Appendix L
Logistics Supportability (including Transportability) Issue: System Evaluation Considerations

L–1. Overview of logistics supportability

a. Army policy requires supportability to be co-equal in importance with cost, schedule, and performance to ensure that supportability issues are addressed early and throughout the life cycle of the system. Therefore, the Army's Integrated Logistics Support (ILS) program is an inherent part of the development and fielding of a system. It provides for all the necessary support resources to ensure the supportability and readiness of the system when fielded. The system evaluator works closely with the Army logistician and the acquisition community through the IPT process to provide a continuous assessment of the logistics support of a program and associated software.

b. The Army logistician (HQDA, ASA(ALT) ILS) facilitates the development and integration of the ILS elements (see AR 700–127) for all assigned acquisition programs. The logistician participates in developing requirements, supportability strategies, and fielding plans; participates in the system IPTs, the T&E WIPT, and signs the TEMP as the Army logistician; and participates in decision reviews.

c. The MATDEV provides an ILS manager who will be the focal point for all ILS actions for the program and who chairs the Supportability IPT (SIPT).

d. The system evaluator is a member of the SIPT and provides a continuous assessment of the system to ensure that readiness and supportability objectives are identified and achieved. The evaluation strategy will—

(1) Ensure the ILS assessment considers compatibility with the testing strategy.

(2) Identify, track, and report logistics supportability deficiencies and shortcomings.

(3) Provide for testing of the system's logistics support concepts, doctrine, organization, and hardware and ancillary materiel in the intended environment.

(4) Provide continuous evaluation of the system throughout its life cycle and provide data as required.

L–2. Supportability IPT

The SIPT is a working-level IPT, chaired by the ILS Manager. It provides support to the ILS Manager in the requirements generation, development, and acquisition process for ILS elements. Its members include the combat developer, materiel developer, Corps of Engineers, Army logistician, testers, transportation representative, and system evaluator. Membership is based on the scope of the program and may be expanded as necessary. The SIPT is a working body, and the roles and responsibilities of its members will be prescribed in the Supportability Strategy. It works with other bodies (such as the T&EWIPT) to ensure an integrated effort.

L–3. Supportability strategy

The ILS Manager is responsible for developing a Supportability Strategy that defines the complete ILS strategy for a system. Supportability is a critical factor of suitability in evaluating test objectives, issues, and criteria, as well as in the source selection evaluation. The initial Supportability Strategy is coordinated with the combat developer, materiel developer, logistician, testers and evaluators. It will be available 60 days prior to MS A and is updated at decision reviews and at other points when required.

a. The approved Supportability Strategy, together with the SIPT minutes, provides an action guide for all ILS program participants. It is used for assigning action items and scheduling completion dates as well as for prescribing system acquisition events and processes requiring ILS action, interface, or support requirements. Included in the Supportability Strategy is identification of the specific ILS test issues related to the individual ILS elements and the overall system support and readiness objectives.

b. A complete set of ILS issues and criteria is included in the TEMP. It is of critical importance that all test resources required for ILS testing be identified in the TEMP to ensure that appropriate resources are budgeted and allocated for testing.

L–4. ILS evaluation planning

The evaluation strategy in the SEP will identify, track, and report ILS deficiencies and shortcomings; ensure data availability for the system's logistics support concepts, doctrine, organization, and hardware and ancillary materiel in the intended environment; and provide continuous evaluation throughout the life cycle of the program.

a. The strategy is developed early in the acquisition cycle, and includes determining when a logistics demonstration will be performed, if needed. A level-of-repair analysis should be accomplished early in the life cycle to guide test planning for supportability issues.

b. Subsequent testing, modeling and simulation, and field experience will be used to improve the matured logistics support program; to determine the effectiveness, adequacy, performance, and R&M of system-peculiar support equipment, test program sets, support software, and TMDE; and to update the system repair parts provisioning documentation. In addition to the logistic demonstration, logistics supportability testing includes all testing conducted during the design and development of the system that provides data on supportability issues.

c. The system evaluators, in coordination with the testers, will ensure that a full range of supportability characteristics and issues are developed and that tests are designed specifically to address these characteristics and issues. All data collected during the conduct of the test program will be utilized to reduce the dedicated ILS testing and ensure maximum efficiency.

d. The emphasis of the ILS evaluation changes as the program moves through the acquisition phases. During early phases of a program, the evaluation results are used primarily to verify analysis and develop future projections. As the program moves into Engineering and Manufacturing Development and hardware becomes available, the evaluation addresses design, particularly the reliability and maintainability aspects, training programs, support equipment adequacy, personnel skills and availability, and technical publications. After the Full Rate Production decision, the system evaluation provides an update of the status of supportability issues for the materiel release process.

L–5. Logistic demonstration

The SIPT develops a logistic demonstration plan based on the outcome of the review of the requirements and the initial analyses. The plan incorporates all opportunities for data sources to confirm adequacy of the planned support. Support resources are programmed to include use of existing data from the contractor or other users, technical manual validation and verification, maintainability and BIT demonstrations, transportability analysis, MANPRINT assessments, TMDE assessments, and software assessments. Normally, the logistic demonstration is completed 6 months prior to scored testing in order to correct identified problems. See para 6–23*a*(7) of this pamphlet, AR 700–127, and DA Pam 700–127 for a further discussion of the logistic demonstration.

L–6. System Support Package (SSP)

The SSP is a composite of the support resources that will be evaluated during testing. It consists of spare and repair parts, manuals, training package, special tools and TMDE, and unique software. The SSP, used to validate the support system, is to be differentiated from other logistic support resources and services required for initiating the test and maintaining test continuity. The SSP is flexible and is tailored to the system-peculiar requirements and related to supportability testing issues. The SSP component list (SSPCL) is provided 60 days before testing begins. The SSP is delivered to the test site not later than 30 days before testing is scheduled to begin. Delays in the availability of certain support items could prevent the test from proceeding on schedule or could result in the test proceeding without conducting the complete evaluation of the support system. This could be costly due to on-site support personnel on hold or tightly scheduled system ranges and expensive test resources not being properly utilized.

L–7. Integrated logistical support evaluation issues

The 10 elements of ILS are defined in AR 700–127 and DA Pam 700–127. The ILS issues and objectives for each element are addressed in the Supportability Strategy and incorporated into the TEMP, including plans for the Logistic Demonstration. Not all ILS elements will be evaluated for all systems, but consideration will be given to each in the Supportability Strategy. For each testable resource in the SSP, a logistics burden analysis is planned for in the SEP and evaluated in the SER. The logistics burden analysis compares support maintenance, supply, and transportation demands placed on the support system against the resources planned for the support system. The SSP is to be addressed to determine the strengths and weaknesses of the planned support in terms meaningful to the decision process.

a. Maintenance planning—The maintenance concept, including all levels of maintenance, tradeoffs, and tasks required to sustain the item at the defined level of readiness, is addressed. Operational readiness issues address the capability and capacity of the unit to achieve and maintain the required peacetime and wartime system readiness objectives (SROs) when the planned logistics support concepts, doctrine, and organization and materiel are used.

(1) The issue is normally limited to the retail (intermediate and below) Army logistics system. In cases where two levels of logistics support are dictated, such as user and depot, the operational readiness issue will include the depot activity. Criteria normally come from the SRO in the ORD.

(2) The SEP shows how the SRO will be estimated, how unit readiness will be assessed, and how significant drivers for the SRO will be determined.

b. MANPRINT and personnel—Maintenance, operation, and other support personnel and their required skills and training are the considerations for this element. See appendix M for details.

c. Supply support is divided into the following categories:

(1) Mission-critical support (that is, supply support necessary to sustain the system in combat).

(2) Non-mission-critical support.

(3) Items common to the unit's existing supply support.

(4) System-peculiar items introduced into the unit's existing supply support. The evaluation strategy will consider the following: demand, consumption rates, mobility, size, and capacity.

d. Equipment support (see AR 750–43) includes all common or general-purpose manual test equipment and automatic test equipment; TMDE; intermediate forward test equipment composed of a contact test set, base station test facility, an electro-optical test facility at the intermediate level; test program sets, BITE, and calibration equipment.

(1) TMDE may be acquired under a separate requirements document or in a separate annex to the supported end

item requirements document. In either case, it has its own performance, RAM, and logistics requirements. Formal procedures have been established for justifying and acquiring special-purpose TMDE. Each TMDE requirements document, product improvements, and TMDE annex to the supported end item has a MNS concept. All TMDE will be evaluated to determine that its capabilities during the required logistics demonstration can be met in the operational environments. Special exercises may be required to include fault insertion events to fully evaluate TMDE capabilities.

(2) BITE is used in fault detection, isolation, or location and involves digital or analog signals, warning and advisory messages, lights, audio signals, or switches. It is usually planned to detect, isolate, or locate a percentage of system faults to a specific ambiguity group level, LRU, or shop-replaceable unit (SRU) (see glossary for definitions). The evaluation examines BITE effectiveness, software, and growth during system development. BITE data requirements are to be included in instrumentation requirements.

e. Technical documentation includes all manuals and any other documents on specific maintenance, special inspections, lubrication, or other instructions. Software documentation is addressed as a separate item because of its criticality. The evaluation of manuals consists of two distinct tasks. The two tasks are accomplished separately, in order to determine if the manual is in error or if the user failed to follow the procedures. The two tasks are—

(1) Determine if the drawings, figures, specifications, and procedures are technically correct. This is usually accomplished during developmental testing and logistic demonstrations.

(2) Determine if the soldier can understand and correctly perform the procedures. This is accomplished during OT, and includes ensuring that tools, TMDE, support equipment, supply support, and critical tasks are allocated by the manuals to the correct level of maintenance and MOS.

f. Training and training support (AR 350–1) includes training aids, simulators, training materials, instructors, and on-the-job training. It is provided to the testers, controllers, support personnel, data collectors, and data reducers. Data requirements for training are collected under manpower, personnel, and MANPRINT (see app M).

(1) There are two training test support packages (TSPs): the New Equipment Training TSP and the Training TSP. Milestones for providing Training TSPs to the testers and evaluators will be identified in the TEMP. See chapter 6 for a complete discussion of TSPs.

(2) Evaluation of training and training support is necessary to ensure that the skills and knowledge necessary to operate and maintain a system can be attained and sustained within realistic training environments by units using personnel of the type and qualification expected to use the system when deployed. The extent of these evaluations is defined in the SEP and is contingent on the stage of development of the system being tested. Ordinarily, training is contractor-administered in the early phases of system development. For subsequent phases, the materiel developer provides training to military instructor personnel, who then train the test participants. The objective of the evaluation is to assess the adequacy of training associated with fielding the system.

g. Computer resources support (computer hardware and software) issues are addressed in the SEP. Planning for testing and evaluation of post-deployment software support is included. See appendix Q for software considerations.

h. The adequacy of existing facilities (both fixed and mobile) for the system and its maintenance and support needs must be considered as addressed in the Supportability Strategy. If inadequate, modifications or new facilities will be addressed to ensure support system will operate within planned construction.

i. Packaging, handling, storage, and transportation system-unique requirements and constraints for packaging, handling, storage, and transportation of components, parts, and test equipment must be considered. Transportability is a major consideration in the T&E of Army systems, including system components and spare parts.

j. Design interface supportability issues will influence the system design and consequently, the source selection and acquisition decisions. Design constraints related to ILS must be taken into consideration, such as environmental constraints, interoperability requirements, human factors constraints, deployment concepts, and logistics related durability. See appendix M for MANPRINT considerations.

L–8. Transportability issues (see AR 70–44 and AR 70–47)

Transportability refers to the ability of a system to be moved by towing, self-propulsion, or by carrier via railway, highway, air, waterway, or helicopter, and airdrop modes of transportation utilizing existing or planned transportation assets. Transportability is a major consideration in the T&E of Army systems, including system components and spare parts. T&E of transportability will address the end-item in its tactical and packaged or shipping configurations, as well as associated support equipment and TMDE. This focus will allow the system evaluator to determine if the system is deployable.

a. DT is conducted to demonstrate the ability of a system to withstand the expected transportation environment over the useful life of the system before the production decision. During OT, soldiers who prepare the system for movement are used under realistic conditions.

b. The evaluation strategy will address the following:

(1) The ability to carry the load, as well as the availability of the mode of transportation.

(2) Ensure the weight and dimensions of the new system can be supported by the current bridging (including tactical bridging) and transportation network in the required operational environment.

(3) For large systems such as vehicles, the major source of evaluation information for transportability is MTMC. As

the Army's transportability agent, MTMC provides transportability approvals or recommendations for correcting deficiencies on new systems.

(4) Most of the airlift, sealift, and rail transportation requirements are documented in AR 70–47. The system evaluator should ensure that the MTMC or other approved agency conducts a transportability assessment. For smaller systems the analysis may consist of assessing the unit's capability to carry the new system in addition to the required load.

L–9. Other support equipment

Other support equipment includes generators, trucks, trailers, transportation and handling equipment, shop and supply vans, retrieval and re-supply vehicles, calibration vehicles, ammunition and fuel trucks, and bridges. The evaluation of support equipment (both old and new) compares test data against amounts stated in the BOIP.