Common Logistics Operating Environment

Operational Concept Description
for
Common Logistics Operating Environment (CLOE) Increment 2 Implementation for Ground Vehicles

Document Date: 10 March 2008

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1 Scope

1.1 Identification

This Operational Concept Description (OCD) for the CLOE Increment 2 capabilities (CLOE Incr. 2) describes the process of collecting essential logistics data from selected ground platforms and passing it to key information collection and decision-making nodes within the Stryker and Heavy Brigade Combat Teams (SBCT and HBCT). CLOE Incr. 2 capabilities are focused on information pertaining to the assessment of combat power (both at the individual platform and collective-unit levels), equipment fault identification and resolution (including Class IX requirements), Class III (bulk fuel) supply requirements and resolution, Class V supply requirements and resolution, and platform configuration and asset/component usage management. The logistics information processes described in this OCD are designed to facilitate a net-centric, highly automated and collaborative environment that supports the immediate needs of warfighters. A separate OCD for CLOE Increment 1 capabilities was previously published in which basic requirements were identified for the automated reporting of platform combat power, major equipment faults and fuel levels. (See Figure 25 for a list of CLOE Incr. 1 capabilities.) The OCD for CLOE Incr. 2 capabilities builds on the previous OCD, and could be applied, with appropriate modifications, in other types of units within the Current Force.

1.2 System Overview

The CLOE Program was initiated by the Department of the Army (DA) G-4 to design and implement the platform-based technological enablers and accompanying information architecture to generate, digitize, store, retrieve and use logistics data from a variety of battlefield operating systems for the purpose of improving sustainment support provided to the Field Army. The DA G-4, as the responsible official for sustainment in the Army, provides executive-level leadership for the CLOE Program. The Logistics Innovation Agency (LIA) is tasked by the G-4 with the mission of developing, coordinating and implementing the program's details. While CLOE started out as a platform-centric program focused on acquiring and reporting data at the platform level, and has evolved into a logistics domain-wide effort.

CLOE is:

- An environment defined by data standards to ensure interoperability and net-centricity.
  - The information architecture that underpins Army logistics transformation.
  - The basis for implementation of Joint Focused Logistics within the Army.
  - The foundation for condition-based maintenance (CBM).
  - Technology proofs of enablers (PoE), demonstrations, and insertions of field-ready technology-based capabilities in operational units (in concert with PEO/PM stakeholders).
- A program managed by LIA for the G-4.
  - Synchronize the end-to-end logistics architecture for TRADOC-CASCOM.
  - Identify applicable technical standards and ensure compliance to them.
  - Governed via formal cooperation between DA G-4, CASCOM and AMC.

CLOE is not: an acquisition program, a materiel solution, a product, hardware, software, a database, and is not specific to any individual force modernization program.

Success for the CLOE Program is defined as an integrated, end-to-end net-centric logistics process that supports Joint Focused Logistics in the Current Force and establishes the foundation for the Army's transformation to the Future Force.

A key initiative of the CLOE Program is to ensure interoperability between the Army's current force as it transitions to the future force. The Army must be an expeditionary force that is capable of rapidly deploying around the globe to conduct missions throughout the Range of Military Operations (ROMO), while simultaneously undergoing the most significant force modernization and organizational transformation since the early days of World War II. Army logistics systems and processes, in turn, must be able to support the continuous cycle of planning, training, deploying, conducting operations, redeploying, resetting/reconstituting, and modernizing that characterize the operational context of the Current Force. These circumstances will continue to exist as the Future Force is developed and fielded. This means that a common logistics operating environment must include and integrate the information architectures that exist at: the national/strategic level (factories, depots, etc.); at Power Projection Platforms (installations) and Combat Training Centers; within warfighting headquarters; at the theater/operational level; at the tactical level (including equipment platforms and Soldiers). Army logistics must be joint-focused and operationally oriented, and the enabling technologies and supporting architectures must be tailored to meet these goals.

The implementation of CLOE Incr. 2 capabilities will begin to address the end-to-end logistics requirements that encompass the continuum that extends from tactical systems to the myriad of national-level business information systems. To effectively address this cooperative environment, CLOE Incr. 2 capabilities are described within the context of a cohesive, interactive collection of systems, designated as a System of Systems (SoS). To support this concept, this OCD shows tactical systems that are grouped within Families of Systems (FoS) that are expected to fulfill similar functionality with similar interfaces. The FoS for CLOE Incr. 2 includes Ground Combat Systems (GCS), Tactical Wheeled Vehicles (TWV), Command and Control (C2) Systems, Information Systems (IS), Maintenance Information Systems (MIS) and Supply Systems (SS). The primary focus of CLOE Incr. 2 capabilities is on the Brigade Combat Teams (BCT); therefore, echelons-above-brigade (EAB) business systems are identified only to designate the information which will be supplied to them to support business processes.

The implementation of CLOE Incr. 2 capabilities will be based on a net-centric, information-based approach to integrating the shared knowledge of the tactical FoS to achieve improved timeliness and accuracy of information pertaining to the status of combat power and sustainment support requirements. The implementation of CLOE Incr. 2 capabilities will automate GCS and TWV system health assessments, asset/component usage and state detection, consumable supplies state detection, and system configuration management. The implementation of CLOE Incr. 2 capabilities will also automate the reporting of combat power assessments (equipment capabilities and consumable states) and sustainment requirements/authorizations through the C2 FoS. Additionally, CLOE Incr. 2 capabilities will automate the tracking of maintenance and supply actions to their final resolution.

1.3 Document Overview

This document is intended to provide an overview of the functionality necessary to implement CLOE Increment 2. Section 3 is a brief description of the current operating environment for Combat Readiness, Field Maintenance, General Supply Operations, and Logistics Support

functions. It orients the reader to the logistics processes being targeted for enhancement in CLOE Incr. 2. Section 4 provides focus on the specific targets of opportunity that the CLOE program will exploit as part of the Increment 2 implementation.

Section 5 elaborates on the new end-to-end, net-centric, collaborative integrated system concept tenets that will ensure improvement and empower the Warfighter. This section also captures key policies that must constrain the new system, such as security, authentication, and audit policies.

Section 6 presents detailed operational scenarios which provide understanding of how the users interact with the system to fulfill their operational needs including how the information is shared between different users. As the system becomes more automated it is increasingly important to clearly understand operationally when and under what conditions knowledge is transferred between Warfighters, so that those reviewing the OCD can effectively evaluate when the force multiplier created by the increased knowledge can be realized and exploited. These scenarios are collaborative in nature, empowering users on-platform, in the command structure, and in the support team to bring issues to resolution. The description of this implementation is limited to SBCT HBCT environments, but is applicable to the tentire current modular force.

The architecture artifacts within the document are integrated with the Army Integrated Logistics Architecture (AILA), and provide detailed scenarios which support the overarching architecture. The OCD is developed from the AILA Operational Node Connectivity Description (OV-2), Operational Information Exchange Matrix (OV-3), Operational Activity Model (OV-5), and the Operational Event-Trace Description (OV-6c) as they apply to the focused objectives of Increment 2. References to specific AILA activities are provided alongside the Increment 2 scenarios where applicable, with AILA OV-6c Integrated Definition (IDEF) diagrams provided for reference in section 9.2 .

This document follows the format and instructions of the Data Item Description (DID) titled “Operational Concept Description (OCD)”, ID Number: DI-IPSC-81430. This DID has been tailored in its application to this OCD. An explanation for DID sections or paragraphs that have been tailored out are provided where applicable.

2 Referenced Documents

This section lists the number, title, revision, and date (when available) of all referenced documents.

ITEM	TITLE
1	FMI 4-90.1 Heavy Brigade Combat Team (HBCT) Logistics, March 15, 2005
2	FM 3-21.31 Stryker Brigade Combat Team (SBCT), March 13, 2003
3	Army Integrated Logistics Architecture (AILA) Version 1.2, September 1, 2006
4	FM 4-30.3 Maintenance Operations and Procedures, July 28, 2004
5	FM 3-90.6 Brigade Combat Team, November 28, 2000
6	DI-IPSC-81430 Operational Concept Description (OCD)
7	Army Maintenance Transformation Concept, TRADOC Pamphlet 525-100, 4 Nov 2005

3 Current System Overview

3.1 Background, Objectives, and Scope

The current force BCT is highly dependent on manual processes for combat readiness assessment, field maintenance, general supply of Class III (fuel) and Class V items and logistics support functions such as configuration management and asset usage management. The use of voice communication is a common method to communicate subjective assessments at infrequent intervals, due to the labor intensity of gathering the information. More advanced systems use digital transmission methods, but the information gathering remains manual. In other cases, the information gathering is automatic and the transmission is digital, but a manual operation is required to move the information from assessment system (e.g., vehicle diagnostics) to the transmission system (e.g., Information System). The manual translation can become time consuming and can introduce significant errors due to fatigue and other factors.

The objective of the combat power readiness assessment is to provide each commander the information necessary to effectively use their resources for greatest effect. The objective of the field maintenance process it to assure that every piece of equipment that exhibits a problem is managed to known effectiveness resolution within funding constraints and with audit quality. The objective of the general supply process is to assure that consumables are managed to effectively complete a mission on time without degradation. The objective of configuration and asset usage management is to assure that each asset configuration is known, valid, and its remaining useful life can be evaluated and managed.

Specific areas of concern in the current system are:

1. Manual Preventive Maintenance Checks and Services (PMCS) process
2. Manual translation of embedded vehicle health information
3. On-platform paper 5988
4. On-platform paper 5987 usage data
5. Partial configuration management of each system

3.2 Current System Description

The current end-to-end SoS relies on non-automated processes to communicate vehicle logistics needs to the Command and Logistics organizations. Current communication methods include hand written forms, manually generated electronic messages, and voice communications. The key communication processes that are addressed in CLOE Increment 2 are described below.

The Form 5988 (Maintenance & Inspection Worksheet) is the primary means for communicating platform maintenance needs to the logistics organization. When a non-deadlining fault occurs, the vehicle crew manually enters fault information on this form. When the vehicle is returned from the field, fault information is transferred from the Form 5988 to the Standard Army Maintenance System – Enhanced (SAMS-E), which then tracks the necessary repairs. This form is also used to record the results of preventive maintenance checks, and communicate to the vehicle crew existing vehicle faults, associated parts on order, and upcoming vehicle service requirements. Manual entry and handling of the Form 5988 is susceptible to human error and loss of fault information. No changes were introduced into this process for CLOE Increment 1.

A request to repair a deadlining fault is initiated by manually generating a 'Call For Support' message in the Force XXI Battle Command Brigade and Below (FBCB2). This may also be accompanied by a voice request for assistance over the radio. The request is passed up the chain of command, resulting in the generation of a 'Logistics Task Order' which is sent to the repair team over the tactical network. The manual nature of this process can result in delayed, incomplete and inconsistent fault information reaching both the command chain and the repair team. CLOE Increment 1 improved this process by adding an automated informational 'Call For Support' message that provides the repair team with faster, more accurate, and consistent fault data.

Form 5987 (Equipment Alert Dispatch) is used in the current system to record vehicle usage data. Presently, only miles driven and fuel used are recorded, which provides minimal information for Condition Based Maintenance (CBM). Like the Form 5988, the Form 5987 is prone to human error and also loss of information. CLOE Increment 1 did not address CBM or 5987 usage.

Fuel and ammunition situational awareness and resupply in the current system rely on manually entered data. CLOE Increment 1 added automated fuel monitoring, but the monitoring of ammunition supplies remains a manual process in the current system.

3.3 Support Concept

Historically, the Army sustainment support policies and concepts have resulted in a large forward deployed logistics footprint. When a level of support cannot be provided, a request is sent to the next higher level of support. Sustainment support includes the following:

- Maintenance
- Supply
- Transportation/Distribution
- Field Services
- Medical Logistics

Note: Transport and Field Services are not part of the scope of CLOE Increment 2.

3.3.1 Maintenance

As it pertains to maintenance, the highest level of repair work will result in items being returned to the supply system rather than to the user. The maintenance system has relied on four levels of maintenance:

- Unit – The user performs Unit Level maintenance by performing PMCS. The maintenance tasks are limited to quickly performed replacement, services, and minor repair.
- Direct Support (DS) –DS units provide repair by replacement with highly mobile units that support specific systems and their auxiliary equipment.
- General Support (GS) – GS maintenance is performed in semi-fixed facilities that repair components.
- Depot – Depot Maintenance performs the overhaul and recapitalization of major items.

The Army Maintenance Transformation concept describes Two Level Maintenance as replace forward and repair rear policy rather than fix forward policy. The two levels of maintenance are:

Field Maintenance – It consists primarily of on/near-system repair, replacement of components, adjustment, alignment, service, diagnose fault/failure, and return-to-user tasks.

Sustainment Maintenance – It consists of off-systems repair and return-to-supply tasks: those tasks required to return components, subassemblies, and/or end item systems to a national standard.

Contractor Logistics Support (CLS) is used to supplement military maintenance operations for primarily non-battlefield situations. The use of CLS reduces the military personnel required to provide logistics support for fielded equipment.

3.3.2 Supply

All Army operations require efficient and effective logistics support. Supply shortages and delays prevent the successful completion of Army operations regardless of whether the units are in Combat or Garrison situations.

Supplies are divided into the following categories:

- Class I – Food, Rations, Water
- Class II – Clothing, Individual Equipment
- Class III – Petroleum, Oils, and Lubricants
- Class IV – Construction Material
- Class V – Ammunition
- Class VI – Personal Demand Items
- Class VII – Major End Items
- Class VIII – Medical Items
- Class IX – Repair Parts and Components
- Class X – Nonstandard Items (Agriculture and Economic Development)

Supply operations make use of many of the same organizations, personnel, and tracking systems as are used by the maintenance operations. The Army Maintenance Transformation Concepts will help consolidate and streamline the various supply related processes and procedures. Existing systems related to supplies include, but are not limited to the following:

- ULLS-AE – Unit Level Logistics System – Aviation Enhanced
- SARSS – Standard Army Retail Supply System
- SAAS-MOD – Standard Army Ammunition System – Modernization
- PBUSE – Property Book Unit Supply Enhanced
- BCS3 – Battle Command Sustainment Support System
- GCSS-A – Global Combat Support System – Army
- SAMS-E – Standard Army Maintenance System - Enhanced

The CLOE Increment 2 concepts address supply and related systems, procedures, and tools with respect to fuel and ammunition.

4 Justification and Nature of Changes

4.1 Justification for Change

The CLOE enablers are mandated by both policy and doctrine. The U.S. Army, along with the other military services, is in the midst of a major transformation to meet the current and emerging defense needs of the country. The Army Strategic Planning Guidance (ASPG) provides high-level direction for the transformation to a campaign-quality Army with a Joint and expeditionary mindset.

One of the conclusions in the ASPG is that the speed, operational distances, and demands of modern combat operations require effective and timely logistical support.

The Army is transforming its logistics operations to meet these demands. The following are the key objectives of this transformation process:

- Increased readiness of combat platforms, combat support equipment, and combat service support assets
- Smaller logistics footprint
- Anticipatory support structures that deliver the right support to the right place at the right time
- Near real-time visibility of asset location and status
- Reduced burden on operators from reporting and maintenance activities while increasing accuracy of logistics data
- Increased productivity for maintainers and other combat service support (CSS) personnel.

The ASPG directs the Army to establish a CLOE to support this transformation. The CLOE is needed to ensure commonality and interoperability, implement distribution-based logistics, and establish asset visibility that incorporates platform-level digital initiatives.

On 25 July 2003, the Assistant Secretary of the Army For Acquisition, Logistics and Technology, (ASAALT) issued a directive to employ a CLOE. On 5 May 2005 the G-4 and the Military Deputy to the ASAALT issued guidance on implementing this directive. PEOs and PMs are directed to budget and program to provide equipment health management on current force systems, and to implement CLOE enablers. The CLOE Program has been chartered by the Army Deputy Chief of Staff, Logistics, G-4, to synchronize efforts across the Army to implement key enablers for the CLOE.

The CLOE Program is collaborating with many other Army organizations to achieve its objectives. A CLOE Implementation Integrated Process Team (IPT) was formed to help coordinate efforts across program managers (PMs), combat developers, and policy and doctrine writers. The objective of the IPT is to accelerate implementation of CLOE-related capabilities in the current force by enhancing and integrating existing products and filling key functional gaps. The IPT established an incremental implementation approach to help synchronize efforts with major schedule drivers, such as the Army's software blocking process. The first increment of capability is a limited implementation of automated status reporting on selected combat platforms (Stryker, Abrams, and Bradley). The second increment will include all of the enablers and operating concepts demonstrated in the SBCT POE.

4.2 Description of Needed Changes

CLOE Increment 2 provides for a number of enabling capabilities in HBCT, SBCT, or other modular BCT environments. These capabilities build on those of Increment 1 and provide:

- Automated reporting of platform equipment status, fuel quantity, and ammunition quantity to command and logistics communities for near real-time combat power assessment.
- Automated creation and routing of a support request to logistics support organizations when needs are identified that make the non-mission capable to improve the timeliness and accuracy of response.
- Collaborative fault resolution and maintenance action pattern that provides an audit trail from the detection of a problem through to a specific resolution maintaining fault history, unresolved fault list, fault isolation result trail, and maintenance action history.

- Automatic SoS information sharing approach to fault resolution enabling minimization of communication channel traffic and allowing data input at point of convenience with propagation to all points of use.
- Automated Preventive Maintenance Checks and Services (PMCS) functions to provide positive recording of when checks were performed and integrate visual/manual detection of faults and maintenance actions with those that are automatically determined by embedded vehicle health management systems.
- Automated fault isolation and troubleshooting procedures utilizing Class V Interactive Electronic Technical Manuals (IETM) that uses platform interfaces to optimize workflow based on actual conditions and collaborate with the fault resolution maintenance process for accurate cause and effect tracking.
- Automatic SoS information sharing approach to configuration management that encompasses platform and maintenance information systems collaborating to track components including their useful lifecycle.

These new capabilities will integrate the platform, C2, and logistics systems to provide a significant improvement in the timeliness and accuracy of logistics situational awareness and common operating picture. These capabilities develop interoperable systems in a net-centric environment in accordance with Army logistics transformation objectives.

4.3 Priorities Among Changes

Not all systems are of equal magnitude in the changes required to meet the objectives of Increment 2. Therefore, it is important to prioritize the needed changes to assist in making cost/benefit choices particularly when addressing a difficult migration path or a system with limited remaining life. The priority of changes will follow the order in which the bulleted statements are presented in section 4.2.

4.4 Assumptions and Constraints

There are a number of assumptions in the OCD. First, the scenario differences between HBCT and SBCT are assuming that the currently defined maintenance structures remain in place. Second, a standardized routing of message is presented that will permit automation, fit within doctrinal constraints and normal practices, and fulfill end to end objectives with a reasonable tradeoff between communication traffic and number of individuals informed. It is assumed that standing operating procedures (SOP) can modify the actual routing of message to reduce communication traffic (by reducing information copies) or increase distribution (by increasing information copies). Third, the OCD describes operational scenarios that have a distinguishable effect on the user. Therefore, multiple messages may be identified which carry the same or similar information. It is possible for the resulting system design to optimize messaging by consolidating distribution lists or by collaborating between the sending and receiving systems.

5 Concept of Modified System

5.1 Background, Objectives and Scope

CLOE Increment 1 provided improved combat power reporting, critical (deadlining) fault resolution, and fuel resupply utilizing extensions to existing system interfaces. The improvements were driven by and also constrained by enhancements to the platform C2 system. These enhancements permitted automated reporting of equipment status and on-hand fuel quantity from the platform to the on-platform C2 system. While these enhancements improved both the speed and accuracy of combat power and logistics communications, they did not provide the net-centric collaborative environment necessary to meet the goals of CLOE. CLOE Increment 2 is not constrained by existing system interfaces, and expands the capabilities of Increment 1 to include an information architecture built around an enterprise Logistics Database. The Logistics Database is shared between systems which participate in logistics reporting and need resolution, allowing systems to collaborate on a solution. This architecture also distributes static data (such as fault effects and causal Line Replaceable Unit (LRU) lists) amongst participating systems, eliminating the need to transmit such data when a related event occurs. An example of this would be when a deadlining platform fault results in a notification to the repair team. A unique fault identifier is all that is needed by the repair team, since full details of the fault are resident on its local Logistics Database. This architecture minimizes network bandwidth needs, which is critical as logistics capabilities are expanded.

The net-centric concept of an enterprise Logistics Database presupposes that each user has quasi-continuous high-speed connectivity to a centralized database so that information is constantly available and consistent across all users. The reality in the Warfighter systems is that the further forward in combat support, the less frequently there is connectivity and the lower the throughput. Therefore, to fulfill the net-centric approach local databases must be used when connectivity is disrupted and these must be synchronized when connectivity is available. The OCD scenarios identify local copies of the Logistics Database that must record key information for the CLOE Inc 2 objectives to be realized. The scenarios also identify key synchronization points where information transfer is necessary to provide information sharing that provides a new capability and level of integration. In the net-centric approach, local and enterprise Logistics Databases are synchronized whenever connectivity is available, which may be continuous in some locations.

With this new architecture in place, CLOE Increment 2 provides the following capabilities:

1. Fuel resupply – Fuel levels are monitored at the platform and a request for resupply is generated when the remaining fuel level reaches a preset threshold. A resupply action is triggered by this event.
2. Ammunition resupply – Ammunition levels are monitored at the platform and a request for resupply is generated when the remaining ammunition level reaches a preset threshold. A resupply action is triggered by this event.
3. Faults with C2 network – Faults detected that will deadline a platform result in an automated request for assistance through the C2 network.
4. Faults without C2 network – Faults reported when platform returns to a maintenance area.
5. PMCS – Results of preventive maintenance checks are entered into the Logistics Database and shared with the maintenance information system(s).

6. Usage/CBM – Engine usage is tracked and monitored for Vehicle Exception Conditions (VEC). Usage and exception conditions are shared with the maintenance information system(s) and Logistics Information Warehouse (LIW).
7. Configuration Management of components, systems, and determination of remaining useful life.

5.2 Operational Policies and Constraints

Army Regulation (AR) 750-1 'Army Materiel Maintenance Policy' provides operational policies and constraints relevant to CLOE Increment 2. A preliminary list of these is given below:

PMCS:
The Army will automate the recording and transmitting of PMCS data, which are appropriately captured by operator observation and embedded sensors to conduct diagnostics or prognostics enabling condition based maintenance plus (CBM+). CBM+ concept enablers include the following:

- System health monitoring using applicable and effective embedded sensors and analysis.
- Condition driven maintenance actions directed by decision-support capabilities supported by engineering analysis.
- Automatic entry and retrieval of highly accurate maintenance data.
- Integrated maintenance and logistics information systems containing both historical and operational data and transactional data.
- Configuration management and asset visibility.
- In-service history-based maintenance planning (trend analysis).
- Low ambiguity fault detection, isolation, and prediction.
- Interactive Electronic Technical Manuals (IETMs).
- Data-based interactive training and technical assistance capability.
- Electronic portable or point-of-maintenance aids.

Maintenance:
The Army recognizes one maintenance standard that transforms the maintenance policies to a two level maintenance system (field and sustainment). The following items describe some of the capabilities and policies that will help make the transition to the two level maintenance system:

- Commanders and leaders prioritize repair of deficiencies based upon criticality.
- Faults detected during the "before operations" checks that make the equipment not Fully Mission Capable (FMC) or violate a safety directive must be corrected before the mission.
- Faults detected during the mission affecting FMC must be corrected during the mission.
- Faults detected before or during the mission not affecting FMC may be corrected, if time permits, or recorded/reported for correction after the mission.
- Repair will be done by replacing components at the point of failure, whenever possible, using the lowest level maintenance activity that has the capability and authority to perform the work.
- Fault repair requires a mechanic/technician to diagnose all equipment, component, assembly and subassembly malfunctions accurately the first time, order the correct repair parts, and apply them immediately.
- Single-standard repair is a process that seeks to ensure a single repair standard is applied to all end items, secondary items, and components repaired and returned to supply. This process assures high quality and establishes a predictable service life using the best technical standard. This ensures that users do not waste manpower resources troubleshooting failures and replacing components needlessly.

- Army commanders may be required to defer the accomplishment of maintenance because of resource shortfalls or other factors.

5.3 Description of Modified System

5.3.1 Operational Environment

Logistics activities and related organizations differ based on the Brigade assignment and location. For the purposes of maintenance and resupply, assignment, and location can be categorized as follows:

- Deployed – Combat and Operations Other Than War (OOTW)
- Deployed – Training
- Garrison – Reset (recover, reorganize, receive new equipment, etc.)
- Garrison – Training

The HBCT and SBCT logistics organizations are shown in Figure 1 and Figure 2. These diagrams reflect the organizations involved in the deployed brigade assignment.

For the HBCT, the organizations related to logistics can be summarized as:

- HBCT Tactical Operations Center (TOC)
- Maneuver Battalion TOC
- Brigade Support Battalion (BSB) TOC
- Distribution Company
- Medical Company
- Field Maintenance Company (FMC)
- Forward Support Company (FSC)
- Forward/Field Maintenance Team (FMT)

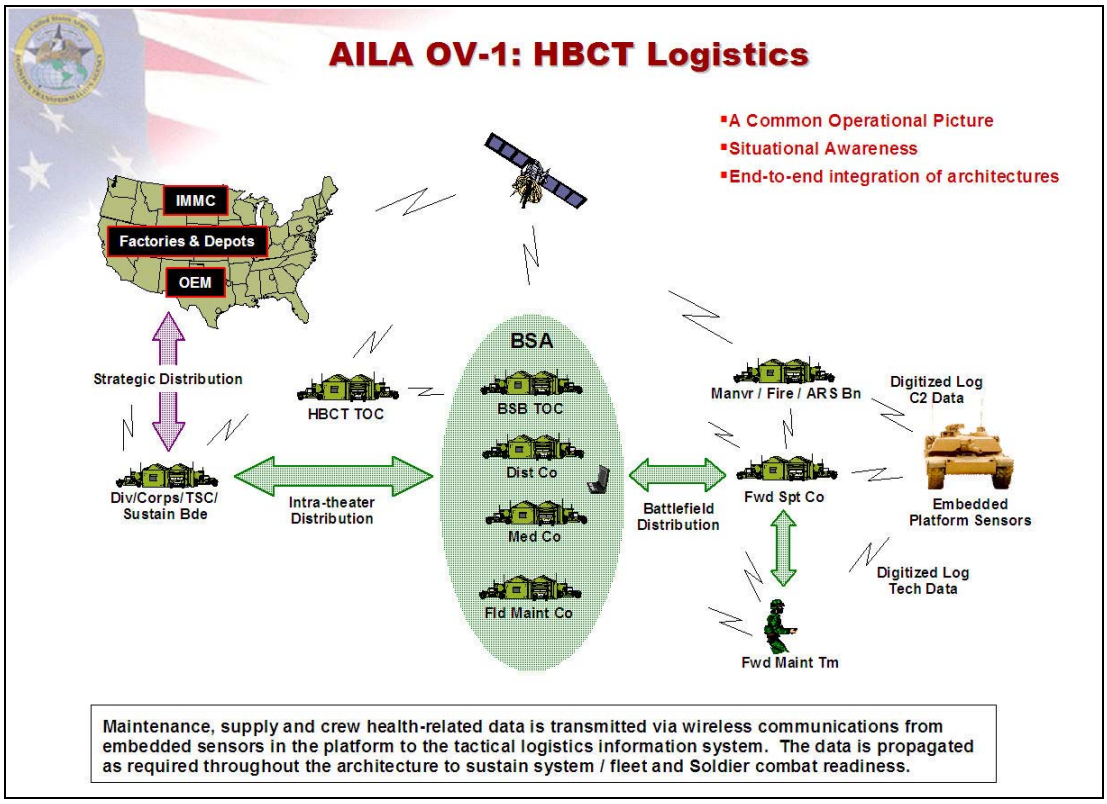

Figure 1. Heavy Brigade Combat Team Logistics

For the SBCT, the organizations related to logistics can be summarized as:

- SBCT Tactical Operations Center (TOC)
- Maneuver Battalion TOC
- Brigade Support Battalion (BSB) TOC
- Distribution Company
- Medical Company
- Forward Maintenance Company (FMC)
- Combat Trains Command Post (CTCP)
- Combat Repair Team (CRT)

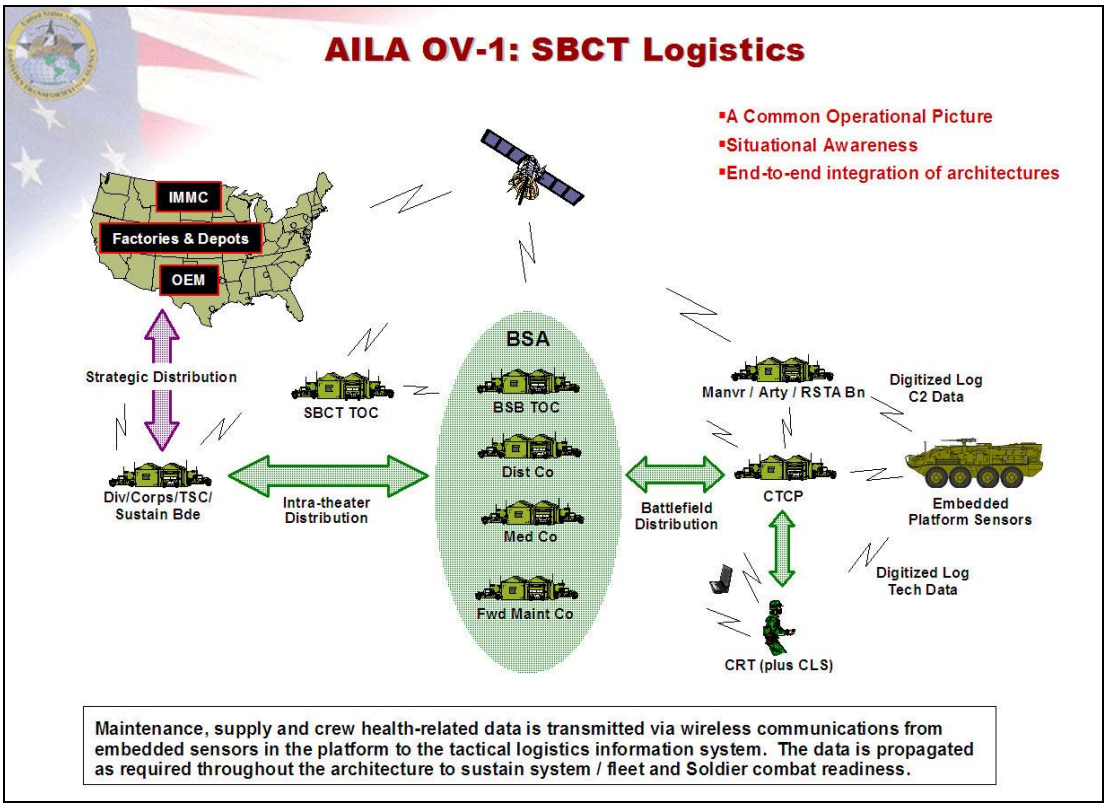

Figure 2. Stryker Brigade Combat Team Logistics

Once a unit has been deployed, the platform-level maintenance and resupply operations are the same regardless of whether the assignment is combat, OOTW or training.

Primary garrison environment differences for logistics operations from the deployed environment include:

- Reliance on Garrison, non-tactical infrastructure.
- The tactical C2 network is typically replaced by other available communication systems (organic or non-organic).
- Maintenance and resupply requests will typically be directed to the maintenance organizations without use of tactical organizations and related tools.
- The Directorate of Logistics (DOL) and CLS coordinate and perform repair operations that cannot be performed with organic support.
    - The Basis of Issue Plan (BOIP) for each defines the maintenance support providers for the asset.
    - Warranties, life cycle management and Performance Based Logistics (PBL) impact the maintenance support procedures.
    - CLS contracts specify facilities to be used for CLS operations, and the source of repair operations equipment, tools and supplies.
    - CLS includes, but is not limited to Regional Support Activities (RSA) for contractor specific devices installed on the platforms.
- Ammunition is used primarily for training. Ammunition is requested by a unit's appropriate chain of command organizations through the Integrated Material Management Center (IMMC). Ammunition is issued to the requesting unit by the Ammunition Supply Point (ASP) which is normally run by the DOL.

- Bulk fuel resupply is normally run by the DOL. If a platform requires fuel, it is supplied by either moving the vehicle to a fuel point (similar to a gas station) or by using a fuel tanker. If a platform runs out of fuel during an assignment, a Call for Support is used to have fuel dispatched to the platform.
- Supplies provided to requesting units are impacted by the Required Supply Rate (RSR) and the Controlled Supply Rate (CSR).
- AMC is responsible for coordinating and planning the workload of the IMMC, DOL and CLS. AMC or the PM may be responsible for DOL/CLS contracts..

5.3.2 Major System Components

The CLOE concepts provide interfaces between and across the following major system components:

- Vehicle systems perform on-going health status assessments during operation. Assessments include, but are not limited to, operational capabilities, fault management status, maintenance requirements and consumable status.
    - Ground Combat Systems: Bradley, Abrams, Stryker
    - TWV: Heavy Expanded Mobility Tactical Truck (HEMTT), High Mobility Multipurpose Wheeled Vehicle (HMMWV), Family of Medium Tactical Vehicles (FMTV), etc.
    - Avionics systems (follow-on to CLOE Increment 2)
- C2 Systems (both on vehicle systems and off vehicle) which provide command and control capabilities for commanders.
- Information Systems (both on vehicle systems and off vehicle) which provide communication interfaces for some of the CLOE concepts
- Maintenance information systems include all portions of the on vehicle and off vehicle systems and tools necessary to monitor, schedule, perform and record maintenance tasks and requirements. CLOE concepts identify updates to provide automatic and automated tools and processes.
- Supply systems allow linking of vehicle consumable requirements with supply planning and coordination.
- LIW is a repository for logistics related information. This repository is part of the Army Enterprise systems. As separate logistics related systems are integrated and linked based on the CLOE concepts, data formats and contents will be consolidated and incorporated in the LIW.
- CLS and RSA logistics and maintenance tools and interfaces are currently based on contractor unique tools. The LOE concepts will provide common interface definitions and requirements such that contractor tools will be interfaced with Army Enterprise systems.

5.3.3 Operational Architecture

The Increment 2 implementation will operate in an environment comprised of an integrated SoS, including the platforms deployed through the Heavy and Stryker brigades, C3 Systems, and Logistics Support Systems. Figure 3 illustrates the relationship of these families of systems and identifies the specific systems of interest for Increment 2. Figure 4 and Figure 5 illustrate the anticipated off-platform architectures for the SBCT and HBCT respectively.

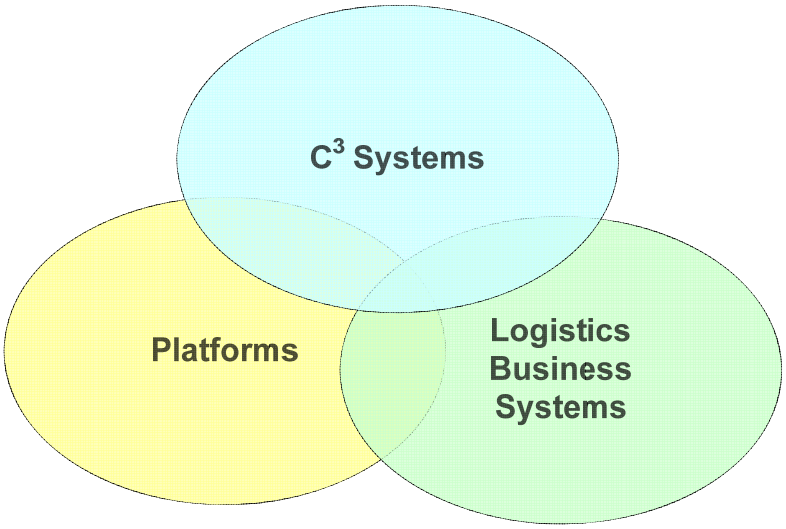

Figure 3. Increment 2 System of Systems

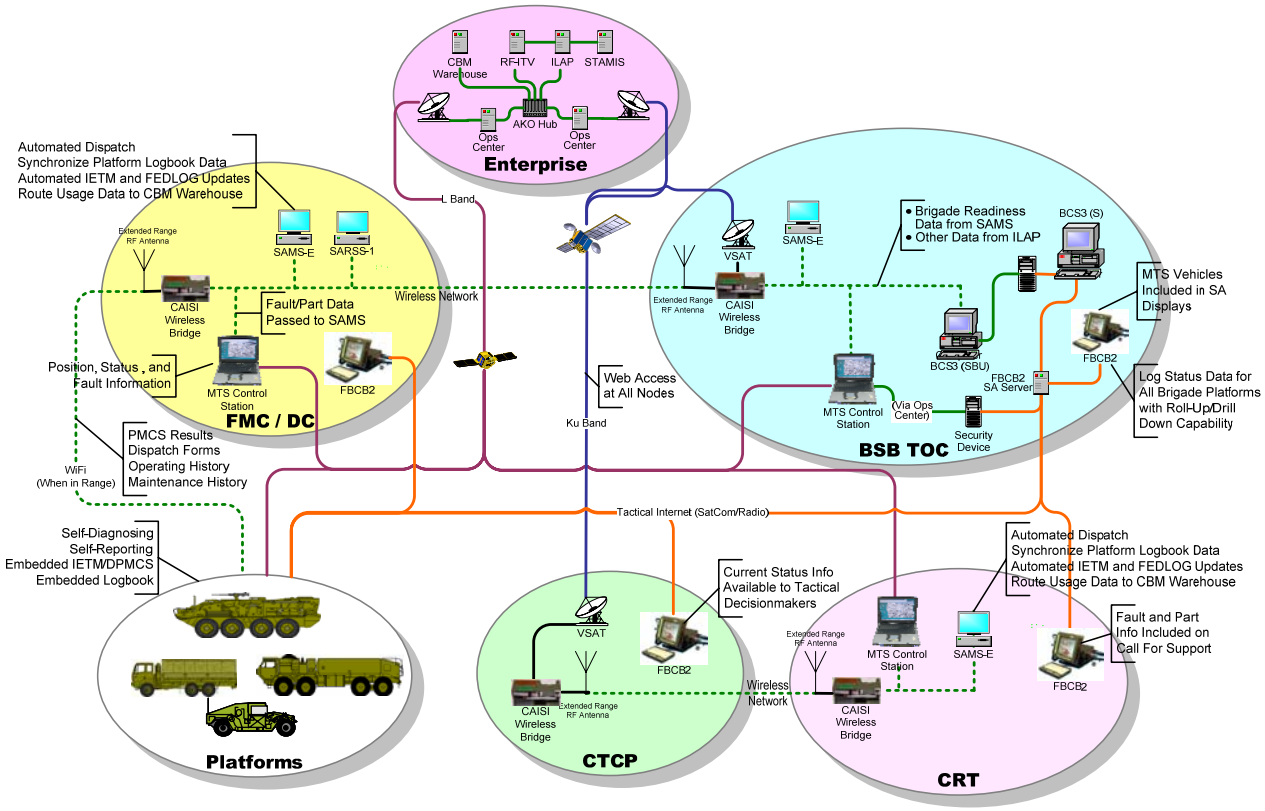

Figure 4. SBCT Off-Platform System of Systems Architecture

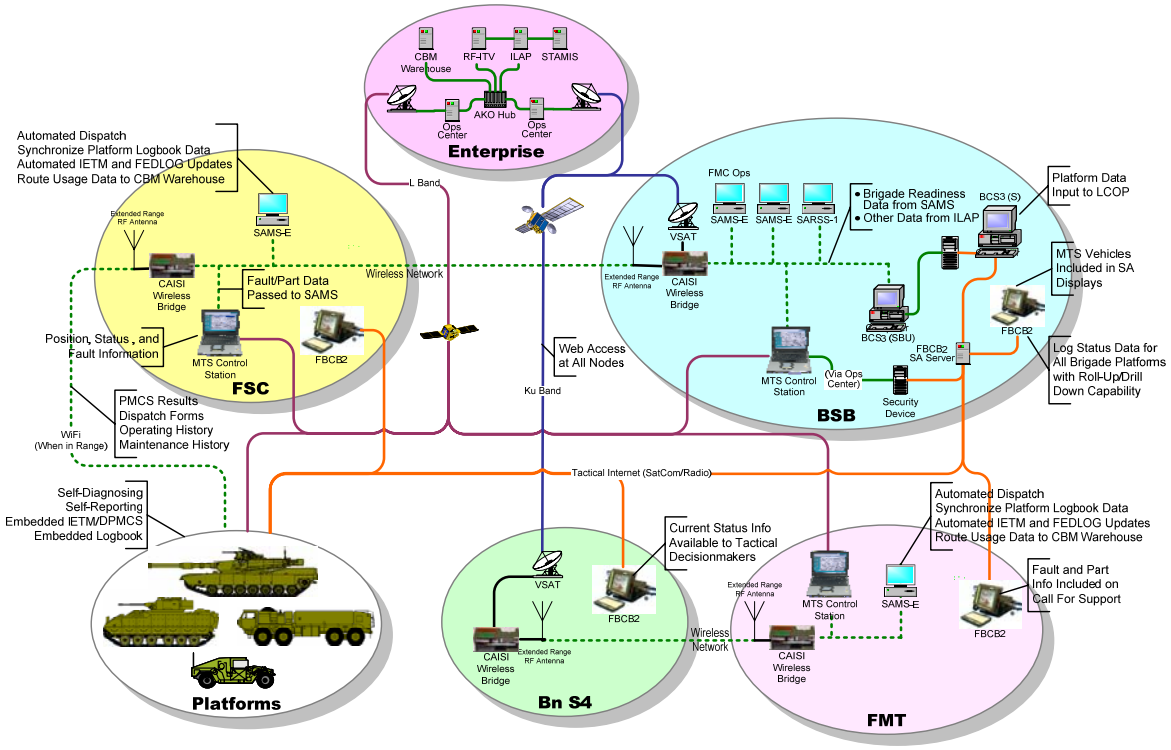

Figure 5. HBCT Off-Platform System of Systems Architecture

5.4 Users / Affected Personnel

Platform crew
Commanders
Life Cycle Managers (LCMs)
Platform Developers
Maintenance Personnel
Supply Personnel

5.5 Support Concept – This paragraph has been tailored out

6 Operational Scenarios

Scenarios are presented in four areas for the Increment 2 implementation. They include a Combat Readiness assessment provided through a combat power summary; Field Maintenance covering the repair of deadlining and non-deadlining platform faults, Preventive Maintenance Checks and Services (PMCS), and CBM; Supply Operations for the reporting of on-hand fuel and ammunition; and Logistics Support Scenarios addressing platform utilization and configuration management. Where appropriate, these scenarios are delineated separately for both the HBCT and SBCT environments, since these organizations differ slightly from one another along with the flow of information in the field. Unless specified otherwise, these scenarios are applicable to Ground Combat Systems (GCS) (platforms) and TWV. The flow of information through the various organizational structures is derived from available Field Manuals (FM) and is appropriately referenced along with the AILA activities corresponding to the scenario steps. It is understood that some of these processes may be tailored through the commander's (CDR's) Standing Operating Procedures SOP, provided they do not violate regulations.

Scenario List

The following list shows the scenario categories and individual scenarios presented in this document:

- **Combat Readiness Scenarios**
  - Provide Combat Power Summary (Fuel, Ammunition, Equipment Status)
- **Maintenance Scenarios**
  - **Fault Resolution with C2**
    - HBCT Fault Resolution
    - SBCT Fault Resolution
    - **Tactical Wheeled Vehicle (TWV)**
      - TWVs with Embedded Health Computer and C2 System
      - TWVs with Embedded Health Computer and Relay Vehicle
      - TWVs with Voice Communications
  - **Repair Part Fulfillment**
    - HBCT Repair Part Fulfillment
    - SBCT Repair Part Fulfillment
  - Fault Resolution without C2
  - Platform Troubleshooting
  - PMCS
- **General Supply Operation Scenarios**
  - **Report and Resupply Fuel Quantity**
    - SBCT Class III (B) Supply
    - HBCT Class III (B) Supply
  - **Report and Resupply Ammunition Quantity**
    - SBCT Class V Supply
    - HBCT Class V Supply
- **Logistics Support Scenarios**
  - **Track Platform and Equipment CBM Usage Data**
    - Monitor Platform Power Train Usage
  - Manage Platform and Equipment Configurations

For the purpose of these scenarios, the following terminology and abbreviations will be used.

- Vehicles:
  - GS – Ground System refers to the vehicle system subject to CLOE constraints regardless of whether the vehicle is a Stryker, Tank or Tactical Wheeled vehicle. The GS includes the vehicle, its crew and all equipment including furnished equipment and Mission Equipment Packages (MEP).
  - Vehicle – The term Vehicle will be used when referencing a vehicle being tested, supplied, maintained, etc.
  - Platform will be used when discussing interactions between components on the Vehicle.
  - Relay Vehicle – The term Relay Vehicle will be used when another vehicle is used to provide the interface between a Vehicle and the C2 and Information Systems.
  - Maintenance Vehicle – (MV) refers to a vehicle that is used to assist in the performance of maintenance or resupply. The MV may belong to a specific section of the organizational structure.

- People:
  - Vehicle:
    - Vehicle CDR – Vehicle Commander (or designated representative)
    - Vehicle Crew – Vehicle Crew Member – this term will be used to refer to any member of the Crew including the Commander or a Crew Maintainer
    - Relay Vehicle CDR – Relay Vehicle Commander (or designated representative)
  - Platoon:
    - Platoon LDR – Platoon Leader (or designated representative)
    - Platoon SGT – Platoon Sergeant
  - Convoy:
    - Convoy LDR – TWV Convoy Leader
  - Company (or Artillery Battery/Cavalry Troop)
    - Company CDR – Company Commander (or designated representative)
    - Company C2 Leadership – Company C2 Leadership (includes Commander, First Sergeant, Executive Officer). Note: Roles may vary depending on the operation.
    - Company 1SG – Company First Sergeant
    - Company XO – Company Executive Officer (or designated representative)
  - Battalion (or Squadron)
    - BN CDR – Battalion Commander (or designated representative)
    - BN S3 – Battalion S3 (Operations and Training Officer)
    - BN S4 – Battalion S4 (Logistics Officer)
    - BAO – Battalion Ammunition Officer
  - Brigade
    - BDE CDR – Brigade Commander (or designated representative)
    - BDE S4 – Brigade S4 (Logistics Officer)
  - Others
    - SPO – Support Operations Officer
    - Maintainer
    - LCM – Life Cycle Manager
    - Maintenance Manager
    - TAMMS Clerk – The Army Maintenance Management System Clerk
    - Maintenance SGT – Maintenance Sergeant

- Systems:
  - Vehicle C2 – On-Vehicle C2 System

  - Receiving C2 – This refers to receiving C2 systems for reports and data that are sent to a "C2 Distribution List".
  - Platoon C2 – Platoon C2 System
  - Company C2 – Company C2 System
  - BN C2 – Battalion C2 System
  - BDE C2 – Brigade C2 System
  - C2 System Brigade and Above – This terminology will be used to refer to the C2 System(s) that are beyond the scope of a Ground System Brigade.
  - MS – Maintenance Information System – the MS includes all of the maintenance management tools. This includes Maintenance STAMIS, future Army maintenance systems, as well as interfaces for Contractor Based Logistics (CLS) systems to provide collaboration and visibility between the Army and Contractors.
  - SS – Supply System
  - Theater/Wholesale Systems – Supply systems that are typically outside of the tactical scope

- Databases
  - Vehicle LDB – Vehicle Logistics Database
  - LDB – Logistics Database – where appropriate LDB will be used to refer to the off-vehicle Logistics Database.
  - Enterprise Data Repository

- Organizations/Locations:
  - Platoon
  - Company
  - BN – Battalion
  - BDE – Brigade
  - SBCT Command Post
  - HBCT Command Post
  - CTCP – Combat Trains Command Post (SBCT)
  - Convoy
  - FMC – Field Maintenance Company (HBCT) or Forward Maintenance Company (SBCT)
  - FMT – Field Maintenance Team (HBCT) or Forward Maintenance Team (SBCT)
  - MCS – Maintenance Control Section (HBCT)
  - MT – Maintenance Team (within a HBCT, a MT is a subset of the FMT).
  - CRT – Combat Repair Team (SBCT)
  - Distribution Company
  - Designated Maintenance Area – This term will be used to generically describe the location where a Platform undergoes maintenance.
  - SSA – Supply Support Activity (part of Distribution Company)
  - FSC – Forward Support Company (HBCT) includes Maintenance Control Section and Supply Platoon
  - Sustainment Brigade – Includes a Distribution Management Center
  - BSB – Brigade Support Battalion. BSB includes TOC with support operations, Medical Company, Field/Forward Maintenance Company, and Distribution Company.
  - ATHP – Ammunition Transfer/Holding Point
  - Combined Arms Battalion Support Area

- Data/Reports:
  - Situation Report – Situation Report will be used to describe Combat related status and value information.

- Logistics Report – Logistics Report will be used to describe Logistics related status and value information.
- CFS Maint-C2 – Call for Support Maintenance that goes to the C2 organizations
- CFS Maint-Log – Call for Support Maintenance that goes to the Logistics organizations
- LTO – Logistics Task Order
- LTS – Logistics Task Order Synchronization
- WO – Work Order
- LIW – Logistics Information Warehouse
- Logistics Task Status
- IETM – Interactive Electronic Technical Manual
- Deadlining Fault – A fault that renders a Vehicle not fully mission capable or may result in injury to personnel or damage to equipment if use is continued.

- Tools:
  - PMA – Portable Maintenance Aid

6.1 Combat Readiness Scenarios

The scenario for providing combat power is the same for both HBCT and SBCT. Therefore, only one scenario is shown.

6.1.1 Provide Combat Power Summary (Fuel, Ammunition, Equipment Status)

Purpose
This scenario describes the logic flow of providing combat power summary, starting at the platform level and ending at the BDE TOC. This scenario includes roll-up status of subordinate units and exposure of subordinate unit details.

Increment 2 Situation Report covers the following consumables:
- Fuel On Hand
- Ammunition On Hand

Increment 2 Situation Report covers the following non-consumables:
- Crew
- Equipment

Preconditions
There are no known preconditions for this scenario.

The complete flow for this scenario is shown in Figure 6.

Step	Action	AILA Activity
1	The Vehicle CDR configures C2 reporting policies and Vehicle CDR notification in the Vehicle C2. (These may be established by C2 System defaults.) For combat power, these policies are: a. Fuel level falling below established threshold. b. Ammunition level falling below established threshold. c. A capability (crew or equipment) change below established threshold. d. A periodic reporting time interval has occurred.	OA1.5.1.6 Track Fuel Usage OA1.5.1.3 Track Ammunition OA1.2.1.4 Send Crew Health Status OA1.1.2 Manage Equipment Fault
2	The Vehicle C2 determines that a reporting policy has been met (based on platform fault and consumable notifications).	OA1.25.2.1 Review Current Situation (Project Branches)

Step	Action	AILA Activity
3	The Vehicle C2 creates a background report using the latest data from the platform and notifies the Vehicle CDR.	OA1.25.2.1 Review Current Situation (Project Branches)
4	[Alternative1] The Vehicle CDR displays, edits, and transmits the Situation Report to the Platoon LDR via C2 System.	OA1.2.1.1 Send Fuel Status OA1.2.1.2 Send Ammunition Status OA1.1.2 Manage Equipment Fault OA1.2.1.4 Send Crew Health Status OA1.25.1.1 Communicate Operational Information OA1.20.1 Post Information
4	[Alternative2] The Vehicle C2 automatically sends the Situation Report to the Platoon LDR via Vehicle C2 (based on preauthorized reporting criteria from step 1).	OA1.2.1.1 Send Fuel Status OA1.2.1.2 Send Ammunition Status OA1.1.2 Manage Equipment Fault OA1.2.1.4 Send Crew Health Status OA1.25.1.1 Communicate Operational Information OA1.20.1 Post Information
5	The Receiving C2 will roll up non-consumable status, aggregate consumable quantities, and generate consumable status based on the Situation Reports received from subordinate units. The C2 system notifies the Platoon LDR who can review the Platoon status. The Platoon LDR may also review the individual subordinate unit Situation Reports.	OA1.20.3 Subscribe to Information OA1.25.1.2 Maintain Operational Information and Force Status
6	The Platoon LDR reviews the Platoon Situation Report, makes any appropriate changes, and forwards the aggregate Situation Report to the Company XO / Company1SG via the Platform C2.	OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information
7	The Receiving C2 will roll up non-consumable status, aggregate consumable quantities, and generate consumable status based on the Situation Reports received from subordinate units. The C2 system notifies the Company CDR who can review the Company status. The Company CDR may also review each subordinate unit's Situation Report.	OA1.20.3 Subscribe to Information OA1.25.1.2 Maintain Operational Information and Force Status
8	The Company CDR reviews the Company Situation Report and is allowed to change the status if conditions warrant. The Company CDR forwards the aggregate Situation Report to the BN CDR, with an information copy sent to the BN S4.	OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information
9	The Receiving C2 will roll up non-consumable status, aggregate consumable quantities, and generate consumable status based on the Situation Reports received from subordinate units. The C2 system notifies the BN CDR who can review the Battalion status. The BN CDR may also review each subordinate unit's Situation Report.	OA1.20.3 Subscribe to Information OA1.25.1.1 Communicate Operational Information OA1.25.1.2 Maintain Operational Information and Force Status
10	The BN CDR reviews the Battalion Situation Report and is allowed to change the status if conditions warrant. The BN CDR forwards the aggregate Situation Report to the BDE CDR, with an information copy sent to the BDE S4.	OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information
11	The Receiving C2 will roll up non-consumable status, aggregate consumable quantities, and generate consumable status based on the Situation Reports received from subordinate units. The C2 system notifies the BDE CDR who can review the Brigade status. The BDE CDR may also review each subordinate unit's Situation Report.	OA1.20.3 OA1.25.1.1 Communicate Operational Information OA1.25.1.2 Maintain Operational Information and Force Status

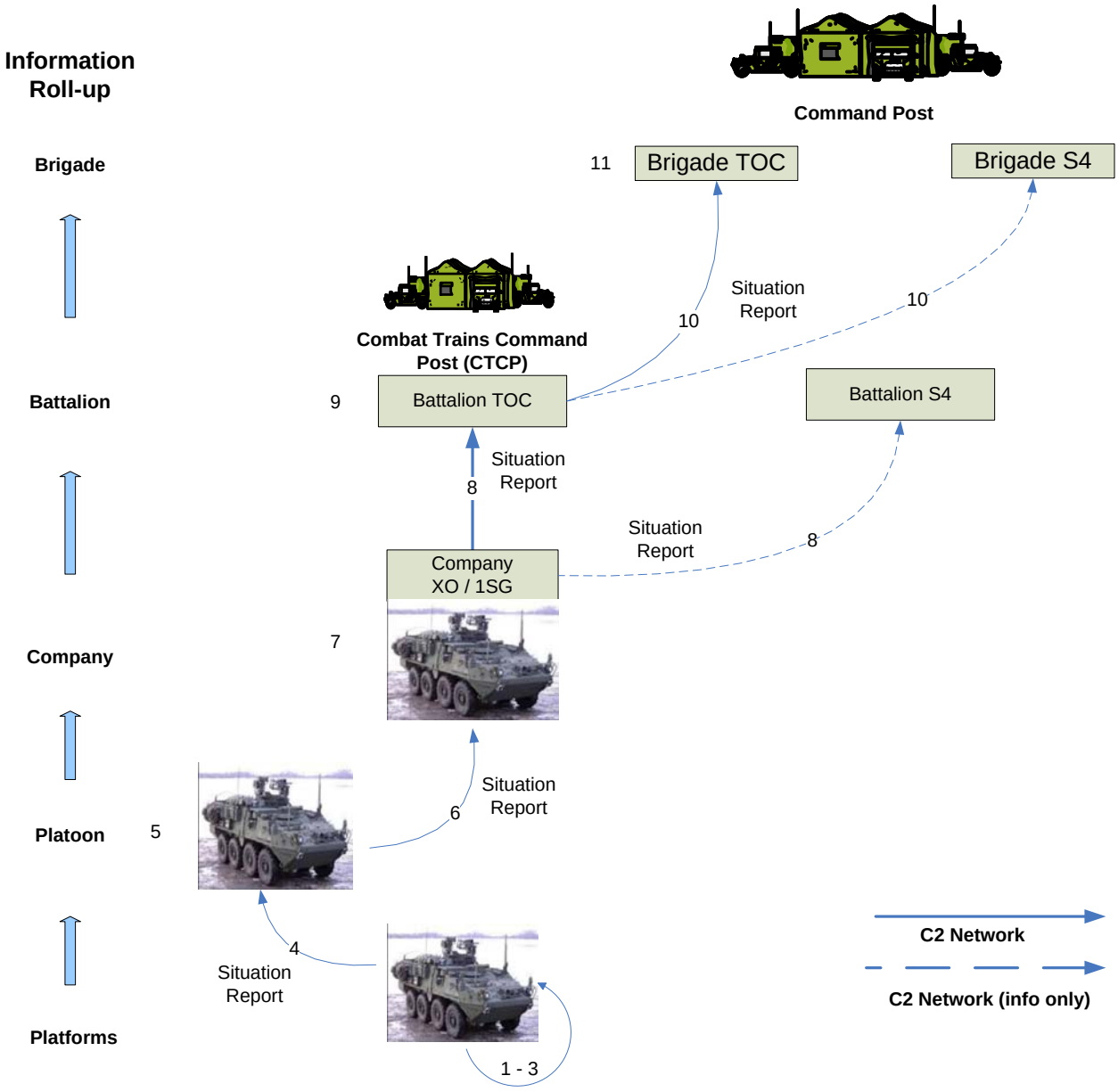

Figure 6. Provide Combat Power Summary

6.2 Maintenance Scenarios

This section describes fault resolution (deadlining and non-deadlining faults), repair part fulfillment, and Preventive Maintenance Checks and Services (PMCS).

6.2.1 Fault Resolution with C2 Network

The scenarios that follow address the reporting and repair of deadlining platform faults in both HBCT and SBCT.

6.2.1.1 Heavy Brigade Combat Team (HBCT) Fault Resolution with C2 Network

Purpose
This scenario describes the logic flow beginning with a deadlining fault and ending with platform repair by the Field Maintenance Team (FMT).

Preconditions
Vehicles are fitted with C2 systems, and the log distribution list has been set up.

The complete flow for this scenario is shown in Figure 7.

Step	Action	AILA Activity
1	The Vehicle detects a deadlining fault.	OA1.2.2 Detect Failure or Shortage
2	The Vehicle CDR is alerted.	OA1.2.2 Detect Failure or Shortage
3	The Vehicle CDR is notified of: 1. What has failed (i.e. engine control unit) 2. The capability impact (i.e. loss of fuel injection control) 3. Combat System Capability Status (i.e. Loss of drive power). 4. A course of action, which includes Vehicle Crew fault resolution where applicable (i.e. closing circuit breakers, reconnecting cables, charging the battery), and actions to contain or negate the fault effect (i.e. reduce speed, select transmission range, avoid firing the gun).	OA1.1.2.3 Maintain Equipment Fault
4	The fault event and associated data are recorded in the Vehicle LDB.	OA1.1.2.3 Maintain Equipment Fault
5a	The Vehicle CDR accepts the fault. An unresolved fault event is recorded in the Vehicle LDB. Proceed to step 6.	OA1.1.2.2 Confirm Equipment Fault
5b	The Vehicle CDR determines that the fault can be rectified by the Vehicle Crew. He rectifies the problem and changes the fault classification to 'resolved'. No further action is required.	OA1.1.2.3 Maintain Equipment Fault
5c	The Vehicle CDR is unable to make an immediate assessment of the problem. He acknowledges the fault, which defers action. Return to step 5a or 5b at a later time.	OA1.1.2.3 Maintain Equipment Fault
6	The Vehicle C2 is notified that a deadlining unresolved fault event has been recorded that makes the Vehicle non-mission capable.	OA1.1.2.3 Maintain Equipment Fault
7	The population of a CFS Maint-Log message with the unresolved fault information is automated. It is sent by the Vehicle C2 to the FMT, with an info copy to the MCS. The FMT and MCS deposit the unresolved fault information in their LDB.	OA1.2.2.2 Generate Logistics Support Notification OA1.20.1 Post Information OA1.20.5 Collaborate on the Network

Step	Action	AILA Activity
8	A CFS Maint-C2 is created by the Vehicle C2. The population of the related capability loss portion of this message is automated. The Vehicle CDR is notified of the pending messages. (Note: creation and notification does not imply a disruption of the operator's work flow).	OA1.2.2.1 Generate C2 notification/alert
9	The Vehicle CDR reviews the CFS Maint-C2 message, and adds additional information as appropriate.	OA1.25.2.1 Review Current Situation (Project Branches)
10	The Vehicle CDR initiates transmission of the CFS Maint-C2 message to the Platoon SGT. An info copy is sent to the Platoon LDR.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
11	Platoon SGT receives the CFS Maint-C2, reads it, and determines it is Platoon mission essential, and forwards it to the Company C2 Leadership.	OA1.20.3 Subscribe to Information OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
12	Company C2 Leadership receives CFS Maint-C2, reads it, determines that it is Company mission essential, and forwards it to the MCS. An info copy is sent to the Battalion Logistics Officer (BN S4).	OA1.20.3 Subscribe to Information OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
13	On receiving CFS Maint-C2, the MCS opens a LTO in accordance with the priorities established by the BN S4, and sends it to the FMT. An info copy is sent to the BN S4.	OA1.20.3 Subscribe to Information OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information
14	The FMT forwards the LTO to the MT.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
15	The FMT C2 correlates the CFS Maint-C2 with the previously received CFS Maint-Log unresolved fault information.	OA1.1.2.3 Maintain Equipment Fault OA1.25.2.1 Review Current Situation (Project Branches)
16	The unresolved fault information is transferred from the FMT C2 to the MS.	OA1.1.2.3 Maintain Equipment Fault OA1.20.1 Post Information
17	The MS creates tasks for fault trouble-shooting, repair, and inspection.	OA1.1.2.3 Maintain Equipment Fault OA1.16.1.4 Employ Technical Publications
18	The FMT Maintainer creates a WO in the LDB, and adds the trouble-shooting, repair, and inspection tasks. Control of the vehicle is passed over to the maintenance organization.	OA1.1.3.1 Open Work Order
19	Parts are requisitioned and received if necessary (see separate scenario if parts are not available).	Refer to referenced scenario for AILA activities.
20	The MT verifies that parts, personnel, tools, facility, and time are available for repair.	OA1.1.3.5 Identify Resources
21	The MT C2 creates and sends a LTS to Vehicle for task synchronization. An info copy is sent to FMT and Company 1SG.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information OA1.20.5 Collaborate on the Network
22	The MT MV takes the repair parts out to the Vehicle (these may be a subset of the parts on the causal LRU list).	OA1.1.3.2 Maintain Work Order
23	The Vehicle and the MV establish a connection with the Support Communications Network.	OA1.20.3 Subscribe to Information

Step	Action	AILA Activity
24	The Vehicle LDB and the MT MV LDBs are synchronized (fault information passes to the MV, WO related information passes to the Vehicle. This step may also transfer non-deadlining faults and PMCS issues to the MT).	OA1.1.2.3 Maintain Equipment Fault OA1.20.5 Collaborate on the Network OA1.1.3.2 Maintain Work Order
25	The Maintainer accesses the IETM to provide a troubleshooting course of action.	OA1.16.1.4 Employ Technical Publications
26	The Maintainer performs the troubleshooting course of action, isolates the fault, and determines the required replacement part.	OA1.16.1.4 Employ Technical Publications OA1.1.2.2 Confirm Equipment Fault OA1.1.2.3 Maintain Equipment Fault
27	The Maintainer records the refined fault classification and replacement part for the unresolved fault in the Vehicle LDB or the MV LDB. The repair and inspection/verification tasks are modified accordingly.	OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order
28	The Maintainer records completion of the trouble-shooting task in the MS WO (Vehicle or MV).	OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order
29	The Maintainer replaces the defective part. The serial numbers of the removed and replacement part are entered into the Vehicle LDB or MV LDB.	OA1.1.2.4 Correct Equipment Fault OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order OA1.3.2 Maintain System Configuration
30	The Maintainer records completion of the repair task in the MS WO (Vehicle or MV).	OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order
31	The repair is inspected and verified.	OA1.1.8.3 Perform Quality Inspection
32	The repair verification task is closed out in the MS. This closes out the WO and changes the fault event to 'resolved'. Control of the Vehicle is passed over to the command organization.	OA1.1.3.3 Close Work Order OA1.1.2.3 Maintain Equipment Fault
33	MT sends out Log Task Status to FMT (party that opened the LTO). FMT closes out LTO. Info copies of Log Task Status go to all addresses of CFS Maint-C2 and LTO.	OA1.25.1.1 Communicate Operational Information OA1.20.1 Post Information
34	The Vehicle and the MV establish a connection with the Support Communications Network.	OA1.20.3 Subscribe to Information
35	The Vehicle LDB and the MV LDBs are synchronized. Fault and WO information is synchronized.	OA1.20.5 Collaborate on the Network
36	The MT MV returns to the FMT.	
37	The MT MV establishes a connection with the FMT Support Communications Network. Fault and WO information is synchronized.	OA1.20.3 Subscribe to Information OA1.20.5 Collaborate on the Network
38	When support network connectivity is established, fault and WO information is synchronized between the MT, FMT, MCS, FMC, and SPO LDBs.	OA1.20.5 Collaborate on the Network
39	The SPO queries the LDB for WO data.	OA1.20.4 Search for Information OA1.1.3.8 Generate Work Order Reports
40	The MCS and the FMC query the LDB for Materials Readiness reports.	OA1.20.4 Search for Information OA1.1.6.1 Generate Readiness Reports

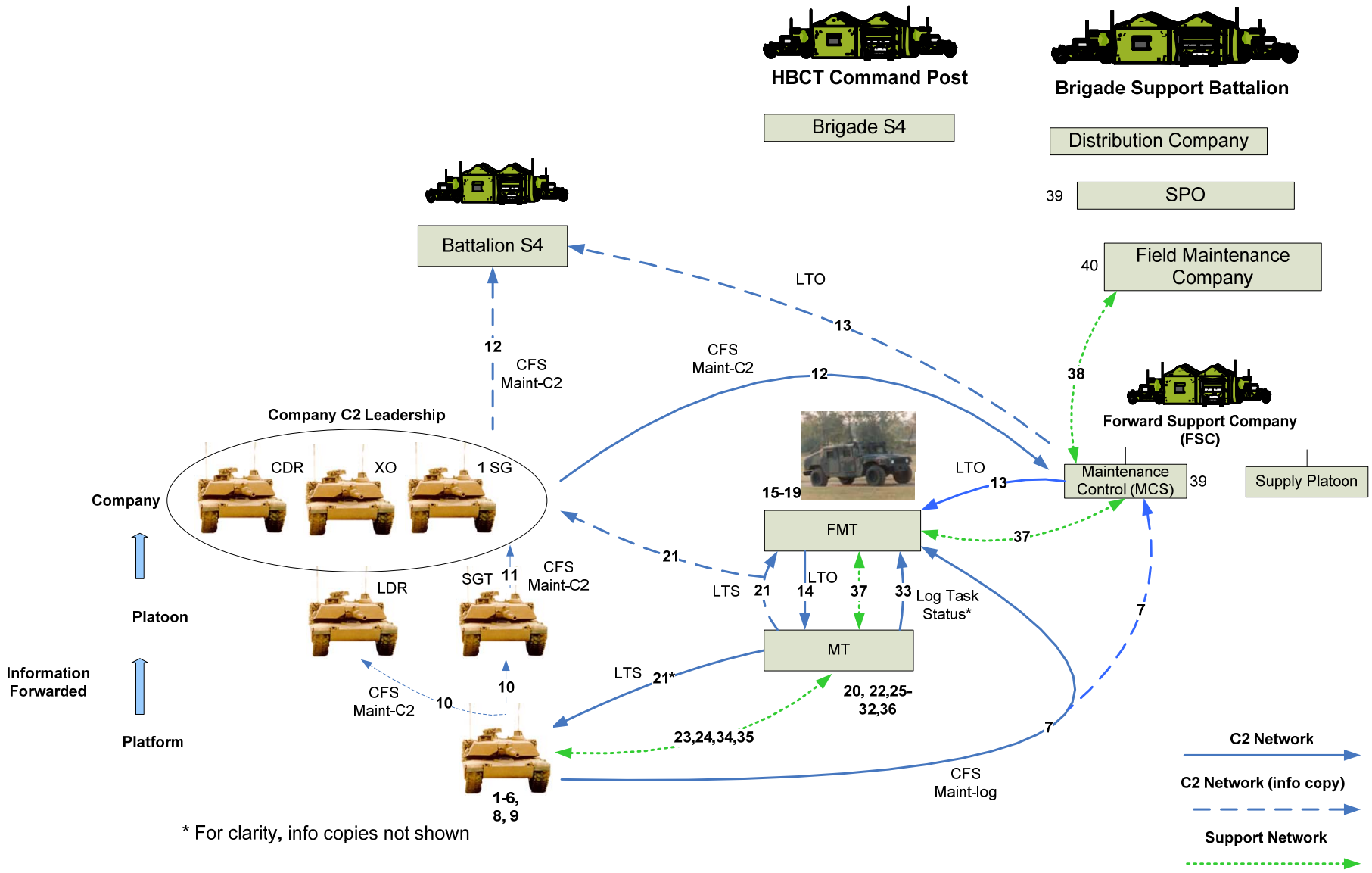

Figure 7. HBCT Fault Resolution with C2 Network

6.2.1.2 Stryker Brigade Combat Team (SBCT) Fault Resolution with C2 Network

Purpose
This scenario describes the logic flow beginning with a deadlining fault and ending with platform repair by the Combat Repair Team (CRT).

Preconditions
Vehicles are fitted with C2 systems, and the log distribution list has been set up.

The complete flow for this scenario is shown in Figure 8.

Step	Action	AILA Activity
1	The Vehicle detects a deadlining fault.	OA1.2.2 Detect Failure or Shortage
2	The Vehicle CDR is alerted.	OA1.2.2 Detect Failure or Shortage
3	The Vehicle CDR is notified of: 1. What has failed (i.e. engine control unit fault) 2. The capability impact (i.e. loss of fuel injection control) 3. Combat System Capability Status (i.e. Loss of drive power). 4. A course of action, which includes Vehicle Crew fault resolution where applicable (i.e. closing circuit breakers, reconnecting cables, charging the battery), and actions to contain or negate the fault effect (i.e. reduce speed, select transmission range, avoid firing the gun).	OA1.1.2.3 Maintain Equipment Fault
4	The fault event and associated data are recorded in the Vehicle LDB.	OA1.1.2.3 Maintain Equipment Fault
5a	The Vehicle CDR accepts the fault. An unresolved fault event is recorded in the Vehicle LDB. Proceed to step 6.	OA1.1.2.2 Confirm Equipment Fault
5b	The Vehicle CDR determines that the fault can be rectified by the Vehicle Crew. The problem is rectified, and the Vehicle CDR changes the fault classification to 'resolved'. No further action is required.	OA1.1.2.3 Maintain Equipment Fault
5c	The Vehicle CDR is unable to make an immediate assessment of the problem. He acknowledges the fault, which defers action. Return to step 5a or 5b at a later time.	OA1.1.2.3 Maintain Equipment Fault
6	The Vehicle C2 is notified that a deadlining unresolved fault event has been recorded that makes the Vehicle non-mission capable.	OA1.1.2.3 Maintain Equipment Fault
7	The population of a CFS Maint-Log message with the unresolved fault information is automated. It is sent by the Vehicle C2 to the CRT and FMC. The CRT and FMC deposit the unresolved fault information in their LDB.	OA1.2.2.2 Generate Logistics Support Notification OA1.20.1 Post Information OA1.20.5 Collaborate on the Network
8	A CFS Maint-C2 is created by the Vehicle C2. The population of the related capability loss portion of this message is automated. The Vehicle CDR is notified of the pending messages. (Note creation and notification does not imply a disruption of the operator's work flow).	OA1.2.2.1 Generate C2 notification/alert
9	The Vehicle CDR reviews the CFS Maint-C2 message, and adds additional information as appropriate.	OA1.25.2.1 Review Current Situation (Project Branches)
10	The Vehicle CDR initiates transmission of the CFS Maint-C2 message to the Platoon SGT. An info copy is sent to the Platoon LDR.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information

Step	Action	AILA Activity
11	The Platoon SGT receives the CFS Maint-C2, reads it, and determines it is Platoon mission essential, and forwards it to the Company C2 Leadership.	OA1.20.3 Subscribe to Information OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information
12	The Company C2 Leadership receives the CFS Maint-C2, reads it, determines that it is Company mission essential, and forwards it to the BN S4.	OA1.20.3 Subscribe to Information OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
13	On receiving CFS Maint-C2, the BN S4 opens a LTO and sends it to the CRT. An info copy is sent to the FMC.	OA1.20.3 Subscribe to Information OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
14	The CRT C2 system correlates the LTO with the previously received CFS Maint-Log unresolved fault information.	OA1.1.2.3 Maintain Equipment Fault OA1.25.2.1 Review Current Situation (Project Branches)
15	The unresolved fault information is transferred from the CRT C2 system to the CRT MS.	OA1.1.2.3 Maintain Equipment Fault OA1.20.1 Post Information
16	The MS creates tasks for fault trouble-shooting, repair, and inspection.	OA1.1.3.1 Open Work Order OA1.16.1.4 Employ Technical Publications
17	The CRT creates a WO in the LDB, and adds the trouble-shooting, repair, and inspection tasks. Control of the vehicle is passed over to the maintenance organization.	OA1.1.3.1 Open Work Order
18	Parts are requested/requisitioned and received if necessary (see separate scenario if parts are not available).	Refer to referenced scenario for AILA activities.
19	The CRT determines that parts, personnel, tools, facility, and time are available for the repair.	OA1.1.3.5 Identify Resources
20	The CRT C2 system sends a LTS to the Vehicle for task synchronization of the unresolved fault. An info copy is sent to the BN S4.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information OA1.20.5 Collaborate on the Network
21	The CRT MV takes the repair parts out to the Vehicle (these may be a subset of the parts on the causal LRU list).	OA1.1.3.2 Maintain Work Order
22	The Vehicle and the MV establish a connection with the Support Communications Network.	OA1.20.3 Subscribe to Information
23	The Vehicle LDB and the CRT MV LDBs are synchronized (fault information passes to the MV, WO related information passes to the Vehicle. This step may also transfer non-deadlining faults and PMCS issues to the CRT).	OA1.1.2.3 Maintain Equipment Fault OA1.20.5 Collaborate on the Network OA1.1.3.2 Maintain Work Order
24	The Maintainer accesses the IETM to provide a troubleshooting course of action.	OA1.16.1.4 Employ Technical Publications
25	The Maintainer performs the troubleshooting course of action, isolates the fault, and determines the required replacement part.	OA1.16.1.4 Employ Technical Publications OA1.1.2.2 Confirm Equipment Fault OA1.1.2.3 Maintain Equipment Fault
26	The Maintainer records the refined fault classification and replacement part for the unresolved fault in the Vehicle LDB or MV LDB. The repair and inspection/verification tasks are modified accordingly.	OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order

Step	Action	AILA Activity
27	The Maintainer records completion of the trouble-shooting task in the MS WO (MV).	OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order
28	The Maintainer replaces the defective part. The serial numbers of the removed and replacement part are entered into the Vehicle LDB or MV LDB.	OA1.1.2.4 Correct Equipment Fault OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order OA1.3.2 Maintain System Configuration
29	The Maintainer records completion of the repair task in the MS WO (Vehicle or MV).	OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order
30	The repair is inspected and verified.	OA1.1.8.3 Perform Quality Inspection
31	The repair verification task is closed out in the MS. This closes out the WO and changes the fault event to 'resolved'. Control of the vehicle is passed over to the command organization.	OA1.1.3.3 Close Work Order OA1.1.2.3 Maintain Equipment Fault
32	CRT sends out Log Task Status to BN S4 (party that opened the LTO). BN S4 closes out LTO. Info copies of Log Task Status go to all addresses of CFS Maint-C2 and LTO.	OA1.25.1.1 Communicate Operational Information OA1.20.1 Post Information
33	The Vehicle and the MV establish a connection with the Support Communications Network.	OA1.20.3 Subscribe to Information
34	The Vehicle LDB and the MV LDBs are synchronized. Fault and WO information is synchronized.	OA1.20.5 Collaborate on the Network
35	The MV returns to the CRT.	
36	The CRT MV establishes a connection with the FMC Support Communications Network. Fault and WO information is synchronized.	OA1.20.3 Subscribe to Information OA1.20.5 Collaborate on the Network
37	When support network connectivity is established, fault and WO information is synchronized between the CRT, FMC, and SPO LDBs.	OA1.20.5 Collaborate on the Network
38	The SPO queries the LDB for WO data.	OA1.20.4 Search for Information OA1.1.3.8 Generate Work Order Reports
39	The CRT and the FMC query the LDB for Materials Readiness reports.	OA1.20.4 Search for Information OA1.1.6.1 Generate Readiness Reports

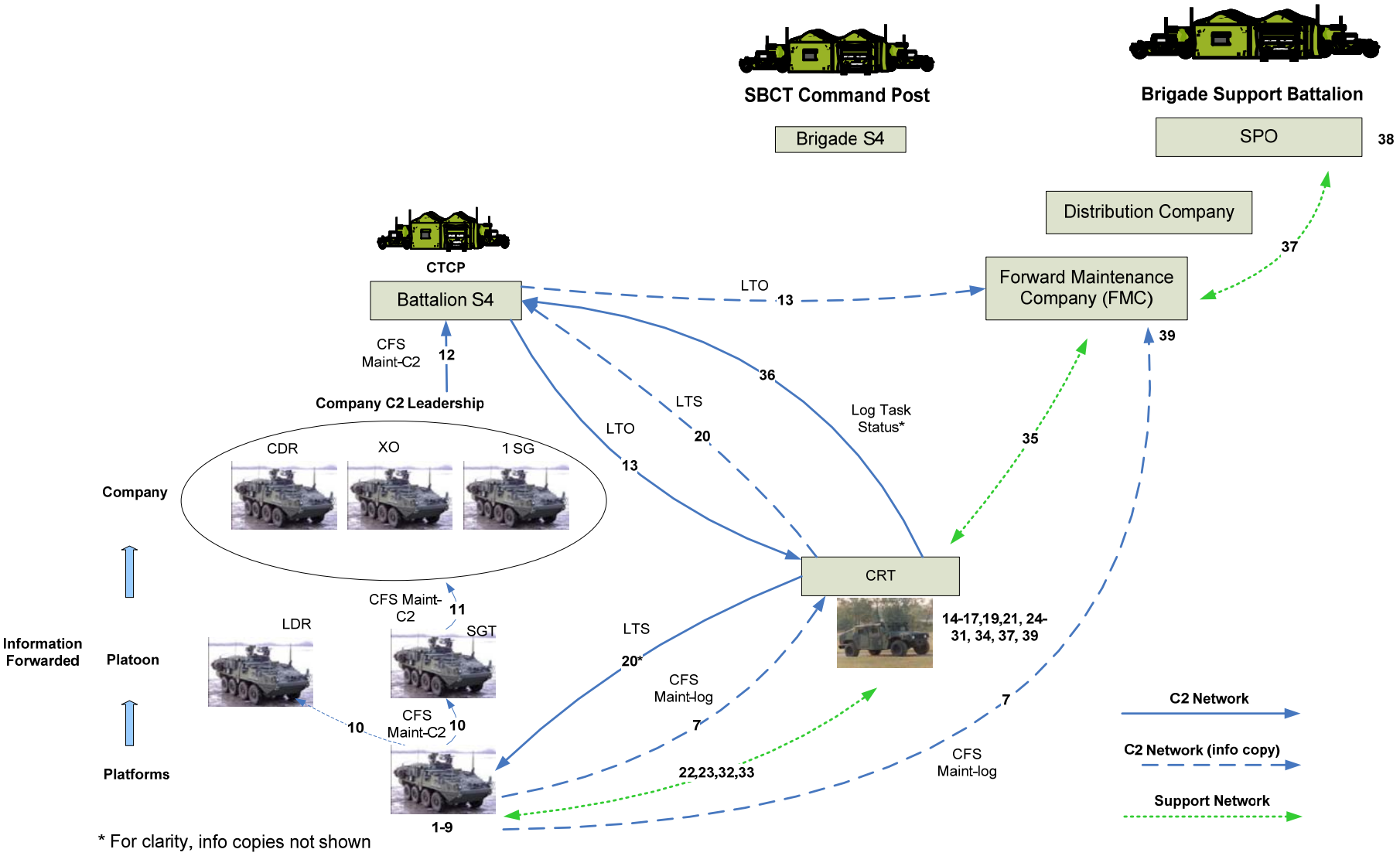

Figure 8. SBCT Fault Resolution with C2 Network

6.2.1.3 Tactical Wheeled Vehicles (TWV)

Diagnostic equipment installed on Tactical Wheeled Vehicles (TWVs) ranges from standard engine diagnostics with simple annunciator lamps and gauges, to an embedded health computer capable of receiving and displaying fault details for engine and other systems. TWV Information Systems also have a range of capabilities, from voice communications (radio) to an embedded C2 and Information System capable of sending and receiving messages to and from other command and control and logistics entities. In order to address this range of capabilities, the TWV scenarios have been split into the following capabilities:

1. TWVs with embedded health computer and C2 system
2. TWVs with embedded health computer and relay vehicle
3. TWVs with voice communications

6.2.1.3.1 TWVs with Embedded Health Computer and C2 System

Purpose
This scenario describes the logic flow beginning with a deadlining fault and ending with reporting of the fault by the platoon/convoy leader. HBCT, SBCT, and BSB owned TWVs are covered. The complete flow for this scenario is shown in Figure 9 and Figure 10.

Preconditions
TWVs are fitted with embedded health computer and C2 systems. Platoon and above are fitted with embedded C2 system.

Step	Action	AILA Activity
1	The Vehicle detects a deadlining fault.	OA1.2.2 Detect Failure or Shortage
2	The Vehicle CDR is alerted by the embedded Health Management Computer.	OA1.2.2 Detect Failure or Shortage
3	The Vehicle CDR is notified of: 1. What has failed (i.e. engine control unit) 2. The capability impact (i.e. loss of fuel injection control) 3. Combat System Capability Status (i.e. Loss of drive power). 4. A course of action, which includes Vehicle Crew fault resolution where applicable (i.e. closing circuit breakers, reconnecting cables, charging the battery), and actions to contain or negate the fault effect (i.e. reduce speed, select transmission range).	OA1.1.2.3 Maintain Equipment Fault
4	The fault event and associated data are recorded in the Vehicle LDB.	OA1.1.2.3 Maintain Equipment Fault
5a	The Vehicle CDR accepts the fault. An unresolved fault event is recorded in the Vehicle LDB. Proceed to step 6.	OA1.1.2.2 Confirm Equipment Fault
5b	The Vehicle CDR determines that the fault can be rectified by the Vehicle Crew. He rectifies the problem and changes the fault classification to 'resolved'. No further action is required.	OA1.1.2.3 Maintain Equipment Fault
5c	The Vehicle CDR is unable to make an immediate assessment of the problem. He acknowledges the fault, which defers action. Return to step 5a or 5b at a later time.	OA1.1.2.3 Maintain Equipment Fault
6	The Vehicle C2 is notified that a deadlining unresolved fault event has been recorded.	OA1.1.2.3 Maintain Equipment Fault
7 (HBCT)	The population of a CFS Maint-Log message with the unresolved fault information is automated. It is sent by the Vehicle C2 to the FMT, and MCS. The FMT and MCS deposit the unresolved fault information in their LDBs.	OA1.2.2.2 Generate Logistics Support Notification OA1.20.1 Post Information OA1.20.5 Collaborate on the Network
7 (SBCT)	The population of a CFS Maint-Log message with the unresolved fault information is automated. It is sent by the Vehicle C2 to the CRT and FMC. The CRT and FMC deposit the unresolved fault information in their LDBs.	OA1.2.2.2 Generate Logistics Support Notification OA1.20.1 Post Information OA1.20.5 Collaborate on the Network
7 (BSB)	The population of a CFS Maint-Log message with the unresolved fault information is automated. It is sent by the Vehicle C2 to the supporting maintenance element in the FMC and MCS. The FMC maintenance element and MCS deposit the unresolved fault information in their LDB.	OA1.2.2.2 Generate Logistics Support Notification OA1.20.1 Post Information OA1.20.5 Collaborate on the Network

Step	Action	AILA Activity
8	A CFS Maint-C2 is created by the Vehicle C2. The population of the related capability loss portion of this message is automated. The Vehicle CDR is notified of the pending messages. (Note: creation and notification does not imply a disruption of the operator's work flow).	OA1.2.2.1 Generate C2 notification/alert
9	The Vehicle CDR reviews the CFS Maint-C2 message, and adds additional information as appropriate.	OA1.25.2.1 Review Current Situation (Project Branches)
10 (HCBT)	The Vehicle CDR initiates transmission of the CFS Maint-C2 message to the Platoon SGT.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
10 (SBCT)	The Vehicle CDR initiates transmission of the CFS Maint-C2 message to the Platoon SGT. An info copy is sent to the Platoon LDR.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
10 (BSB)	The Vehicle CDR initiates transmission of the CFS Maint-C2 message to the Platoon SGT/Convoy LDR.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
11 (HBCT or SBCT)	Platoon SGT receives the CFS Maint-C2, reads it, and determines it is Platoon mission essential, and forwards it to the Company C2 Leadership.	OA1.20.3 OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
11 (BSB)	The Platoon SGT/Convoy LDR receives the CFS Maint-C2, reads it, and determines it is Platoon/convoy mission essential, and forwards it to the Company C2 Leadership or BSB element overseeing the convoy.	OA1.20.3 OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
12 (HBCT)	Refer to steps 12 through 40 of '6.2.1.1 Heavy Brigade Combat Team (HBCT) Fault Resolution with C2 Network' for remaining repair steps.	Refer to referenced scenario for AILA activities.
12 (SBCT)	Refer to steps 12 through 39 of '6.2.1.2 Stryker Brigade Combat Team (SBCT) Fault Resolution with C2 Network'.	Refer to referenced scenario for AILA activities.
12 (BSB)	Company C2 Leadership or BSB element overseeing the convoy receives CFS Maint-C2, reads it, determines that it is Company/convoy mission essential, and forwards it to the FMC and the MCS. An info copy is sent to the BN S4.	OA1.20.3 Subscribe to Information OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
13 (BSB)	On receiving CFS Maint-C2, the MCS opens a LTO in accordance with the priorities established by the BN S4 or his designated representative, and sends it to the supporting maintenance element in the FMC for repair or recovery. An info copy is sent to the BN S4.	OA1.20.3 Subscribe to Information OA1.25.2.1 Review Current Situation (Project Branches) OA1.20.1 Post Information
14 (BSB)	The MCS C2 system correlates the CFS Maint-C2 with the previously received CFS Maint-Log unresolved fault information. The correlated fault information is transferred to the supporting maintenance element.	OA1.1.2.3 Maintain Equipment Fault OA1.25.2.1 Review Current Situation (Project Branches)
15 (BSB)	The unresolved fault information is transferred from the MCS C2 system to the MS.	OA1.1.2.3 Maintain Equipment Fault OA1.20.1 Post Information
16 (BSB)	The MS creates tasks for fault trouble-shooting, repair, and inspection.	OA1.1.2.3 Maintain Equipment Fault OA1.16.1.4 Employ Technical Publications

Step	Action	AILA Activity
17 (BSB)	The MCS creates a WO in the LDB, and adds the trouble-shooting, repair, and inspection tasks. Control of the vehicle is passed over to the maintenance organization and the owning unit is informed of the status.	OA1.1.3.1 Open Work Order
18 (BSB)	Parts are requisitioned and received if necessary (see separate scenario if parts are not available).	Refer to referenced scenario for AILA activities.
19 (BSB)	The MCS verifies that parts, personnel, tools, facility, and time are available for repair.	OA1.1.3.5 Identify Resources
20 (BSB)	The MCS sends a LTS to Vehicle for task synchronization.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information OA1.20.5 Collaborate on the Network
21 (BSB)	The MV from the supporting element takes the repair parts and/or recovery equipment to the Vehicle (these may be a subset of the parts on the causal LRU list).	OA1.1.3.2 Maintain Work Order
22 (BSB)	The Vehicle and the MV establish a connection with the Support Communications Network.	OA1.20.3 Subscribe to Information
23 (BSB)	The Vehicle LDB and the MV LDBs are synchronized (fault information passes to the MV, WO related information passes to the Vehicle). This step may also transfer non-deadlining faults and PMCS issues to the MCS.	OA1.1.2.3 Maintain Equipment Fault OA1.20.5 Collaborate on the Network OA1.1.3.2 Maintain Work Order
24 (BSB)	The Maintainer accesses the IETM to provide a troubleshooting course of action.	OA1.16.1.4 Employ Technical Publications
25 (BSB)	The Maintainer performs the troubleshooting course of action, isolates the fault, and determines the required replacement part.	OA1.16.1.4 Employ Technical Publications OA1.1.2.2 Confirm Equipment Fault OA1.1.2.3 Maintain Equipment Fault
26 (BSB)	The Maintainer records the refined fault classification and replacement part for the unresolved fault in the LDB (Vehicle or MV). The repair and inspection/verification tasks are modified accordingly.	OA1.1.2 Manage Equipment Fault OA1.1.3.2 Maintain Work Order
27 (BSB)	The Maintainer records completion of the trouble-shooting task in the MS WO (Vehicle or MV).	OA1.1.2 Manage Equipment Fault OA1.1.3.2 Maintain Work Order
28 (BSB)	The Maintainer replaces the defective part. The serial numbers of the removed and replacement part are entered into the Vehicle LDB or MV LDB.	OA1.1.2.4 Correct Equipment Fault OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order OA1.3.2 Maintain System Configuration
29 (BSB)	The Maintainer records completion of the repair task in the MS WO (Vehicle or MV).	OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order
30 (BSB)	The repair is inspected and verified.	OA1.1.8.3 Perform Quality Inspection
31 (BSB)	The repair verification task is closed out in the MS. This closes out the WO and changes the fault event to 'resolved'. Control of the vehicle is passed over to the owning organization.	OA1.1.3.3 Close Work Order OA1.1.2.3 Maintain Equipment Fault
32 (BSB)	The MV MT sends out Log Task Status to the MCS (party that opened the LTO). The MCS closes out LTO. Info copies of Log Task Status go to all addresses of CFS Maint-C2 and LTO.	OA1.25.1.1 Communicate Operational Information OA1.20.1 Post Information
33 (BSB)	The Vehicle and the MV establish a connection with the Support Communications Network.	OA1.20.3 Subscribe to Information
34 (BSB)	The Vehicle LDB and the MV LDB are synchronized. Fault and WO information is synchronized.	OA1.20.5 Collaborate on the Network

Step	Action	AILA Activity
35 (BSB)	The MV returns to the FMC.	
36 (BSB)	The MV establishes a connection with the MCS Support Communications Network. Fault and WO information is synchronized.	OA1.20.3 Subscribe to Information OA1.20.5 Collaborate on the Network
37 (BSB)	When support network connectivity is established, fault and WO information is synchronized between the MV and the MCS LDB.	OA1.20.5 Collaborate on the Network
38 (BSB)	Maintenance management personnel query the LDB for WO data.	OA1.20.4 Search for Information OA1.1.3.8 Generate Work Order Reports
39 (BSB)	The MCS and the FMC query the LDB for Materials Readiness reports.	OA1.20.4 Search for Information OA1.1.6.1 Generate Readiness Reports

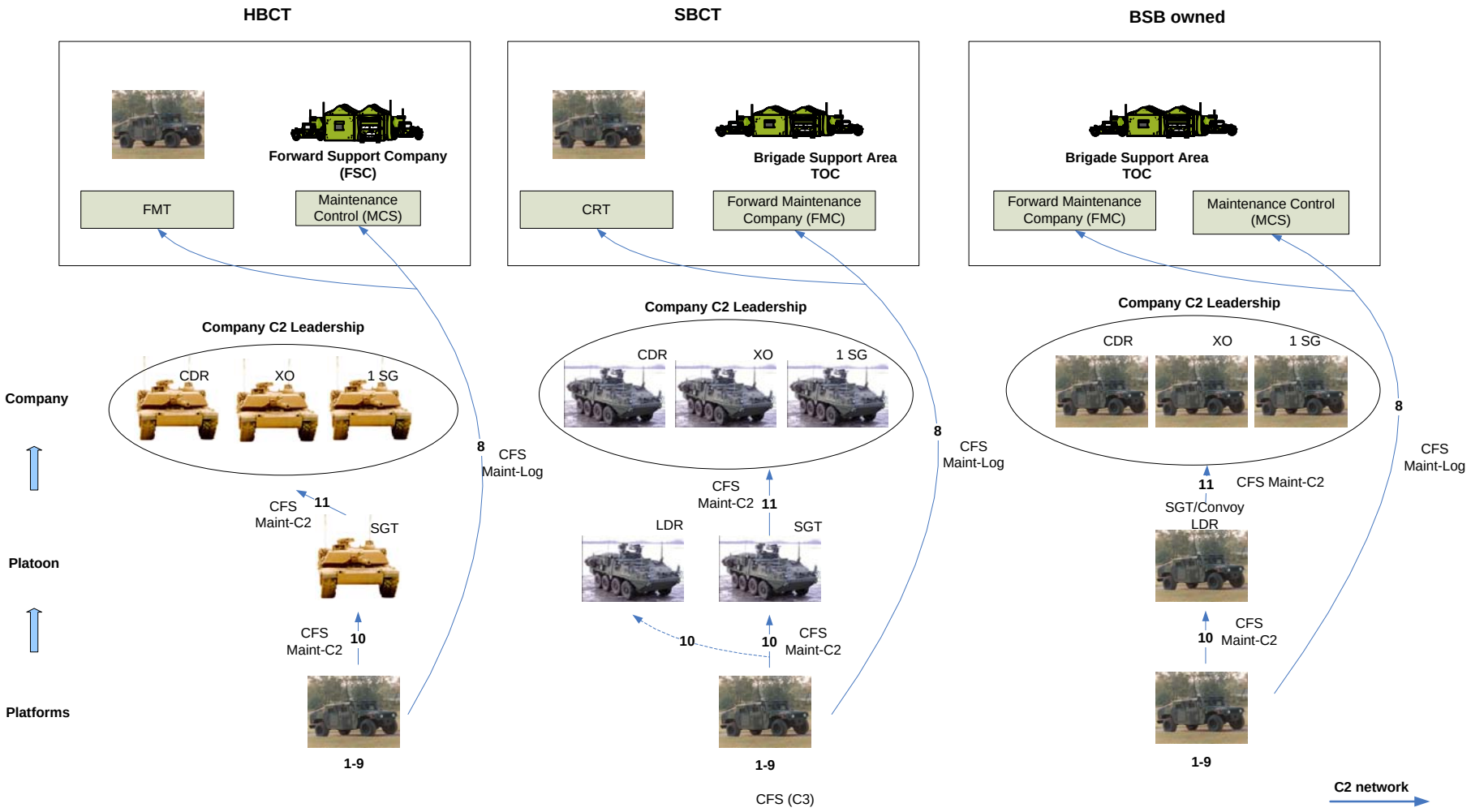

Figure 9. TWV with Embedded Health Computer and C2 (1 of 2)

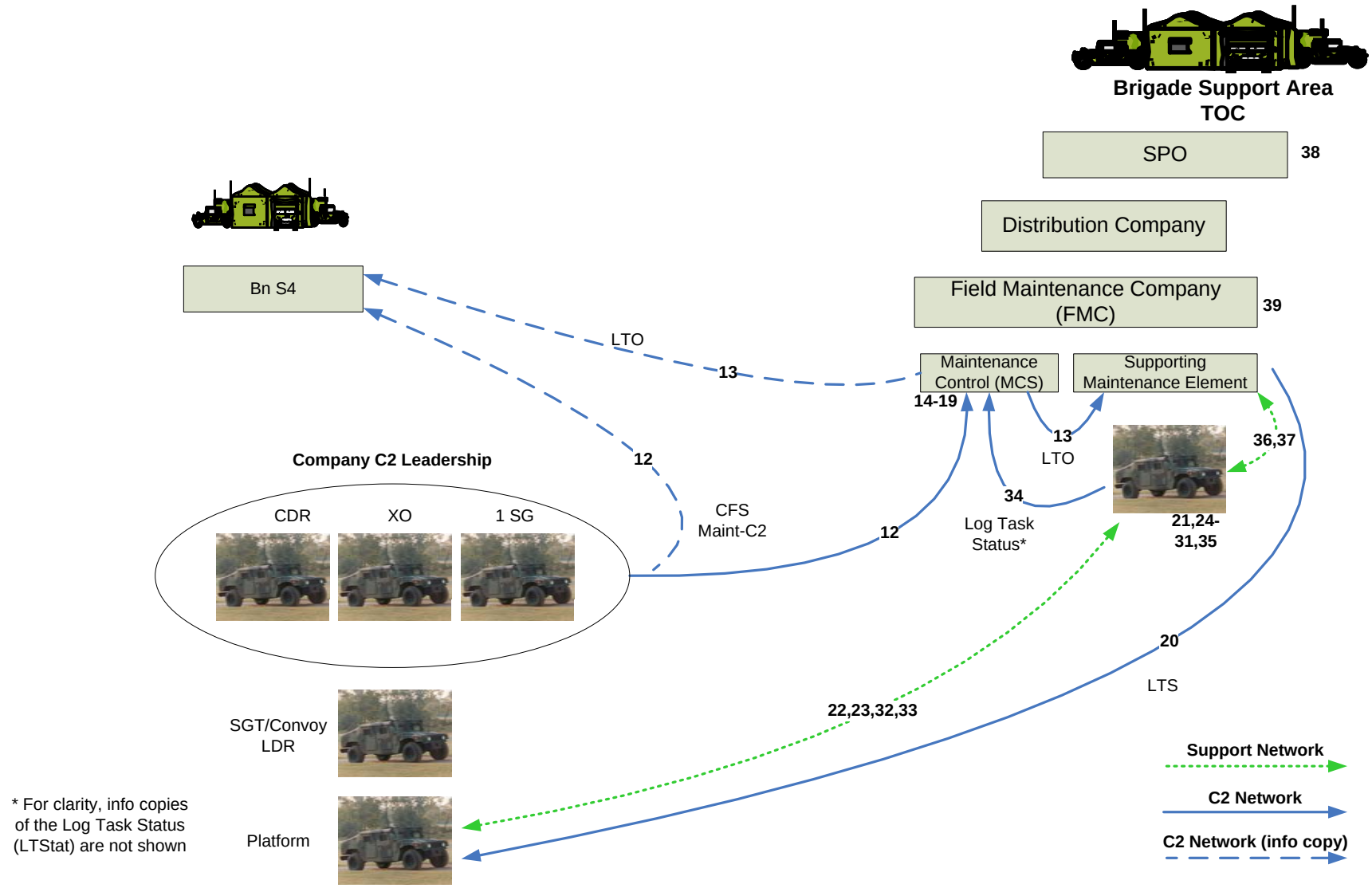

Figure 10. TWV with Embedded Health Computer and C2 (2 of 2)

6.2.1.3.2 TWVs with Embedded Health Computer and Relay Vehicle

Purpose
This scenario describes the logic flow beginning with a deadlining fault and ending with reporting of the fault by the Platoon/Convoy leader. HBCT, SBCT, and BSB owned TWVs are covered. The complete flow for this scenario is shown in Figure 11.

Preconditions
TWVs are fitted with embedded health computer and a network connection to a relay vehicle that has an embedded C2 system.

Step	Action	AILA Activity
1	The Vehicle detects a deadlining fault.	OA1.2.2 Detect Failure or Shortage
2	The Vehicle CDR is alerted by the embedded Health Management Computer.	OA1.2.2 Detect Failure or Shortage
3	The Vehicle CDR is notified of: 1. What has failed (i.e. engine control unit) 2. The capability impact (i.e. loss of fuel injection control) 3. Combat System Capability Status (i.e. Loss of drive power). 4. A course of action, which includes Vehicle Crew fault resolution where applicable (i.e. closing circuit breakers, reconnecting cables, charging the battery), and actions to contain or negate the fault effect (i.e. reduce speed, select transmission range).	OA1.1.2.3 Maintain Equipment Fault
4	The fault event and associated data are recorded in the Vehicle LDB.	OA1.1.2.3 Maintain Equipment Fault
5a	The Vehicle CDR accepts the fault. An unresolved fault event is recorded in the Vehicle LDB. Proceed to step 6.	OA1.1.2.2 Confirm Equipment Fault
5b	The Vehicle CDR determines that the fault can be rectified by the Vehicle Crew. He rectifies the problem and changes the fault classification to 'resolved'. No further action is required.	OA1.1.2.3 Maintain Equipment Fault
5c	The Vehicle CDR is unable to make an immediate assessment of the problem. He acknowledges the fault, which defers action. Return to step 5a or 5b at a later time.	OA1.1.2.3 Maintain Equipment Fault
6	The fault information and capability loss information is relayed to the Relay Vehicle.	OA1.20.1 Post Information OA1.20.3 Subscribe to Information
7	The Relay Vehicle receives the fault and capability loss information. Fault information is transferred to the C2 CFS Maint-Log, and capability information is transferred to the C2 CFS Maint-C2.	OA1.2.2.2 Generate Logistics Support Notification OA1.2.2.1 Generate C2 notification/alert
8 (HBCT)	The CFS Maint-Log is sent to the FMT and MCS. The FMT and MCS deposit the unresolved fault information in their LDBs.	OA1.20.1 Post Information OA1.20.5 Collaborate on the Network OA1.2.2.2 Generate Logistics Support Notification
8 (SBCT)	The CFS Maint-Log is sent to the FMC and CRT. The FMC and CRT deposit the unresolved fault information in their LDBs.	OA1.20.1 Post Information OA1.20.5 Collaborate on the Network OA1.2.2.2 Generate Logistics Support Notification
8 (BSB)	The CFS Maint-Log is sent by the Relay Vehicle C2 to the supporting maintenance element in the FMC and MCS. The FMC supporting element and MCS deposit the unresolved fault information in their LDBs.	OA1.20.1 Post Information OA1.20.5 Collaborate on the Network OA1.2.2.2 Generate Logistics Support Notification

Step	Action	AILA Activity
9	The Relay Vehicle CDR determines that the fault is mission essential, reviews the CFS Maint-C2 message, and adds additional information as appropriate.	OA1.25.2.1 Review Current Situation (Project Branches)
10 (HCBT)	The Relay Vehicle CDR initiates transmission of the CFS Maint-C2 message to the Platoon SGT.	OA1.2.2.1 Generate C2 notification/alert
10 (SBCT)	The Relay Vehicle CDR initiates transmission of the CFS Maint-C2 message to the Platoon SGT. An info copy is sent to the Platoon LDR.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
10 (BSB)	The Relay Vehicle CDR initiates transmission of the CFS Maint-C2 message to the Platoon SGT/Convoy LDR.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
11 (HBCT or SBCT)	Platoon SGT receives the CFS Maint-C2, reads it, determines it is Platoon mission essential, and forwards it to the Company C2 Leadership.	OA1.20.3 Subscribe to Information OA1.25.2.1 Review Current Situation (Project Branches)
11 (BSB)	Platoon SGT/Convoy LDR receives the CFS Maint-C2, reads it, determines it is Platoon/Convoy mission essential, and forwards it to the Company C2 Leadership or BSB element overseeing the Convoy.	OA1.20.3 Subscribe to Information OA1.25.2.1 Review Current Situation (Project Branches) OA1.25.1.1 Communicate Operational Information
12 (HBCT)	Refer to steps 12 through 40 of '6.2.1.1 Heavy Brigade Combat Team (HBCT) Fault Resolution with C2 Network' for remaining repair steps.	Refer to referenced scenario for AILA activities.
12 (SBCT)	Refer to steps 12 through 39 of '6.2.1.2 Stryker Brigade Combat Team (SBCT) Fault Resolution with C2 Network'.	Refer to referenced scenario for AILA activities.
12 (BSB)	Refer to steps 12 through 39 of '6.2.1.3.1 TWVs with Embedded Health Computer and C2 System'.	Refer to referenced scenario for AILA activities.

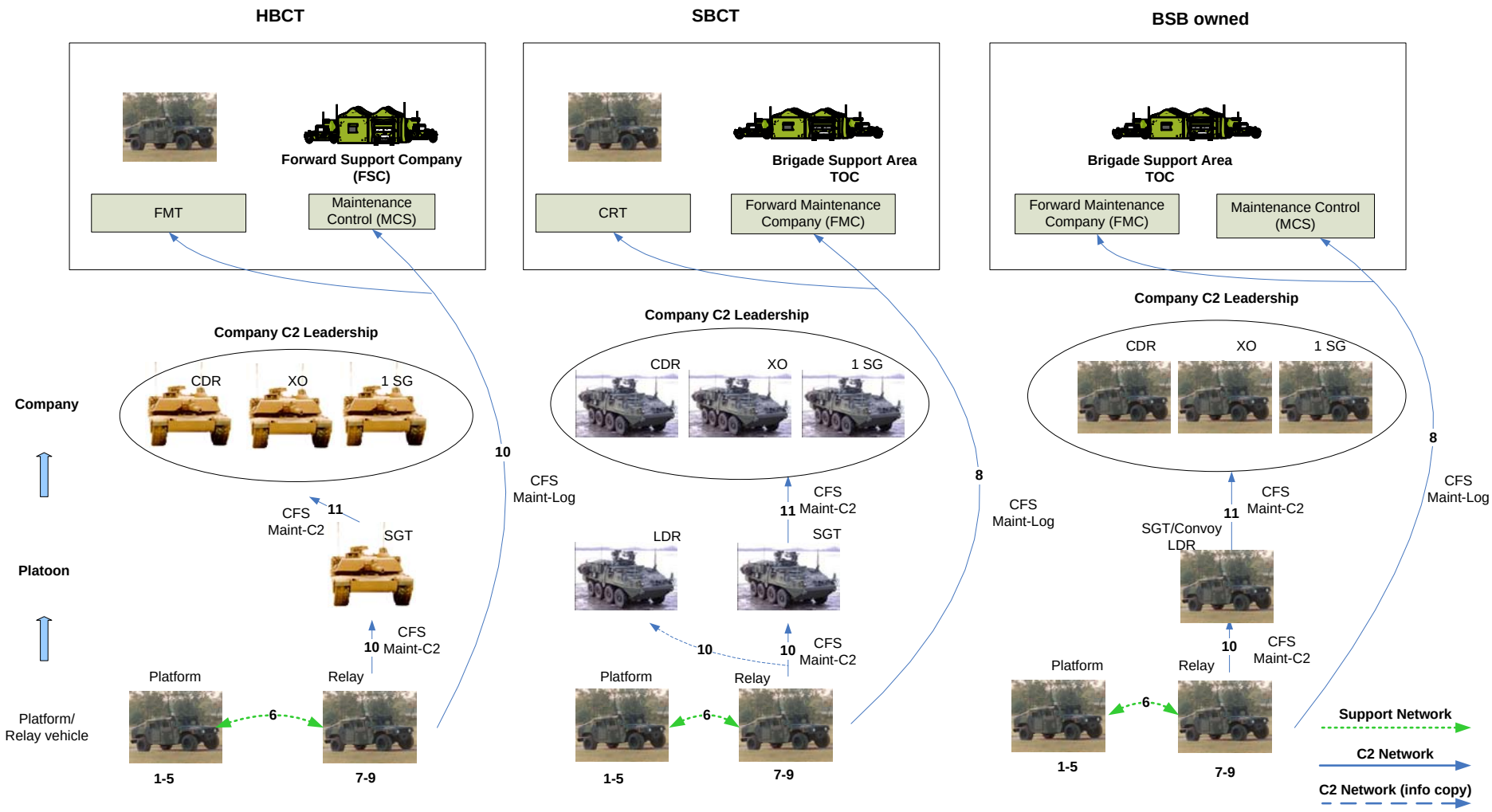

Figure 11. TWV with Relay Vehicle

6.2.1.3.3 TWVs with Voice Communications

Purpose
This scenario describes the logic flow beginning with a deadlining fault and ending with reporting of the fault by the Platoon/convoy leader. HBCT, SBCT, and BSB owned TWVs are covered. The complete flow for this scenario is shown in Figure 12.

Preconditions
TWVs are fitted with voice communications equipment. Platoon and above have embedded C2 equipment.

Step	Action	AILA Activity
1	A deadlining fault occurs.	OA1.2.2 Detect Failure or Shortage
2	The Vehicle CDR observes the fault/fault indication.	OA1.2.2 Detect Failure or Shortage
3	The Vehicle CDR notifies his immediate leader in the chain of command via radio of the deadlining fault and capability loss, and requests assistance.	OA1.22.3.3 Provide and Maintain Communications
4	The request for assistance is relayed via radio or other means of communication to the Platoon SGT. For BSB owned TWV, the request for assistance may be sent to Convoy LDR instead of Platoon SGT.	OA1.22.3.3 Provide and Maintain Communications
5	The Platoon SGT/Convoy LDR receives the call for assistance, determines that it is Platoon mission essential, and enters the information received into the C2 system CFS Maint-C2 (capability loss) and CFS Maint-Log (fault information) messages.	OA1.25.2.1 Review Current Situation (Project Branches)
6 (HBCT)	The Platoon SGT sends the CFS Maint-Log to the FMT and MCS. The MCS deposits the unresolved fault information in their LDB.	OA1.2.2.2 Generate Logistics Support Notification OA1.20.1 Post Information OA1.20.5 Collaborate on the Network
6 (SBCT)	The Platoon SGT sends the CFS Maint-Log to the FMC and CRT. The FMC and CRT deposit the unresolved fault information in their LDB.	OA1.2.2.2 Generate Logistics Support Notification OA1.20.1 Post Information OA1.20.5 Collaborate on the Network
6 (BSB)	The Platoon SGT/Convoy LDR sends the CFS Maint-Log to the supporting maintenance element in the FMC and MCS. The FMC supporting element and MCS deposit the unresolved fault information in their LDB.	OA1.2.2.2 Generate Logistics Support Notification OA1.20.1 Post Information OA1.20.5 Collaborate on the Network
7 (HBCT or SBCT)	The Platoon SGT sends the CFS Maint-C2 message to the Company C2 Leadership.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
7 (BSB)	The Platoon SGT sends the CFS Maint-C2 message to the Company C2 Leadership or BSB element overseeing the convoy.	OA1.20.1 Post Information OA1.25.1.1 Communicate Operational Information
8 (HBCT)	Refer to steps 12 through 40 of '6.2.1.1 Heavy Brigade Combat Team (HBCT) Fault Resolution with C2 Network' for remaining repair steps. Omit steps associated with synchronizing a Vehicle LDB (none exists for this TWV configuration).	Refer to referenced scenario for AILA activities.
8 (SBCT)	Refer to steps 12 through 39 of '6.2.1.2 Stryker Brigade Combat Team (SBCT) Fault Resolution with C2 Network'. Omit steps associated with synchronizing a Vehicle LDB (none exists for this TWV configuration).	Refer to referenced scenario for AILA activities.

Step	Action	AILA Activity
8 (BSB)	Refer to steps 12 through 39 of '6.2.1.3.1 TWVs with Embedded Health Computer and C2 System'. Omit steps associated with synchronizing a Vehicle LDB (none exists for this TWV configuration).	Refer to referenced scenario for AILA activities.

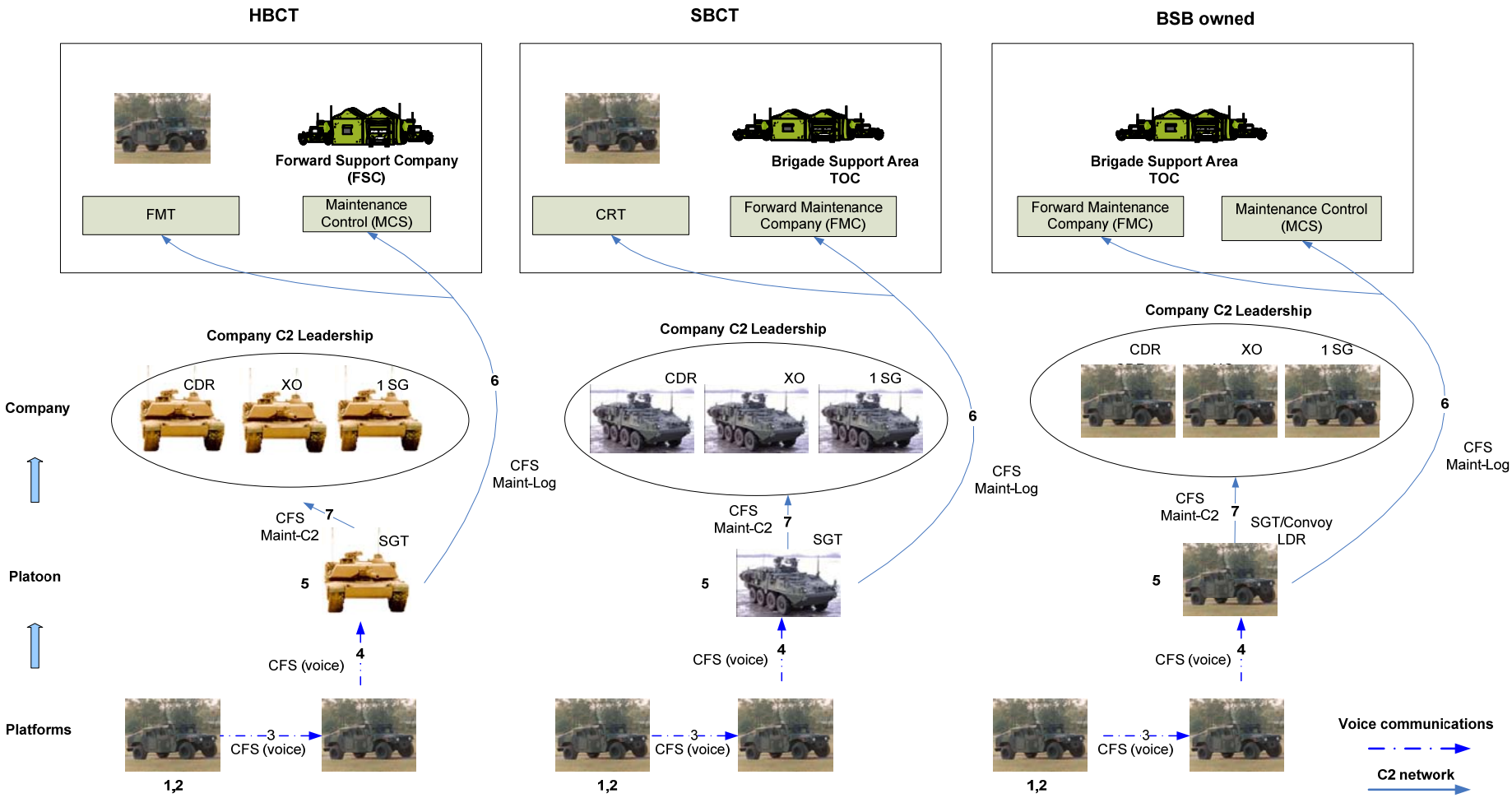

Figure 12. TWV with Voice Communications

6.2.2 Repair Part Fulfillment

6.2.2.1 Heavy Brigade Combat Team (HBCT) Repair Part Fulfillment

Purpose
This scenario describes the logic flow beginning with the demand for a repair part and ending with the required part delivered to the Field Maintenance Team (FMT).

Preconditions
An approved request for a repair part.

The complete flow for this scenario is shown in Figure 13.

Step	Action	AILA Activity
1	The FMT generates a request for the part in the MS.	OA1.13.1.1 Create Supply Request
2	MCS Stock Control receives request and verifies the authorization of the requester.	OA1.13.1.4 Approve Supply Request OA1.13.1.2 Determine Supply Availability
3	MCS Stock Control determines availability of part. If part is available proceed to step 9.	OA1.13.1.2 Determine Supply Availability OA1.13.1.3 Maintain Supply Request
4	MCS Stock Control passes request to the Distr Co Supply Support Activity (SSA). SSA verifies request timeliness, completeness, authorization and ensures it is not an excessive amount, and then either issues the part or passes a requisition to the TSC DMC if the part is not available in stock at the SSA. If the part is not available anywhere in theater, the TSC DMC passes the requisition to national-level sources of supply (GSA/DLA/AMC).	OA1.13.1.4 Approve Supply Request OA1.13.1.3 Maintain Supply Request
5	If the requisition is passed to the wholesale system, the national-level provider issues the part from depot stocks or procures the item and coordinates transportation for shipment.	OA1.13.1.2 Determine Supply Availability OA1.13.3.2 Release Issued Supplies OA1.13.2.1 Procure Supplies
6	Part is shipped to BSB Distr Co SSA.	OA1.13.1.7 Generate Supply Request Transactions
7	SSA receives item and updates inventory.	OA1.13.2.2 Enter Procurement Information OA1.13.4.3 Maintain Supply Inventory
8	SSA determines due out, prepares a Materiel Release Order (MRO), decrements on-hand inventory, and issues part requestor.	OA1.13.4.5 Manage Stock Transfer (Internal to Warehouse) OA1.13.4.2 Maintain Supply Location OA1.13.4.3 Maintain Supply Inventory OA1.13.3.2 Release Issued Supplies
9	The part is delivered to the FSC.	OA1.13.3 Issue Supplies
10	The part is delivered to/picked up by the FMT and signs for the part.	OA1.17.1.3 Maintain Asset Inventory

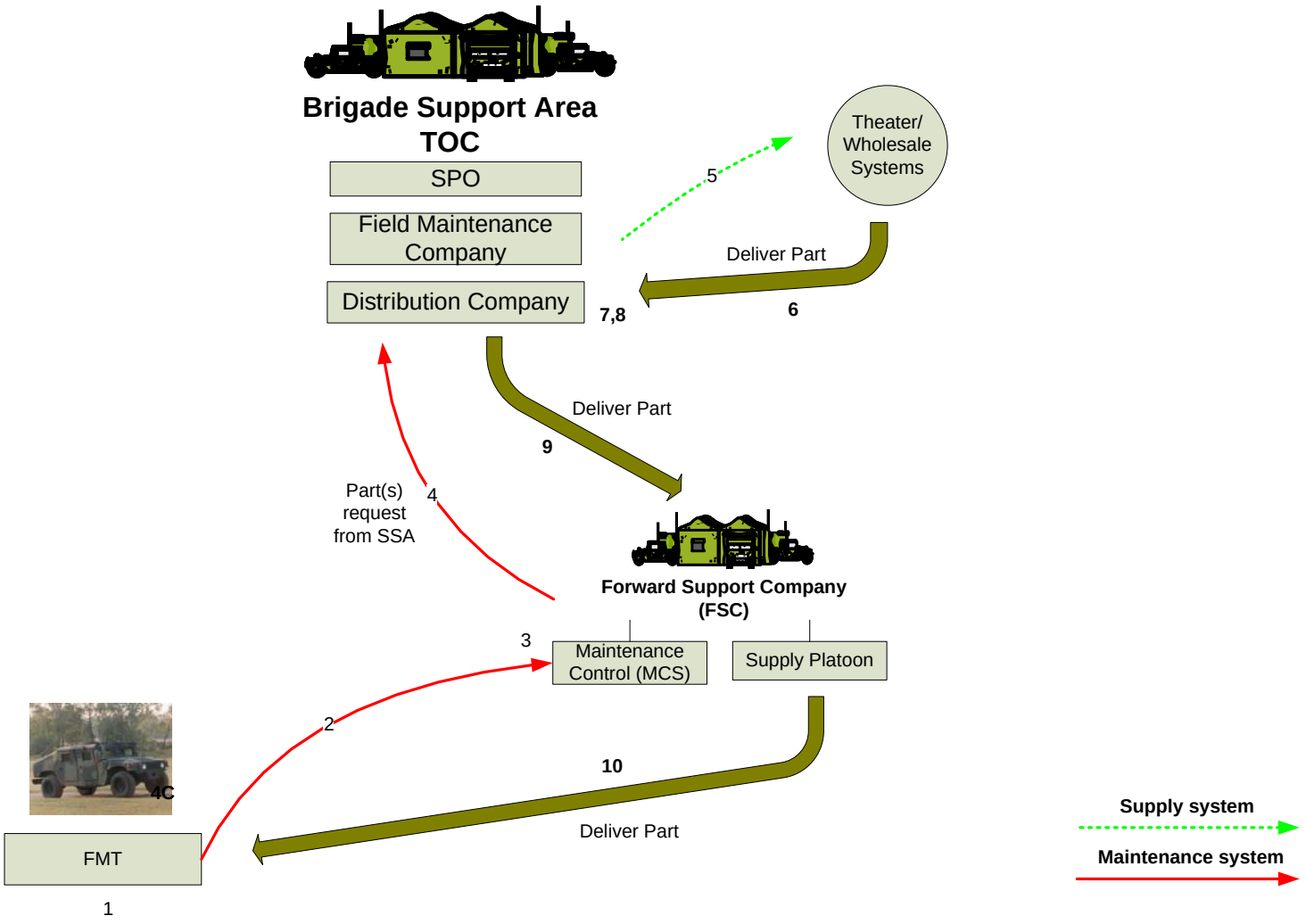

Figure 13. HBCT Class IX Part Replenishment

6.2.2.2 Stryker Brigade Combat Team (SBCT) Repair Part Fulfillment

Purpose
This scenario describes the logic flow beginning with the demand for a repair part and ending with the required part delivered to the Combat Repair Team (CRT).

Preconditions
An approved request for a repair part.

The complete flow for this scenario is shown in Figure 14.

Step	Action	AILA Activity
1	The CRT generates a request for the part in the MS.	OA1.13.1.1 Create Supply Request
2	The MS determines if the required part is available in shop stock at the CRT/FMC. If it is available proceed to step 7. If the part is not available, continue to next step.	OA1.13.1.2 Determine Supply Availability OA1.13.1.4 Approve Supply Request OA1.13.2 Fulfill Supply Request
3	The MS requests the part from the SSA in the Distribution Company.	OA1.13.1.3 Maintain Supply Request
4	If the part is available at the SSA the part is issued to the TAMMS Clerk (proceed to step 7). If the part is not available, continue to next step.	OA1.13.1.2 Determine Supply Availability OA1.13.2 Fulfill Supply Request OA1.13.1.3 Maintain Supply Request
5	The SS at the SSA requisitions the part from the Theater/Wholesale systems.	OA1.13.2 Fulfill Supply Request
6	The part is received from the Theater/Wholesale systems at the SSA.	OA1.13.3 Issue Supplies OA1.13.4 Store Supplies
7	The part is delivered to/picked up by the CRT.	OA1.13.3 Issue Supplies

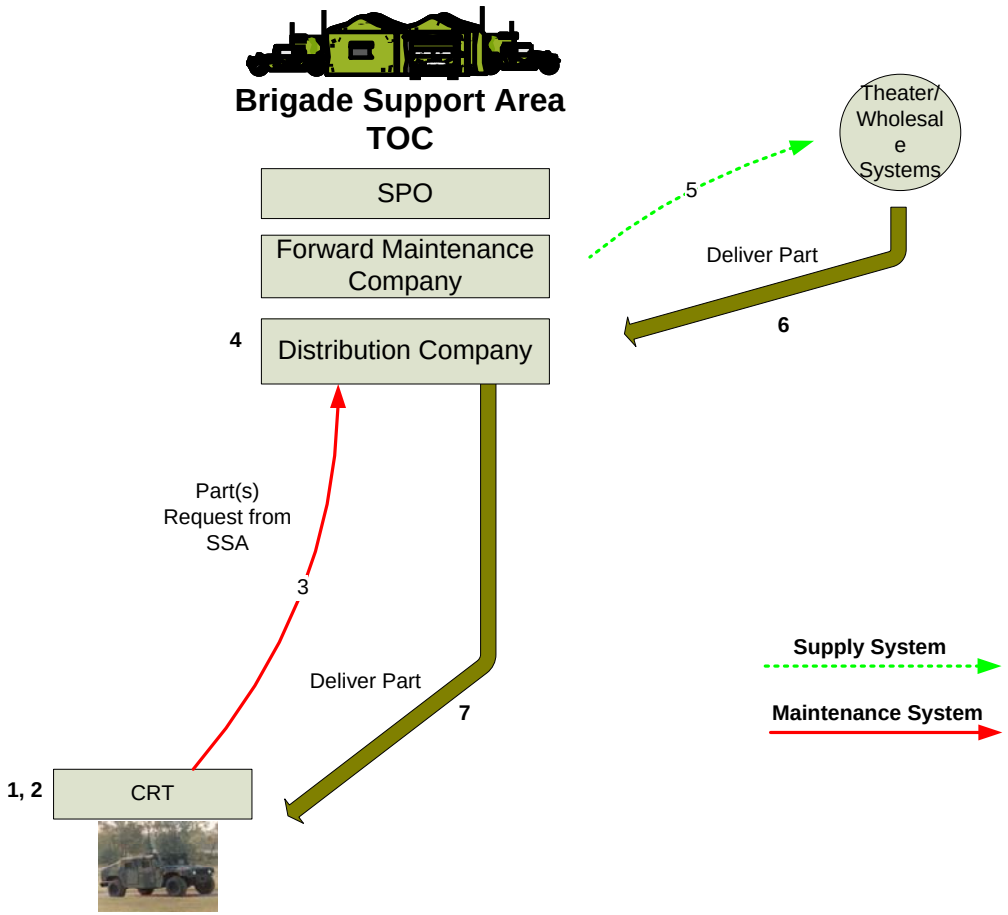

Figure 14. SBCT Class IX Part Replenishment

6.2.3 Fault Resolution without C2 Network

The scenario that follows address the reporting and repair of platform faults in both HBCT and SBCT.

Purpose
This scenario describes the logic flow beginning with a fault and ending with platform repair without using a command and control system.

Preconditions
There are no known preconditions for this scenario.

The complete flow for this scenario is shown in Figure 15.

Step	Action	AILA Activity
1	The Vehicle detects a fault (sensor or crew input).	OA1.2.2 Detect Failure or Shortage
2	The Vehicle generates a fault notification to the Vehicle CDR.	OA1.2.2 Detect Failure or Shortage
3	The Vehicle CDR is notified of: 1. What has failed (i.e. engine control unit fault) 2. The capability impact (i.e. loss of fuel injection control) 3. Combat System Capability Status (i.e. Loss of drive power). 4. A course of action, which includes Vehicle Crew fault resolution where applicable (i.e. closing circuit breakers, reconnecting cables, charging the battery), and actions to contain or negate the fault effect (i.e. reduce speed, select transmission range, avoid firing the gun).	OA1.1.2.3 Maintain Equipment Fault
4	The fault event and associated data are recorded in the Vehicle LDB.	OA1.1.2.3 Maintain Equipment Fault
5a	The vehicle commander accepts the fault. An unresolved fault event is recorded in the Vehicle LDB. Proceed to step 6.	OA1.1.2.2 Confirm Equipment Fault
5b	The Vehicle CDR determines that the fault can be rectified by the Vehicle Crew (open circuit breaker, disconnected cable, low battery etc). He rectifies the problem and changes the fault classification to 'resolved'. No further action is required.	OA1.1.2.3 Maintain Equipment Fault
5c	The Vehicle CDR is unable to make an immediate assessment of the problem. He acknowledges the fault, which defers action. Return to step 5a or 5b at a later time.	OA1.1.2.3 Maintain Equipment Fault
6	At some later time, the Vehicle is returned to a Designated Maintenance Area.	
7	The Vehicle Crew establishes a connection with the Support Communications Network.	OA1.20.3 Subscribe to Information
8	The Vehicle and MS LDBs synchronize, and the fault information is transferred to the MS.	OA1.1.2.3 Maintain Equipment Fault OA1.20.5 Collaborate on the Network
9	The MS opens a WO to create a task for trouble-shooting the fault.	OA1.1.3.1 Open Work Order
10	The Maintenance SGT is notified of the pending troubleshooting task, and assigns a Maintainer to troubleshoot the fault.	OA1.1.2 Manage Equipment Fault
11	The Maintainer accesses IETMs to provide a troubleshooting course of action.	OA1.16.1.4 Employ Technical Publications
12	The Maintainer performs the troubleshooting task, isolates the fault, and determines the replacement part required.	OA1.16.1.4 Employ Technical Publications OA1.1.2.2 Confirm Equipment Fault OA1.1.2.3 Maintain Equipment Fault

Step	Action	AILA Activity
13	The Maintainer records the refined fault classification and replacement part for the unresolved fault in the MS and the LDB.	OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order
14	The Maintainer records completion of the troubleshooting task in the MS WO.	OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order
15	The MS creates tasks for repair of the fault which are reviewed by the Maintenance SGT.	OA1.1.2.3 Maintain Equipment Fault OA1.16.1.4 Employ Technical Publications
16	The Vehicle and MS establish a connection with the Support Communications Network.	OA1.20.3 Subscribe to Information
17	The Vehicle and MS LDBs synchronize, and the troubleshooting and part information is transferred to the Vehicle.	OA1.1.2.3 Maintain Equipment Fault OA1.20.5 Collaborate on the Network OA1.1.3.2 Maintain Work Order
18	The TAMMS Clerk generates a commander's exception report from the MS that identifies all the repair parts requests for that day.	OA1.19.1.2 Provide Financial Transactions
19	The commander's exception report is reviewed by the Maintenance SGT and the unit commander (or designated representative).	OA1.19.1.2 Provide Financial Transactions
20	Parts requests on the exception report are selectively approved based on need and available funds. Any deferred items require justification for the deferral, which is recorded in the MS.	OA1.19.1.2 Provide Financial Transactions
21	Parts are requisitioned and received if necessary (see separate scenario if parts are not available).	Refer to referenced scenario for AILA activities.
22	The repair part(s) are received by the TAMMS Clerk.	OA1.13.3 Issue Supplies
23	The Maintenance SGT determines that parts, personnel, tools, facility, and time are available for repair and assigns the appropriate MT.	OA1.1.3.5 Identify Resources
24	The TAMMS Clerk creates a WO in the MS, and adds the repair and inspection tasks.	OA1.1.3.1 Open Work Order
25	The Vehicle is available for maintenance.	
26	The Maintainer receives the new part and replaces the defective part. The serial numbers of the removed and replacement part are entered into the LDB.	OA1.1.2.4 Correct Equipment Fault OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order OA1.3.2 Maintain System Configuration
27	The Maintainer records completion of the repair task in the MS WO.	OA1.1.2.3 Maintain Equipment Fault OA1.1.3.2 Maintain Work Order
28	The Vehicle and MS establish a connection with the Support Communications Network.	OA1.20.3 Subscribe to Information
29	The Vehicle and MS LDBs synchronize, and the repair information is transferred to the Vehicle.	OA1.1.2.3 Maintain Equipment Fault OA1.20.5 Collaborate on the Network OA1.1.3.2 Maintain Work Order
30	The repair is inspected and verified.	OA1.1.8.3 Perform Quality Inspection
31	The repair verification task is closed out in the MS. This closes out the WO and changes the fault event to 'resolved'.	OA1.1.2.3 Maintain Equipment Fault
32	The Vehicle and MS establish a connection with the Support Communications Network.	OA1.1.2.3 Maintain Equipment Fault
33	The Vehicle and MS LDBs synchronize.	OA1.1.2.3 Maintain Equipment Fault
34	When support network connectivity is established, fault and WO information is synchronized between the FMC, SPO, and MCS (HBCT) or CRT (SBCT) LDBs.	OA1.1.2.3 Maintain Equipment Fault
35	The SPO queries the LDB for Work data.	OA1.1.3.8 Generate Work Order Reports

Step	Action	AILA Activity
36	The MCS and FMC (HCBT), or CRT and FMC (SBCT) query the LDB for Materials Readiness reports.	OA1.1.3.8 Generate Work Order Reports

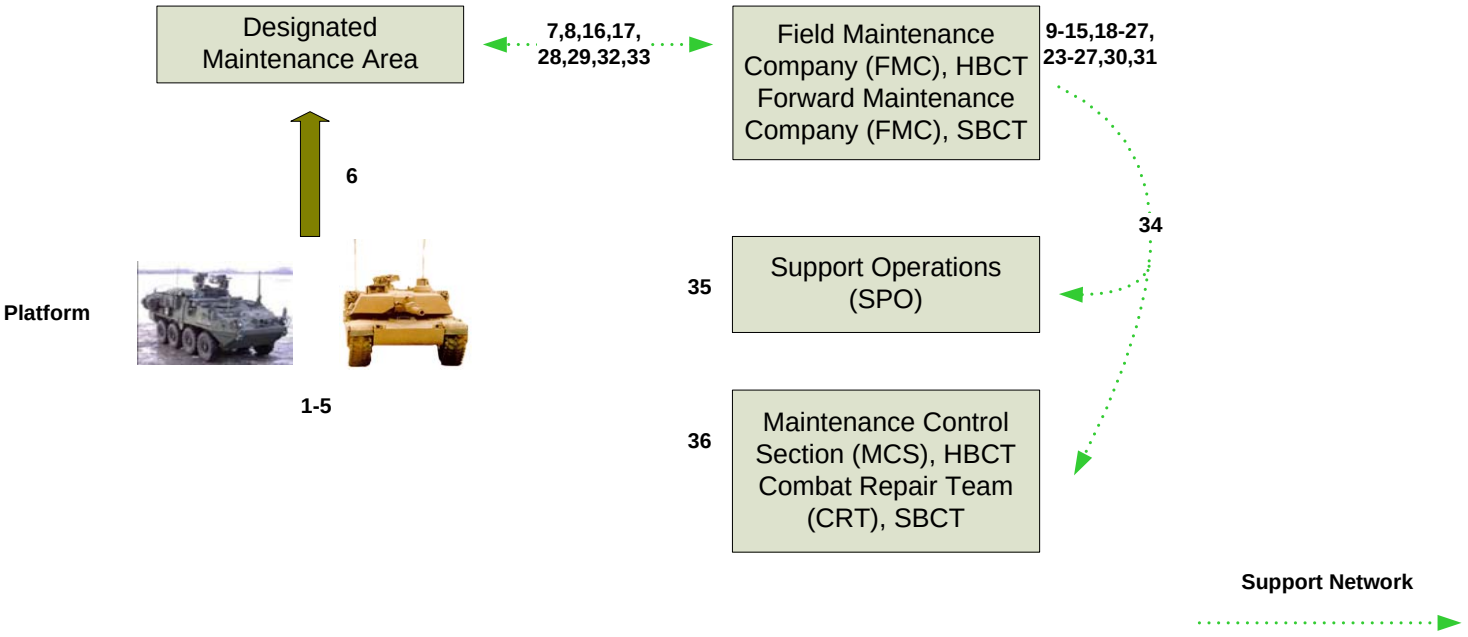

Figure 15. Fault Resolution without C2 Network (HBCT and SBCT)

6.2.4 Platform Troubleshooting

This platform troubleshooting scenario is applicable to ground combat systems for both HBCT and SBCT environments.

Purpose
This scenario addresses platform fault troubleshooting by crew members and the Maintainer, beginning with the detection of a fault and following Interactive Electronic Technical Manual (IETM) procedures to reduce the causal LRU list resulting in the identification of the necessary parts and required maintenance actions to resolve the fault.

Preconditions

- Platform detects a fault.
- For applicable fault type(s), the Platform automatically conducts a Fault Isolation Test (FIT) at the time the fault is detected.

The complete flow for this scenario is shown in Figure 16.

Step	Action	AILA Activity
1	The Vehicle notifies Vehicle Crew of a fault	OA1.2.2 Detect Failure or Shortage OA1.1.2.3 Maintain Equipment Fault
2	Vehicle Crew queries fault details, including causal LRU list and available Course of Action(s) (COA)	OA1.1.2.3 Maintain Equipment Fault
3	Vehicle Crew follows COA instructions for system level mitigation of the problem	OA1.1.2.1 Identify Equipment Fault OA1.1.2.3 Maintain Equipment Fault
4	Where applicable, the Vehicle Crew initiates a Fault Isolation Test (FIT) utilizing crew controls.	OA1.1.2.1 Identify Equipment Fault OA1.1.2.3 Maintain Equipment Fault
5	From the fault details view, the Vehicle Crew selects to open the platform hosted (-10) IETM instructions to reduce thecasual LRU list.	OA1.16.1.4 Employ Technical Publications OA1.1.2.3 Maintain Equipment Fault
6	The IETM is automatically opened to the (-10) instructions corresponding to the applicable fault code.	OA1.16.1.4 Employ Technical Publications OA1.1.2.3 Maintain Equipment Fault
7	The IETM automatically adjusts troubleshooting paths based on applicable platform system(s) information and responses.	OA1.16.1.4 Employ Technical Publications OA1.1.2.3 Maintain Equipment Fault
8	Similarly, the IETM adjusts its troubleshooting paths based on the Vehicle Crew responses.	OA1.16.1.4 Employ Technical Publications OA1.1.2.3 Maintain Equipment Fault
9	If troubleshooting procedures require inspection or checks outside the Vehicle, then the Vehicle Crew used their PMA to continue with IETM (-10) instructions.	OA1.16.1.4 Employ Technical Publications OA1.1.2.3 Maintain Equipment Fault
10	When the PMA is powered on, it synchronizes with the Vehicle LDB and automatically points to the current IETM procedure and step.	OA1.20.5 Collaborate on the Network
11	If platform power should be turned off, the PMA continues to function, allowing the continuation of troubleshooting procedures.	OA1.16.1.4 Employ Technical Publications OA1.1.1.1 Perform On-Board Diagnostics/Prognostics OA1.1.2.3 Maintain Equipment Fault

Step	Action	AILA Activity
12	When the crew troubleshooting procedures are complete and power is restored to the platform, the PMA synchronizes with the Vehicle LDB.	OA1.20.5 Collaborate on the Network OA1.1.2.3 Maintain Equipment Fault
13	The resulting reduced causal LRU list is recorded in the Vehicle LDB.	OA1.16.1.4 Employ Technical Publications OA1.1.2.3 Maintain Equipment Fault
14a	For deadlining faults, the Vehicle C2 is notified of the reduced causal LRU list.	OA1.1.2.2 Confirm Equipment Fault
14b	The Vehicle C2 sends updated CFS Maint-Log information, including the reduced causal LRU list to the Maintainer and other recipients on the logistics distribution list.	OA1.20.1 Post Information OA1.2.2.2 Generate Logistics Support Notification
15	The Maintainer reviews updated information, if available prior to his dispatch for repair, and modifies the requisition for the appropriate components.	OA1.13.1.3 Maintain Supply Request
16	When the Maintainer arrives, the platform and MS LDBs are synchronized.	OA1.20.5 Collaborate on the Network
17	The Maintainer reviews the fault and reduced causal LRU list and the WO is updated.	OA1.1.3.2 Maintain Work Order
18	The Maintainer opens the platform hosted (-20) IETM instructions, or if troubleshooting procedures require inspection or checks outside the Vehicle, then the Maintainer connects his PMA to the platform and opens the (-20) IETM instructions to continue troubleshooting and isolate the fault.	OA1.16.1.4 Employ Technical Publications OA1.1.2.2 Confirm Equipment Fault OA1.1.2.3 Maintain Equipment Fault
19	When the Maintainer PMA is powered on, it synchronizes with the Vehicle LDB and automatically point to the current IETM procedure.	OA1.16.1.4 Employ Technical Publications OA1.20.5 Collaborate on the Network
20	If platform power should be turned off, the Maintainer PMA continues to function, allowing the continuation of troubleshooting procedures.	OA1.16.1.4 Employ Technical Publications OA1.1.2.3 Maintain Equipment Fault
21	IETM automatically adjusts paths based on Maintainer answers to questions, and automatic platform responses if connected.	OA1.16.1.4 Employ Technical Publications
22	Maintainer isolates fault to lowest LRU list, ideally a single LRU.	OA1.1.2.3 Maintain Equipment Fault
23	When the troubleshooting procedures are complete and power is restored to the Vehicle, the Maintainer PMA synchronizes with the Vehicle LDB.	OA1.20.5 Collaborate on the Network
24	The resulting lowest causal LRU list is recorded in the Vehicle LDB.	OA1.1.2.3 Maintain Equipment Fault
25	The MS is notified of the required part(s)	OA1.1.3.5 Identify Resources
26	If the required part(s) are unavailable, the Maintainer selects to requisition part(s) through the MS	OA1.13.1.1.7 Request Class II, III (PKG), IV, IX, and X
27	Part(s) are automatically updated in the WO from the Vehicle LDB, along with any additional manually entered maintenance tasks.	OA1.1.3.2 Maintain Work Order
28	MS orders part(s)	OA1.13.1.1.7 Request Class II, III (PKG), IV, IX, and X

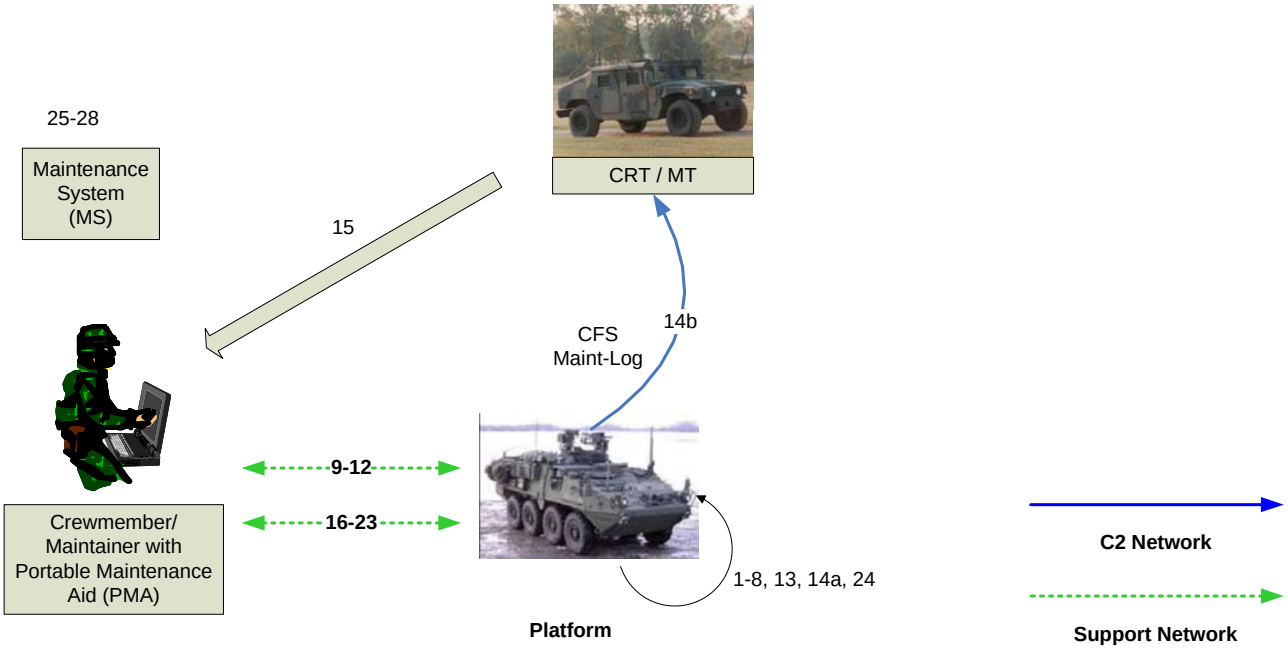

Figure 16. Platform Troubleshooting for HBCT and SBCT

6.2.5 Preventive Maintenance, Checks, and Services (PMCS)

This scenario addresses PMCS checks in both HBCT and SBCT. These checks may be performed by a Crew Member or Maintainer.

Purpose
This scenario describes the logic flow for crew performed preventive maintenance checks.

Preconditions
The Crew Member performing the PMCS has a self-contained, digital Portable Maintenance Aid (PMA) providing PMCS assistance. The Crew Member has been authenticated on the PMA.

The complete flow for this scenario is shown in Figure 17.

Step	Action	AILA Activity
1	The Vehicle Crew/Maintainer walks around vehicle and performs visual checks.	OA1.1.7.2 Perform Near-Platform PMCS
2	The Vehicle Crew/Maintainer enters results of the visual checks at the PMA or crew station.	OA1.1.7 Maintain PMCS
3	The Vehicle Crew/Maintainer performs manual checks (fluid levels, operation of lights, air filter condition etc).	OA1.1.7.3 Perform Manual PMCS
4	The Vehicle Crew/Maintainer enters results of the manual checks at the PMA or crew station.	OA1.1.7 Maintain PMCS
5	The Vehicle Crew/Maintainer initiates automated PMCS checks.	OA1.1.7.1 Perform On-Platform PMCS
6	The Vehicle Crew/Maintainer enters results of the automated PMCS checks at the PMA or crew station.	OA1.1.7 Maintain PMCS
7	If the Vehicle Crew/Maintainer has been utilizing a PMA, then the PMA and platform establish a connection with the Support Communications Network. The PMA and Vehicle LDBs synchronize PMCS results.	OA1.1.7 Maintain PMCS OA1.20.1 Post Information OA1.20.5 Collaborate on the Network
8	At some later time, the Vehicle is returned to the Designated Maintenance Area.	OA1.5.2.3
9	The Vehicle and MS establish a connection with the Support Communications Network.	OA1.20.1 Post Information
10	PMCS results are transferred from the Vehicle to the MS LDB.	OA1.20.3
11	If a fault was detected during PMCS, it is resolved per scenario ‘6.2.3Fault Resolution without C2 ’, step 9 onwards.	Refer to referenced scenario for AILA activities.

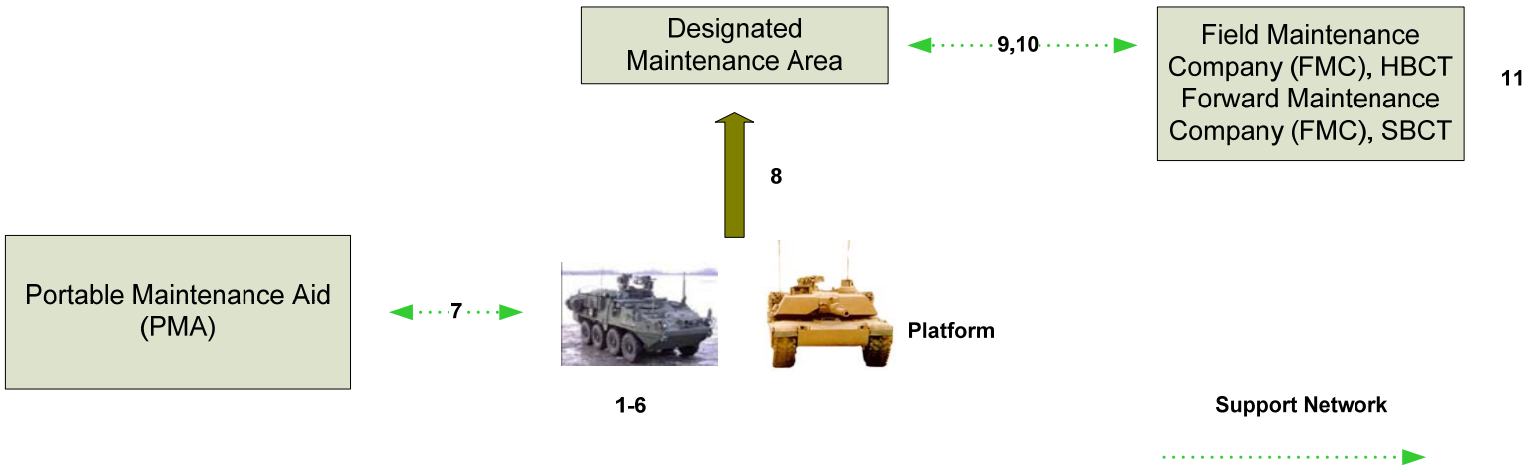

Figure 17. Preventive Maintenance Checks and Services (PMCS), HBCT and SBCT

6.2.6 Condition Based Maintenance (CBM)

Condition-Based Maintenance is defined as the set of maintenance actions taken to prevent functional failure or to avoid the consequences of functional failure. The intent of CBM is to perform maintenance only when there is objective evidence of need. The objective of CBM is to reduce maintenance down time and increase operational readiness by repairing or replacing system components based on the actual condition of the component as opposed to other maintenance concepts, such as scheduled or time-phased maintenance procedures. Maintenance personnel use CBM data to schedule maintenance actions to maximize availability by replacing components before they fail. Timely replacement before catastrophic or functional failure reduces maintenance down time and is frequently less costly because the work can be done in the shop and full failure can include collateral damage.

Note: Monitor Platform Power Train Usage (paragraph 6.4.1.1) provides tracking of engine usage data for CBM in CLOE Inc 2.

6.3 General Supply Operation Scenarios

These scenarios show the applicable steps associated with the periodic Class III (B) refueling process and ammunition supply reporting.

6.3.1 Report and Resupply Fuel Quantity

6.3.1.1 Stryker Brigade Combat Team (SBCT) Class III (B) Supply

Purpose
This scenario provides the logic and decision flow to refuel the Stryker vehicle on a routine basis.

Preconditions
The log distribution list in the C2 System has been created.

The complete flow for this scenario is shown in Figure 18.

Step	Action	AILA Activity
1	The Vehicle CDR configures C2 reporting policies and Vehicle CDR notification in the Vehicle C2. (These may be established by C2 System defaults.) For fuel resupply, these policies are: a. Fuel level falling below established threshold. b. A delta change exceeding an established threshold. c. A periodic reporting time interval has occurred.	OA1.5.1.6 Track Fuel Usage
2	The Vehicle C2 determines that a reporting policy has been met (based on platform consumable notifications).	OA1.25.2.1 Review Current Situation (Project Branches)
3	The Vehicle C2 creates a background report using the latest data from the Vehicle and notifies the Vehicle CDR.	OA1.25.2.1 Review Current Situation (Project Branches)
4	[Alternative1] The Vehicle CDR displays, edits, and transmits the Logistics Report to the Platoon LDR via C2 System.	OA1.2.1.1 Send Fuel Status
4	[Alternative2] The Vehicle C2 automatically sends the Logistics Report to the Platoon LDR via Vehicle C2 (based on preauthorized reporting criteria from step 1).	OA1.2.1.1 Send Fuel Status
5	The Platoon LDR reviews, compiles an aggregate Logistics Report and forwards the aggregate Logistics Report to the Company XO/ Company 1SG via the Platoon C2.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)

Step	Action	AILA Activity
6	The Company XO/Company 1SG compiles an aggregate Logistics Report for the Company's status and supply requirements and forwards it to the BN S4 using the Company C2.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
7	The BN S4 reviews the reports and forwards the individual Company reports to the SBCT Command Post via Battalion C2.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
8	The SBCT Command Post consolidates the Logistics Reports via spreadsheet and transfers the completed information to the SPO and the C2 System Brigade and Above. The BSB reports the fuel on hand status to C2 System Brigade and Above.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
9	The SBCT –Command Post issues an Operation Order (OPORD) or Fragmentary Order (FRAGO), via the C2 system, to the BSB for resupply. The SPO coordinates the resupply time and location. The Distribution Company supplies the bulk fuel, which may be delivered to a company, battalion, or area-based Logistics Re-supply Point (LRP).	OA1.25.2.1 Review Current Situation (Project Branches)
10	The SBCT Command Post advises the BN S4, via C2 System, of the exact quantities of supplies, LRP locations and timing of logistics packages (LOGPAC).	OA1.25.3.1 Issue Plans and Orders
11	The BDE S4 and BSB SPO forecast fuel usage and enter the information into C2 System Brigade and Above to depict projected fuel status and provide the information to the Sustainment Brigade.	OA1.23.1.1 1 Maintain Logistics Planning Tables
12	At the appointed time, the Distribution Company meets a representative of the Platoon at the LRP. The Distribution Company is escorted to the Vehicles for refueling.	OA1.13.2 Fulfill Supply Request

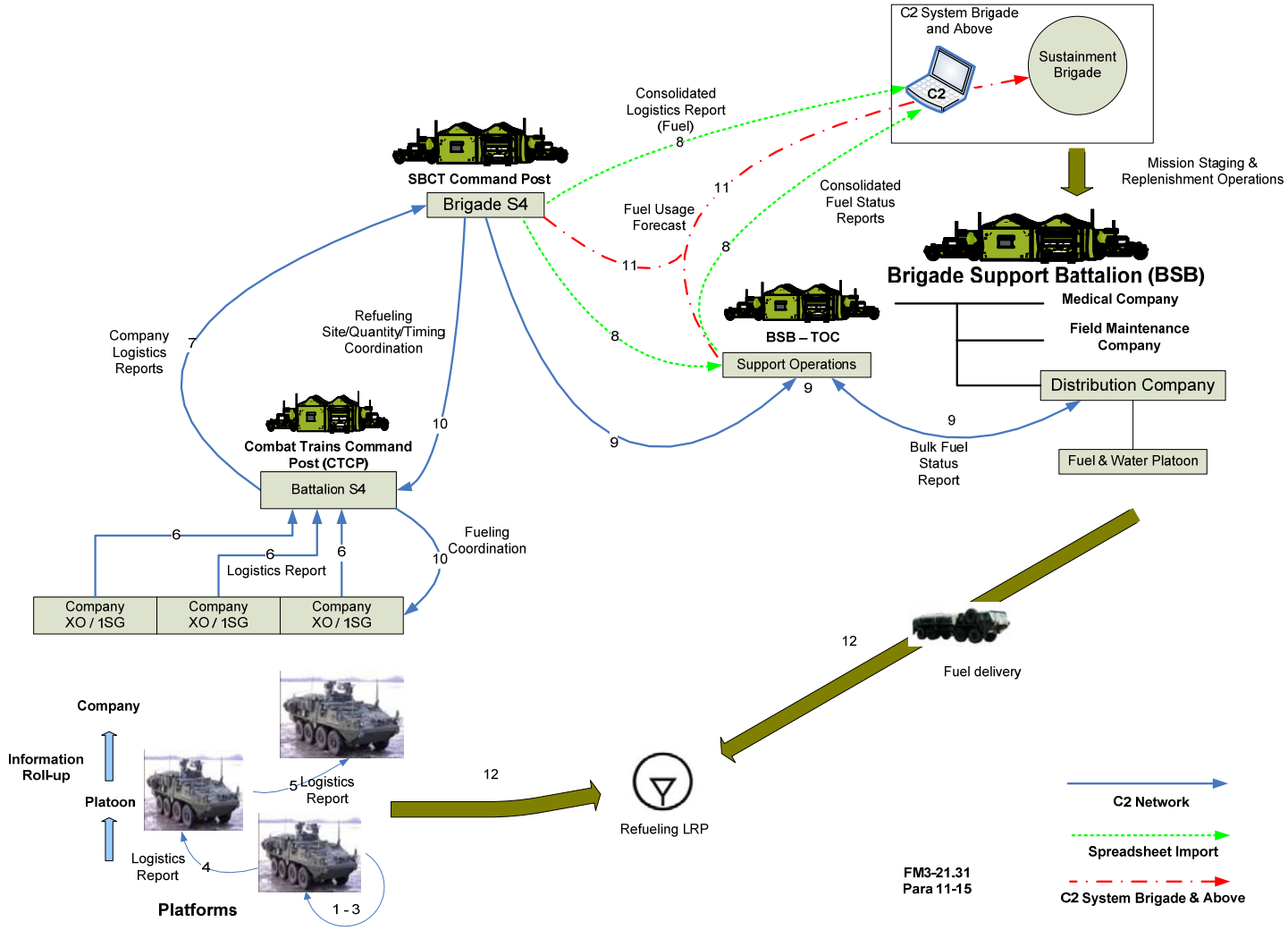

Figure 18. Stryker Class III (B) Supply

6.3.1.2 Heavy Brigade Combat Team (HBCT) Class III (B) Supply

Purpose
The Heavy Vehicle (Abrams or Bradley) is on a mission and periodically sends the Logistics Report. The fuel needs are anticipated and a fuel delivery is made.

Preconditions
The log distribution list has been created in the C2 System.

The complete flow for this scenario is shown in Figure 19.

Step	Action	AILA Activity
1	The Vehicle CDR configures C2 reporting policies and Vehicle CDR notification in the Vehicle C2. (These may be established by C2 System defaults.) For fuel resupply, these policies are: a. Fuel level falling below established threshold. b. A delta change exceeding an established threshold. c. A periodic reporting time interval has occurred.	OA1.5.1.6 Track Fuel Usage
2	The Vehicle C2 determines that a reporting policy has been met (based on platform consumable notifications).	OA1.25.2.1 Review Current Situation (Project Branches)
3	The Vehicle C2 creates a background report using the latest data from the Vehicle and notifies the Vehicle CDR.	OA1.25.2.1 Review Current Situation (Project Branches)
4	[Alternative1] The Vehicle CDR displays, edits, and transmits the Logistics Report to the Platoon LDR via the Vehicle C2.	OA1.2.1.1 Send Fuel Status
4	[Alternative2] The Vehicle C2 automatically sends the Logistics Report to the Platoon LDR via C2 System (based on preauthorized reporting criteria from step 1).	OA1.2.1.1 Send Fuel Status
5	The Platoon LDR consolidates the Logistics Report messages and forwards them to the Company 1SG.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
6	The Company 1SG submits a Logistics Report via C2 System to the BN S4 with an information copy to the FSC.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
7	BN S4 consolidates BN the Logistics Reports and submits by Company rollup via C2 System to the BDE S4, with an info copy to the FSC CP.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
8	The BDE S4 consolidates the BN reports and submits the consolidated report to the BSB SPO via C2 System.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
9	The FSC and the BSB Distribution Company submit their bulk fuel status reports to the BSB SPO via C2 System.	OA1.25.1.1 Communicate Operational Information
10	The BSB SPO consolidates the Logistics Reports and transfers the completed information into the C2 System Brigade and Above making it visible to the Sustainment Brigade.	OA1.13.1.1.2 Request Class III (Bulk/Retail/Aerial)
11	The SPO issues a FRAGO for resupply and coordinates the location and quantity of fuel to be delivered to the FSC and BSB Distribution Company via C2 System.	OA1.25.3.1 Issue Plans and Orders
12	The FSC coordinates the location and quantity of fuel to be delivered to affected units and the supply platoon.	OA1.25.3.1 Issue Plans and Orders

Step	Action	AILA Activity
13	The BDE S4 and BSB SPO forecast fuel usage and enter the information into C2 System Brigade and Above to depict projected fuel status and provide the information to the Sustainment Brigade.	OA1.23.1.1 1 Maintain Logistics Planning Tables
14	At the appointed time, the Distribution Company meets a representative of the Platoon at the LRP. The Distribution Company is escorted to the Vehicles for refueling.	OA1.13.2 Fulfill Supply Request

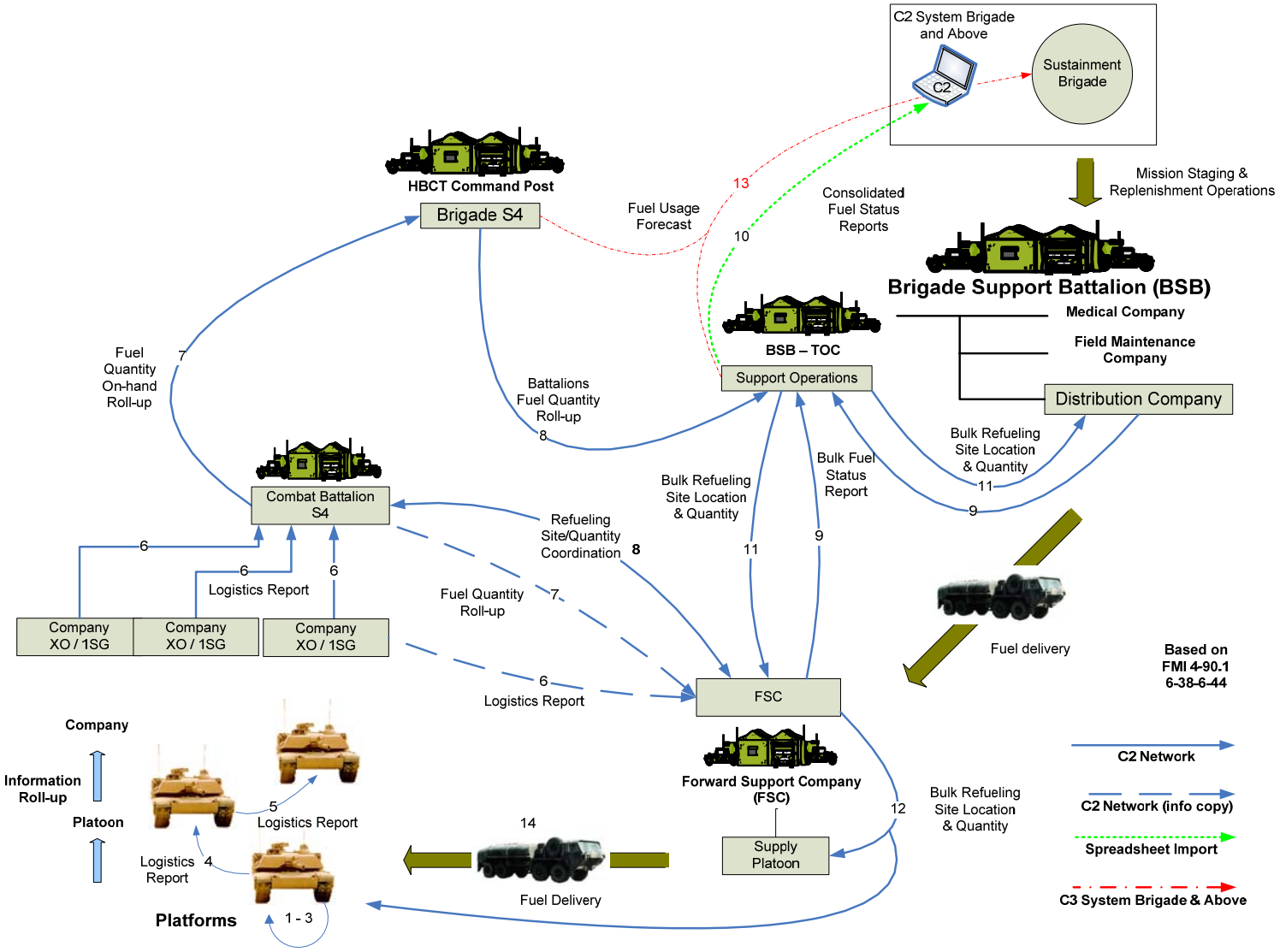

Figure 19. HBCT Class III (B) Supply

6.3.2 Report and Resupply Ammunition Quantity

6.3.2.1 Stryker Brigade Combat Team (SBCT) Class V Supply

Purpose:
The Stryker is on a mission, rounds are fired causing a turret load threshold to be reached, causing a Logistics Report to be sent. The ammunition needs are anticipated and delivery is made.

Preconditions:

- Platform ready (turret load) and stowed rounds recorded.
- Platform rounds thresholds are initialized.

The complete flow for this scenario is shown in Figure 20.

Step	Action	AILA Activity
1	The Vehicle CDR configures C2 reporting policies and Vehicle CDR notification in the Vehicle C2. (These may be established by C2 System defaults.) For ammunition resupply, these policies are: a. Ammunition level falling below established threshold. b. A delta change exceeding an established threshold. c. A periodic reporting time interval has occurred.	OA1.5.1.3 Track Ammunition Usage
2	The Vehicle C2 determines that a reporting policy has been met (based on platform consumable notifications).	OA1.5.1.3 Track Ammunition Usage
3	The Vehicle C2 creates a background report using the latest data from the Vehicle and notifies the Vehicle CDR.	OA1.25.2.1 Review Current Situation (Project Branches)
4	[Alternative1] The Vehicle CDR displays, edits, and transmits the Logistics Report to the Platoon LDR via Vehicle C2.	OA1.2.1.2 Send Ammunition Status
4	[Alternative2] The Vehicle C2 automatically sends the Logistics Report to the Platoon LDR via Vehicle C2 (based on preauthorized reporting criteria from step 1).	OA1.2.1.2 Send Ammunition Status
5	The Platoon SGT consolidates the Vehicle Logistics Reports and forwards them to the Company 1SG. Information copies are also sent to the Company CDR.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
6	Company CDRs can provide remarks in their Logistics Reports associated with critical ammunition shortages or forecasted changes in ammunition requirements.	OA1.13.6.3.2 Manage Class V
7	The Company CDR determines if any cross leveling of on-hand ammunition within Platoons or throughout the Company is to be accomplished. Vehicle CDRs will adjust total on-board remaining round counts following cross leveling.	OA1.13.7 Manage Cross-leveling
8	The Company 1SG consolidates the Company's on-hand quantities and forwards them using Logistics Reports to the BN S4. Information copies are sent to the BN CDR and BN S3.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)

Step	Action	AILA Activity
9	The BN S4 will determine ammunition resupply requirements based on information provided in the Logistics Report and guidance received from the BN CDR and BN S3, and submit Company roll-ups for ammunition resupply through the Logistics Report to the BDE S4. (If the request does not exceed the Controlled Supply Rate (CSR), the request should not leave the Maneuver BN. Order should be filled with internal stock)	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
10	The BDE S4 will consolidate the ammunition request and pass that request to the BAO located in the BSB SPO.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
11	The BAO will compare the request with the Controlled Supply Rate (CSR). If the request is within the limits of the CSR, the BAO will release the ammunition from the ATHP if it is on hand. If the ammunition is not available in the ATHP, the BAO will request the ammunition from the Sustainment Brigade.	OA1.13.6.3.2 Manage Class V OA1.13.1.3 Maintain Supply Request
12	If the ammunition is being supplied by the Sustainment Brigade, the BAO will determine whether the ammunition resupply will be routed to the BSB ATHP or throughput to the Combined Arms Battalion Support Area.	OA1.13.6.3.2 Manage Class V OA1.13.1.3 Maintain Supply Request
13	If ammunition is available at the ATHP, the BAO coordinates internally with the SPO shop to distribute the ammunition from the ATHP to the gaining unit via LOGPAC	OA1.13.6.3.2 Manage Class V OA1.13.1.3 Maintain Supply Request
14	The Distribution Management Center (DMC) at the Sustainment Brigade cuts a materiel release order (MRO) directing the ammunition shipment to the BCT if the ammunition is not available at the ATHP.	OA1.8.1 Manage Transportation Support
15	Ammunition shipments are tracked through the supporting automated information system, Radio Frequency In-Transit Visibility (RF-ITV).	OA1.8.3 Manage In-Transit Visibility

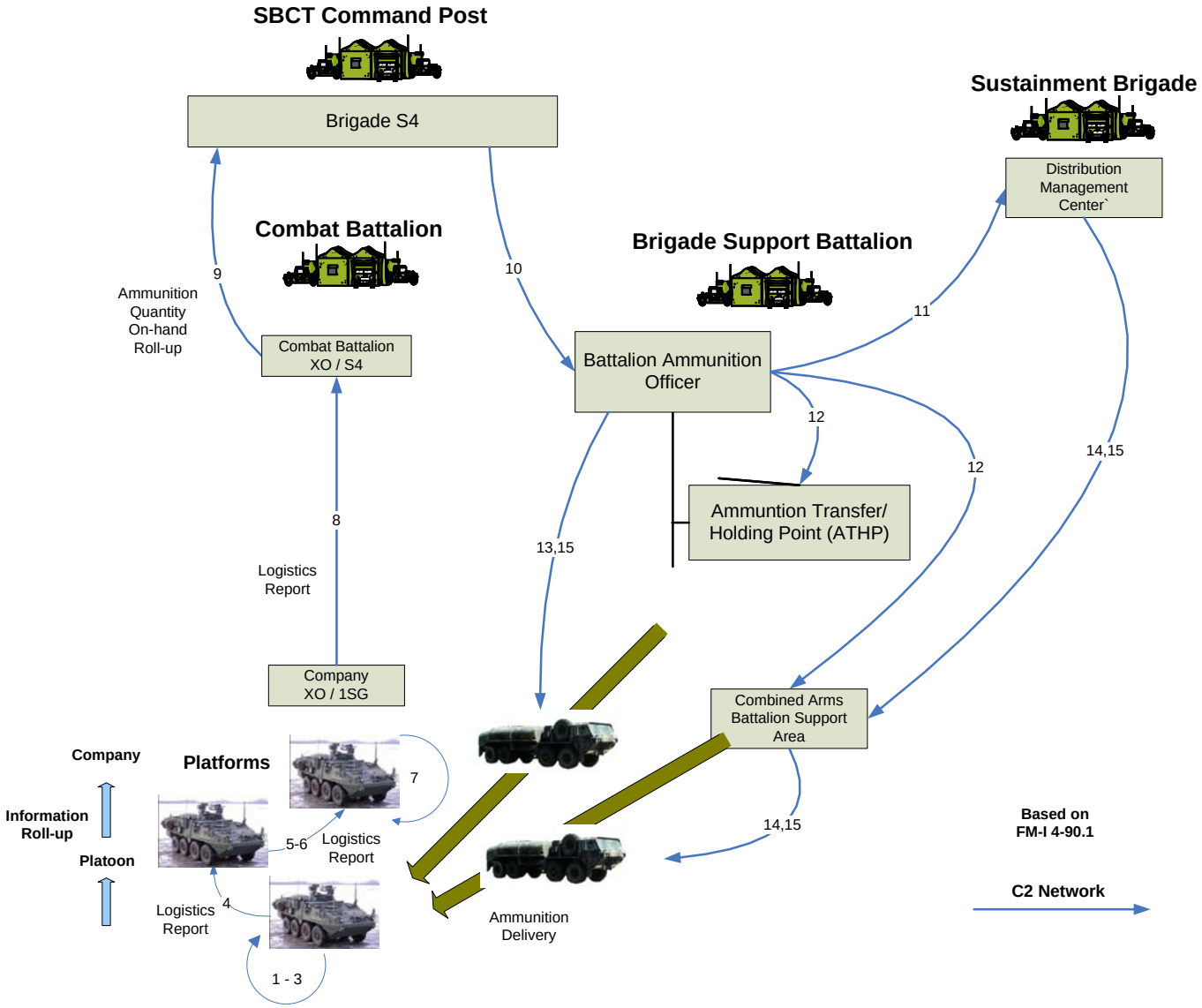

Figure 20. Stryker Class V Supply

6.3.2.2 Heavy Brigade Combat Team (HBCT) Class V Supply

Purpose:
The Heavy Vehicle (Abrams or Bradley) is on a mission, rounds are fired causing a turret load threshold to be reached, causing a Logistics Report to be sent. The ammunition needs are anticipated and delivery is made.

Preconditions:

- Platform ready (turret load) and stowed rounds recorded.
- Platform turret load thresholds are initialized.

The complete flow for this scenario is shown in Figure 21.

Step	Action	AILA Activity
1	The Vehicle CDR configures C2 reporting policies and Vehicle CDR notification in the Vehicle C2. (These may be established by C2 System defaults.) For ammunition resupply, these policies are: a. Ammunition level falling below established threshold. b. A delta change exceeding an established threshold. c. A periodic reporting time interval has occurred.	OA1.5.1.3 Track Ammunition Usage
2	The Vehicle C2 determines that a reporting policy has been met (based on platform consumable notifications).	OA1.5.1.3 Track Ammunition Usage
3	The Vehicle C2 creates a background report using the latest data from the Vehicle and notifies the Vehicle CDR.	OA1.25.2.1 Review Current Situation (Project Branches)
4	[Alternative1] The Vehicle CDR displays, edits, and transmits the Logistics Report to the Platoon LDR via the Vehicle C2.	OA1.2.1.2 Send Ammunition Status
4	[Alternative2] The Vehicle C2 automatically sends the Logistics Report to the Platoon LDR via the Vehicle C2 (based on preauthorized reporting criteria from step 1).	OA1.2.1.2 Send Ammunition Status
5	The Platoon SGT consolidates the Logistics Reports and forwards them to the Company 1SG. Information copies are also sent to the Company CDR.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
6	Company CDRs can provide remarks in their Logistics Reports associated with critical ammunition shortages or forecasted changes in ammunition requirements.	OA1.13.6.3.2 Manage Class V
7	The Company CDR determines if any cross leveling of on-hand ammunition within platoons or throughout the Company is to be accomplished. Vehicle CDRs will adjust total on-board remaining round counts following cross leveling.	OA1.13.7 Manage Cross-leveling
8	The Company 1SG consolidates the Company's on-hand quantities and forwards them using Logistics Report to the BN S4. Information copies are sent to the BN CDR and BN S3.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)

Step	Action	AILA Activity
9	The BN S4 will determine ammunition resupply requirements based on information provided in the Logistics Report and guidance received from the BN CDR and BN S3, and submit Company roll-ups for ammunition resupply through the Logistics Report to the BDE S4. (If the request does not exceed the Controlled Supply Rate (CSR), the request should not leave the Maneuver BN. Order should be filled with internal stock)	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
10	The BDE S4 will consolidate the ammunition request and pass that request to the BAO located in the BSB SPO.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)
11	The BAO will compare the request with the Controlled Supply Rate (CSR). If the request is within the limits of the CSR, the BAO will release the ammunition from the ATHP if it is on hand. If the ammunition is not available in the ATHP, the BAO will request the ammunition from the Sustainment Brigade.	OA1.13.6.3.2 Manage Class V OA1.13.1.3 Maintain Supply Request
12	If the ammunition is being supplied by the Sustainment Brigade, the BAO will determine whether the ammunition resupply will be routed to the BSB ATHP or throughput to the Combined Arms Battalion Support Area.	OA1.13.6.3.2 Manage Class V OA1.13.1.3 Maintain Supply Request
13	If ammunition is available at the ATHP, the BAO coordinates internally with the SPO shop to distribute the ammunition from the ATHP to the gaining unit via LOGPAC	OA1.13.6.3.2 Manage Class V OA1.13.1.3 Maintain Supply Request
14	The Distribution Management Center (DMC) at the Sustainment Brigade cuts a materiel release order (MRO) directing the ammunition shipment to the BCT if the ammunition is not available at the ATHP.	OA1.8.1 Manage Transportation Support
15	Ammunition shipments are tracked through the supporting automated information system, Radio Frequency In-Transit Visibility (RF-ITV).	OA1.8.3 Manage In-Transit Visibility

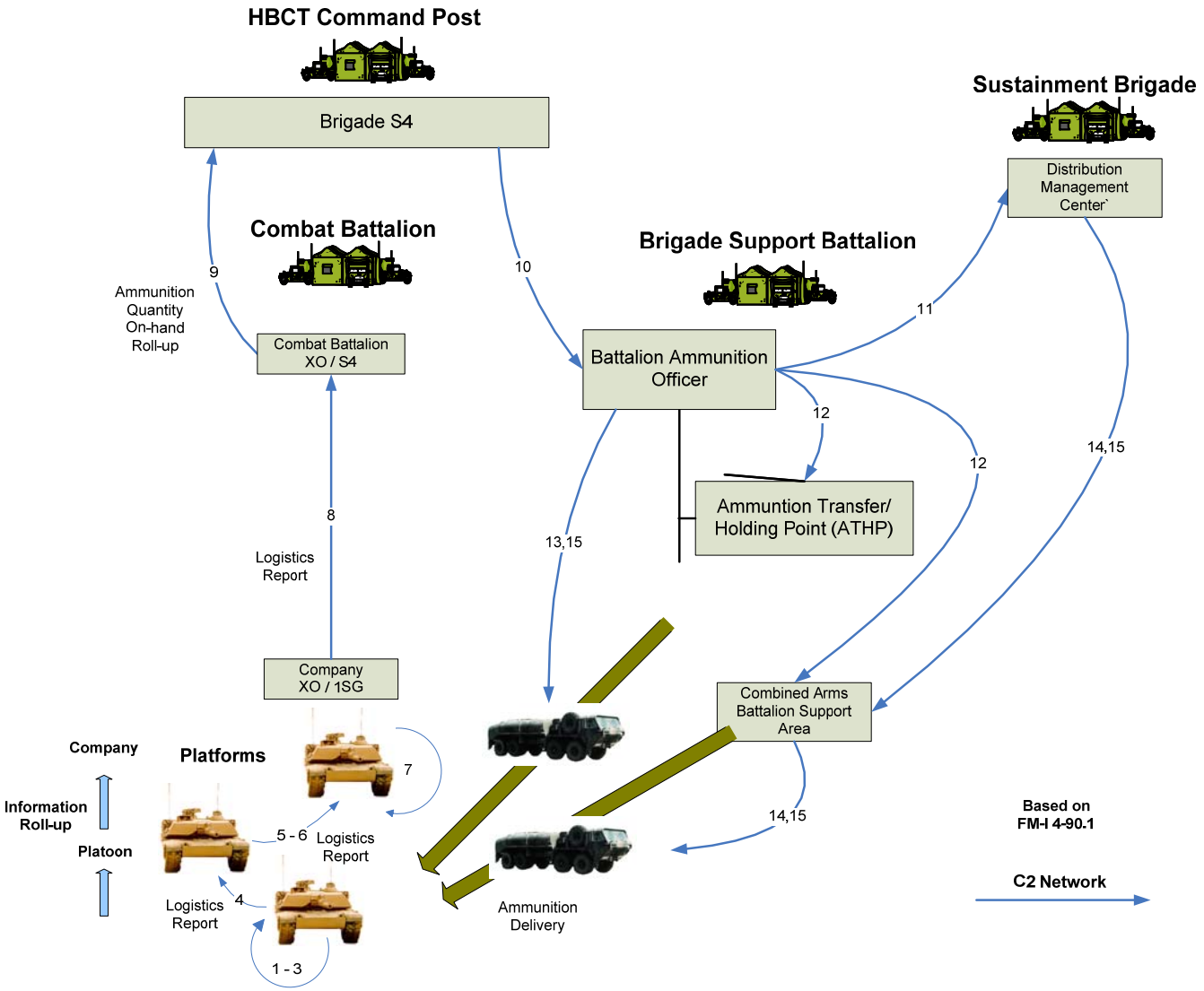

Figure 21. HBCT Class V Supply

6.4 Logistics Support Scenarios

6.4.1 Track Platform and Equipment CBM Usage Data

6.4.1.1 Monitor Platform Power Train Usage

Purpose:
Log and provide access to power train usage information. This data is maintained in the Vehicle LDB, with data manipulation performed to provide CBM information. Platform power train CBM usage information is synchronized with the Designated Maintenance Area power train CBM usage information for this platform. Additionally, Designated Maintenance Area power train CBM usage information is synchronized with the power train CBM usage information in the Logistics Information Warehouse (LIW).

Usage data for Increment 2 will be constrained to the current maintenance information system (SAMS-E).

Preconditions:

- Vehicle LDB initialized.
- Engine parametric and usage data is updated if engine (or tracked power train item(s)) are replaced in a vehicle.

The complete flow for this scenario is shown in Figure 22.

Step	Action	AILA Activity
1	Vehicle collects engine hours and total travel distance, and Vehicle op tempo (engine RPM and load).	OA1.5.1.1 Track Equipment Usage
2	Vehicle categorizes engine hours: idle, active, and cool-down idle time.	OA1.5.1.1 Track Equipment Usage OA1.5.1.4 Track Health Check Information
3	Vehicle categorizes op-tempo (low / medium / high) for engine RPM and load (torque).	OA1.5.1.1 Track Equipment Usage OA1.5.1.4 Track Health Check Information
4	Vehicle identifies Vehicle Exception Conditions (VEC) for engine categories which include: excessive RPM, engine cool-down period (idle time) violation.	OA1.5.1.1 Track Equipment Usage OA1.5.1.4 Track Health Check Information
5	Vehicle records usage data in the Vehicle LDB. This information includes: engine hours, op-tempo, travel distances, and VEC occurrences.	OA1.20.1 Post Information
6	Vehicle displays usage data to Vehicle CDR. Vehicle notifies crew of a VEC occurrence.	OA1.5.1.8 Generate Equipment Usage Reports
7	Synchronize Vehicle LDB engine usage data with MS engine usage data when Vehicle is at the Designated Maintenance Area.	OA1.20.1 Post Information

Step	Action	AILA Activity
8	Usage and VEC information will populate the current Standard Army Maintenance Information Systems (STAMIS) data structure that can be viewed by the Maintenance SGT and logistics officers in accordance with applicable TAMMS procedures.	OA1.25.1.1 Communicate Operational Information
9	Synchronize platform engine usage data in the Designated Maintenance Area (from step 7 above) with the corresponding LIW platform engine usage data.	OA1.20.5 Collaborate on the Network OA1.16.2 Manage Master Data Files
10	The LCM queries the LIW for engine usage information	OA1.20.3 Subscribe to Information OA1.9.1 Collect Product Lifecycle Management Information
11	LCM performs analysis using engine/power train usage and other information and updates applicable CBM models.	OA1.9.2 Analyze Product Lifecycle Management Information
12	The CBM models are updated through the LCM into the LDB.	OA1.20.3 Subscribe to Information OA1.16.2 Manage Master Data Files
13	Periodic updates will be provided to the LDB and the Maintenance Managers.	OA1.20.3 Subscribe to Information OA1.25.1.1 Communicate Operational Information

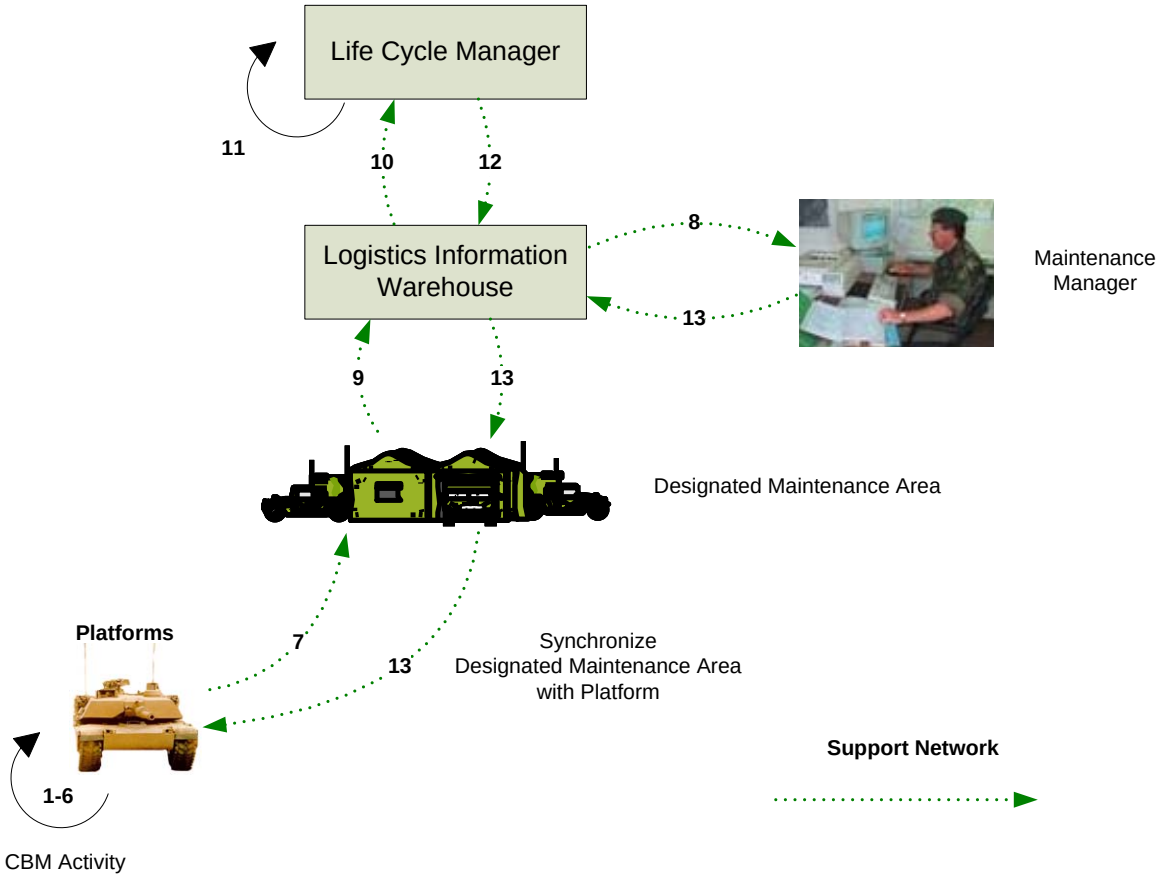

Figure 22. Monitor Platform Power Train Usage

6.4.2 Manage Platform and Equipment Configurations

Purpose:
Correlate a particular platform to the sum of its uniquely identified components, including hardware and software configuration items. Provide a compatibility check between installed component items and valid configuration models.

Preconditions:

- The current vehicle configuration has been entered into the Vehicle LDB with all component IDs (such as LRU model and serial numbers), including equipment not electronically reporting.
- A current and valid Configuration table has been loaded into the Vehicle LDB. This table contains all valid vehicle configuration models for this platform.

The complete flow for this scenario is shown in Figure 23. In the following table, AILA Activity refers to OV6c, M1.20.

Step	Action	AILA Activity
1	An event occurs which triggers the Vehicle to check configuration. Possible triggering events include vehicle power-on, subsystem power cycle, or a crew/maintainer request.	OA1.3.2 Maintain System Configuration OA1.3.4 Maintain Component Configuration
2	If the Vehicle detects a configuration change from its last known valid configuration model the change is recorded in the Vehicle LDB.	OA1.3.2 Maintain System Configuration OA1.3.4 Maintain Component Configuration
3	If the Vehicle matches the new configuration with a valid configuration model in the Vehicle LDB, the Vehicle notifies the Vehicle Crew of the change, accepts an acknowledgement from the Vehicle Crew, and records it in the Vehicle LDB.	OA1.20.1 Post Information OA1.3.7 Maintain Operational/Historical Information
4a	If the Vehicle does not match the new configuration with any valid model in the Vehicle LDB a Vehicle Crew action is requested. The Vehicle Crew may perform either of the following actions:	OA1.3.2 Maintain Work Order OA1.3.4 Maintain Component Configuration
4b	The Vehicle Crew accepts the unknown configuration and enters rational for accepting the change into the Vehicle LDB. Action is deferred and this decision is logged in the Vehicle LDB.	OA1.3.2 Maintain Work Order OA1.3.4 Maintain Component Configuration
4c	The Vehicle Crew determines that the unknown configuration is an unresolved fault and vectors to fault resolution per scenario '6.2.3 Fault Resolution without C2 Network' (step 2).	Refer to referenced scenario for AILA activities.
5	When the Vehicle is in the Designated Maintenance Area, the Vehicle LDB synchronizes configuration information with the Designated Maintenance Area LDB.	OA1.20.5 Collaborate on the Network OA1.3.7 Maintain Operational/Historical Information OA1.3.3 Maintain End Item Configuration
6	The Vehicle configuration information in the Designated Maintenance Area LDB is synchronized with the Enterprise Data Repository configuration information.	OA1.20.5 Collaborate on the Network OA1.16.2 Manage Master Data Files

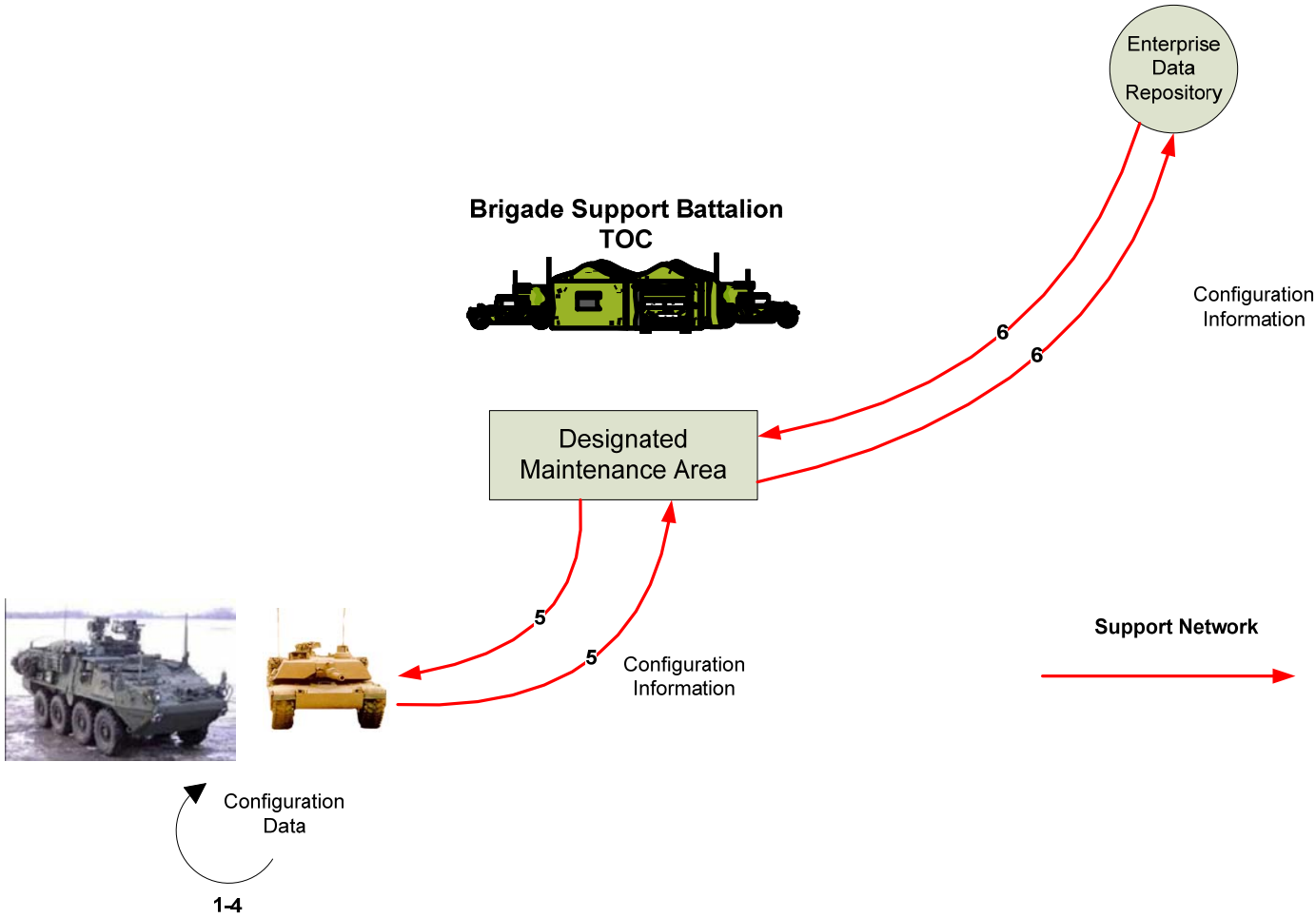

Figure 23. Manage Platform and Equipment Configurations

7 Summary of Impacts

8 Analysis of Proposed System – This paragraph has been tailored out

6.2.6 Condition Based Maintenance

Condition-Based Maintenance is defined as the set of maintenance actions taken to prevent functional failure or to avoid the consequences of functional failure. The intent of CBM is to perform maintenance only when there is objective evidence of need. The objective of CBM is to reduce maintenance down time and increase operational readiness by repairing or replacing system components based on the actual condition of the component as opposed to other maintenance concepts, such as scheduled or time-phased maintenance procedures. Maintenance personnel use CBM data to schedule maintenance actions to maximize availability by replacing components before they fail. Timely replacement before catastrophic or functional failure reduces maintenance down time and is frequently less costly because the work can be done in the shop and full failure can include collateral damage.

Note: Monitor Platform Power Train Usage (paragraph 6.4.1.1) provides tracking of engine usage data for CBM in CLOE Inc 2.

6.3 General Supply Operation Scenarios

These scenarios show the applicable steps associated with the periodic Class III (B) refueling process and ammunition supply reporting.

6.3.1 Report and Resupply Fuel Quantity

6.3.1.1 Stryker Brigade Combat Team (SBCT) Class III (B) Supply

Purpose
This scenario provides the logic and decision flow to refuel the Stryker vehicle on a routine basis.

Preconditions
The log distribution list in the C2 System has been created.

The complete flow for this scenario is shown in Figure 18.

Step	Action	AILA Activity
1	The Vehicle CDR configures C2 reporting policies and Vehicle CDR notification in the Vehicle C2. (These may be established by C2 System defaults.) For fuel resupply, these policies are: a. Fuel level falling below established threshold. b. A delta change exceeding an established threshold. c. A periodic reporting time interval has occurred.	OA1.5.1.6 Track Fuel Usage
2	The Vehicle C2 determines that a reporting policy has been met (based on platform consumable notifications).	OA1.25.2.1 Review Current Situation (Project Branches)
3	The Vehicle C2 creates a background report using the latest data from the Vehicle and notifies the Vehicle CDR.	OA1.25.2.1 Review Current Situation (Project Branches)
4	[Alternative1] The Vehicle CDR displays, edits, and transmits the Logistics Report to the Platoon LDR via C2 System.	OA1.2.1.1 Send Fuel Status
4	[Alternative2] The Vehicle C2 automatically sends the Logistics Report to the Platoon LDR via Vehicle C2 (based on preauthorized reporting criteria from step 1).	OA1.2.1.1 Send Fuel Status
5	The Platoon LDR reviews, compiles an aggregate Logistics Report and forwards the aggregate Logistics Report to the Company XO/ Company 1SG via the Platoon C2.	OA1.25.1.1 Communicate Operational Information OA1.25.2.1 Review Current Situation (Project Branches)

Acronym	Description
FMC	Field Maintenance Company (HBCT) or Forward Maintenance Company (SBCT)
FMC	Fully Mission Capable
FMI	Field Manual Interim
FMT	Field Maintenance Team (HBCT) or Forward Maintenance Team (SBCT)
FMTV	Family of Medium Tactical Vehicles
FoS	Family of Systems
FRAGO	Fragmentary Order
FSC	Forward Support Company
GCS	Ground Combat Systems
GCSS-A	Global Combat Support System – Army
GS	General Support
GS	Ground System
HBCT	Heavy Brigade Combat Team
HEMTT	Heavy Expanded Mobility Tactical Truck
HMMWV	High Mobility Multipurpose Wheeled Vehicle
ICD	Interface Control Document
ID	Identification
IDEF	Integrated Definition
IETM	Interactive Electronic Technical Manual
IMMC	Integrated Material Management Center
IPT	Integrated Product Team
IS	Information System
LCM	Life Cycle Manager
LCOP	Logistics Common Operating Picture
LDB	Logistics Database
LDR	Leader (Platoon or Convoy)
LIA	Logistics Innovation Agency
LIW	Logistics Information Warehouse
LOGPAC	Logistics Package(s)
LRP	Logistics Resupply Point
LRU	Line Replaceable Unit
LTO	Logistics Task Order
LTS	Logistics Task Order Synchronization
MCS	Maintenance Control Section
MEP	Mission Equipment Package
MRO	Materiel Release Order
MS	Maintenance Information System(s)
MT	Maintenance Team
MTS	Movement Tracking System
MV	Maintenance Vehicle
OCD	Operational Concept Document
OOTW	Combat and Operations Other Than War
OPORD	Operation Order
OV-2	Operational Node Connectivity Description
OV-3	Operational Information Exchange Matrix
OV-5	Operational Activity Model
OV-6c	Operational Event-Trace Description
PBL	Performance Based Logistics
PBUSE	Property Book Unit Supply Enhanced
PM	Program Manager
PMA	Portable Maintenance Aid
PMCS	Preventive-Maintenance Checks and Services
PoE	Proof of Enablers

Acronym	Description
RF	Radio Frequency
RF-ITV	Radio Frequency In-Transit Visibility
RPM	Revolutions Per Minute
RSA	Regional Support Activities
RSR	Required Supply Rate
S3	Operations and Training Officer
S4	Logistics Officer
SAAS-MOD	Standard Army Ammunition System-Modernization
SAMS-E	Standard Army Maintenance System – Enhanced
SARSS	Standard Army Retail Supply System
SBCT	Stryker Brigade Combat Team
SGT	Sergeant
SOP	Standing Operating Procedure
SoS	System of Systems
SPO	Support Operations Officer
SS	Supply System(s)
SSA	Supply Support Activity
STAMIS	Standard Army Management Information System
TAMMS	The Army Maintenance Management System
TOC	Tactical Operations Center
TWV	Tactical Wheeled Vehicle
ULLS-AE	Unit Level Logistics System – Aviation Enhanced
VEC	Vehicle Exception Condition(s)
VSAT	Very Small Aperture Terminal
WO	Work Order
XO	Executive Officer

9.2 Army Integrated Logistics Architecture (AILA) – OV-6c Models

To be Supplied.

9.3 Planned CLOE Fielding Capabilities

The anticipated System and process enhancements to be included in the CLOE fielding implementation are shown in Figure 24. The capabilities that are planned for Increment 1 and Increment 2 are summarized in Figure 25 and Figure 26 respectively. These capabilities are planning targets and are subject to adjustment by the appropriate PM as part of the development process.

- **Automated Platform Status Reporting Over FBCB2 and MTS**
  - Fuel Status
  - Platform Ammo Inventory
  - Equipment Health
    - System Status
    - Critical Faults
    - Predicted Faults
  - Enhanced SA Displays for Tactical Commanders and Log Staff
- **Electronic Maintenance**
  - Embedded IETMS with Digital PMCS
  - Faults from Diagnostics System Linked to Troubleshooting Tracks
  - Enhanced Crew Station Displays
  - Automated Configuration Tracking
- **Business Process Automation**
  - Automated Dispatch and Logbook Updates via Combat Service Support Automated Information System Interface (CAISI).
  - Automated Transfer of Fault/Part Info from Platform to SAMS via CAISI
  - Platform Data Flowing to CBM+ Data Warehouse

Figure 24. Planned System and Process Enhancements

- **Stryker/Abrams/Bradley**
  - Report fuel and equipment status through FBCB2 ICD
  - Report mission-critical faults through FBCB2 ICD (operator in the loop)
  - DPMCS (PDA-based)
  - Digital Logbook (PDA-based)
- **TWV**
  - Embedded Diagnostics (VIDS plus Diagnostic Test Manager)
  - Report fuel and equipment status through FBCB2
  - Report mission critical faults through FBCB2
  - Embedded IETM with DPMCS (EMS2-based)
  - Embedded Digital Logbook (SAMS-E)
  - Diagnostics System, IETM, Logbook, and DPMCS exchange data
  - PDA for walk-around capability
  - Collect and Store usage Data and Pass to SAMS-E (VIDS)
- **FBCB2**
  - Auto-populate SITREP and Log Report Using Platform data
  - Auto-populate Call For Support Using Platform Data
  - Combat Power Displays
  - Distribute Log report and Call For Support to Log Net
- **MTS**
  - Transmit platform status and critical fault reports
  - Display status information and critical fault reports to Control Station Users
  - Publish critical fault reports to SAMS-E
- **SAMS-E**
  - Automated Dispatch
  - Auto-populate Embedded Logbook with fault data from diagnostics system and DPMCS data (TWVs)
  - Synchronize Embedded Logbook and Master Records over CAISI
  - Server functions on SAMS-E hardware to pass usage data to warehouse

Figure 25. Increment 1 Capabilities

- **Stryker/Abrams/Bradley**
  - Embedded IETM with DPMCS, and Logbook (SAMS-E)
  - Embedded Applications Exchange Data through Publish/Subscribe Interface
  - Report fuel, ammo, and equipment status through JCR
  - Report mission-critical faults through JCR (operator in the loop)
  - Collect and Store Usage Data and Pass to SAMS E
  - Configuration tracking of major LRUs
  - PDA for walk-around capability
- **TWV**
  - Configuration tracking of major LRUs
  - Platform interface with JCR for status and fault reporting
- **JCR**
  - Integrated Line of Products for Combat Platforms and TWVs
  - Publish/subscribe interface with platforms
  - Automated status reporting of fuel, ammo, equipment health
  - Automated reporting of quantitative log data to log net
- **SAMS-E**
  - Platform configuration tracking
  - Auto-populate Embedded Logbook with fault data from diagnostics system and DPMCS data (all platforms)
  - Server functions on SAMS-E hardware to pass usage data to warehouse (all platforms)

Figure 26. Increment 2 Capabilities