CHAPTER 3
LOGISTICS AUTOMATION

INTRODUCTION

The goal of logistics is to provide the support required to ensure that operations succeed. A dependable, uninterrupted logistics system helps commanders seize and maintain the initiative. Logistics arrangements cannot be so meager that they do not meet the needs of commanders. Nor can they be so excessive that they overwhelm the ability of commanders to move, protect, and employ them efficiently. The logistics system must strike a balance and not burden commanders with more support than needed. QM units must provide the right supplies at the right location and at the right time. The automated supply systems must allow supported units to request supplies rapidly and QM units to provide them quickly.

RESPONSIBILITIES

QM units must provide adequate and timely supplies to supported units. The materiel management center (MMC) in each echelon of the force--at division, separate brigade, or armored cavalry regiment (ACR) level and higher--manages the supplies.

CONCEPT OF OPERATIONS

Many of the Army's deployed systems evolved from commodity-oriented management systems. They have been restrained by their original 1970s technology. Their limitations are well known. These systems are being replaced at all logistics levels--tactical, operational, and strategic--as quickly as resources permit.

CURRENT OPERATIONAL AND TACTICAL SUPPLY SYSTEMS

There are many supply-related systems in use at the operational and tactical levels of logistics. These are discussed in the following paragraphs.

Unit Level Logistics System (ULLS)

The proliferation of automation has allowed the Army to provide computers to automate the organizational prescribed load list (PLL). This automation improves accountability and provides for better asset visibility.

ULLS was developed to meet the needs of unit maintenance and repair parts management. It provides timely, accurate, and relevant information on the status of equipment, requested parts, operator qualifications, PLL usage, fuel consumption, and unit maintenance schedules. ULLS allows for the automated submission and processing of--

- Class IX repair parts transactions.
- Maintenance work orders.
- Equipment dispatches.
- Maintenance of historical records.
- Equipment usage, fault, modification, and forecast reports.
- Motor fleet readiness data.

It provides automation to the PLL clerk for the management of Class IX repair parts operations in the motor pool and The Army Maintenance Management System (TAMMS) functions. It is a user friendly, menu-driven system. It interfaces with the standard army maintenance system (SAMS- 1) and the standard army retail supply system (SARSS-1) at the DS level.

Another element of ULLS is the development of the S4 module. ULLS-S4 will provide near-real-time logistics management and decision support information. It will automate the battalion S4 and unit supply processes. These processes

include subhand-receipts, component lists, shortage annexes, basic and operational loads and movement planning, materiel readiness reporting, asset visibility, ration requests, map requisitions, and battle losses. Additional information about ULLS-S4 appears later in this chapter.

SARSS-1 Interim (I)

SARSS - 1 (I) is subordinate to the direct support unit standard supply system (DS4). It improves responsiveness of DSU supply operations. It also improves customer support through increased asset visibility. It operates on the Tactical Army Combat Service Support (CSS) Computer System (TACCS). SARSS-1(I) will be replaced by the SARSS-Objective (SARSS-O) family of systems. These systems support the forward and main supply support activity (SSA) at the DS level and interface with SAMS, ULLS, SPBS-R, DS4, and the reserve component automation system (RCAS). SARSS-1(I) serves several functions. These include--

- Providing DSUs with an automated capability for issuing, receiving, and storing supplies through interactive processing.
- Accomplishing release of due-outs at the DSU level upon receipt of supplies.
- Increasing responsiveness to customers by providing an automated capability to process requests for follow-up at the DSU level.
- Reducing the input error rate in the supporting supply system by providing transaction edit capabilities at the DSU.
- Providing DSU personnel a capability to continue operations temporarily should the DSU become separated from its supporting activity.
- Ending the use of punched cards in DSU operations.

DS4

DS4 is an automated inventory management system at the DS level. It manages all classes of supply, less ammunition, medical, bulk petroleum, subsistence, and contractor-operated supply accounts. Also, it does not manage supplies provided the Directorate of Public Works (DPW) for repairs and utilities work at the DS level. DS4 interfaces with the Standard Army Intermediate Level Supply System (SAILS) at the installation or corps support command (COSCOM) and with SARSS-1(I), SAMS, and ULLS. It automates the management functions of supply and stock control in the division (DMMC), brigade (BMMC), and the nondivisional stock control section. It gives DSUs an automated capability to receive, store, and issue supplies. Both divisional and nondivisional DSUs use DS4.

Divisional DSUs. In divisions, DS4 uses the umbrella concept, with multiple DSUs. System parameters identify units authorized for support. The division support command (DISCOM) commander directs the DMMC's CSS automation management office (CSSAMO) formerly known as the logistics automation system support office (LASSO). The DISCOM commander also directs SSA and division materiel management center (DMMC) operations.

Nondivisional DSUs. In nondivisionaI units, DS4 normally uses the single DSU concept. If required, it can provide support using multiple DSUs. The supply support unit may consist of a company or platoon. It will have a stock control section and a storage activity. Its table of organization and equipment (TOE) or modification table of organization and equipment (MTOE) designates the authorized supply personnel. The stock records officer is the accountable officer.

Recapitulation. Differences between the divisional and nondivisional systems result from the organizational differences. Divisions operate under the multiple DSU concept. Main DSUs maintain backup stock for forward DSUs. They also replenish forward DSU stock as necessary. Most nondivisional DSUs operate as stand-alone support activities. In divisions, CSSAMO personnel operate the computer. In nondivisional DSUs, stock control personnel operate the computer. SARSS-O will replace DS4.

SAILS

SAILS is a DA standard automated supply management information system. It is designed to accomplish all stock control, supply management, and related financial management interface processing functions. It operates at the intermediate level between the CONUS supply level and the manual and automated unit/direct support supply level. It processes information on supply classes II, III (packaged), IV, VII, VIII, and IX. The system can be operated in multiple intermediate level supply environments. It now operates at theater army materiel management centers (TAMMCs), corps materiel management centers (CMMCs), and installation level. At the strategic level, mobilization requirements management by SAILS includes theater war reserves and operational projects. It is scheduled to be replaced by SARSS-O. Figure 3-1 depicts the current automated supply system from the unit level to the strategic level with related standard army management information systems (STAMISs) included.

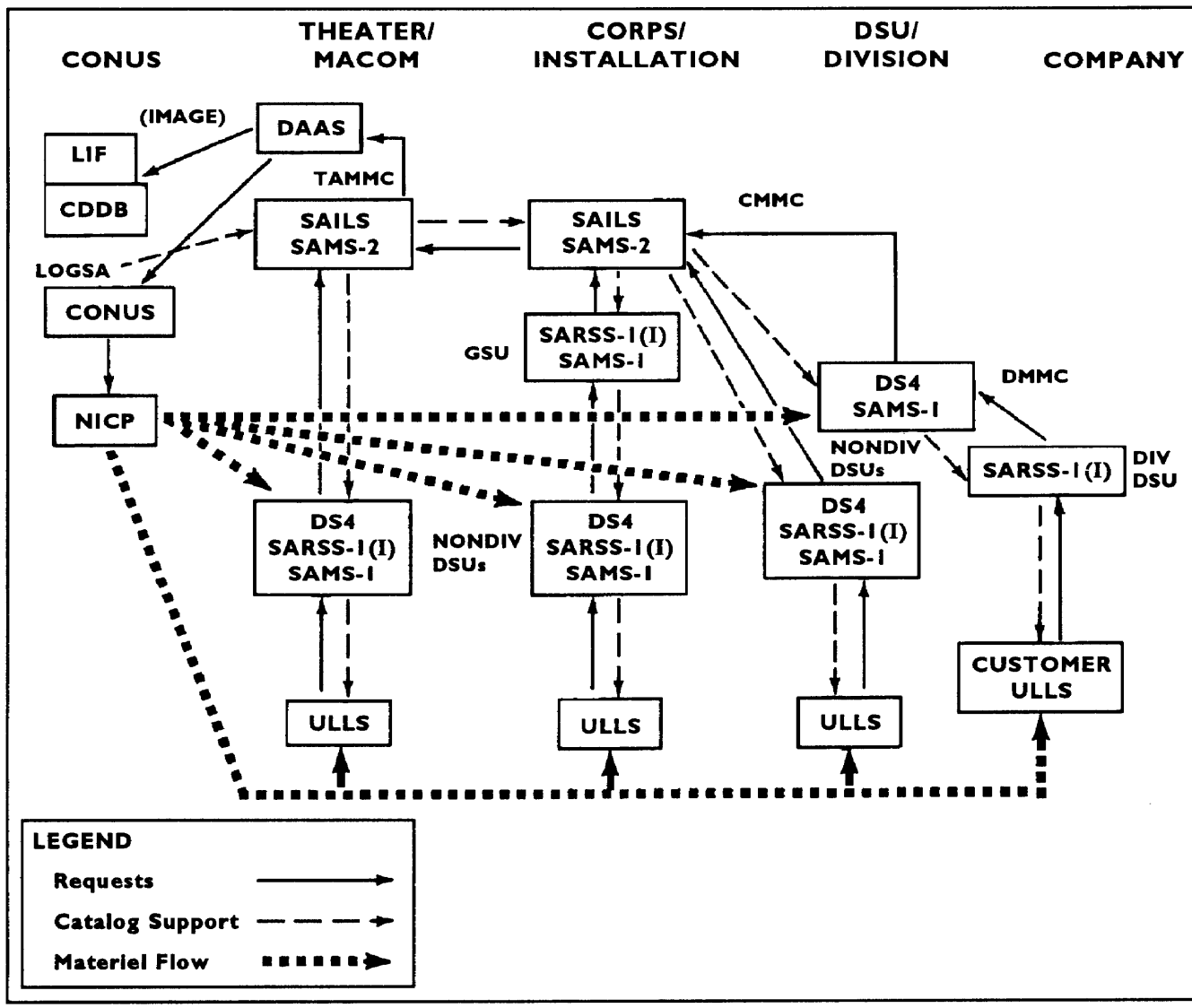

Figure 3-1. Current automated supply system

SARSS-O Systems Overview

The Army has partially implemented and will continue to implement SARSS-O. It will replace the aging SARSS-1(I), SAILS, and DS4 and expand the automation of supply activities.

Today's newer CSS systems address the shortfalls of earlier systems. Modern microcomputers provide interactive processing and capabilities formerly found only in mainframe computers. WhiIe these systems are great improvements, they do not support vertical inventory management to the degree called for by doctrine and the requirements of the Defense Management Review (DMR). Figure 3-2 (page 3-5) depicts the SARSS-O concept of operations. It also shows the interfaces between structures from the tactical to the strategic level. SARSS-O is to be a multilevel supply management system. It will operate in peacetime or war. It will operate at every level of supply, from the DSU/generaI support unit (GSU) through the theater Army in a theater of operations. It will also operate from the warehouse through the installation supply division in CONUS. The system consists of SARSS-1, 2A, and 2B which are subsets of the entire SARSS-O system.

FUTURE TACTICAL/OPERATIONAL LEVEL AUTOMATED SYSTEMS

There are several logistics systems that are being developed. The following paragraphs discuss those with supply and field services implications.

ULLS-S4 Module

The ULLS-S4 module will provide automation and near-real-time logistics management and decision support information for the battalion S4 and unit supply rooms. It will consist of six functional areas. Three of the primary areas and their coverage are as follows:

- Supply function: Performs request, receipt, status, document control register, and catalog management functions.
- Property function: Prepares hand receipts, component lists, property adjustments, asset visibility, property inventory, and organizational clothing documentation.
- Materiel status function: Automates the materiel condition status report and the unit status report (logistical portion).

Standard Army Retail Supply System-2A (SARSS-2A)

SARSS-2A will perform time-sensitive supply management functions at the MMC level. It will rapidly respond to documentation received from subordinate SARSS-l, SARSS-2A, or DS4 activities. It is to be an on-line, transaction-oriented, management system allowing users to enter data and query the system using a keyboard. It will use near-real-time batch processing for transactions received from other activities. SARSS-2A, like the other SARSS subsystems, will maintain control of transactions by assignment of serial numbers to the frequent small batches of data passed between activities. It will maintain asset visibility of subordinate SARSS-1 accounts, provide requisition routing, and perform lateral searches of stocks to fill unsatisfied requirements. It will also release controlled items, provide gross obligation of consumer funds, and provide disposition instructions for redistribution or retrograde of excess materiel.

Standard Army Retail Supply System-2B (SARSS-2B)

This module is also scheduled to replace elements of the SAILS and the DS4. It will perform less time-sensitive actions. These include demand history and analysis, document history, and cataloging. It will process on corps/theater automated service centers (CTASCs) at the operational and tactical levels. It will process on the Army Standard Information Management System (ASIMS) at installations.

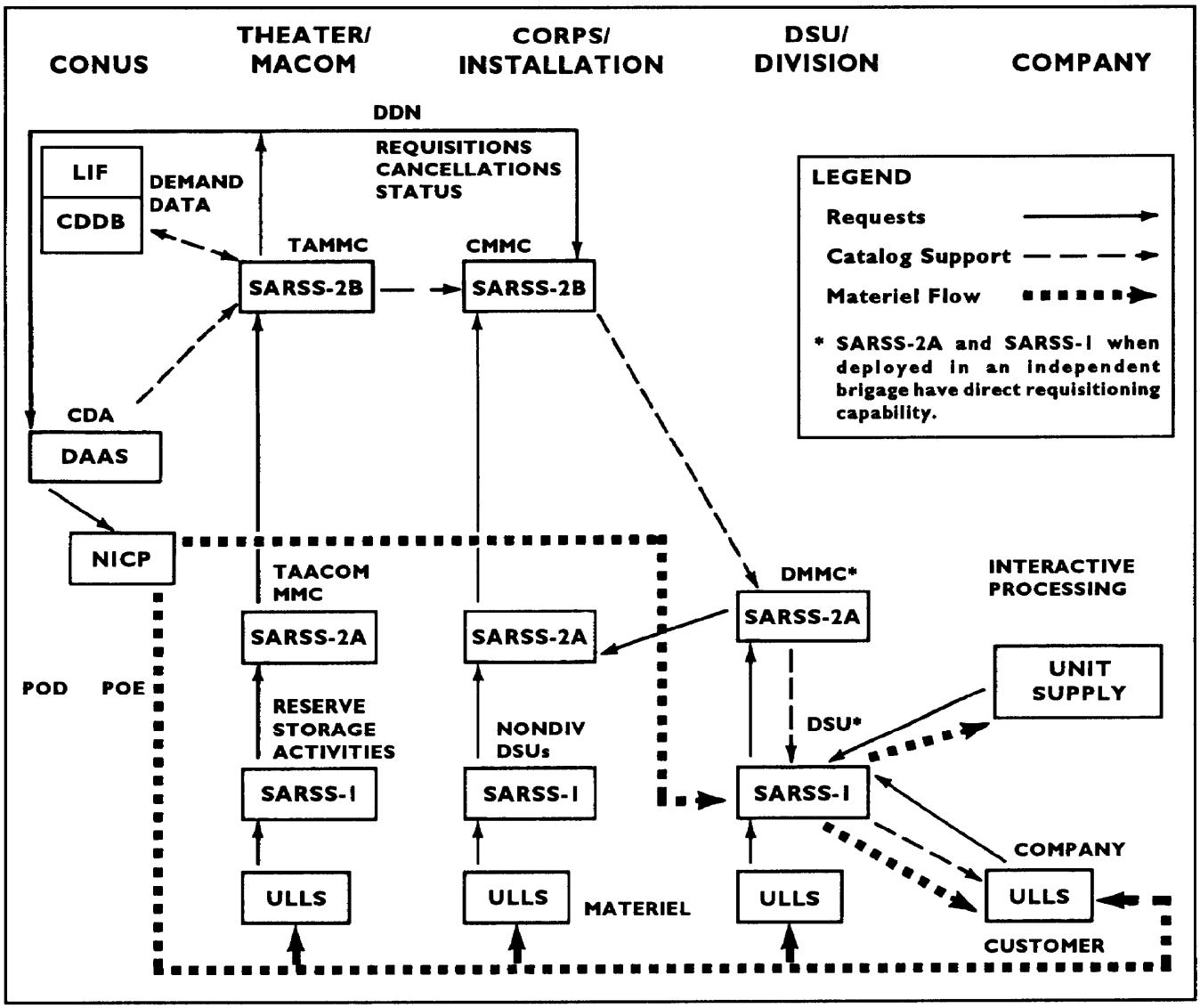

Figure 3-2. Emerging automated supply systems

Standard Property Book System-Redesign-Installation/Table of Distribution and Allowance (SPBS-R-I/TDA)

Figure 3-3 (page 3-6) illustrates future STAMIS interfaces for unit supply functions using the ULLS-S4 module through SPBS-R-I/TDA and SARSS-O. SPBS-R-I/TDA will provide standardized, automated functional procedures and processes for property accounting, equipment management, and asset reporting. It will operate in installation and TDA environments. SPBS-R-I/TDA is to be an interactive, menu-driven functional application operating on dedicated microcomputer hardware. It will replace local unique systems and automate property books that are currently maintained manually. It will be the Army's property accountability and equipment management system for installations and TDA activities.

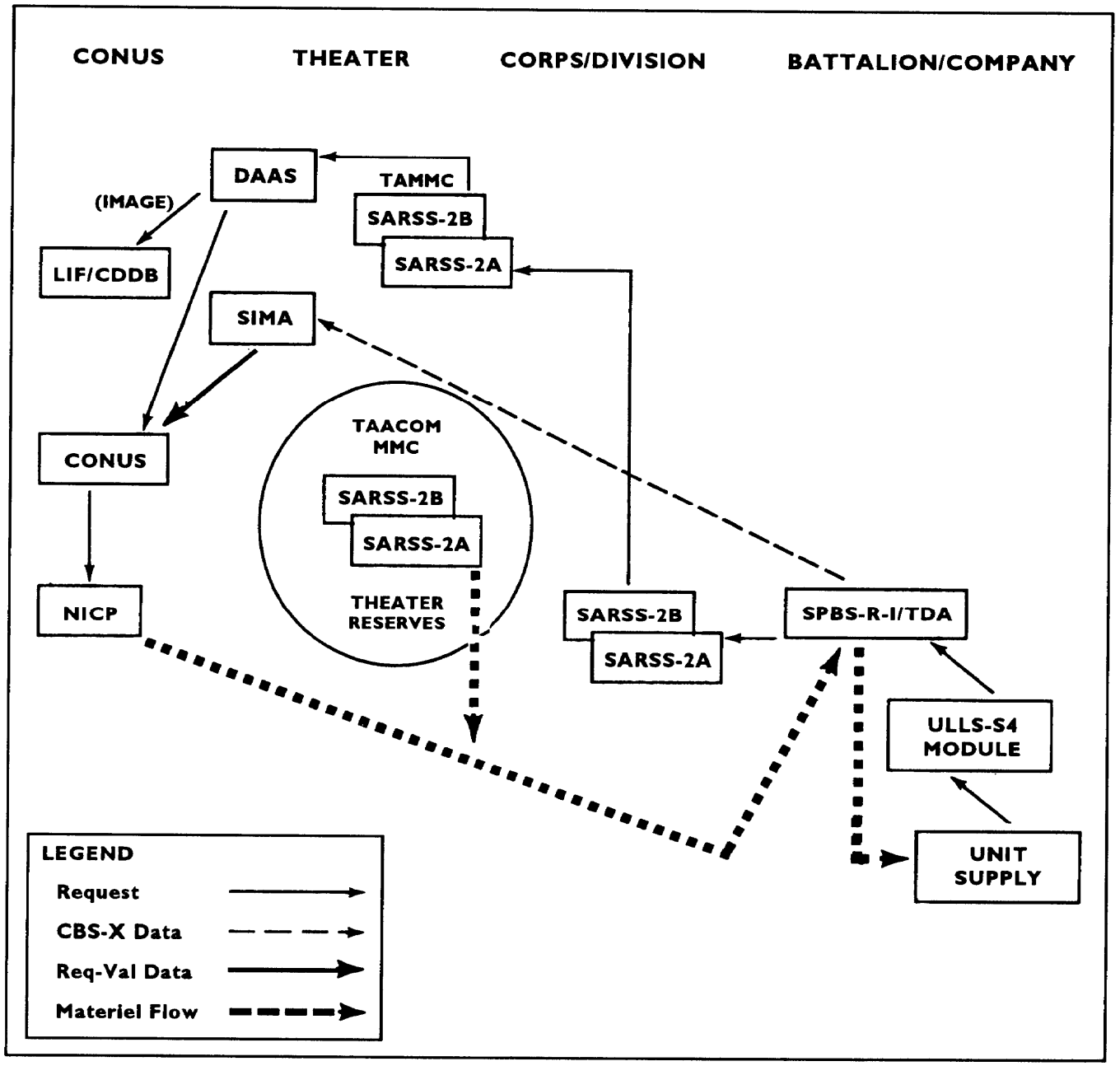

Figure 3-3. Future STAMIS interfaces

FUNCTIONAL SUPPLY CONCEPTS

The following tables detail the current and proposed supply system concepts (manual and automated) by organizational level. The first column lists the systems as they now exist. The second column lists the supply systems concept for the future. Table 3-1 (page 3-7) depicts the unitlevel concept, Table 3-2 (page 3-7) the division level, and Table 3-3 (page 3-7) the intermediate, installation, corps, and theater level.

Table 3-1. Unit level functional concepts

CURRENT FUNCTIONAL CONCEPT	PROPOSED FUNCTIONAL CONCEPT
Supply functions performed at unit level include: • Standard automation to battalion and company level activities authorized to stock PLL items. • Receipt, storage, issue, and accounting for PLL assets. • Status/reconciliation/validation. Automated support features: • Preparation of TAMMS data. • Serial number tracking capability.	Automate logistics functions currently done manually. Compute non-MPL stockage requirements. Monitor fund commitment. Provide support features: • Tutorial instruction. • Interactive processing. • Report query. • Built-in Army materiel system reporting interface to SAMS.

Table 3-2. Division level functional concepts

CURRENT FUNCTIONAL CONCEPT	PROPOSED FUNCTIONAL CONCEPT
Supply functions centralized at DMMC: • Status/reconciliation/validation. • Asset visibility and reporting for division stocks. • Demand processing for DS requirements. • Edit, receipt, storage, issue, and requisition processing for all DSUs. • Materiel returns responsibility. DSUs and GSUs forward asset and demand data to CMMC.	Enhance mobility and survivability by decentralizing primary wartime functions to each DSU/GSU and SSA. These functions include: requisitions, storage, issue, receipt, stock accounting (less PLL level computation), and asset reporting. DSUs and GSUs must have independent capabilities to direct requisitions to the CONUS base. Provide asset visibility for requirements determination and redistribution.

Table 3-3. Intermediate, installation, corps, and theater level functional concepts

CURRENT FUNCTIONAL CONCEPT	PROPOSED FUNCTIONAL CONCEPT
Supply functions centralized at MMC: • Status/reconciliation. • Asset visibility for intermediate stocks only. • Selected catalog functions. • Edit, receipt, storage, issue, and requisition processing. • Demand analysis. • Status/reconciliation. • Excess/war reserve management/requirements at theater level.	Perform centralized management functions for all supported DSUs, GSUs, and SSAs including cross-leveling of DS and GS stocks. Evaluate corps stockage requirements and determine corps versus theater management requirements. Implement cross-leveling of stocks.

RELATED SYSTEMS

Automation serves as a "combat multiplier" for US forces, enabling them to gain an advantage over potential enemies. It increases the responsiveness of logistics support, enhances decision-support information, and improves management of critical resources. The automation concept is designed to provide Armywide integration and standardization for systems. It also provides for viable communications, backup support, total Army asset visibility, and improved materiel management. The future dictates the tailoring of systems to a smaller, more mobile Army. The Army will have a worldwide orientation and increased reliance on the use of joint forces. There are severaI automated systems related to supply and field services functions. These are discussed in the following paragraphs.

Standard Property Book System-Redesign (SPBS-R)

SPBS-R was developed to provide a transition from the standard property book system (SPBS) in the DAS3 environment to TACCS. Further development converted SPBS-R from the TACCS to nondevelopmental items (NDI). SPBS-R allows the functional capabilities of SPBS to remain. It reduces the number of master files and cycles required. The system is an online interactive system that provides a means of centralizing property book accounting. It provides asset visibility and automated organizational property books. The system generates reports to the Major Item Information Center (MIIC). It interfaces with the Continuing Balance System - Expanded (CBS-X) process and serial number tracking (SNT). This provides local commanders and managers with necessary property book asset management data.

SPBS-R has two basic applications or modules. These are property accountability (PA) and asset visibility (AV). SPBS-R (PA and AV) is centralized in the DMMC in all divisions. In nondivisionaI environments, SPB S-R (PA) is decentralized to battalion level, with commandwide AV provided to the supporting group or brigade headquarters. SPBS-R interfaces with SARSS, DS4, and SAILS.

SAMS

SAMS is a multilevel maintenance and readiness management system. It provides automated forecasting, distribution, scheduling, and production control of maintenance work loads commensurate with operational readiness. SAMS-1 operates at the intermediate DS and GS levels. It interfaces with SAMS-2, SARSS-1, and ULLS. SAMS-2 operates at the DISCOM, COSCOM, Theater Army Area Command (TAACOM), and MMC levels. It interfaces with SAMS-1 and passes equipment performance and maintenance operation data to the major Army command (MACOM).

Combat Service Support Control System (CSSCS)

CSSCS is to be an automated system that can rapidly collect and analyze logistical information. It will allow CSS and force level commanders to accelerate and improve the tactical decision making process. It will function as an integral part of the Army tactical command and control system (ATCCS). Its purpose will be to collect, analyze, and distribute essential command and control (C2) information. Information will be obtained from the CSS STAMIS and from the four battlefield functional areas (BFAs) within ATCCS. CSSCS is to be employed throughout the operational and tactical levels. It will be used in all divisions, corps, echelons above corps (EAC), separate brigades, and ACRs. The equipment necessary to operate CSSCS will be organic to these organizations' CSS units and headquarters staff elements. These include forward support battalions (FSBs), main support battalions (MSBs), separate CSS units, and EAC, corps, and division G4 staff sections. The total Army force structure--active component, Army reserve, and

the Army National Guard--is to be included in the fielding plan.

Supply Management Modernization (Class I)

A Class I module, formerly called the Army Field Feeding Management Information System (AFFMIS), will provide a standard automated capability to manage Class I supply. This module will be used in the supply STAMIS. It will link the entire Class I requisitioning, inventory management, and supply distribution functions from the battalion S4 of the maneuver unit to the supporting MMC. It will transmit requisitions to the national level.

This module will allow the user to process ration requests from the battalion S4 level. It will input them to the source of supply using existing STAMIS automation and communication nodes. It will provide supply and shipment status to the intermediate MMC, SSA, and MCC for shipment and receipt planning. When fully fielded, this module will interface with the finance battlefield system to record peacetime training expenditure data. It will interface with the Defense Personnel Support Center (DPSC) Defense Integrated Subsistence Management System (DISMS) to requisition sustainment supply. Intransit visibility will be available through interface with the transportation systems. The automation of tactical Class I functions will be done through the modernization and optimization of existing supply STAMISS (for example, ULLS and SARSS).

Mass Fatality Field Information Management System (MFFIMS)

The MFFIMS supports the requirement for a battlefield human remains tracking system. It provides the supporting mortuary with intransit visibility and accountability of human remains. It is installed on commercial, off-the-shelf (COTS) hardware platforms and uses assured communication networks. There is a requirement for one laptop computer with application software at each collection point, aerial port of embarkation and debarkation (APOE, APOD), and mortuary. The basic personnel data entries are made at the collection point. The information is sent electronically to the supporting mortuary. The application software is being revised to add required capabilities identified from operations Desert Shield/Storm (ODS/S).

Airdrop Missions and Equipment Management System (AMEMS)

The AMEMS is an automated airdrop equipment management system. It enables airdrop support units to plan airdrop mission equipment requirements more efficiently. Using a portable computer system, the user can plan a mission by identifying the type loads and quantities to be airdropped. The computer then generates an output report which lists the type and quantity of equipment items required to rig the loads. AMEMS includes an interface with the Army Master Data File (AMDF) for calculation of airdrop equipment cost, which may be used for budget forecasting. The US Army Quartermaster Center and School (USAQMC&S) is now evaluating the AMEMS for possible worldwide fielding. If the system is adopted, AMEMS training will be added to programs of instruction (POIs) for parachute riggers and aerial delivery technicians.

Reserve Component Automation System (RCAS)

The RCAS will support commanders and staffs by providing timely and accurate readiness status of personnel, equipment, and training. It will provide automated mobilization plans and readiness assessments that are comprehensive and fully integrated. There are to be three blocks of RCAS software. Block 1 software will accommodate military personnel and force authorizations. It is to be ready for delivery to the field for user familiarization and training during fiscal year

(FY) 94. Block 2A software will include training, pay, supply, maintenance, and transportation data. It will be ready for operational testing in 1995. Block 2B will contain mobilization, engineering, and aviation maintenance elements. It will be ready for field testing in 1996. Fielding of the RCAS will be completed in FY 98 under the current Army funding program.

Split-Based Operations

The full integration of supply and transportation functions into a vertical distribution system is critical. Enhanced and assured communications allow selected logistics management functions to be accomplished from CONUS or from a forward-presence location. Only those functional capabilities absolutely necessary in the area of operation will be deployed. This is called "split based operations." These operations can provide materiel management support to the force wherever it is located. To do this, part of the MMC remains in CONUS or its peacetime forward-presence location while force-projection cells deploy with the supported force.

The deployed MMC cells consist of personnel and equipment in modular components. These provide a conduit for electronic transmission of logistics data, voice communications, and message traffic. The rear MMC continues to support the stay-behind force. It concurrently interfaces with the deployed cells to provide the support required forward. With assured communications and automation, the forward deployed MMC cells can interface with the supporting MMC in the rear. Split operations apply to all logistics functions. Planners must assess the capabilities and assets available in the theater to determine how to supplement them without unnecessary duplication.

Miscellaneous Systems/Technology

Technological improvements are being implemented in SAILS and SARSS. These improvements include logistics marking and reading symbols (LOGMARS), microcircuit technology in logistics applications (MITLA), and automatic identification technology (AIT). AIT is a family of data-capturing devices that combine various technologies. These include barcoding symbologies, microchips, magnetic strips, and radio frequency (RF) communications. Typical applications for AIT include--

- Streamlining of warehouse functions--receiving, storing, picking, issuing, inventorying, shipping, distributing, and quality assurance.
- Identifying and tracking of major end items; high-dollar, high-visibility items; and small arms and weapons systems.
- Tracking of serial numbers for sensitive items.
- Collecting and storing maintenance, warrarity, and calibration information.
- Identifying pallets, shipping containers, and intransit equipment.
- Providing theater and corps asset visibility and transportation intransit tracking.
- Providing for an automated system to collect and store parachute information. This includes inventory control, service life criteria, packer and inspector data, parachute identification, and date packed.

AIT will cut labor-intensive activities. It will abolish much of the paperwork and the entries required in the applications described above.