aspects contained in the acquisition strategy, request for proposal, and program management documents. TIWG members are members of the acquisition team and remain as a principal active working group throughout the materiel acquisition process. To ensure an integrated effort, the TIWG must interface with other functional groups.

c. Within their area of expertise, members of the TIWG assist in the preparation of the test portions of the Request for Proposal (RFP) and related contractual documents, and assist in evaluating contractor proposals where there are test and evaluation implications.

d. The TIWG makes recommendations with regard to formulation, modification, and revision of the TEMP and test and evaluation portions of the acquisition strategy, RFP, and other supporting documentation. TIWG members, as appropriate, also coordinate on waivers of approved testing.

e. TIWGs are not intended to usurp the responsibilities or authority of any command or headquarters. Therefore, in the event of disagreements, issues will be resolved through normal command channels.

9. Test Schedule and Review Committee.

a. The Test Schedule and Review Committee (TSARC) was organized in order to provide high-level centralized management of resources for operational testing. It is a continuing intradepartmental Army committee of general officers who work to maximize the use of limited soldier resources in support of testing and to minimize the impact of test support on unit operational readiness. The TSARC is chaired by the CG, OPTEC (Operational Test and Evaluation Command) and consists of general officer representatives of the Army Staff, FORSCOM, AMC, TRADOC, and other organizations. The body meets semi-annually to approve Outline Test Plans (OTPs) which specify all resource and admin-

istrative information required for support of a test. OTPs also contain critical test issues, test conditions, and scope.

b. The Five Year Test Program (FYTP) is a compendium of all the OTPs approved by the TSARC. It is approved by the DCSOPS and published and disseminated by OPTEC. The FYTP is a tasking document for test execution and resource allocation for the current and budget years contingent upon fund allocation, and a planning document for future years.

10. Test Management Documents.

a. The Coordinated Test Program (CTP) is an informal management document which provides a coordinated and consolidated schedule of all testing (development test, operational test, and others) to be performed during a materiel acquisition program. CTPs are no longer required by regulation (having been replaced by Test and Evaluation Master Plans) but are commonly used as working documents to assist TIWGs in test management. Summary sections define issues and criteria to be tested, general scope of tests required, resources (test item sample size, personnel, facilities and money) and their source for each test, organization responsible for each test, and milestone schedule for the overall test program. An up to date CTP reflecting past testing and planned testing for the next acquisition phase is a key element of each decision point. Development of the document requires input from the materiel developer, combat developer, and developmental and operational testers. ATEC provides operational test input for their assigned OT. For those tests assigned to TRADOC, the proponent school, in coordination with the TRADOC test organization and others, develops and provides the user test input.

b. Test and Evaluation Master Plan (TEMP).

(1) The TEMP is the basic planning document for all test and evaluation related to a particular system acquisition and is used by OSD and all DOD components in planning, reviewing, and approving test and evaluation. It covers the program life cycle from initiation through the post-deployment phase as well as major modifications or upgrades. It is prepared as early as possible in the acquisition process, and is designed to identify and integrate objectives, responsibilities, resources and schedules of all tests, evaluations or assessments to be accomplished in support of the system development and decision processes. **All acquisition programs are required to have an approved TEMP.**

(2) A program's first TEMP is a preliminary TEMP and is submitted in support of Milestone I Decision; an updated TEMP will be submitted with the acquisition strategy and Integrated Program Summary (IPS) and provide input to the Acquisition Plan (Federal Acquisition Regulation 7.1). It is a prerequisite for all milestone decision reviews. Every TEMP submitted to OSD should contain the same kinds of information, and be in the specified format, defined in DoD 5000.2-M, Part 7. A TEMP submitted to OSD should be a summary document of no more than 30 pages. The TEMP describes the amount and types of testing to be conducted; consequently, it reflects and expands upon the program performance requirements defined in parallel program documents (Mission Need Statement, Operational

Requirements Document, System Threat Assessment Report, Acquisition Program Baseline) The TEMP will contain other supporting documents as annexes.

(3) Army TEMPs are the major planning documents in the acquisition planning process for identifying developmental and operational test issues. The TEMP provides the basis and authority for all other detailed test planning documents and must be of sufficient scope and detail to explain a system's entire test and evaluation structure. It should contain adequate details to show the rationale for the kind, amount, and schedules of the planned testing. The TEMP must relate the T&E effort clearly to technical characteristics, technical risk, operational issues and concepts, system performance, reliability, availability, maintainability, logistics requirements, and major decision points.

(4) The Program Manager (PM) is responsible for developing the TEMP in coordination with the TIWG members. As part of this process, the PM receives testing requirements from the developmental tester, operational tester, independent evaluators, and other Government and contractor activities. Part IV concerns the operational T&E, and the DoD components usually require the independent operational T&E organization (some-times designated the Operational Test Director (OTD)) to be responsible for its preparation, contents and coordination. The PM will integrate these requirements into the TEMP in conjunction with the TIWG process. The TEMP requires concurrence by all TIWG member agencies. The TEMP is forwarded to the materiel acquisition decision review body for approval at each milestone decision review as a part of the supporting documentation.

c. Independent Evaluation Plan (IEP). The IEP is only prepared by the developmental independent evaluator, AMSAA. The IEP details all aspects of evaluations relative to the system throughout its acquisition cycle. The IEP addresses the following: issues for testing; describes evaluation of issues which require data from sources other than tests; states the issues and criteria; identifies data sources; states the approach to the evaluation; and identifies program constraints. The IEP is prepared in close coordination with the TIWG members but does not require TIWG approval. The developmental IEP serves as input to the Test Design Plan.

d. Test Design Plan (TDP). The developmental TDP is a formal document which supports the TEMP and may be provided as an annex to the TEMP. It is responsive to the technical issues developed by the developmental independent evaluator ,AMSAA, and describes required tests and the conditions under which the system is to be tested. The TDP includes a complete technical test design, a statement of test criteria, measures and plans for data collection and analysis, and specifies data requirements. TDPs are prepared by AMSAA, the developmental independent evaluators, and coordinated among TIWG members.

e. Independent Assessment Plan (IAP). Different from AMSAA, TECOM performs developmental independent assessments. For this reason, TECOM prepares an IAP as opposed to the IEP prepared by AMSAA. The IAP combines the developmental IEP and Test Design Plan (TDP).to form a single document. The IAP defines the performance envelope, states what capability has been achieved, and what the item does. It is the basic

assessment of the system's technical performance, Reliability Availability Maintainability (RAM), Integrated Logistics Support (ILS), Human Factors Engineering (HFE), system safety, and suitability as well as the adequacy of testing. The IAR is coordinated among TIWG members and presented by the assessor at milestone decision reviews. For In-Process Review (IPR) level systems, it is the basis of the ATEC position.

f. Test and Evaluation Plan (TEP). Because of the realignment of T&E roles within OPTEC, closer coordination is required between the independent operational evaluator and the operational tester to ensure that a proper evaluation can be conducted. This has resulted in a restructuring of the T&E documentation not only to facilitate the coordination process, but to eliminate redundancy, enhance quality, and improve timeliness of the T&E plans and reports. To facilitate this coordination, the operational IEP and Test Design Plan (TDP) were combined to form a single document, the TEP. To ensure independence in the operational evaluation, the Test Report and Independent Evaluation Report must remain as separate documents. The TEP is prepared jointly by the Independent Operational Evaluator and the Operational Tester. The combined TEP contains three major sections: (l) instruction, purpose, scope, and system description; (2) test and evaluation strategy, evaluation issues, and evaluation concept; (3) test design, test concept, and details of the test.

g. Outline Test Plan (OTP) and Five Year Test Program (FYTP). An Outline Test Plan (OTP) is prepared by the operational tester or as required by the IEP. The issues and criteria are transformed into test purposes, scope and objectives. The Outline Test Plan identifies the types of test (i.e., EUT&E or IOT&E, FOTE), test organization and agency, test duration and date, milestone schedule for delivery of test resources and documentation, and types, quantity, and source of resources (personnel, materiel, facilities, and direct test costs). The test organization forwards the completed and coordinated plan for review and approval through the TSARC. The TSARC process is conducted semi-annually and culminates in a general officer TSARC which is held during June and December each year. This TSARC recommends approval of the Five-Year Test Program (FYTP) - a compendium of OTP - to DA Deputy Chief of Staff for Operations and Plans (DCSOPS). The general officer TSARC is preceded by two working group TSARCs - one at OPTEC and the other at TRADOC. TRADOC proponent schools and test organizations are represented at the TRADOC TSARC. Provisions are available for out-of-cycle submission and approval of OTP for high priority tests that are not currently included in the FYTP. A general officer signature is required on the OTP cover letter requesting the out-of-cycle test. Once approved as part of the FYTP or by out-of-cycle procedure, the OTP becomes an official tasking document on the affected Army agencies for conduct and support of the test.

h. Detailed Test Plan (DTP). The TDP/TEP/IAP serve as guidance for the Detailed Test Plan (DTP) - an internal working document which describes how the test is to be conducted. The DTP is prepared by the organization conducting the test. This plan includes a specific schedule of test events, operation orders used in the test, administrative and safety directives, data collection and analysis routines, instrumentation arrays and all test related documentation. When detailed planning identifies a need to change the test plan, the recommended change will be sent to the command or agency responsible for the test for approval.

i. Test Support Packages (TSP). Operational test and evaluation of materiel systems includes evaluation of test support packages (TSP) provided by the materiel developer, combat developer, and trainer. These packages provide testers with documentation required for test planning and hardware and software required for system support during the test. Through application of the test support packages, the operational tester is able to provide a test environment closely representative of that expected when the system is deployed.

(1) The materiel developer provides the System Support Package (SSP) and the new equipment training (NET) test support packages. The System Support Package contains the maintenance support manuals, technical data, tools, test equipment and repair parts for the test system which is used to validate the organizational, direct support, and echelons above corps maintenance requirements and capabilities. For the Initial Operational Test and Evaluation (IOTE) and Follow-on Operational Test and Evaluation (FOTE), the new equipment training test support packages provide the training developer with training devices, literature, and instruction upon which the system training program is developed for use by training test players. For Early User Test and Experimentation, this package may be the training program given test players.

(2) The combat developer provides the doctrinal/organizational and the threat support test packages. The doctrinal and organizational package contains the employment and support doctrine, organization and approved scenario against which a system is to be tested. The threat package contains a statement of potential threat in the Initial Operational Capability timeframe relating to the tested system. These packages are used to guide development of test conditions during test design and to govern aggressor element activities in the test.

(3) The training developer provides the training test support package based on the materiel developer's new equipment training test support package. It contains training plans, a program of instruction, lesson plans, personnel selection criteria, and training aids or simulators. The package is used to train user troops for the test and to plan data collection in the area of training requirements.

j. Operational Test Readiness Statement (OTRS). The materiel developer, the combat developer, and the trainer provide the command or agency responsible for the operational test with a statement of the system's readiness for test. All Operational Test Readiness Statement (OTRS) elements are provided prior to the start of the test. In the case of combined development and operational tests or when developmental and operational tests overlap, updated OTRS are delivered at appropriate times during the operational test. The submission dates will be specified in the outline test plan milestone schedule. **OTRS elements provided by the materiel developer include:**

(1) A statement that the item or system and its major components delivered for operational testing properly represent the size, shape, weight, transportability, and handling characteristics of the fully developed system.

(2) A statement that planned developmental test objectives have been met and that failures have been corrected.

(3) A statement of availability of required special instrumentation.

(4) A statement that the maintenance and logistics support required for the system to keep it operational during the test represents planned military procedures.

(5) A detailed statement of the current reliability performance and projected growth.

(6) A statement that the performance of the test item or system under developmental test conditions represents the performance intended at this stage of development.

The combat developer and trainer will provide:

(7) A statement that the doctrine, organization, procedures and concept presented in the required test support packages are complete and approved for use during the specified operational test.

(8) A statement that the operational test user troops or units have satisfactorily completed training in accordance with concepts provided in the test support package. The test will not start until this statement is provided.

k. Safety Release (SR). By means of a developmental tester, (ATEC), the CG, will provide testers with a safety release (SR) as an element of the OTRS for all systems before the start of pretest training for any test that uses soldiers as test players. The release states whether the materiel item is safe for troop operation and any safety restrictions necessary for test operations. This information is provided to integrate safety into test planning and procedures. A verification and endorsement of this release is required from the safety office within the command/agency responsible for the test (TRADOC or ATEC) before testing involving user troops may begin. If the safety release is limited, the operational tester will determine prior to test execution if the test objectives can be met. If the test objectives cannot be met, the test will be suspended until safety limitations are resolved.

l. Test Report (TR). Every test concludes with a test report which is distributed throughout the acquisition community. The test report describes or provides the amount and type of testing conducted, test methods used, data collected and observations made, analysis of data or observations against issues tested, and the resulting findings. The report is limited to reporting data collected and observations made during the test, an analysis of that data and the findings reached. It does not include any suitability statements such as suitability or acceptability for production, deployment or continued development. If the test organization is to provide evaluations, conclusions, or recommendations, this data should be provided in a separate document. The report is among the primary sources used to develop the independent evaluation report and to update the Cost and Operational Effectiveness Analysis and Training Effectiveness Analysis for the milestone decision review.

m. Independent Evaluation Report (IER).

(1) Independent evaluations are performed on the total system (i.e., hardware, software, doctrine, logistics, training, personnel, etc.) by the command or agency responsible for the test. All available data sources such as development and operational test reports, studies, and analyses and other test data are used to assess or estimate the military suitability and operational effectiveness of the tested item, system or concept. The purpose of the independent evaluation is to have an agency separate from the materiel developer, user, and if possible, the combat developer assess the system's demonstrated and potential operational effectiveness and suitability to satisfy military needs. Evaluation is a continuous process based on the Independent Evaluation Plan and culminating for each phase of development in the Independent Evaluation Report (IER) which is provided for use by the milestone decision review.

(2) The Independent Evaluation Report provides the assessment of the system's ability to satisfy military requirements based on an evaluation of the critical issues. It also assesses the adequacy of the testing to that point in the system's development and the need for further testing. Issues satisfactorily answered by a test are identified as not needing further testing. Issues surfaced during test and evaluation not previously covered or showing unsatisfactory achievement are identified for future test. An Independent Evaluation Report is not written for a specific test in the system acquisition process but may be based on several tests and is the foundation for the milestone decision review position. Prepared at the end of an acquisition phase, it is considered, along with other supporting documentation, by the decision body to arrive at a recommended program position. An Independent Evaluation Report is required to be provided by the operational evaluator for each materiel acquisition decision review deciding whether the system should proceed to the next phase. This policy applies to development, nondevelopment, and product improvement acquisition programs. For development and product improvement programs, test data is used. For nondevelopment item acquisition programs, a user-market survey, other service test data or Army test data may be used.

11. Summary. Each of the tests and documents described above contribute to the overall development and acquisition of total systems for the Army. Although the time spent in testing is only a small fraction of the complete acquisition process, the influence of testing is significant. Experience has demonstrated that where tests have been eliminated or reduced, deficiencies in the system have been overlooked, only to surface after deployment. This frequently results in expensive and time consuming modifications to the equipment. Where testing has been adequate and complete, systems have progressed to production with deployment sooner than anticipated, thus saving time and money, and with favorable operational results reflected by "the user" in the field, and our soldiers on the battlefield of tomorrow.