INTEGRATED LOGISTICS SUPPORT

1. Introduction. The materiel acquisition process encompasses a number of functional areas which are used to acquire cost effective systems. For example, requirements generation, cost estimating, budgeting, contracting, testing, and production are functional areas found in materiel acquisition programs. While these functional areas are critical to a successful acquisition program, acquisition logistics (or integrated logistics support) is of equal importance.

2. Objectives. At the conclusion of this unit of instruction, you should be able to:

a. Define acquisition logistics and describe the program objectives of the integrated logistics support program.

b. Describe the ten acquisition logistics elements. Be able to apply these elements to logistics planning scenarios.

c. Define supportability and its impact upon system readiness.

d. Discuss the uses of supportability analyses.

e. Describe the integrated logistics support emphasis during each life cycle phase.

f. Describe the use and scope of the Supportability Strategy and scope of supportability testing.

3. Definitions.

a. *Acquisition Logistics.*

(1) Acquisition logistics is "a multi-functional, technical management discipline associated with the design, development, test, production, fielding, sustainment, and improvement (modification) of cost-effective systems that achieve the user's peacetime and wartime readiness requirements."

(2) Acquisition logistics includes both technical and management activities. For discussion sake, these activities can be segmented into three interrelated parts:

(a) Designing the system for support.

(b) Designing the support system.

(c) Acquiring the support elements necessary for initial fielding.

The acquisition logistics interface with the design process is through the systems engineering process, and while the systems engineering process applies to all three segments, it is most prominent in the first two. The mechanisms within the systems engineering process that allow for the transition from system performance requirements to an optimum support system and infrastructure are the various supportability analyses that are conducted. A number of tools, practices, and techniques used to realize these goals include repair level analysis, reliability predictions, reliability centered maintenance analysis, failure modes, effects and criticality analysis, and life cycle cost analysis. These will be discussed in more detail in subsequent lessons.

(3) "Acquisition logistics activities are most effective when they are integral to both the contractor's and Government's systems engineering technical and management processes. When this is the case, system designers, acquisition logisticians, and program managers are best able to identify, consider, and tradeoff support considerations with other system cost, schedule, and performance parameters to arrive at an optimum balance of system requirements that meet the user's operational and readiness requirements."[1]

b. *Integrated Logistics Support (ILS).* The program used by the Army that implements both technical and management activities to accomplish its goals for acquisition logistics is called Integrated Logistics Support (ILS). ILS is "a unified and iterative approach to the management and technical activities needed to:

(1) Influence operational and materiel requirements and design specifications.

(2) Define the support requirements best related to system design and to each other.

(3) Develop and acquire the required support.

(4) Provide required operational phase support at lowest cost.

(5) Seek readiness and life cycle cost improvements in the materiel system and support systems during the operational life-cycle.

(6) Repeatedly examine support requirements throughout the service life of the system."[2]

Simply stated, ILS is the means of ensuring that we will have adequate parts, maintenance personnel, maintenance instructions, tools, facilities, and test equipment available to support new systems being deployed.

c. Note that the Army term, *integrated logistics support* and the newer DoD term, *acquisition logistics*, are practically identical. We will use these terms interchangeably throughout the lesson.

[1] George Desiderio, OUSD(A&T)/DTSE&E/DDSE/SESO, May 96.
[2] AR 700-127, Integrated Logistics Support.

d. While these definitions may sound a little complicated, let's compare them to events occurring within the automobile industry. An automobile manufacturer spends several years developing and testing a new model car. The car is then manufactured and transported to automobile dealers. During the development phase, designers create a new body style, interior, and incorporate other features which will attract customers. The automobile manufacturer must also create service manuals, test equipment, special tools, and maintenance courses for the service employees of automobile dealerships. The automobile dealerships and manufacturer must also stock parts. What would happen if an automobile dealer sold you a car without any provision for its service? I can imagine your conversation with that automobile dealer when your car needed maintenance! Within the Department of Defense, we undertake a similar process when we develop new materiel systems. ILS (or acquisition logistics) is the process of ensuring economical and effective life cycle support for our materiel systems.

4. ILS Program Objectives. The overall objective of ILS is, "To seek the highest system effectiveness at the lowest life cycle cost." Individual objectives have been created to more fully answer the question, "Why do we need acquisition logistics?"

a. "Influence materiel system requirements and design to achieve and sustain established operational requirements while minimizing operating and support costs.

b. Ensure all ILS elements are planned, developed, tested, evaluated, acquired, and deployed prior to or concurrently with the materiel system.

c. Provide training programs and logistics systems that enable the actual user and functional personnel to operate and support the materiel system when fielded.

d. Ensure plans and procedures are developed to integrate and acquire the ILS elements effectively with consideration of the manpower and personnel integration process.

e. Improve logistic standardization and interoperability of materiel with the military services and allied nations.

f. Use the logistic research and development program to solve those materiel development needs that provide maximum benefits."[3]

5. ILS Elements. The Army has identified ten separate elements of acquisition logistics. It is important to note that while these are separate elements, each element of logistics support is directly related to one another. Military services and civilian industries all have horror stories citing examples of where the individual logistic elements were not properly integrated. The inevitable results were inadequate logistics support, delays in fielding a materiel system, program cost overruns, or all of the above. Logistics may well have been the topic when the

[3] AR 700-127, Integrated Logistics Support.

following quotation was expressed, "We never have time to do it right, but we always have time to do it over!" The logistics elements and their definitions are:

a. *Maintenance Planning.* "The process conducted to evolve and establish maintenance concepts and requirements for the lifetime of the system. Because of the impacts on systems design and the long term operations and support cost implications, a cost-effective support concept needs to be established early in the program (Concept Exploration) after careful consideration of all viable alternatives and refined concurrently with the design effort into detailed maintenance plans." A *maintenance concept* 'describes the manner in which an end item will be maintained and supported. It indicates maintenance capabilities required of the using unit and supporting units, and provides information concerning tactical employment; usual maintenance environment, mobility consideration, allowable downtime, and other operational considerations. Additionally, the technical information required to develop military and civilian occupational series codes to recognize new or changed skill requirements is included.'[4]

b. *Manpower and Personnel*. "The identification and acquisition of military and civilian personnel with the skills and grades required to operate and support the system over its lifetime at peacetime and wartime rates." Program managers should minimize the quantity of personnel and exotic skill levels required to operate and maintain systems because personnel affordability is a prime consideration in system acquisition. These considerations are sometimes referred to as the Qualitative and Quantitative Personnel Requirements Information (QQPRI).[5]

c. S*upply Support*. "All management actions, procedures, and techniques used to determine requirements to acquire, catalog, receive, store, transfer, issue, and dispose of secondary items. This includes provisioning for both initial support and replenishment supply support, and the acquisition of logistics support for support and test equipment." *Provisioning* is 'a management process for determining and acquiring the range and quantity of support items necessary to operate and maintain an end item of materiel for an initial period of service.'[6]

d. *Support Equipment*. "All equipment (mobile or fixed) required to support the operation and maintenance of the system. This includes associated multi-use end items, ground handling and maintenance equipment, tools, metrology and calibration equipment, test equipment, and automatic test equipment."

e. *Technical Manuals and Technical Data.* "Scientific or technical information recorded in any form or medium (such as manuals and drawings). Computer programs and related software are not technical data whereas the documentation of computer programs and related

[4] AR 310-25, Dictionary of U.S. Army Terms.
[5] AR 71-2, Basis of Issue Plans (BOIP) and Qualitative and Quantitative Personnel Requirements Information (QQPRI).
[6] AR 700-18, Provisioning of U.S. Army Equipment.

software are technical data. Also excluded are financial data or other information related to contract administration."

f. *Training and Training Support*. "The processes, procedures, techniques, training devices, and equipment used to train civilian and active duty and reserve military personnel to operate and support the system. This includes individual and crew training (both initial and continuation); new equipment training;
initial, formal, and on-the-job training; and logistics support planning for training equipment and training device acquisitions and installations."

g. *Computer Resources Support*. "The facilities, hardware, system software, software development and support tools, documentation, and people needed to operate and support embedded computer systems."

h. *Facilities*. "The permanent, semi permanent, or temporary real property assets required to support the system, including conducting studies to define facilities or facility improvements, locations, space needs, utilities, environmental requirements, real estate requirements, and equipment."

i. *Packaging, Handling, Storage, and Transportation*. "The resources, processes, procedures, design considerations, and methods to ensure that all system, equipment, and support items are preserved, packaged, handled, and transported properly, including environmental considerations, equipment preservation requirements for short and long term storage, and transportability."

j. *Design Interface*. "The relationship of logistics related design parameters to readiness and support resource requirements. These logistics related design parameters are expressed in operational terms rather than as inherent values and specifically relate to system readiness objectives and support costs of the system."[7] Reliability, Availability, and Maintainability (RAM) and Reliability Centered Maintenance (RCM) are two primary logistics tools used to achieve design interface. RAM and RCM will be addressed in subsequent units of instruction.

6. Supportability and Its Impact Upon Equipment Readiness.

a. *Supportability* is "the capability of a total system design to support operations and readiness needs throughout the system's service life at an affordable cost." It provides a means of assessing the suitability of a total system design for a set of operational needs within the intended operations and support environment (including cost constraints). Supportability characteristics include many performance measures of the individual elements of a total system. For example., mean (average) time between failures (MTBF) and mean time to repair (MTTR) are reliability and maintainability characteristics of the system's

[7] George Desiderio, OUSD(A&T)/DTSE&E/DDSE/SESO, July 96.

hardware. But their ability to impact operational support of the total system makes them supportability characteristics as well."[8] Major supportability criteria are:

(1) Manpower and personnel constraints.

(a) *Manpower* is "the personnel strength (military and civilian) available to the Army. Manpower refers to the consideration of the net effect of Army systems on overall human resource requirements and authorizations (spaces), to ensure that each system is affordable from the standpoint of manpower."[9]

(b) *Personnel* is "military and civilian persons of the aptitudes and grades required to operate, maintain, and support a system in peacetime and war. Personnel refers to the consideration of the ability of the Army to provide qualified people in terms of specific aptitudes, experiences, and other human characteristics needed to operate, maintain, and support Army systems."[10]

(2) Equipment readiness.

(3) Cost. Cost is a combination of research and development, procurement, and operations and support.

b. *Equipment readiness* is "a measure of an organization's capability to perform assigned mission responsibilities when called upon to do so. Readiness is usually divided into the two categories of unit readiness and equipment readiness. Operational availability is generally considered a good measure of equipment readiness, especially when combined with mission frequency during a given period of time. For example., the system should have an operational availability of 85%. Equipment readiness predictions are a tool for assessing the operational suitability of a product before its introduction into service. Equipment readiness needs will vary from system to system, and from peacetime to wartime."[11] Equipment readiness should be addressed during Concept and Technology Development by the combat developer as part of the requirements determination process.

7. Supportability Analyses. "The support analysis process identifies operations and sustainment support requirements based upon system characteristics and the planned operations and support environment. Support requirements are expressed in terms of operations and maintenance task requirements and the associated support resources to accomplish them. Collectively, these define the total support burden of a system. Alternative support concepts are developed which can deliver the required support and which properly balance with the other system elements to meet the performance requirements of the user."[12] Logistics analyses include:

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[8] Acquisition Logistics Handbook (Draft), September 1996.
[9] AR 602-2, Manpower and Personnel Integration (MANPRINT) in the System Acquisition Process.
[10] Ibid.
[11] Acquisition Logistics Handbook (Draft), September 1996.
[12] Ibid.

a. "Using analytical tools and models to develop and evaluate alternate support concepts. Conducting a Level of Repair analysis in order to optimize the support system to achieve minimum life cycle cost and to implement a 'design for discard' repair policy."

b. "Project logistic support requirements." For example, determine how many parts will be needed to support the system and where the parts' warehouses should be located.

c. Perform design trade-offs to optimize logistic supportability and MANPRINT considerations." For example, review the projected complexity of maintenance (repair) actions and compare them with the projected skills of the maintenance technicians.

d. "Perform trade-offs among the ten logistics elements." For example, compare the total system's maintenance requirements with the number of maintenance personnel available at each activity.

e. "Provide assistance in influencing design of developed systems or the selection of non developmental item (NDI) candidates." That is, logistics analyses would be used to recommend or justify design improvements in fielded systems and to compare maintenance requirements of competing commercial products.

f. "Measure the impact of life cycle cost on materiel and support system alternatives." [13] Alternative support options are comprised of research and development, procurement, and operations and support expenses. Comparing the cost of each support alternative would provide additional information to decisionmakers. For example, you should be able to compare the cost of organic (Army) maintenance with the cost of privatization (contract) maintenance.

The logistics support analyses are tailored for each materiel acquisition program. Factors to consider when tailoring a logistics support analysis program are:

a. The amount of design freedom allowed in the program.

b. The materiel acquisition process phase.

c. Any logistics support analyses that were previously performed.

d. Data availability and its relevancy.

e. Time and resource availability.

f. The overall acquisition strategy for the program.

[13] AR 700-127, Integrated Logistics Support.

8. ILS Emphasis During the System's Life Cycle.

a. The emphasis placed upon ILS changes during the research and development process. During the Concept and Technology Development phase, the principal emphasis of ILS should be design influence. This is done by establishing, as part of the Operational Requirements Document (ORD), supportability requirements that are expressed in broad, but measurable, operational capability terms. This will allow logisticians, as part of the source selection process, to evaluate alternative concepts with designs best suited to meet those supportability requirements. Decisions made early in the life cycle of a developmental system will largely govern its total life cycle costs. The significance of these early decisions cannot be overemphasized. It is critical that logisticians become involved in program decision making at its earliest stages. For example, one significant expense associated with a materiel system is maintenance. Inserting a requirement to maximize the use of existing parts, test equipment, and tools may save millions of dollars during system development and fielding. Alternatively, waiting until System Development and Demonstration to propose using existing parts, test equipment, and tools will normally "fall on deaf ears" because of the huge sums already spent in developing a system architecture and its supporting infrastructure.

b. The ILS emphasis during the System Development and Demonstration phase is concerned with the identification of system support requirements, and testing and evaluating the supportability of a system. Purchasing of the necessary support items takes place in Production and Deployment after the system is type classified.

9. The Supportability Strategy. ILS planning is a management process. It is the most important function of the ILS manager. ILS planning includes:

a. Developing and selecting alternatives to ensure that a system is designed for supportability.

b. Ensuring that the support elements for the chosen alternative will meet a time phased schedule compatible with delivery of the prime end item to the user.

ILS planning is initiated early in the acquisition process and in synchronization with the overall acquisition strategy. However, there will be continuous refinements throughout the program to adjust to funding and requirements changes, technological innovation, or other problems (unknowns). The Government's planning effort is documented in the Supportability Strategy (formerly named the ILS Plan (ILSP)). The Supportability Strategy contains the management approach to developing and fielding a supportable system. The prime contractor's planning effort parallels the Government's effort and is recorded in the Supportability Strategy. The format of the Supportability Strategy is contained in Appendix A.

10. Supportability Testing. "Tests will be conducted to provide data for evaluation of the supportability of the materiel system in projected operational environments. Supportability test and evaluation are integral parts of both development and operational tests and

evaluations. Supportability issues are included in the Test and Evaluation Master Plan (TEMP)."[14] A system support package (SSP) represents the composite of the support resources that will be evaluated during a logistic demonstration.

a. The *SSP* is, "a set of support elements planned for a system in the operational (deployed) environment, provided before, and tested and evaluated during developmental and operational testing to determine the adequacy of the planned support capability." The SSP is evaluated to confirm the adequacy of planned support for the materiel system below depot level. The SSP will be tailored to the supportability test issues and will normally include:

(1) Validated technical publications (operator through general support).

(2) Consumable supplies such as ammunition, petroleum, oils, and lubricants.

(3) The full range of spares and repair parts that are proposed for the initial support package, onboard spares, and basic issue items (BII). These spare and repair parts are provided to assess the accuracy of the predicted range and quantity of these parts and to assess the packaging, handling, storage, transportation, transportability, standardization, and interoperability of these sets of parts.[15]

b. System Readiness Objective (SRO). SROs (readiness objectives - see paragraph 6 for additional discussion) are measures relating to the effectiveness of an operational unit to meet peacetime deployability and wartime mission requirements. An SRO considers the unit set of equipages and the potential logistic support assets and resources available to influence the system's operational readiness and sustainability. Peacetime and wartime SROs will differ due to usage rates, operational modes, mission profiles, and operational environments. Examples of SROs include operational availability, sortie generations per given time frame, and maximum administrative and logistics downtime. SROs relate quantitatively to materiel system design parameters and to system support resource requirements.

11. Summary. An effective ILS program will ensure our materiel system is:

a. Operationally effective. The system will be available when needed because of its enhanced reliability.

b. Cost effective. A significant portion of a system's life cycle cost is attributable to operational and support (O&S) costs. Properly funding ILS early in the system's acquisition process will minimize O&S costs throughout its operational life.

[14] AR 71-3, Test and Evaluation Policy.
[15] AR 700-127, Integrated Logistics Support.

c. Supportable. Integrating logistics support considerations into the design process will ensure the system will be supportable when it is fielded. This means that we should have an adequate supply of parts, trained maintenance personnel, facilities, tools, and test equipment available to keep the system operational.

No single ILS formula can be applied to all materiel acquisition programs. It is the ILS manager's responsibility to structure and tailor the integrated logistics support efforts to achieve program objectives. Logistics professionals must work closely with other functional disciplines to ensure their efforts support the goals of the program manager and the acquisition process.

Appendix A

Supportability Strategy (nee ILS Plan Format)[16]

3.1 Organization. The ILSP contains the three sections listed below and annexes.

a. Section I, General.

(1) Introduction.

(2) Materiel system description.

(3) Program management.

(4) Applicable documents.

b. Section II, Plans, Goals, and Strategy.

(1) Mission Needs Statement (MNS).

(2) System Readiness Objective (SRO).

(3) Acquisition strategy.

(4) Supportability Analysis (SA) strategy.

(5) Supportability test and evaluation concepts.

(6) An ILS element plan. Areas that must be addressed in each ILS element are listed in this section. Full consideration must be given to each element, to include depot requirements. If the element is not applicable, include supporting rationale. Each ILS element must include relevant MANPRINT requirements and constraints.

(a) Design influence. Describe how ILS and life cycle costing (LCC) will influence source selection, system design, and acquisition decisions. Explain design constraints related to ILS and any plans to ensure that ILS is fully considered in design proposals and proposed engineering changes. Describe the extent and nature of the ILS personnel participation in design reviews and tradeoff studies. List and discuss any factors that might influence design, such as: (a) Climatic, environmental, and energy constraints and initiatives, (b) ILS (to include logistics-related reliability, manpower, and training) constraints and proposed readiness and availability objectives. (c) Funding limitations, (d) Logistics-related durability and survivability (to include corrosion protection, long-term storage, nuclear, biological,

[16] DA PAM 700-55.

chemical (NBC) resistance), (e) Supportability analysis, to include reliability centered maintenance (RCM), (f) Proposed deployment and employment concept, (g) Human factors (MANPRINT domain) constraints to assure the system design will contain the fewest human factor problems in transport, operation, maintenance, calibration, safety requirements and health hazard assessment requirements, etc., (h) Component and major item standardization and Standardization and Interoperability (S&I) requirements, (i) Applicability of the Army Oil Analysis Program (AOAP), AR 750-1, (j) Transportability requirements and constraints, to include impact on unit and force deployability, (k) Other support-related design requirements and constraints (e.g.; facilities; battlefield damage assessment and repair (BDAR); and petroleum, oil, and lubricants (POL).

(b) Maintenance plan. Describe the maintenance concept (AR 750-1). Identify tradeoffs to be performed and maintenance considerations peculiar to the system. Identify maintenance tasks required to sustain the end item at a defined level of readiness. The supportability analysis data can be used to provide part of the maintenance planning data.

1 Describe the general overall support concepts contained in the Mission Need Statement (MNS) or resulting from logistic studies. Identify proposed or actual skills; tools, test, measurement, and diagnostic equipment (TMDE); and support equipment to be available at each level of maintenance. Include an analysis of possible “design for discard” of components or repair parts.

2 Indicate strengths and weaknesses of each support alternative and the effect of the support concept on the system design, SRO, acquisition, and operating and support (O&S) costs, and on ILS elements.

3 Summarize known or planned interservice support, host nation support (HNS), interim contractor support (ICS), or contractor logistics support (CLS), and contractor warranties. Identify proposed solution to potential problems that may result during transition to organic support.

4 Include information about planned organic depot maintenance. Summarize and identify the Depot Maintenance Support Plan (DMSP).

5 For systems being acquired for multi-service use, address the feasibility and desirability of centralized repair and supply support by a single service who is the predominant user in a geographical area or possesses such centralized support capability.

(c) Manpower and personnel.

(d) Supply support.

(e) Support equipment and test, measurement, and diagnostic equipment (TMDE).

(f) Training and training devices.

(g) Technical data.

(h) Computer resources support.

(i) Packaging, handling, and storage.

(j) Transportation and transportability.

(k) Facilities.

(l) Standardization and interoperability (S&I) (formerly rationalization/standardization/ interoperability).

(7) Support transition planning.

(8) Support resource funds.

(9) Post-fielding assessments.

(10) Post-production support.

(a) Maintenance environment.

1 Describe the maintenance environment, limitations, constraints, and requirements projected for the deployment time frames. Provide sufficient detail (turnaround time, direct productive annual maintenance man-hours (DPAMMH), mean time between maintenance actions (MTBMA), mean-time-to-repair (MTTR), mean time between preventive maintenance to support LSA. Include logistic support parameters stated in the MNS, ORD, or other requirements documents. Use supportability analysis data when available.

2 State the nature and extent of maintenance to be performed by each level of maintenance to include battle damage expedient repair procedures in accordance with Battle Damage Assessment and Repair (BDAR) policy. Discuss alternative approaches when applicable. Identify tradeoff criteria used for selection of preferred alternative.

3 Identify the organizational and logistic support structure of each divisional and/or nondivisional unit that will be responsible for providing intermediate direct and general support supply and maintenance support.

4 Identify depots, special repair activities, or other support activities scheduled for special support missions. Identify the depots that will be responsible for depot repair/overhaul of those components which comprise the total system.

(b) Safety (MANPRINT domain). Describe effort to minimize potential safety problems during system operation, maintenance, storage, transportation, and disposal. Disposal must consider need/ requirements for explosive ordnance disposal.

(c) Prepositioning. Where applicable, describe maintenance concepts, requirements, and resources for maintenance of the materiel to be prepositioned as Army Prepositioned Sets (APS).

(d) Where applicable, describe the nuclear hardness maintenance and surveillance procedures contemplated to assure the nuclear hardness of the system throughout its life cycle.

(11) Manpower and personnel (MANPRINT domain).

(a) Describe the operator and maintenance manpower and personnel impact (including burden on gaining commands) of the materiel system, and how manpower and personnel (number and skill level) will be provided to test proposed items. Include limitations, constraints, system-peculiar requirements, and man-machine (MANPRINT) interface. Assess projected force structure (at time of deployment) to meet both peacetime needs and wartime requirements. Provide potential QQPRI (AR 71-2) and Manpower Requirements Criteria (MARC) information needs. Data extracted from the SMMP will provide a significant amount of information about this element.

(b) Define coordination with all ILS functions, and use of LSAR as data source (LSA output summaries 01 and 02) for military occupational specialty (MOS) needs (AR 611-1 and AR 611-201). Define data requirements.

(c) Describe skill requirements for personnel necessary to operate, maintain, and support the end item. Consider the following:

1 Present MOS and skills (AR 611-1 and AR 611-201) that may be used with little or no retraining.

2 New skills required. This may require extensive training or a new MOS.

3 Assigned duties.

4 Task, skill, behavior, and man-machine (MANPRINT) interface analyses.

(d) Describe plan for coordinating manpower and personnel requirements and milestones with TRADOC.

(12) Supply support. Describe the proposed supply support concept(s), supply support limitations, constraints, and system- peculiar requirements for not only the end item, but also

for the support equipment and TMDE. Initiate and update the Provisioning Plan (AR 700-18). Consider the following areas:

(a) Identify any potential deviation from standard Army supply support procedures. Evaluate the impact of deviation on readiness, cost, manpower, and so forth.

(b) Describe plan, as applicable, for cataloging, acquisition, packaging, preservation, receipt, storage, issue, and disposal of the following:

1 Repair parts, ammunition, POL, etc.

2 Secondary items.

3 Special and common tools.

(c) Include planning for determination of maintenance float, operational readiness float, and repair cycle float factors, war reserve materiel requirements (AR 710-1), and foe Medical Standby Equipment Program (AR 40-61). Include plans for reviewing and adjusting the factors based on experience data.

(d) Include plan for determining the range, quantity, and specific requirements for supply support elements needed in the SSP (AR 700-127).

(e) Include planning for identification of long lead time items (LLTI) and vendor supplied items.

(f) Include planning for identification of critical parts and equipment.

(g) Describe method of supply support (for example, piece part, assembly, module or fabrication concept of replacement of parts).

(h) Describe the type of supply support (for example, demand support or mission essential stockage of spares and repair parts).

(i) Address possible need for Interservice Support Agreements (ISSA) or HNS agreements.

(j) State planning for follow-on procurements.

(k) For NDI and other accelerated programs, state considerations, and conclusions of the need to initiate early procurement of critical replacement parts to assure availability. Include comparative cost estimates.

(l) Indicate procedures for requisitioning initial and follow-on supply support with accompanying flow charts showing the process.

(m) Assess the effect of the acquisition schedule on provisioning efforts.

(n) Identify the effect of the provisioning alternatives on the SRO.

(o) Provide necessary information to other supply supporting organizations (for example, Defense Logistics Agency (DLA), General Services Administration (GSA), other services) which will provide piece-part, bulk stockage items, and so on. Early submission of projected requirements is needed to permit increased stockage of these items.

(p) Identify requirements for Basic Sustainment Materiel (BSM). BSM is the materiel consumed in the operation, and will include, but not be limited to, ammunition, POL, power sources (for example, batteries), data processing paper and tapes, war reserve requirements, and other consumable and bulk supplies. These requirements will include both those for initial fielding and those projected for annual unit consumption during peacetime (training) and wartime.

(q) Where applicable, describe the procedures for the proper identification of hardness critical items (HCIs) to ensure the procurement of only approved HCIs for initial provisioning and replenishment action to support nuclear survivable systems.

(13) Support equipment and test, measurement and diagnostic equipment. Describe procedures used to identify requirements for support equipment and TMDE.

(a) Identify requirements for investigation of existing Standard Support Equipment (SB 700-20) in the Army inventory. The TMDE Register (AR 750-43) and Preferred Items List (PIL) (DA Pam 700-21-1) may provide additional information. If modifications to current or planned weapon systems are needed, summarize plan to assure changes are completed by required time of need.

(b) Define procedure for establishing TMDE requirements..

(c) Describe use of Logistics Management Information (LMI) data base for establishing materiel system unique support equipment requirements by maintenance level.

(d) Identify major items of support-related hardware, to include any requirements for scarce support resources.

(e) Describe procedure for maximizing selection of standard tools and support equipment and ASIOE, to include vehicles, generators, and trailers.

(f) Identify requirements for TMDE registration and acquisition approval (AR 750-43). Indicate direction to be given to the contractor regarding the use of common TMDE, including requirements for calibration and calibration support (TB 43-180).

(g) Identify calibration requirements of the system.

(h) Identify support equipment and TMDE peculiar hardware development, quantity, acquisition, and support (additional capability, fixtures, tools) requirements. Identify any environmental and storage requirements needed for TMDE, automatic test equipment (ATE), and test program set (TPS) use.

(i) Define support equipment and TMDE peculiar test and evaluation objectives, and provide appropriate input to the TEMP (and Coordinated Test Plan, if prepared).

(j) Identify requirements (and materials needed) for local fabrication of tools, maintenance/test stands, or any other support items.

(k) Identify software changes to maintenance equipment where required and interconnecting devices required to test systems on existing test stands/benches.

(14) Training (MANPRINT domain) and training devices.

(a) Describe how training and training device requirements will be met and who is responsible for meeting those requirements. Include description of Government and contractor responsibilities and of training test and evaluation procedures. The SMMP will provide information on training constraints, target audiences, and so on.

(b) Identify long-term training facilities programming requirements and coordination needed with the Office of Chief of Engineers (OCE), DA, and so forth.

(c) Describe plan for acquiring the required training and training devices. Include program for determining if new equipment training (NET) will be needed (AR 350-35). If so, summarize NET Plan (NETP) actions required and identify organizations/individuals participating in the NETP development/ execution. The applicable NETP number will be identified.

(d) Describe institutional training requirements and plans unique to operation and maintenance of both hardware and software, support items, etc.

(e) Identify any nonstandard or transportation/storage training requirements for movement and storage of sensitive/classified components, ammunition TPSs, and so forth.

(15) Technical data. Describe logistic technical data requirements for the materiel system.

(a) Identify equipment publications concept.

(b) State requirements for publications updating and finalization. Coordinate scheduling with the system production schedule. Describe how the LMI data base will be used as source data in publication preparation to assure compatibility between the repair parts

list, support equipment and tool lists, task allocation, skills, and the narrative operating and maintenance instructions of equipment publications.

(c) State evaluation criteria for validation and verification of publications, and indicate quantities and types required in support of testing.

(d) Identify actions, events, milestones, and schedules for preparation and printing of final publications.

(e) State requirements for updating draft equipment publication (DEP) during System Development and Demonstration to incorporate changes that result from LD, TTs, and UTs. Schedule updates and finalize equipment publications for timely availability prior to first unit equipped (FUE).

(f) Describe plan for interservice coordination on technical data requirements for multiservice acquisition.

(g) Describe requirements for specifications and drawings to support the DEP and provisioning effort.

(h) Describe plan for determining if a technical data package (TDP) will be purchased, amount of data needed (for example, no data or level 1 drawings for NDI with CLS versus level 3 drawings for organic maintenance/training), and what effect this will have on the acquisition strategy and acquisition plan.

(16) Computer resources support. Describe ILS requirements, constraints, issues, and management procedures unique to standalone or embedded computer hardware or software. All elements of the ILSP address the total materiel system, to include computer resources, but some portions may be summarized in this section for clarity. Examples are listed below.

(a) Describe plan for identifying computer resource requirements for the system to include the following:

1 Determination of computer resource requirements for operation and maintenance of the end item or any of its components within the boundaries of the battlefield (Army battlefield automated systems).

2 Historical data review to assess suitability of existing computer resources.

3 Comparison of existing computer resources to requirements stated in the requirements document, system specification, and so forth.

4 Determination of computer resource limitations.

(b) Emphasize computer software ILS requirements.

(c) Describe plan for determining software support and post-deployment software support (PDSS) procedures, requirements, and responsibilities.

(d) Identify requirement for preparation of a Computer Resource Management Plan (CRMP) for inclusion as an annex to the ILSP (DARCOM-R 70-16 provides the content requirements for the CRMP).

(e) Describe manpower and personnel requirements for developing and fielding computer resources and the training requirements to operate and maintain the computer resources.

(f) Describe method or plan to acquire, test, and evaluate computer software and software support and how software errors will be detected and corrected.

(17) Packaging, handling, and storage (PHS). Describe system-unique requirements, management responsibilities, and procedures used to ensure that PHS requirements are identified and met in a timely manner during the acquisition process.

(a) Describe anticipated storage modes and constraints.

(b) Identify part, component, and TPS environmental storage and climatic requirements (for example, humidity and static control and grounding requirements).

(c) Summarize actions necessary to resolve logistic problem areas identified, to include the following:

1 Tradeoffs of PHS requirements.

2 Tradeoffs of PHS risk areas affecting LCC.

(d) Describe PHS assets required and those expected to be available at FUE.

(e) Identify current and projected changes to PHS systems and procedures. Determine the interface with PHS equipment undergoing parallel development or testing.

(f) Verify PHS test requirements have been identified and included in the TEMP.

(g) Identify PHS requirements for shipment of equipment and ASIOE to continental United States (CONUS) and overseas commands, including special PHS requirements of participating Services.

(h) Identify special care required during PHS (that is, removal of sensitive components, calibration, special PHS requirements during repair and movement).

(i) Identify actions taken to determine if containers are or will be available for system shipment.

(j) List the supply bulletin number(s) of the storage serviceability standard (SSS) that is appropriate for the materiel system(DARCOM-R 702-23). If no SSS is required, so state.

(18) Transportation and transportability (T &T).

(a) Describe T&T responsibilities, requirements, and constraints, including those related to unit and force deployability. Identify required strategic and tactical transport modes and aircraft and vehicle type. Identify user transportability limitations and restrictions including container compatibility. Where appropriate, discuss design or performance tradeoffs for mobility, transportability, and rapid deployment. This should also include transportation requirements for ASIOE, TMDE, parts, and BSM (ammunition, POL, etc.).

(b) Identify requirements for development of a transportability request to be submitted to Commander, MTMC Transportation Engineering Agency, ATTN: MTT-TR, 12388 Warwick Blvd, Newport News, VA 23606-0276, for approval (AR 70-47). Include this request (and subsequent transportability approval) as an annex to the ILSP.

(c) Summarize actions necessary to resolve T&T problem areas identified, to include the following:

1 Tradeoffs of T&T requirements.

2 Tradeoffs of T&T risk areas affecting LCC.

(d) Describe current T&T assets and those expected to be available at FUE.

(e) Identify current and projected changes to T&T systems and procedures. Determine the interface with T&T equipment undergoing parallel development or testing.

(f) Identify T&T test requirements for inclusion in the TEMP.

(g) Decide and record if a Transportability Guidance technical manual is required, and who will prepare the manual.

(h) For systems being acquired for multiservice use, the following apply:

1 Identify T&T requirements for shipment of equipment to CONUS and overseas commands, including special T&T requirements of participating services.

2 Describe loading and unloading configuration layout by appropriate aircraft type when air transportation is to be used. Weight and cube data will be included.

(i) Identify special care required during T&T (for example, removal of sensitive components, special T&T requirements during repair and movement).

(j) Identify transportability engineering requirements for the system using Transportability Engineering Characteristics, and AR 70-47.

(k) Identify lifting/tie-down requirements and procedures to ensure these will be included in final system configuration.

(19) Facilities.

(a) Describe known or planned maintenance, calibration, storage and training facilities, utilities requirements and constraints, and personnel facilities requirements. Use the LSAR output summary LSA-12, Special Facility Requirements (if available) to provide requirements and justification for the construction of new facilities.

(b) Describe the following:

1 Adequacies or inadequacies of existing facilities (both fixed and mobile) for both the end item and its maintenance and support needs (for example, TMDE, ATE, TPS, and support item environmental and storage requirements).

2 Modifications necessary to existing facilities (both fixed and mobile) for inadequacies described above.

3 New facilities requirements for personnel using, testing, training, operating, and doing field and depot maintenance.

4 Program requirements (including responsibilities and funding) and schedules required to provide necessary modified or new facilities (fixed and mobile), and any Military Construction, Army (MCA) and Military Construction, Army Reserve (MCAR) requirements.

5 Special security requirements for storage and use of classified end items, components, manuals, TPSs, etc. Include quantity and volume of materiel, security level of materiel, and any electronic countermeasures (ECM) or TEMPEST (measures to control compromising emanations) requirements.

(c) To assure that satisfactory lead times are provided for advanced funding planning (typically 5 to 7 years before occupancy), major gaining commands should be advised of projected new and modified facilities requirements following identification of the facilities programming and scheduling of required actions. HQDA (CEEC-ET), WASH DC 20314-1000, must also be expeditiously informed of facility requirements for input and budgetary requirements.

(d) Describe how the United States and host nation facilities requirements will be provided.

(20) Standardization and interoperability.

(a) Describe S&I requirements.

(b) List essential items and equipment with which the proposed system must interoperate. This will include any proposed or current end items currently being planned or utilized by allied nations or systems planned or used by the Army or other Services.

(c) Describe known or suspected S&I deficiencies and shortcomings and plans to correct or eliminate them.

(d) Describe potential standardization of components, devices, and subsystems to be considered to provide S&I capability and reduce acquisition, training, operation, maintenance, and supply costs.

c. Section III, ILS Milestone Schedule.

d. Annexes (as applicable).

Appendix B

References

AR 37-100 Series	--*Account/Code Structure*
AR 40-10	-- *Health Hazard Assessment Program in Support of the Army Materiel Acquisition Decision Process*
AR 40-60	--*Policies and Procedures for the Acquisition of Medical Materiel*
AR 70-60	--*Army Nuclear Survivability*
AR 70-71	--*Nuclear, Biological and Chemical Contamination Survivability of Army Materiel*
AR 71-9	--*Materiel Objectives and Requirements*
AR 71-13	--*The Department of the Army Equipment Authorization and Usage Program*
AR 73-1	--*Test and Evaluation Policy*
AR 200-1	--*Environmental Protection and Enhancement*
AR 200-2	--*Environmental Effects of Army Actions*
AR 350-35	--*Army Modernization Training*
AR 350-38	--*Training Devices Policies and Procedures*
AR 385-16	--*System Safety Engineering and Management*
AR 602-1	--*Human Factors Engineering Program*
AR 602-2	-- *Manpower and Personnel Integration (MANPRINT) in the Materiel Acquisition Process*
AR 700-9	--*Policies of the Army Logistics System*
AR 700-15	--*Packaging of Materiel*
AR 700-18	--*Provisioning of U.S. Army Equipment*
AR 700-47	--*Defense Standardization and Specification Program*
AR 700-60	--*Department of Defense Parts Control Program*
AR 700-90	--*Army Industrial Base Program*
AR 700-139	--*Army Warranty Program Concepts and Policies*
AR 700-141	--*Hazardous Materials Information System*
AR 700-142	--*Materiel Release, Fielding, and Transfer*
AR 702-7-1	--*Reporting of Product Quality Deficiencies Within the U.S. Army*
AR 710-1	--*Centralized Inventory Management of the Army Supply System*
AR 750-1	--*Army Materiel Maintenance Policy and Retail Maintenance Operations*
AR 750-43	--*Army Test, Measurement and Diagnostic Equipment (TMDE)*
DA Pam 11-4	--*Operating and Support Cost Guide for Army Materiel Systems*
DA Pam 71-3	--*Operational Testing and Evaluation Methodology and Procedures Guide*
DA Pam 700-28	--*Integrated Logistic Support Program Assessment Issues and Criteria*
DA Pam 700-55	--*Instructions for Preparing the Integrated Logistic Support Plan*
DoDI 4140.54	--*Serial Number Tracking of Selected Parts, Components, and End Items*
MIL-PERF 49506	--*Logistics Management Information*

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