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NATO GUIDANCE ON INTEGRATED LOGISTICS SUPPORT FOR MULTINATIONAL ARMAMENT PROGRAMMES

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NATO LETTER OF PROMULGATION

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Director, NATO Standardization Agency

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RECORD OF CHANGES

Change Date	Date Entered	Effective Date	By Whom Entered

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Annexes:

1. GENERAL

1.1 AIM

The aim of this document is to provide general guidance on the policy, implementation and responsibilities for the application of Integrated Logistics Support (ILS) in multinational armament programmes within NATO.

1.2 APPLICABILITY

This guidance applies to armament programmes whereby two or more NATO nations collectively manage the logistics support of the materiel solution/component, in the form of one or more Systems-of-Interest (SOI), through its life cycle stages, as described in the Handbook on the Phased Armaments Programming System (PAPS, AAP-20) document. It includes commonly, co-operatively, multinationally, as well as jointly funded armament programmes, and may also be applied to national armaments programmes. While ILS can be applied to all armament programmes, the level of implementation will be dependent on the degree of innovation and complexity of the materiel solution, support environment, and the availability of resources such as funding and specialized personnel.

Decisions on support requirements have the greatest impact on system performance, life cycle cost and supportability when taken early in the period of the life cycle of a programme and a system. ILS disciplines shall plan and develop Logistics support requirements and ensure SOI quality in terms of Reliability, Availability, Maintainability, Supportability and Testability (RAMST). ILS of the SOI shall include the whole composite of hardware, software, data, communications, personnel, procedures, tools and facilities. ILS can provide the tools to accomplish that objective in a structured and integrated way, however to obtain that objective, the provision of front-end funding for ILS activities is required to reduce overall life cycle costs.

2 DEFINITIONS

ILS is the management and technical process through which supportability and logistics support considerations of materiel (hardware or software) solutions are integrated from the early stages and throughout the life cycle of an armament programme and by which all elements of logistics support are planned, acquired, implemented, tested and provided in a timely and cost-effective manner.

Other terms used in this guidance are explained in Annex A.

3 POLICY AND PROCEDURES

3.1 General

System operational availability to improve the military capabilities of the alliance is a primary objective of multinational armament programmes. It is NATO policy to ensure that financial and other resources required to maintain operational availability receive the same emphasis as those required to achieve performance objectives and timely delivery of the system. These resources should include those necessary to design

desirable support characteristics into the system, implement them through manufacturing or integration, as well as those to plan, develop, acquire and evaluate their support. Performance-based agreements, including contracts, should include appropriate ILS performance requirements.

ILS is structured around the life cycle management model used in the Phased Armaments Programming System (PAPS). The model portrays the total life span of a system commencing with considerations in the Pre-Concept Stage and extending through the Utilisation Stage to its eventual withdrawal in the Retirement Stage. The stages and approval documents used in the PAPS are shown in Annex B.

The ILS process should begin at the Concept Stage of the life cycle of the armament programme and continue for the life of the system. The primary objective of the ILS programme should be to achieve the required system operational availability at minimum life cycle cost. Early ILS activities should focus on designing desirable support characteristics and on determining support requirements. Subsequent activity focuses on equipment support requirement evaluation and preparation of provision of support resources. The scope and level of detail should be tailored to meet specific programme needs at each stage of the system life cycle. Annex C lists the ILS considerations for each stage of an armaments programme.

The full ILS process, as described, would be applied in its entirety to a complex armament programme involving the incorporation of new technologies, design development, integration and manufacturing. However, not all armament programmes proceed in perfect accordance with the “regular” stage life cycle model as described in AAP-20, Section 3. Stages may be by-passed or deliberately conducted in parallel, such as production of end items while sub-system continues to evolve. The ILS process would apply in all cases, but some ILS activities may be undertaken out of sequence or may not be appropriate to all programmes.

Some military needs can be satisfied by utilizing the Accelerated Fielding process that is described in the PAPS, Chapter 4. The procurement of “off-the-shelf” items is one such alternative and is the one that ALP-10 will highlight. Such acquisitions are referred to as non-developmental items and are normally identified within the Concept Stage. Therefore, the Development and Production Stages would not be carried out as described in Annex C. ILS considerations for non-developmental items are described in Annex D.

3.2 Systems Engineering and Utilisation/Support Relationship

Systems engineering is an essential element throughout the lifecycle of multinational armament programmes. Associated ILS activities such as operating doctrine, development of support functions, monitoring and testing, training and personnel management are concurrent with the equipment acquisition and systems engineering effort. ILS should be involved early in the systems engineering process to influence the design and facilitate supportability of the system by maximizing the availability, effectiveness, and capability of the system.

Design and support decisions during system development and modification have the greatest impact on performance, life cycle cost, and RAMST when accomplished early in and throughout the systems engineering process.

One of the principal vehicles for achieving ILS objectives in this process is the Logistics Support Analysis (LSA). LSA is a disciplined process which includes actions to define, analyse, and quantify logistics support requirements, and to influence design for supportability, throughout system development. It stresses simplicity and reduced logistics requirements. The objective of an LSA is to enable optimum system performance, continuity and availability to be achieved at minimum life cycle cost. The LSA is conducted on an iterative basis throughout the acquisition cycle as studies, trade-offs, service advice and test and evaluation lead to successive design refinement. The LSA should be tailored to the level of complexity of the system to which it is applied, as well as to the availability of resources within nations participating in the armament programme. Any changes that affect the ILS elements may require the LSA process to be performed again.

Information obtained from systems engineering sources is required to ensure that all aspects of utilisation support are recognized and considered during the planning and acquisition of the support elements (i.e. support equipment, repair parts, personnel and training, facilities, communication, security, Information Technology (IT) framework, supply and maintenance technical assistance, equipment and software publications).

During design within the Development Stage, the analysis is oriented toward assisting the systems engineer in incorporating logistics requirements into equipment design. This includes the incorporation in the design process of the key logistics-related design objective, cost-effective supportability. The goal is to produce a system that meets specifications and the operation and support of which is cost effective over its planned life cycle.

As the armament programme progresses and designs mature to become stable, the LSA process concentrates on providing detailed descriptions of specific resources required to support a system throughout its Utilisation Stage by providing timely valid data for all areas of ILS. This data is used to plan, acquire and position support resources (personnel, funding and material) to ensure deployed systems meet their availability requirements. During the later production and utilisation stages of the armament programme field, feedback of operational use and maintenance data is used to review the continuing validity of the data to ensure that life cycle cost plans are being realized.

LSA can be performed either by agencies of Governments participating in the armament programme, contractors, or a combination of both. Contractors and Governments are strongly urged to set up an organization to manage contractual ILS activities.

The involvement of service field teams or maintenance advisory groups to provide practical advice to designers and supportability under field conditions, including details of existing facilities and skill levels, is an essential part of the LSA process.

3.3 ILS Elements:

The primary objective of any new armament programme is to provide a military capability at minimum life cycle cost. Operational availability is one of the principal determinants of military capability. For effective ILS management, the various support

aspects required to achieve system objectives are arranged into groups termed ILS elements, which may be individually managed by technical specialists. It is important to establish and maintain the inter-relationship between all ILS elements throughout the system's life cycle. This inter-relationship should be documented in the ILS Plan (Template - Annex E) and maintained by the ILS manager. The ILS elements are:

3.3.1 Maintenance Planning

Maintenance Planning comprises the identification of hardware, software, network, communication, security requirements, materiel, facilities, personnel, procedures, processes, documentation and data needed to enable maintenance services for the system and its support. The aim is to develop the maintenance concept based on maintenance strategies and requirements, for the life of the system.

Maintenance Planning includes, but is not limited to the following:

- Levels of repair
- Repair times
- System Reliability, Maintainability, Testability characteristics
- Support equipment needs
- Training
- Manpower skills
- Inter-service, organic and contractor mix of repair responsibility
- Site activation
- Certification (e.g. safety and security)
- Establishment of maintenance programs using condition-based maintenance, reliability-centered maintenance, and/or post production software support

3.3.2 Supply Support

Supply Support ILS Element comprises all management actions, procedures, and techniques necessary to determine requirements to acquire, catalogue, receive, implement, store, transfer, issue and dispose of spares, repair parts, updates and supplies. This includes initial provisioning for stock of spare parts and support, as well as acquiring, distributing, updating and replenishing inventories in support of supply chain management.

3.3.3 Personnel

Personnel ILS Element involves identifying, planning and supporting the availability of qualified personnel required to operate, maintain, and support the system over its life cycle.

3.3.4 Support and Test Equipment

The Support and Test Equipment ILS Element includes the identifying, planning and ensuring the availability of equipment (fixed or mobile) required to support the operation and maintenance of a system. Examples of support and test equipment are: associated multi-use end items, maintenance equipment, tools, software support and reporting environment, metrology and calibration equipment.

3.3.5 Design Influence/ Interface

The aim of this ILS Element is to participate in the systems engineering process to impact the design from the early stages throughout the life cycle, facilitating supportability to maximize the availability, effectiveness and capability of the system.

Design influence/interface consists of logistics-related design influence parameters including, but not limited to the following:

- Reliability, availability, maintainability, supportability, and testability (RAMST)
- Human factors
  - Soldier
  - Machine
  - Software
  - Interface
  - Usability
- System safety
- Survivability and vulnerability
- Hazardous material management
- Environmental factors such as assessment of air, water, and noise pollution
- Information Security (INFOSEC)
- Service Level and Operational Level Agreement (SLA/OLA)
- System compatibility
- Standardization and interoperability
- Energy management
- Corrosion
- Non destructive inspection
- Transportability
- Handling and Storage

3.3.6 Technical Information and Data

Technical information and data is the information necessary to operate, maintain, repair, support and dispose of a system throughout its life. The objective is to identify the standard(s) to be used for the supply of information and data such as:

- Technical documentation, including Interactive Electronic Technical Manuals (IETMs) Illustrated Parts Lists/Catalogues (IPL/IPC)
- System identification and classification
- System description and operation (system description can be provided in the form of models, illustrations, source codes, textual descriptions, among others.)
- System servicing and maintenance
- Security documentation
- Diagnostic support
- Repair information
- Supporting flow, system and schematic diagrams
- Software and hardware documentation
- Network and communication documentation
- Training needs analysis data
- Factory Level Maintenance and Repair Applications Document

Technical information and data can be provided through various media to include paper, fiche, graphics, video and digital. Data rights and data delivery, as well as use of any proprietary data, should be addressed as part of this element and included in the overall programme plan.

One of the most effective ways to collect, review, and analyse this data is through the use of a resource planning software tool. This tool can be a data mine linking technical information, financial information and supply information. The benefits for the armament programme can be:

- Tracking operational availability through the life of the equipment
- Creating and monitoring performance criteria for the support of the equipment
- Maintaining a real time configuration management, supply and maintenance databases
- Providing the capacity to assess engineering changes proposals, track approved changes, with the inclusion of costing information
- Providing end item tracking and asset visibility
- Tracking and maintaining commonality with industry-supported engineering activities

3.3.7 Training and Training Support

Training and Training Support consists of processes, procedures, techniques, training devices and equipment, used to train personnel to operate, maintain and support a system, as determined by the training needs analysis.

The training needs analyses may consider the following:

- New equipment training
- Training aids, including simulators
- Training aids support
- Training courses
- Training type (e.g. Classroom, distance, on the job, etc…)
- Training environment

3.3.8 Facilities and Infrastructure

Facilities and Infrastructure consists of the permanent and semi-permanent real property assets required to support a system. It includes studies to define types of facilities (e.g. training, equipment storage, maintenance, supply storage, ammunition storage, computer hardware/software systems, network and communication systems) or facility improvements, location, space needs, environmental and security requirements, and equipment.

3.3.9 Packaging, Handling, Storage and Transportation

This ILS Element consists of resources, processes, procedures, design considerations, and methods to ensure that all systems, equipment, and support items are preserved, packaged, handled, and transported properly, including environmental considerations, and equipment preservation for storage.

3.4 Life Cycle Cost (LCC)

The goals of LCC analysis are to (1) identify the comparative overall costs of alternative means of attaining system performance and availability objectives, and achieving production schedules; (2) estimate the cost impact of various designs and support options; (3) refine cost estimate of the selected design as it progresses in the life cycle. The use of LCC is most effective during the early stages of the life cycle. Typically, by the end of the Concept Stage roughly 85 percent of the system's LCC has been committed by design and logistics choices made within or prior to this period.

Early in the life cycle, the LCC analysis concentrates on quantifying the cost implications of selected design alternatives, which provide the desired level of performance. ILS activities at that stage focus on designing supportability characteristics into the system and evaluating the life cycle cost of hardware, software, support requirements, and other related costs. In later stages, evaluations are oriented toward identifying lower cost means of support to achieve availability objectives. In particular, support elements costs such as personnel and spares are evaluated to identify effective alternative policies using trade-off studies and regular audits, which are carried out to test the continued relevance and validity of earlier decisions and support plans.

LSA can provide valuable data for inputs to logistics simulations, cost effectiveness models, trade-offs studies and LCC analysis. LSA and LCC analysis interface throughout the life of the system to ensure that all data changes generated by iterative LSA actions are evaluated to assess their consequences on acquisition, operation and support cost.

Multinational armament programmes will be required to implement a LCC programme. The purpose of this programme is to ensure that the developed system will have the lowest possible life cycle cost consistent with performance and schedule requirements. Toward this goal, operation and support cost estimates assist designers and programme managers to focus their attention on those design aspects that drive costs.

4 PROGRAMME RESPONSIBILITIES AND ILS MANAGEMENT

4.1 General

Cooperation in the acquisition of military equipment is primarily the responsibility of the nations participating in an armament programme. This cooperation is based on the recognition of the sovereignty of the nations in making equipment decisions, while providing the means of achieving and maintaining cooperation in research, development and procurement efforts.

4.2 Organisation

A Project Group, or equivalent, is normally created at the end of the Pre-Concept Stage or at the beginning of the Concept Stage. Any nation having an interest to establish a multinational armament programme may participate. The primary task of the Project Group is to identify, through concept studies, possible solutions to the requirement set. The Concept Stage is usually characterized by the formal

establishment of a Project or Programme Steering Committee (or Board of Directors in cases where a NATO Production and Logistics Organization is established). For a NATO commonly funded armament programme, oversight of the programme will normally be accomplished by a standing senior committee responsible for general matters, with the NATO Infrastructure Committees being responsible for the financial approval process.

A Project/Programme Steering Committee is a body composed of national representatives established by a governmental arrangement (MOU) between two or more nations in order to coordinate, execute and supervise a multination armament programme. To carry out the programme, a management organization (Project/Programme Management Office, specific Agency or Project/Programme Management Team) is established. A Policy Committee should establish a Working Group on ILS responsible for co-ordinating the policy aspects with respect to the implementation of ILS in the project.

A project/programme manager, on behalf of the participants in the armament programme, has the overall responsibility for establishing and managing an ILS programme that relates support to system availability objectives, system design, acquisition, operations and support cost. The project/programme manager should be supported by an ILS manager or staff officer, designated before development of the project definition, to assist in executing ILS responsibilities and to maintain a continuous interaction with the support community throughout the acquisition process. Specific project/programme manager and ILS manager responsibilities are contained in Annex E.

5 IMPLEMENTATION

Nations taking part in a multinational armament programme, agree in principle to endeavour to apply these ILS guidelines and, where possible, to provide the resources to implement them to an extent consistent with the nature of the system concerned and the overall availability of resources. Agencies being involved in commonly funded armament programmes should also endeavour to apply these guidelines. Nations are encouraged to apply this guidance to national armament programmes as well. Doing so, promotes a consistent approach to logistic support planning within Government, agencies, and contractors and facilitates other nations joining programmes at a later stage.

The MOU(s) for the armament programme and the terms of reference (TOR) or statement of work (SOW) for the conduct of activities in the respective life cycle stages of the programme should recognise the general applicability of, and make reference to this ILS guidance document.

ANNEX A - GLOSSARY OF TERMS

Acquisition - The process through which a Governmental and/or NATO Organization enters into a contractual relationship with a Supplier to obtain a product and/or service.

Availability (Operational) - A measure of the degree to which a system is either operating or is capable of operating at any time when used in its typical operational and support environment.

Common Funding - Regular contributions by NATO nations in accordance with a preset cost-sharing formula, to a common fund administrated by NATO which is used for the financing of NATO activities, assets or personnel (Examples: NATO Civil, Infrastructure and Military Budgets).

Configuration - The functional and physical characteristics of materiel as described in its technical documentation and later achieved in the product.

Configuration Management - A discipline applying technical and administrative direction to configuration identification, documentation, control, status accounting and audit.

Cost Analysis - A systematic procedure for estimating the aggregate cost of a system/equipment, and for comparing the costs of alternative systems in order to determine the relative economy and effectiveness of the alternatives.

Cost Effectiveness - A comparative evaluation derived from analysis of alternatives (actions, methods, approaches, equipment, weapon systems, support systems, force combinations etc.) in terms of the interrelated influences of cost and effectiveness objectives and support costs of the system.

Design Interface – The relationship of logistics-related design parameters, such as reliability and maintainability, to operational availability and support resource requirements. These logistics-related design parameters are expressed in operational terms rather than as inherent values and specifically related to system availability objectives and support costs of the system.

ILS Manager/Staff Officer - An individual responsible for the execution of ILS within a project/programme management organization.

ILS Plan - The formal planning document for the integration of the activities concerned with logistics support. It is kept current throughout the project life. It sets forth the concept of operational support, provides a detailed ILS programme to fit with the overall programme and results in the necessary ILS information required by decision making bodies to make sound decisions in system development and production.

INFOSEC - The protection of information systems against unauthorized access to or modification of information, denial of service to authorized users and provision of service to unauthorized users (NSTISSI 4009 definition).

IT Infrastructure – All the hardware, software, network, facilities etc. that are required to develop, test, deliver, monitor, control or support IT services. The term IT infrastructure includes all of the Information Technology but not the associated people, processes and documentation (ITIL v3).

Joint Funding - Funding, on a case-by-case basis, by two or more NATO nations of a collaborative project or activity on a cost sharing basis governed by a Memorandum of Understanding between the participating nations.

Life Cycle Cost (LCC) – Consists of all direct costs plus indirect variable costs associated with the Life Cycle stages of the System of Interest.

Logistics Support Analysis (LSA) - The selective application of scientific and engineering efforts undertaken during the acquisition process, as part of the system engineering process, to assist in:

(a) Causing support considerations to influence design.

(b) Defining support requirements that are related optimally to design and to each other.

(c) Acquiring the required support.

(d) Providing the required support during the operational phase at minimum cost.

During the later production and the in-service phase LSA is conducted on a repetitive basis in order to meet life cycle costs, readiness and supportability objectives.

Maintainability - A characteristic of design and installation which is expressed as the probability that an item will be retained in or restored to specified condition within a given period of time, when the maintenance is performed in accordance with prescribed procedures, conditions and resources.

Non-developmental system/item - A generic term that covers equipment available which will meet an approved operational requirement with little or no development effort required by defence organizations. Normally these sources are commercial products or equipment developed and in use by defence organizations of other nations. In most cases the equipment has to be adapted, modified, customised or improved to meet requirements set.

Project/Programme Manager - An individual charged, on behalf of the Project/Programme Steering Committee, with the responsibility for design development and acquisition of the programme or system and for the design, development and acquisition of the integrated logistics support.

Reliability – The ability of an item to perform a required function under stated conditions for a specific period of time.

Supportability – A measure of the degree to which all resources required to operate and maintain the system/equipment can be provided in sufficient quantity and time (ARMP-7 Edition 2)

SW Training environment – A controlled and limited deployment of an IT Service, a release or a Process to the Production (Live) Environment. A Training environment is used to train users to operate, maintain and support a software system (ITIL v3).

Systems Engineering - An engineering discipline whose responsibility is creating and executing an interdisciplinary process to ensure that the customer and stakeholder's needs are satisfied in a high quality, trustworthy, cost efficient and schedule compliant manner throughout a system's entire life cycle.

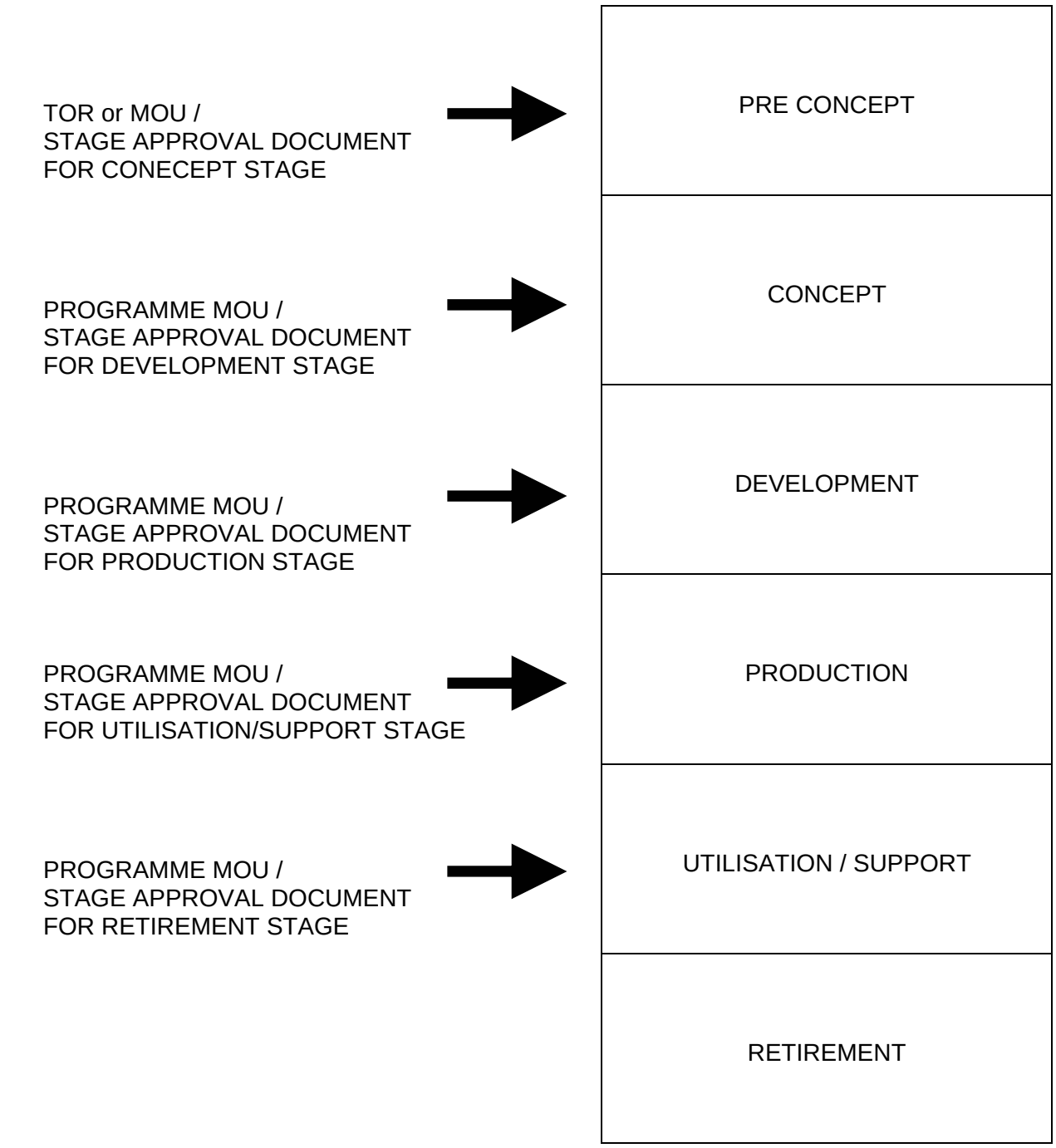
System Life Cycle - The period divided into stages, ranging from the first considerations on the need for a system in the Pre-Concept Stage through the Concept, Development, Production and Utilisation/Support Stages down to the Retirement Stage.

Testability - A design characteristic to determine the operational condition of a system or component by identifying or isolating any actual or potential malfunction, security breach or compatibility issue.

Threshold - A quantitative requirement against which acquisition programme achievements are measured.

Trade off (Analysis) - The determination of the optimum balance between system characteristics (cost, schedule, performance and supportability).

ANNEX B - PHASED ARMAMENTS PROGRAMMING SYSTEM (PAPS)



ANNEX C - INTEGRATED LOGISTICS SUPPORT CONSIDERATIONS IN THE MULTINATIONAL ARMAMENT PROGRAMME

The following are ILS considerations for each stage of the life-cycle of a multinational armament programme. The grouping and listing of activities are not to be used as an all inclusive checklist or model of the single correct approach to ILS activities, because all programmes have unique materiel requirements and schedules. Therefore, the activities described below are not necessarily complete and may differ for specific armament programmes.

1. Pre-Concept Stage

The purpose of the Pre-Concept Stage is to identify and document stakeholder requirements (e.g., Force Goals). Also important, is the identification of risk areas (at a high level) to the capability delivery. This provides focus for research and industry capability/capacity to ensure delivery to an acceptable timescale and affordable cost.

ILS activities to be accomplished during the stage
Define supportability concept and objectives

2. Concept Stage

The Concept Stage starts after a decision is made to fulfill a capability gap with a materiel (hardware and/or software) solution and end with the requirements specification for the materiel solution. The Concept Stage is divided into two phases, the Study Phase and the Programme Establishment Phase. The main thrust of the Study Phase is to conduct an evaluation of alternative technical concepts for satisfying the identified capability need and to identify the most promising technical concepts for further evaluation. At the beginning of the Programme Establishment Phase, the participating nations will seek establishment of a NATO Programme, form a Steering Committee and establish a management organization to carry the Programme to completion. The result of this phase is an agreed set of specifications and a proposed programme that can be used as the basis for entering the Development Stage.

ILS activities to be accomplished during the Study Phase

a) Identify support resource constraints of alternative technical options considered. (e.g. broad limitations dictated by national maintenance concepts, level of skill available to the future users or maintenance workers, capabilities of national supply systems, etc)

b) Estimate for each alternative the life-cycle costs and the gross percentages of the total costs that will have to be allotted for operations and support, in order to facilitate the participating nations' understanding of the operations and support costs involved.

c) Incorporate logistics experts in the project group or establish a logistics working group.

d) For each alternative solution being evaluated, identify and take into account potential logistics support, manpower and training requirements or constraints. Draft an ILS Plan with milestones and costs for critical requirements for each alternative.

e) Develop system availability objectives and establish tentative thresholds for later incorporation into measurable standards of availability criteria.

f) Assess each potential solution's impact on reliability, compatibility, maintainability and utilisation support arrangements in general.

g) Consider the extent of logistics support require for the new system/equipment, including provision for adequate technical and training documentation, support equipment, training devices, etc. The scope and depth of these considerations will have to be refined as the project matures and proceeds through each stage of the life-cycle, taking account of existing utilisation support resources and facilities.

h) For commonly funded projects, identify the ownership and territorial host nation(s) of the SOI and the related support matters such as facilities and personnel.

i) Identify options for cooperative logistics activities; avoid early decisions that might preclude cooperative logistic schemes.

j) Determine logistics related standardization objectives and decide on application of standards and STANAGs.

ILS activities to be accomplished during the Programme Establishment Phase

a) If not yet arranged for, establish a Joint Logistics Working Group in the framework of the Project/Programme Steering Committee to coordinate the policy aspects of the application of ILS in the project.

b) Provide support element experience factors, challenges and objectives to be used in the design synthesis of all system engineering input elements.

c) Establish a consistent set of measurable objectives and thresholds for RAMST and other logistics support parameters.

d) Develop logistics support milestones for inclusion in the overall programme plan. These should include milestones for development of support hardware and software, training plans (including courses and facilities, if required) and funding options for facilities construction required.

e) Define measurable supportability and support cost objectives that are optimally related to system/equipment design and to each other. The following are examples of supportability issues upon which specific objectives can be based:

(1) Maintenance manpower and man-hour constraints.

(2) Personnel skill level constraints.

(3) INFOSEC constraints.

(4) Operation and support cost constraints.

(5) Target percentages of system failures correctable at each maintenance level.

(6) Mean down-time in the operational environment.

(7) Turn-around time in the operational environment.

(8) Standardization and interoperability requirements.

f) Develop a common logistics support concept with a special emphasis on maintenance and supply requirements necessary to provide an operational ready and serviceable system at the beginning of the Utilisation Stage.

g) Continue in-depth analysis of systems specifications with a view to their logistics implications and focus on the logistics concerns.

h) Initiate studies into possible options for collaborative support, including consideration of NAMSA or other appropriate NATO agencies or industry. Ensure that there are no legal, contractual and/or intellectual property right restrictions for establishing a collaborative logistics support.

i) Establish baseline life-cycle costs for the selected alternative. Identify funds and the mode of funding (commonly or jointly) for preparatory logistics activities which aim at the implementation of logistics plans.

j) Identify manpower and facilities requirements of the new project.

k) Decide on kind of technical documentation and computer facilities.

l) Foster the optimum use of standard parts and components.

m) Ensure that logistics considerations have been integrated into the statement of work, specifications, requests for proposal, source selection evaluation criteria and contracts.

3. Development Stage

During this stage detailed engineering and prototype development/ fabrication is conducted to ensure full validation of the selected technical approach, including complete system integration to the point where production contract action can be taken. The Development Stage is the last opportunity to give initial effect to the development of the SOI for common activities of training and logistics support, for which the relevant planning will have already been considered.

ILS activities to be accomplished during the stage

a) Verify by test and evaluation the attainment of the objectives for RAMST and other logistics support parameters.

b) Continue to consider possible systems for collaborative in-service support including consideration of NAMSA or other appropriate NATO agencies or industry.

c) Devise and finalize a formal document that specifies logistics support arrangements to be agreed upon by the participants.

d) Ensure the development status and production lead times of support elements, including facilities construction and training equipment, are commensurate with support capability objectives and deployment needs.

e) Ensure allocation of funds for preparatory logistics activities which aim at the implementation of logistics plans at the beginning of the Utilisation Stage.

f) Ensure that NATO standardization and interoperability requirements are reflected in ILS planning.

g) Refine manpower and facilities requirements of the armament programme.

h) Workout the necessary common procedures to perform logistics activities.

i) Take steps to ensure that ILS considerations are given appropriate weight in requests for criteria for source contractor selection and contract provisions. Contract requirements clearly define a baseline operational scenario, baseline maintenance concepts, NATO peacetime availability and wartime deployment objectives and support schedule objectives. ILS programme and data requirements should be tailored to meet these objectives.

j) Ensure that the test and evaluation of the planned logistics support is conducted and that operational objectives are met. This may be demonstrated through a contractual utilisation reliability assessment.

k) Initiate decision making for the organization of the multinational equipment utilisation support to be performed in the Utilisation Stage.

l) Develop maintenance plan.

4. Production Stage

The purpose of the Production Stage is to manufacture and test the system and its related support and enabling systems, in accordance with production specifications, and deliver the needed materiel solution, in a tested and operationally ready and logistically supportable condition, to the users.

ILS activities to be accomplished during the stage

a) Assure production items meet design and operational availability and supportability requirements.

b) Validate and deliver ILS elements to meet deployment needs. Ensure that logistics support arrangements will be implemented prior to the start of the Utilisation Stage.

c) Correct supportability deficiencies and validate corrective actions through follow-on test and evaluation, if required.

d) Finalize and endorse a formal document which addresses the multi-nationally organized utilisation support and its essential elements.

e) Verify the availability of:

- Technical publications.
- Tools and test equipment.
- Initial provision of spares.
- Software licences and support software licences.
- Manpower and facilities required for equipping the first and subsequent operational organization.

f) Update maintenance plans. Make sure, that the user is presented with full briefings and explanations of the system and its peculiarities.

5. Utilisation Stage

This period covers the operational utilization of equipment. After equipment fielding, ILS will continue for the entire life cycle of an item. Although the project/programme manager and ILS manager may be discontinued, system user/command ILS responsibility will continue.

ILS activities to be accomplished during the stage

a) Establish and maintain the ILS management system and arrange appropriate funding, controls and resources. Conduct periodic reviews as necessary of the ILS management system to ensure optimum operation.

b) Determine supportability requirements and life cycle cost implications of proposed changes.

c) Analyse and assess anticipated and actual in-service performance data feedback of the system and its logistics support.

d) Identify and develop RAMST and life cycle cost improvements in fielded equipment and support systems.

e) Identify deficiencies and updates in the system and evaluate by design/support trade-offs prior to making modification decisions.

6. Retirement Stage

The Retirement Stage is to demilitarize and dispose of the SOI at the end of its useful life and remove related operational and support services. Demilitarization and retirement requirements are addressed in the preceding stages. Disposal should be carried out in a way that is in accordance with all legal and regulatory requirements relating to safety, security, and the environment. Environmental considerations are particularly critical during retirement, as there may be international treaties or other legal considerations requiring intensive management of the system's demilitarization and retirement.

ILS activities to be accomplished during the stage

a) Terminate support activities required in the Utilisation Stage in accordance with the Disposal Plan

b) Analyze ILS elements as applicable for the system of interest in the retirement stage and document them in the ILS plan for implementation. Consider the following:
- Backward supply chain
- Removal of support and enabling systems
- Disassembly of the SOI into manageable elements to facilitate its removal for reuse, recycling, reconditioning, overhaul, archiving or destruction
- Removal of the SOI from the operational environment for reuse, recycling, reconditioning, overhaul or destruction
- Specification of containment facilities, storage locations, inspection criteria and storage periods if the SOI is to be stored
- Destruction of the SOI, as necessary, to reduce the amount of waste treatment or to make the waste easier to handle

c) Ensure the ILS data and information for the SOI is archived, for possible future use, in an appropriate manner.

ANNEX D - INTEGRATED LOGISTICS SUPPORT CONSIDERATIONS IN THE NON-DEVELOPMENTAL ACQUISITION PROCESS

The following are the two stages and associated ILS activities for non-developmental acquisition, which replace the development and production stages of the life cycle model.

1. Concept Stage

In a non-developmental system item acquisition there is only one milestone: the non-developmental system/item buy decision which is based on the determination that an “off-the-shelf” alternative is available, meets operational requirements, and can be supported in a cost-effective manner.

ILS activities to be accomplished prior to the non-developmental system/item buy decision

(a) Perform user/market survey to assess the supportability of the system/item, to include the manufacturer’s technical support base, publications, warranties, parts availability, reliability, maintainability, etc.

(b) Incorporate support considerations into system specifications.

(c) Ensure appropriate weighting of supportability in source selection criteria. Calls for bids should contain clauses inviting the manufacturer to describe the various facets of supportability including reliability, maintainability, testability and life cycle costs.

(d) Estimate, for each possible alternative, the life cycle costs and the gross percentages of the total costs that will have to be allotted to operations and support.

(e) Identify critical supportability test issues and include plans for contractor compliance tests, preproduction tests and initial production tests.

(f) Complete actions relative to the deployment plan, personnel and training requirements.

(g) Complete the ILS plan to include:

- A tailored LSA programme to assess alternative means of support;
- Development of ILS elements;
- Identification of methods to overcome potential deficiencies in organic support.
- Draft ILS statements of work;

- Planning for contractor support where mandated.

2. Acquisition/Deployment Phase

After the non-developmental system/item buy decision, the ILS manager may be constrained by the span of time between contract award and delivery of production items. This span of time is frequently less than the development and delivery of support elements. This difficulty may be overcome by contractor support or other interim mechanisms capable of providing required support capabilities.

ILS activities to be accomplished after non-developmental system/item buy decision

(a) Implement LSA programme.

(b) Initiate materiel fielding actions at time of non-developmental system/item buy decision.

(c) Monitor accomplishment of contractually required support.

(d) Monitor, test and evaluation to ensure support deficiencies are identified and corrected. Expedite correction of support deficiencies revealed by initial using units.

ANNEX E - ILS PLAN TEMPLATE

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1. **General –** General information on the acquisition program and top-level supportability issues.

   1.1 **Introduction** – A short introduction may be appropriate to introduce the reader to the purpose of the ILS Plan, provide any background, and describe the overall approach taken in developing the document.

   1.2 **System Description** – Describe the overall materiel system including its physical configuration and functional requirements. The ILS Plan may include pictures, tables, charts, graphs, and so on.

   1.3 **Program Management** – The organization for managing the acquisition of the system should be described. Identify the Program Manager (PM) and all participating organization along with the responsibilities of these organizations. Describe the different teams which may be involved, including specifics points of contact.

   1.4 **Milestone Schedule** – The milestone schedule serves as a tailored map for the acquisition program. It shows where and when it started, where it is going, and how and when the ILS tasks will be completed. The milestone schedule should be updated before each program review and anytime significant changes are made. A typical chart will show all mandatory milestones and significant intermediate goals along the way. This section may contain selected milestones.

   1.5 **Applicable Documents** - List the applicable documents which can provide additional information and guidance with regard to the acquisition program.

2. **Supportability in the Acquisition Program -** Describe the strategies for attaining ILS objectives within the context of the overall acquisition strategy. A description of the operational requirements, supportability objectives, acquisition strategy, Life Cycle Cost (LCC) and funding issues, Supportability Analysis strategy, and the supportability T&E concept will provide essential information to ensure that supportability is thoroughly planned.

   2.1 **Operational and supportability requirements** - Briefly describe the mission scenarios and requirements, operational environment, security requirements, transportability requirements, employment, concepts, deployment plans, and combat service support force structure. Requirements documents should provide the needed details (for example, annual operating days, annual number of missions, mean mission duration) to input to the SA process. Define the proposed system readiness objectives and supporting RAM thresholds for both peacetime needs and wartime requirements. Specify anticipated or fully mission capable (FMC) requirements. Update SRO information to reflect requirements generated during studies and evaluations.

As system designs mature and available technology is utilized, FMC and other requirements must be validated. Determine and indicate applicable readiness reporting system, forms and frequency.

2.2 **Acquisition strategy** - Describe the anticipated acquisition approach. Initially it may consist of several methods, depending on whether system requirements might be met by a system modification, a foreign materiel system, a new development, or commercial item. Define contractual approaches and incentives for these areas.

2.2.1 Support risks: Identify risk associated with system support alternatives. As a minimum, the following areas should be addressed:

- What are the effects of changing the level of maintenance/repair capability?
- Are there items or subsystems in the inventory that can be used to reduce development risk/requirements?
- How will the proposed materiel system be integrated into the Service's structure at maturation? (The system must be designed to fit into the appropriate Service's support structure planned for the fielding time frame to reduce changes needed).

2.2.2 Personnel requirements: Describe actions to reduce requirements for a high degree of skill to operate , support and maintain the system. Describe any anticipated approaches or incentives to reduce Operations & Support (O&S) cost requirements. Identify the goals and actions to reduce quantity and skill level of personnel operating and maintaining the materiel system.

2.2.3 Source selection: Describe how ILS and supportability will be addressed in the source selection process. Include any plans to consider estimated cost of operation, maintenance, and support, in addition to anticipated acquisition cost, when making the source selection evaluation.

2.2.4 Elements of support in acquisition: Briefly describe the ILS requirements which will be included in solicitation documents and contracts. If accelerated acquisition is a possibility (for example, pre-planned product improvements or commercial items), identify those items that may need to be accelerated and how they will be accomplished. Identify any non-standard budgeting or funding actions.

2.2.5 Planned deployment and employment: Describe the planned operational concepts.

2.3 **Performance based logistics (PBL)** – Discuss the PBL strategy and implementation, to include the use of performance based contracts rather than transaction based contracts.

2.4 ILS/Supportability funding

- Describe studies and investigations to be conducted and updated in determining, by ILS element, total life-cycle cost estimates to include an identification of the scope and depth of studies to be conducted. Include plans for transition of support to item managers and the respective sustainment command.
- State support models and modifications to be used in cost estimating and limitations and assumptions to be made in modeling.
- Provide coordination channels and reporting schedules.
- State results (dollars/type funds) of cost estimating, by ILS element, major function, operation and maintenance. Include total requirements.

2.5 Supportability Analysis (SA) strategy

2.5.1 Describe the SA to be conducted in the acquisition effort. Identify the specific types of analyses required. Identify how the SA process is being accomplished and any actual or potential problems.

Include brief descriptions of the following:

- SA required: Describe how the SA selected will be tailored to specific acquisition program needs and stages.
- SA application to ILS elements: Describe how Logistics Management Information (LMI) will be used to provide input for development of ILS elements.
- Structure of the LMI data products: Specify the hardware and software indenture level and level of maintenance for which the LMI will be generated and documented. Identify the planned degree of LMI tailoring.
- SA data verification: Identify how data will be verified for adequacy and accuracy and who will be responsible for such verification.
- Identify the source of data for SA.

    - Describe controls to assure the SA does not include duplicate, incoherent or redundant data requirements.
    - Describe results of the SA. This should summarize results of analyses performed in prior phases.

2.6 **Supportability Test & Evaluation** – Briefly describe the planned supportability T & E concept, scope, and objectives, and how they will be met during developmental and operational testing. List the organizations (for example, logistician, testers, independent evaluator, and so on) that will identify supportability test issues. These issues and objectives will be summarized in the ILS Plan and incorporated into the Test and Evaluation Master Plan. Information developed should consider, but not be limited to the following:

2.6.1 Peculiar test requirements that are directly related to the ILS Plan.

2.6.2 Anticipated critical supportability issues and their impact on the support planning.

2.6.3 Testing and evaluation necessary to assess actions taken to resolve critical issues.

2.6.4 Training, manpower, and skills required to accomplish T&E.

2.6.5 Dates for initiation and completion of actions required to resolve supportability issues.

2.6.6 The interface between the LMI and the test data collection systems.

2.6.7 T&E of built-in or supporting automatic operating, testing, and maintenance equipment (and associated software, if applicable).

2.6.8 How completed test results will affect planned test actions, criteria, requirements, and so forth.

2.6.9 Provide a summary of significant actions and activities to include the following:

- Proposed test locations.
- Data collection procedures and data uses.
- Organizations and responsibilities involved in the T&E efforts.

2.6.10 Plans for the Logistics Demonstration (LD), verifying the LMI and components of the system support package, draft/final equipment publications, all test, measurement, and diagnostic equipment, the maintenance allocation chart, the repair parts/special tool list, recovery tools,etc. The LD should be accomplished as soon as feasible after a representative engineering development unit/software release is available (during military suitability or feasibility testing for Non Developmental Items (NDI)). LD must be completed

in a timely manner so that the source and availability of the system support package components can be established prior to the developmental and operational testing).

2.6.11 Identify the requirements and methods to be used for providing a representative engineering development unit/software release for LD (for example, dedicated or on a time-phased sequential claimant basis).

3. **ILS element plans -** Provide details on plans for each ILS element. The bulk of the ILS Plan will be in this subsection which explains issues and requirements in detail for each of the ILS elements. Each ILS element needs full consideration in the ILS Plan. If the area is not applicable, provide supporting rationale. Each ILS element will include consideration of the relevant personnel requirements and constraints.

3.1. Maintenance planning

3.1.1. Describe the maintenance concept for the system including all levels of maintenance. Identify tradeoffs to be performed and maintenance considerations peculiar to the system.

3.1.2. Identify maintenance tasks required to sustain the end item at a defined level of readiness, include all critical and high driver tasks. The LMI data product format can be used to provide part of the maintenance planning data.

3.1.3. Describe the general overall support concepts contained in the CD or resulting from logistic studies. Identify proposed or actual skills, tools, test, security procedures, measurement, and diagnostic equipment, support equipment, and so on, to be available at each level of maintenance. Include analysis of possible design for discard of components and repair parts.

3.1.4. Indicate strengths and weaknesses of each support alternative and the effect of the support concept on the system design, acquisition and O&S costs, and on affected ILS elements.

3.1.5. For systems being acquired for multi-national use, address the feasibility and desirability of centralized repair and supply support by a single nation, the predominant user in a geographical area or the one with centralized support capability.

3.1.6. Describe maintenance environment.

- Describe the maintenance environment, limitations, constraints, and requirements projected for the deployment timeframes. Provide sufficient detail (turnaround time, direct productive annual maintenance man-hours

to support SA. Include logistic support parameters stated in the requirements documents. Use LMI data when available.

- State the nature and extent of maintenance to be performed by each level of maintenance to include battle damage expedient repair procedures. Discuss alternative approaches when applicable. Identify tradeoff criteria used for selection of the preferred alternative.
- Identify the organizational and logistic support structure that will be responsible for providing direct and general supply support and maintenance support.
- 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 comprising the total system.
- Identify the need for maintenance float items.
- Identify all depot maintenance studies applicable to the materiel system. Report the latest status of each of the studies. If studies have not been initiated, indicate plans to accomplish this task.
- Describe efforts to minimize potential safety problems during maintenance.
- Where applicable, describe maintenance concepts, requirements and procedures for
- Nuclear hardness maintenance and surveillance procedures contemplated to assure the nuclear hardness of the system throughout its life cycle.
- The Nuclear, Biological, and Chemical (NBC) contamination survivability maintenance procedures must be maintained throughout the life cycle of the system.

3.2. 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. Consider the following areas:

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

3.2.2. Describe plan, as applicable, for cataloging, acquisition, packaging, preservation, receipt, storage, issue, and disposal of the following:

- Repair parts, ammunition, Petroleum, oils and lubricants (POL), and so on.
- Major components and secondary items.
- Special and common tools and TMDE.

3.2.3. Include plans for reviewing and adjusting the usage and failure factors based on SA/LMI, test data, and field experience data. Include support

planning not only for the end items being procured, but for any of the following claimants receiving assets:

- War reserves; operational projects, operational readiness float, and repair cycle float stocks.
- Decrement stocks (to include early mission Reserve Components (primary mobilization)/ full Service mobilization war reserves).
- Other claimants, as appropriate.

3.2.4. Include plans for

- Determining the range, quantity, and specific requirements for supply support elements needed.
- Identifying long lead-time items and vendor supplied items.
- Identifying critical parts, services and equipment.
- Re-procurement.
- Identifying all Government-furnished equipment.
- Identifying all nuclear hardness critical items for both initial provisioning and replenishment.

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

3.2.6. Address possible need for inter-service supply support agreements

3.2.7. Assess the effect of the acquisition schedule on provisioning efforts.

3.2.8. Provide necessary information to other supply supporting organizations, 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.

3.2.9. Identify requirements for basic sustainment material (BSM). BSM is the material 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.

3.3. Personnel

3.3.1. 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 interface. Assess projected force structure (at time of deployment) to meet both peacetime needs and wartime requirements.

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

- Present skills that may be used with little or no retraining.
- New skills required (skill evaluation and justification).
- Assigned duties.
- Task, skill, behavior, and man-machine interface analyses.

3.3.3. Define coordination with all ILS functions, and use of LMI as data source. Define data requirements.

3.3.4. Identify system safety and human factors constraints to help minimize problems with the human interface during system operation, maintenance, and transport. Include any system safety and hazard assessment requirements and results as applicable.

3.4. Support and test equipment

3.4.1. Describe procedures used to identify requirements for support equipment.

3.4.2. Identify requirements for investigation of existing standard support equipment in the inventory. Describe procedures for maximizing selection of standard tools, TMDE, support equipment and environment, to include vehicles, generators, and trailers. If modifications to current or planned materiel systems are needed, summarize plan to assure changes are completed by required time of need.

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

- Include the TMDE register and preferred items list for mandatory use of specific items.
- Define procedures for establishing TMDE requirements during SA.
- Describe use of LMI for establishing materiel system unique support equipment requirements by maintenance level.

- Identify requirements for TMDE registration and acquisition approval. Indicate direction to be given to the contractor regarding the use of common TMDE, including requirements for calibration and calibration support.
- Identify calibration requirements of the system and its support equipment.

3.4.4. Identify support equipment and TMDE peculiar hardware test, development, and support requirements. Identify any environmental and storage requirements needed for TMDE, automated test equipment, and test program set.

- Define support equipment and TMDE peculiar T&E objectives, and provide appropriate input to the test and evaluation master plan (and coordinated test plan, if prepared).
- Identify requirements (and materials needed) for local fabrication of tools, maintenance or test stands, or any other support items.
- Identify software changes to maintenance equipment where required and interconnecting devices required to test systems on existing test stands.

3.5. Design influence/ interface

3.5.1. Describe how ILS and Life Cycle Cost (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.

3.5.2. Describe climatic, environmental, and energy constraints and initiatives and any related tradeoffs.

3.5.3. Describe use of the independent research and development program or other supportability studies to identify new technologies

3.5.4. Describe logistics-related durability and survivability (to include corrosion protection, long-term storage, nuclear, biological, chemical (NBC) resistance).

3.5.5. Describe component and major item standardization and interoperability requirements.

3.5.6. Describe applicability of experience with similar materiel systems or other lessons learned which might influence system design.

3.5.7. Describe any other areas.

3.6. Technical information and data

3.6.1. Identify equipment publications concept.

3.6.2. State requirements for publications updating and finalization. Coordinate scheduling with the system production schedule. Describe how the LMI 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.

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

3.6.4. Identify actions, events, milestones, and schedules for preparation and printing of final publications.

3.6.5. Describe plan for inter-service coordination on technical data requirements for multiservice acquisition.

3.6.6. 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 non-developmental items (NDI) with CLS versus level 3 drawings for organic maintenance/training), and what effect this will have on the acquisition strategy and acquisition plan.

3.7. Training and training support

3.7.1. 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 T&E procedures. Provide information on training constraints and target audiences.

3.7.2. Identify long-term training facilities programming requirements and coordination needed.

3.7.3. Describe plan for acquiring the required training and training devices.

3.7.4. Describe institutional training requirements and plans unique to operation and maintenance of hardware, software, human interface, support items, and test equipment.

3.7.5. Identify any nonstandard packaging, handling, storage and transportation (PHS&T) training requirements for movement and storage of sensitive, classified, or hazardous components, parts, materials, or ammunition.

3.8. Facilities and infrastructure

3.8.1. Describe all facility requirements for the use, storage, testing, training, maintenance, and disposal of the system of interest and its support equipment.

3.8.2. Describe known or planned maintenance, calibration, software setup, storage, training, and personnel facilities requirements and constraints. Also, address utilities requirements. Use the LMI output summary for Special Facility Requirements (if available)

3.8.3. Describe the adequacy or inadequacy of existing facilities (both fixed and mobile) for both the end item and its maintenance and support needs.

3.8.4. Describe any modifications necessary to existing facilities (both fixed and mobile) for inadequacies described above.

3.8.5. Describe any new facilities requirements for personnel using, testing, training, operating, and doing field and depot maintenance.

3.8.6. Identify program requirements (including responsibilities and funding) and schedules required to provide necessary modified or new facilities (fixed and mobile).

3.8.7. Describe any special security requirements for storage and use of classified end items, components, manuals, data and information set, test program set, etc. Include quantity and volume of materiel, security level of materiel, and any electronic and INFOSEC countermeasures.

3.9. Packaging, handling, storage, and transportation (PHS&T)

3.9.1. Describe system-unique requirements, management responsibilities, and procedures used to ensure that PHS&T requirements are identified and met in a timely manner during the acquisition process.

3.9.2. Describe anticipated PHS&T modes and constraints.

3.9.3. Identify system, component, part, and test equipment environmental storage and climatic requirements (for example, humidity and static control and grounding requirements).

3.9.4. Summarize actions necessary to resolve logistic problem areas identified, to include the following:

- Tradeoffs of PHS&T requirements.
- Tradeoffs of PHS&T risk areas affecting LCC.

3.9.5. Describe PHS&T assets required and those expected to be available at first unit equipped.

3.9.6. Identify current and projected changes of PHS&T systems and procedures. Determine the interface with PHS&T equipment undergoing parallel development, integration or testing.

3.9.7. Verify PHS&T test requirements have been identified and included in the test and evaluation master plan.

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

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

3.9.10. List the supply bulletin number(s) of the storage serviceability standard that is appropriate for the materiel system.

3.9.11. Describe any unique transportation and transportability responsibilities, requirements, and constraints, including those related to unit and force deployability. Identify required strategic and tactical transport modes and aircraft and rail/road/water vehicle type. Identify user transportability limitations and restrictions including container compatibility. When appropriate, discuss design or performance tradeoffs for mobility, transportability, and rapid deployment.

3.9.12. Describe current transportation assets and those expected to be available at deployment and identify current and projected changes to transportation systems and procedures. Determine the interface with new equipment undergoing parallel development or testing.

3.9.13. Identify transportability test requirements for inclusion in the test and evaluation master plan.

3.9.14. For systems being acquired for multiservice use, the following apply:

- Identify transportability requirements for shipment of equipment, including special requirements of participating services.
- Describe loading and unloading configuration layout by appropriate aircraft type when air transportation is to be used. Include weight and cube.
- Identify lifting and tie-down requirements and procedures to ensure these are included in final system configuration.

4. Supportability in fielding and operational life

4.1. Initial fielding

Briefly describe planning for initial fielding and achieving initial operational capability. Summarize the procedure and schedule for preparation of all materiel fielding documentation. Provide information on how fielding will be implemented.

4.2. Program transition

If applicable, provide a description of how and when the program will be transitioned from the program management office to the support organization. Identify transition lessons learned applying to the current program. Show how repair parts usage, skills, training, procedures, technical data, and so forth will be obtained and used. Provide sufficient detail to assure that all necessary data is provided in time to adequately provision, train, and maintain the system after transition to Government support.

4.3. Post production support (PPS)

4.3.1. An initial post production support plan will be developed during the early part of the Development stage. It will document resources and management actions to ensure the sustainment of requirements and logistic support at all levels following the cessation of the Production stage for a system

4.3.2. A schedule for updating the PPS plan will be developed to ensure the plan is maintained current. The PPS plan will be updated prior to the production decision, at production phase-out, and at any other time a significant change has occurred in the anticipated support timeframe.

4.4. Post fielding support analysis

It is important to ensure high readiness while minimizing support costs for a system throughout its operational life. A plan must be developed for monitoring support of the system after it is fielded. Describe the readiness and support data to be collected; data sources; methods of data analysis; and procedures for using the results to correct ILS problems or to enhance the supportability of the system.

4.5. Disposal

This portion of the ILS Plan is often neglected. It is important to plan for disposal even though the system is expected to have a long service life. Although salvage is of little economic concern, the potential environmental impact of system components is the driver for the emphasis on disposal planning. And disposal at any time during the life of a
system if a catastrophic failure or accident results in the need to scrap it.

ANNEX F

PROJECT MANAGEMENT ILS RESPONSIBILITIES

Appendix: 1 – Relationship of organizations/individuals having ILS responsibilities

The arrangements under which nations participate in one or more successive stages of the life cycle of a jointly funded multinational armaments programme are set out in a Memorandum of Understanding (MOU). This MOU contains arrangements for the governmental organization which will be responsible for the implementation of the memorandum. Prior to or starting with the Concept Stage the governmental organization may consist of:

(a) A Policy Committee – a Project/Programme Steering Committee or Board of Directors;

(b) An Executive Body – a Project/Programme Management Office (PMO), headed by a Project/Programme Manager (PM) or an Agency headed by a General Manager.

For a commonly funded programme, other standing committees, such as the Infrastructure Committees, the Military Budget Committee and the NATO Communications and Information Systems Committee, may be involved in the overall decision making for the programme. The Executive Body responsible for the execution of the programme is generally a project/programme management team within a NATO agency (e.g. NACISA).

The Policy Committee, which makes its decisions unanimously and consists of representatives from the participating nations, will be responsible for direction of the task to be carried out. It will have authority over and issue directives to the head of the Executive Body concerned. The Head of the Executive Body should have overall responsibility for establishing and managing an ILS Plan that relates support to system availability objectives, system design and acquisition, operations and support cost. That person should be supported by the ILS Manager or staff officer to assist in executing ILS responsibilities and to maintain a continuous interaction with the support community throughout the acquisition process.

The Policy Committee should establish a Working Group on ILS responsible for co-ordinating the policy aspects with respect to the policy aspects with respect to the implementation of ILS in the project. The ILS Working Group will assist and advise the ILS Manager in all activities, which will be carried out to develop, update and implement the ILS Plan on behalf of participating nations. More specifically, members of the ILS Working Group should be responsible for national staffing and co-ordination with other Working Groups of all aspects of the ILS Plan prior to its implementation.

The Project/Programme Manager, General Manager or Project/Programme Team Leader is responsible to the Policy Committee concerned for directing the Executive Body in the efficient discharge of its duties and responsibilities which include:

(a) The successful completion of the task as reflected in the MOU.

(b) The overall financial management of the budget of the executive body.

(c) The liaison with NATO agencies/bodies.

(d) The co-ordination of the day to day activity of the office/team.

7. In the ILS process most elements represent functional areas which are individually managed by technical specialists. The ILS Manager's role should be to co-ordinate and interface these functional areas to achieve integration of all ILS elements into an ILS Plan. Thus, responsibilities of the ILS Manager or staff officer are intended to:

(a) Develop an ILS Plan and monitor its implementation, integrate schedules and identify inter-relationships among ILS elements and design activities;

(b) Establish internal procedures and techniques to assess ILS programme management and execution of the project.

(c) Update the ILS Plan as the project/programme progresses through the acquisition phases;

(d) Prepare ILS input for contractual documents and evaluate output of contractor's ILS organization;

(e) Coordinate all ILS efforts which influence equipment design from the supportability viewpoint and monitor accomplishment;

(f) Maintain visibility of all essential ILS resource requirement assets, and the extent to which budgeted resources are or will be available to meet these asset requirements.

(g) Maintain current ILS management information (including detailed schedule and LSA documentation) to support ILS planning and management decisions.

(h) Interface and coordinate logistic support activities with other NATO organizations (e.g. NAMSA, NATO military commands, and national organizations).

(i) Ensure an orderly, timely and efficient transfer of overall logistic support responsibilities and know-how to the system user or in-service support organization.

A schematic structure portraying the relationships of the organisations/individuals having ILS responsibilities is at Appendix 1.

APPENDIX 1 to ANNEX F

Relationship of Organizations/Individuals Having ILS Reponsibilities