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ARI Research Note 91-25

Development of a Combat Service Support Data Collection System for Tactical U.S. Army Training

AD-A236 822

Ann N. Hamza
U.S. Army Research Institute

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January 1991

United States Army
Research Institute for the Behavioral and Social Sciences

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91-01744

91 6 11 021

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UNCLASSIFIED
SECURITY CLASSIFICATION OF THIS PAGE

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1a. REPORT SECURITY CLASSIFICATION Unclassified	1b. RESTRICTIVE MARKINGS --
2a. SECURITY CLASSIFICATION AUTHORITY --	3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for public release; distribution is unlimited.
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE --	
4. PERFORMING ORGANIZATION REPORT NUMBER(S) ARI Research Note 91-25	5. MONITORING ORGANIZATION REPORT NUMBER(S) --
6a. NAME OF PERFORMING ORGANIZATION U.S. Army Research Institute Field Unit at Presidio of Monterey 6b. OFFICE SYMBOL (If applicable) PERI-IO	7a. NAME OF MONITORING ORGANIZATION --
6c. ADDRESS (City, State, and ZIP Code) P.O. Box 5787 Presidio of Monterey, CA 93944-5011	7b. ADDRESS (City, State, and ZIP Code) --
8a. NAME OF FUNDING/SPONSORING ORGANIZATION U.S. Army Research Institute for the Behavioral and Social Sciences 8b. OFFICE SYMBOL (If applicable) PERI-I	9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER --
8c. ADDRESS (City, State, and ZIP Code) 5001 Eisenhower Avenue Alexandria, VA 22333-5600	10. SOURCE OF FUNDING NUMBERS PROGRAM ELEMENT NO. 63007A; PROJECT NO. 794; TASK NO. 3402; WORK UNIT ACCESSION NO. H1

11. TITLE (Include Security Classification)
Development of a Combat Service Support Data Collection System for Tactical U.S. Army Training

12. PERSONAL AUTHOR(S)
Hamza, Ann N.

13a. TYPE OF REPORT	13b. TIME COVERED	14. DATE OF REPORT (Year, Month, Day)	15. PAGE COUNT
Final	FROM 90/03 TO 90/06	1991, January	67

16. SUPPLEMENTARY NOTATION
--

17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)
FIELD	GROUP	SUB-GROUP	Combat service support; Unit performance measurement; CTC; Data collection system

19. ABSTRACT (Continue on reverse if necessary and identify by block number)

The Army Lessons Learned Program (ALLP) aims to use past Army training and wartime experience to improve combat effectiveness by correcting combat relevant deficiencies in doctrine, training, materiel, organization, and leadership. Unit training data for the Combat Service Support (CSS) Battlefield Operating System (BOS) does not fully support lessons learned analysis. This report describes a methodology and action plan for developing a CSS data collection system using data from the Army Combat Training Centers (CTC) and other training exercises. This R&D project is a cooperative effort with Training and Doctrine Command proponents. The methodology was presented to and supported by the Army logistics community during a workshop. Data requirements (derived from issues) were identified for each CSS school. For each issue, initial development of supportive critical tasks and measures of performance (MOP) were accomplished. Further, organizations systematically collecting CSS data were presented to the group. The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI), U.S. Army Logistics Center (LOGC), and the
(Continued)

20. DISTRIBUTION/AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS	21. ABSTRACT SECURITY CLASSIFICATION Unclassified
22a. NAME OF RESPONSIBLE INDIVIDUAL Ann N. Hamza	22b. TELEPHONE (Include Area Code) (408) 647-5619 22c. OFFICE SYMBOL PERI-IOB

DD Form 1473, JUN 86 Previous editions are obsolete.

SECURITY CLASSIFICATION OF THIS PAGE
UNCLASSIFIED

ARI Research Note 91-25

19. ABSTRACT (Continued)

U.S. Army Combined Arms Training Activity (CATA), Center for Army Lessons Learned (CALL) are action agencies responsible for developing and executing this R&D effort.

FOREWORD

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) has a major research program in support of the Army Lessons Learned Program (AALP) sponsored by the Combined Arms Training Activity (CATA), Center for Army Lessons Learned (CALL), at Fort Leavenworth. One of the principal goals of this program is the development of systems and methods for measuring unit training performance at the Combat Training Centers (CTC). The CTCs provide a rich data source for Lessons Learned to improve doctrine, training, materiel, organization, and leadership for combat training.

This research effort will provide data sources for conducting Lessons Learned analysis for the Combat Service Support (CSS) Battlefield Operating System (BOS). The system is based on the Training and Doctrine Command (TRADOC) Priority Issue List (TPIL), as identified by TRADOC proponents. For each issue, combat or tactical critical tasks and measures of performance will be developed.

The research task that supports this effort is entitled "Unit Performance Measurement and Field Feedback from the Combat Training Centers (CTC)," and is organized under the "Maintain Force Readiness" program area.

The initial phase of this effort was coordinated and supported by CALL and the U.S. Army Logistics Center in a cooperative effort to establish systematic data collection of CSS training information for Lessons Learned analysis. The CATA Lessons Learned Division was briefed on the information in this document and indicated their intention to make use of the results.

EDGAR M. JOHNSON
Technical Director

DEVELOPMENT OF A COMBAT SERVICE SUPPORT DATA COLLECTION SYSTEM FOR TACTICAL U.S. ARMY TRAINING

EXECUTIVE SUMMARY

Requirement:

To develop a Combat Service Support (CSS) data collection system for the purpose of providing an understanding of unit performance, and by such understanding, improve the effectiveness of Army training.

Procedure:

The U.S. Army Research Institute for the Behavioral and Social Sciences (ARI), U.S. Army Logistics Center (LOGC), and U.S. Army Center for Army Lessons Learned (CALL) sponsored an invitational workshop for Training and Doctrine Command (TRADOC) proponents and other Army agencies to support and develop a systematic CSS data collection system. The workshop focused on two primary tasks: (1) presentation of a methodology for collecting and measuring CSS unit performance, and (2) identification of data requirements of CSS TRADOC proponents. Based on the CSS data requirements or issues identified, the proponents developed the initial CSS data collection plan. The framework used for developing the proponents issues are based on combat critical tasks, subtasks, and measures of performance. Current CSS data collection efforts were identified to establish what is already being collected and prevent replication of data collection efforts.

Findings:

A preliminary CSS Data Collection Plan was developed. TRADOC proponents produced an initial issue list, most of which was developed with critical tasks, subtasks, and measures of performance. Each issue identified the appropriate battle phase, echelon, CSS element, and doctrinal reference.

Utilization of Findings:

Based on the outcome of the workshop, ARI, LOGC, and CALL representatives developed an action plan for attaining a valid and reliable CSS data collection system. Several tasks were identified with specific time frames. CSS unit training performance data will be collected in a standardized format that is conducive to research purposes. Additionally, with this data collection system, CSS data can routinely be collected at exercises at the Combat Training Centers (CTC) and other Army training exercises.

DEVELOPMENT OF A COMBAT SERVICE SUPPORT DATA COLLECTION SYSTEM FOR TACTICAL U.S. ARMY TRAINING

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Figure 1. Army Lessons Learned automation system 1

DEVELOPMENT OF A COMBAT SERVICE SUPPORT DATA COLLECTION SYSTEM FOR TACTICAL U.S. ARMY TRAINING

INTRODUCTION

The U.S. Army Research Institute, Presidio of Monterey, CA (ARI-POM) has been actively engaged in the effort to develop systems and methods of unit performance analysis at the Army's Combat Training Centers (CTC). The purpose of this research effort is to a) provide an understanding of unit performance, and b) by such understanding, improve the effectiveness of Army training.

This report discusses the proceedings of the ARI Combat Service Support (CSS) Workshop in support of the Army Lessons Learned Program (ALLP) for the CSS Battlefield Operating System (BOS). This effort establishes a method and plan for developing data requirements for conducting lessons learned analysis.

BACKGROUND

Army Lessons Learned Program

The ALLP was established to learn from past Army training and wartime experience to improve unit battlefield performance (AR 11-33 & TRADOC Reg 350-XXX). Center for Army Lessons Learned (CALL) is the sanctioned focal point for the ALLP. The objective of the program is to improve combat effectiveness by identifying and correcting combat relevant deficiencies in doctrine, training, materiel, organization, and leadership (DTMOL). ALLP functions include collection, processing, and dissemination of Lessons Learned. Data from units training in low intensity conflict situations to actual combat operations world wide will be collected, processed and entered into the Army Lessons Learned Automation System (ALLAS) (AR 350-XXX, 1990) (Figure 1). ALLAS is designed to allow interface among other lessons learned data bases.

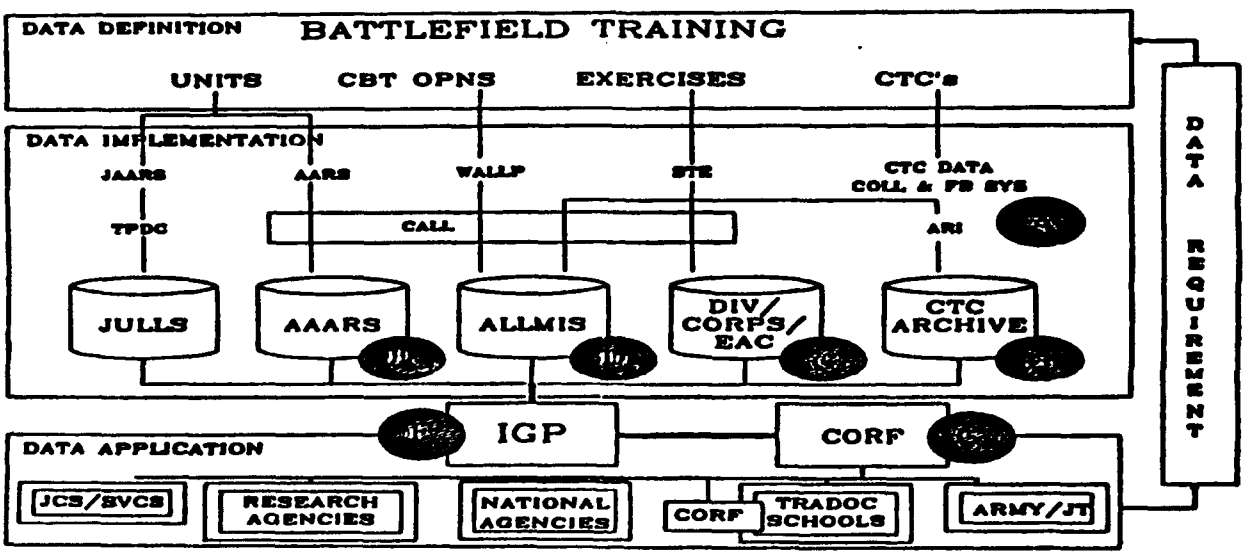

Figure 1. Army Lessons Learned Automation System.

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ARI is an integral part of the Army Lessons Learned Program (ALLP). As illustrated in Figure 1, ARI's function within the ALLAS pertain to the CTCs. One major thrust of ARI-POM's program is Unit Performance Measurement and Field Feedback at the CTCs. This entails developing systems and methods for measuring combat unit performance.

ARI-POM maintains the Army archive for CTC data and records. It is also accountable for establishing and maintaining a research data base for measurement research, lessons learned, and trendline analysis. ARI manages access to the archive by TRADOC proponents and other DoD users. Future utilization of CTC data will be broadened by electronic access for Army centers and schools. The Combat Operations Research Facility (CORF) has been designed by ARI, to allow Army analyst to have ready access from any location to a variety of CTC training data sources. The CORF will provide access to a Training Research Automated Cataloging System (TRACS), Mission Databases, THP Database, CTC Graphics Database, the Army Lessons Learned Management Information System (ALLMIS).

The primary purpose of ARI efforts to develop methodologies for the measurement of unit performance data and derive improved methods for collection of unit performance data from the CTCs is to become capable of providing lessons learned in DTMOL. ARI and CALL have conducted workshops for TRADOC proponents, in a structured exploitation of the CTC archive resident at ARI-POM. The workshops have been intended as a start point for future exploration of CTC data archived and maintained at ARI-POM. Overall, there has been high utilization of the CTC archive. However, after two years of exploration, attempts to sift out potential lessons learned for the CSS BOS have been minimal.

Need for CSS Data

There are two major reasons for the absence of viable CSS data in the archive. First, the database has very little quantitative CSS data useful for research purposes. Second, the majority of available data lack standardized formatting. For example, the primary CSS data sources from the National Training Center (NTC) are Take Home Packages (THP) and After Action Reviews (AAR). These sources do not identify many specific data elements, and are generally in a narrative format. The data elements which are discussed are neither standardized from mission to mission, rotation to rotation, nor, between the CTCs.

CSS WORKSHOP

Discussions with analysts from CSS TRADOC schools and integrating centers, during a working visit at ARI-POM CTC Research Archive prompted an assessment of the range, variety, and quality of CSS data represented in the archive. It became clear that a comprehensive and systematic CSS data collection system is prerequisite to conducting any analysis for potential lessons learned. Currently this capability does not exist. The CSS BOS is a complex system consisting of major components, integrated to support a primary mission--"sustain combat power of the force." The components of CSS must be synchronized in order to support the overall mission of the Task Force. To obtain such a system that captures such complex and valuable information requires extensive knowledge and expertise in multiple disciplines. This approach is possible through the union of representatives of the U.S. Army Logistics Center (LOGC), TRADOC schools, and other relevant organizations.

Workshop Goal and Objectives

The goal of the ARI-CSS Workshop, therefore, was to develop a data collection system based upon critical combat tasks.

The objectives were to:

- o Develop a CSS Critical Task List (CSSCTL)
- o Develop Measures of Performance (MOP) for the CSSCTL
- o Identify Data Requirements for Data Collection
  - What data/information are wanted
  - What data are systematically collected
  - What data need to be systematically collected

ARI Coordination

ARI and the LOGC co-hosted a meeting attended by Subject Matter Experts (SME) from CSS TRADOC schools and other agencies, scheduled 27 Feb-1 Mar 1990. ARI sent out official invitations to the meeting stating the purpose and objectives. Attendees were asked to be prepared with a list of data requirements relevant to each organization, as stated in the objectives above.

Participants

The following organizations were represented at the meeting:

- o U.S. Army Center for Army Lessons Learned
- o U.S. Army Logistics Center
- o U.S. Army Ordnance Center and School
- o U.S. Army Transportation School
- o U.S. Army Quartermaster School
- o U.S. Army Ordnance Missile and Munitions Center
- o U.S. Army Academy of Health Sciences
- o U.S. Army Aviation Logistics School
- o U.S. Army Soldier Support Center
- o U.S. Army Materiel Systems Analysis Activity (AMSAA)

- o U.S. Army Materiel Readiness Support Activity (MRSA)
- o U.S. Army Research Institute

All organizations were represented except Soldier Support Center, due to restrictions in travel funds.

Opening Activities

The meeting was opened by the Commanding General (CG) of the LOGC. His beginning statements were in support of the CTC's mission, and the valuable lessons learned information that can be obtained. He strongly supported the requirements for establishing a CSS database that has high utility. He further stressed the importance of the LOGC to provide input and influence the data collection process at the CTCs for lessons learned analysis. The commander also emphasized the importance of extending the LOGC focus, normally division and higher, down to battalion and even platoon level operations (e.g. Unit Maintenance Collection Point [UMCP]).

Following the CG's opening, ARI addressed the group with a presentation on the purpose of the meeting, objectives to be accomplished, overview of the ALLP, and framework for a CSS data collection system.

APPROACH

Framework For CSS Data Collection System

The thrust of this initial meeting was to bring the Army CSS proponents together to develop a CSS data collection system based on a framework that supports Army doctrine as well as the existing structure of CTC unit training and feedback. The scope of the data will reflect only the TRADOC Priority Issue List (TPIL).

- o Critical Tasks
- o U.S. Army Doctrine
- o Battle Flow Structure
- o Battle Field Operating System (BOS)
- o BOS Elements

Each priority issue will have supporting critical tasks. A critical task is defined as combat or tactical tasks which are "high pay-off" tasks and must be performed to insure mission success. Critical tasks may have multiple sub-tasks and a standard or Measure of Performance (MOP) which contains the data element(s). Data elements are the individual pieces of information that will be observed, collected, and represented in the CSS database. Appropriate aspects that pertain to each key issue, will be identified e.g., battle phase (plan, prepare, execute), CSS element or functional area (personnel, medical, maintenance, supply, and transportation), BOS element (Arm, Fix, Fuel, Man the Force, and Distribute (TRADOC PAM 11-9) and echelon.

Eventually, the system will expand, to include more issues representative of CSS elements or functional areas. For any given issue, the tasks and MOP will be derived from current Army doctrine (Army Training and Evaluation Program (ARTEP)/Mission Training and Evaluation Outline (T&EO). Since some of the ARTEPs/MTPs may not identify all critical tasks, and MOPs (standards) may not always be written in specific, clear, and observable terms, such MOPs will require further development, refinement, and clarity for data collection.

The quality of data collected will be a function of how well-defined critical tasks and data elements (MOP) are written. The data collection system will provide a checklist used to structure and guide unit training observations of critical tasks and task elements. The tasks and sub-tasks serve as the checklist title; the elements (MOP) become the step-by-step procedures that are evaluated to determine task performance and ultimately address the primary issue.

Working Session

Workshop participants were organized by school to begin working on data requirements which they came prepared to develop. The group was guided through the process for development of critical tasks, sub-tasks, and MOP (data elements). ARI, LOGC, and CALL provided individual guidance and feedback during the working session. A few iterations of the work were made until the desired level of specificity was identified and developed.

RESULTS

The following objectives were accomplished:

Initial Development of Critical Task and Measure of Performance (MOP) List. School representatives produced an initial issue list containing supportive critical tasks and MOP. This will be used as a prototype for the participants to use for additional development at their respective schools. They are to identify the refined MOP or data element that will actually be collected (Appendix A).

CSS Data Systematically Identified and Collected.
The following organizations are collecting valuable kinds of CSS data:

- U.S. Army National Training Center (NTC)
- U.S. Army Materiel Readiness Support Activity (MRSA)
- U.S. Army Materiel Systems Analysis Activity (AMSAA)
- ARI-CTC Archive

Presentations, made by representatives of each organization, covered the mission of their organizations, the kinds of CSS data collected on a regular basis, and how data are stored, represented, and accessed (Appendix B). A senior staff officer of the Operations Group, NTC, further discussed CSS operations simulated at the NTC and the role of CSS in supporting the overall mission of the task force.

Development of Action Plan. The LOGC, ARI, and CALL are the action agencies responsible for development and execution of this R&D effort. The outcome of this discussion is summarized in the milestones below.

Milestones

Project Time-Lines. Time lines shown below are based on the need to begin collecting and transforming data in the archive for use. The goal is to have all requirements defined and ready for distribution to the various collection sources by 20 Nov 90, and for CTC and TRADOC Support to Exercise (STE) sources to begin data collection NLT 1 Jan 91. The following plans were determined:

Organization	Task	Date
LOGC,CG	Formally task TRADOC (CSS) schools to participate in development of the CSS Data Collection System in support of ALLP. The scope of this effort, in terms of workload and resources required to accomplish it, will vary from proponent to proponent based on individual data needs. Request that commander/school commandant review requirements and provide: 1. An assessment of the value of this effort to their proponency mission. 2. Confirmation of Dec 89 TPIL input as the organization's approved priority issues from 90-91 time frame. 3. Estimated scope of project for organization. 4. Adequacy of resources to complete data requirements. 5. Feasibility of using OAC/NCO Academy students to do all or portions of requirements as a course project, under centralized supervision.	Mar 90
ARI	Develop CSS Data Collection System guide for developing critical tasks, sub-tasks, and MOP (Appendix C) to be included with the LOGC's letter tasking its schools and other TRADOC proponents.	16 Mar 90
TRADOC School	TRADOC proponents will establish their requirements without regard to where or by whom data shall be collected. Developed data requirements will be approved by participating commandants/commanders.	1 Apr 90

Organization	Task	Date
TRADOC School, LOGC, ARI, CALL	Proponent submits one complete issue functional or sub-functional area; e.g., QMS develops all data needs for its proponency area of Class III, and develops the critical tasks, sub-tasks and measures of performance IAW guide (Appendix C). Submits to LOGC; LOGC, ARI, and CALL will review and provide feedback to the organization on their product on an individual basis.	31 May 90
TRADOC School, LOGC, ARI, CALL	Meeting at LOGC to prepare for 90-13 CSS NTC-Focused rotation.	28 Jun 90
LOGC, ARI, CALL	Meet with NTC Goldminer Team (logistics team) Observer Controllers (OC) to review the feasibility of collecting identified data requirements.	Jul/Aug 90
ARI, CALL	A matrix will be developed indicating best source(s) for each data/information requirement.	Aug 90
TRADOC School, LOGC, ARI, CALL	The CSS Data Collection System will be field tested at the NTC during rotation 90-13, to examine the feasibility of supporting data collection requirements. Modifications to the data collection instrument will be made as necessary for final product.	Aug 90
LOGC, ARI, CALL	Based on the best source decision, e.g., CTC, STE, Wartime Army Lessons Learned Program (WALLP), data requirements will be provided to each source for routine collection. CSS Data Collection System to be integrated in data collection plans for appropriate data source.	30 Dec 90
CALL	Develop and publish CSS data collection book for use in developing collection plans for TRADOC STE Program.	30 Dec 90
ARI	ARI will design a CSS database based on data requirements. The initial plan for a CSS data collection system was to establish a broad CSS database covering all aspects of CSS. The group decided to keep the scope limited to reflect the TPIL. This will mean that as new issues are identified and developed, the database structure design will expand to accommodate additional data elements.	Jan 91

IMPLICATIONS FOR THE FUTURE

Results of an Improved System. As this initial phase reveals the path for a fully integrated data collection system based upon the critical combat tasks, it will become evident that, with enough issues, we will have constructed a database encompassing all the primary data elements to cover all of the CSS by issue, CSS functional area (e.g. medical operations), or BOS element (e.g. Arm, Fix).

Effect Upon Quantification of Unit Effectiveness. The CTCs provide demanding and realistic combat training. An improved data collection system based upon issues and multiple sub-tasks will be an effective tool not only for researchers, but for current leaders engaged in the evaluation of training as it affects performance. Such a system can aid in predicting the outcome of training. It will now be possible to overcome many of the limitations faced by previous efforts to quantify unit effectiveness.

REFERENCES

Department of the Army (1990). The Army Lessons Learned Program (TRADOC) Reg 350-XXX). Fort Monroe, Virginia: Author.

Department of the Army (1988). Blueprint of the Battlefield (TRADOC Pam 11-9). Fort Monroe, Virginia: Author.

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APPENDIX A

Initial Development of Critical Tasks and Measures of Performance (MOP) List

EDCI 12

QUARTERMASTER SCHOOL

ISSUES

1. Perform unit graves registration operation.
2. Automatic data processing operations.
3. Army field feeding system.
4. Plan company move.
5. Provide Class III (bulk) supplies.
6. Provide Class V supplies.
7. Perform external slingload supply functions.
8. Provide Class I, II, III, IV, and VII supplies.
9. Provide food service support.

NAME:
BOS: Combat Service Support
CSS ELEMENT: Transportation (Supply) Medical Personnel Maintenance (Circle one)
ECHELON: (Unit) Combat Trains C P UMCP BAS Field Trains (FSB) (Circle one)
PHASE: Plan (Prepare) Execute (Circle one)

Critical Tasks Perform unit graves registration operation

1. Search and recovery team leader prepares for the search.
   a. Perform a map or aerial reconnaissance of the search area.
   b. Identify additional support requirement.
   c. Request additional support requirements from S-4.
   d. Identify search pattern to be used.
   e. Coordinate NBC and explosive ordnance disposal.
   f. Coordinate security of area with S2/3.

2. Search and recovery team leader supervises the search, recovery, and evacuation operations.
   a. Brief search and recovery team on operational procedures.
   b. Issue personal effects bags, human remains pouches, if available, and NBC agent tags.
   c. Assign areas of search.
   d. Monitor search and recovery team operations IAW tactical SOP.
   e. Coordinate evacuation operations with S2/3.
   f. Forward SITREP to S2/3.

3. Search and Recovery team conducts the search.
   a. Search assigned areas for remains and personal effects.
   b. Mark Terrain locations of remains with pegs.
   c. Collect disassociated personal effects.
   d. Annotate locations of remains and personal effects or a recovery skelton.

4. Search and recovery team recovers remains.
   a. Inspect immediate area for booby traps and NBC contaminants.
   b. Conduct initial identification IAW FM 10-63-1.
   c. Attach NBC tag or tag marked with a large "C" to contaminated or contagious remains.

ORDNANCE SCHOOL

ISSUES

1. Contact maintenance truck, LIN T10138 cannot meet Direct Support Maintenance units mission requirements.

2. Tactical repair time guidelines.

3. Delivery time for major assemblies from the Forward Support Battalion (FSB) to the Maintenance Support Team (MST) in the Maneuver Battalion UMCP.

4. Transmission test stand.

5. Track vehicle recovery operations.

6. Use of M984A1 heavy expanded mobility tactical truck (HEMTT) wrecker and M578 recovery vehicle.

7. Like vehicle towing, M1 series to M1 series tank.

8. Coordination of Non-divisional mobile maintenance teams.

9. Primary user of the direct support electrical system test set (DSESTS).

10. Battlefield-related repair operations.

11. Diagnostic ability of unit level maintenance.

12. Machinist assets/workload.

13. Welding assets/workload.

14. The current medium recovery vehicle provides marginal support to the battalion task force.

15. The medium recovery vehicle provides marginal lift capability to support the mechanized task force.

16. The medium recovery vehicle provides marginal winch capability to support the mechanized task force.

17. The medium recovery vehicle provides marginal maintenance lift support to the mechanized task force.

18. What is the adequate mix of recovery assets to effectively support the mechanized task force.

19. The medium recovery vehicle provides marginal towing support to the mechanized task force.

20. Use of wheeled wreckers to support wheeled and tracked vehicle fleets.

21. Tactical repair time guideline.

NAME:
BOS: Combat Service Support
CSS ELEMENT: Transportation Supply Medical Personnel Maintenance (Circle one)
ECHELON: Unit Combat Trains C P UMCP BAS Field Trains FSB (Circle one)
PHASE: Plan Prepare Execute (Circle one)

Critical Task	Reference
1. Issue: Contact Maintenance Truck, LIN T10138 cannot meet Direct support maintenance unit mission requirements.	FM 43-5 43-11 43-12 43-20 63-2 63-3 TC 43-35

2. Sub Task:
   a. Equipment mission capability (EMC) for M887.
      . Daily Da Form 2404
      . Daily Work Request (DA Form 2407/5504's)
      . Daily Readiness Report (DA Form 2406)
   b. Equipment Readiness (ER).
      . Equipment on-hand status (monthly DA Form 2406)
      . Availability of repair parts (Document Register)
      ↳ Supply Transportation
   c. Equipment availability at all echelons.
      . Equipment required/on-hand ←
      .. MTOE (DA Form monthly 2406) (DA Form 2715 Report)
      . Equipment deployed to exercise (DA Form 2408-1)
      .. Incoming TCMD's ← transportation
      . Equipment failures per 1000 ft. x miles (DA Form 2404's, 2407's/5504's)
      . Repair parts usage per 1000 ft. x miles
      ↳ Supply transportation
   d. Operators and maintainers of the contact truck.
      .. Unit manning roster ← Personnel
      .. SID PERs report
   e. What effect did the non-availability of M887 have on MST to perform this mission.
      .. Evaluate the number of work requests submitted (DA Form 2404/5504, Daily 2404)
      .. Number of MST deployed with M887 (DA Form 2408-1)

3. Collection Method.
   Visual observation

MISSILE MUNITIONS SCHOOL

ISSUES

1. Supply ammo in theater of OPNS down to and including the ATP in the FSB.

2. Repair missile systems and their associated radar systems in order to provide combat power.

3. Use of TMDE to augment repair capability to supply combat power and mobility.

4. Provide EOD support to the theater of OPNS.

5. Nuclear weapons maint spt to theater of OPNS.

NAME:
BOS: Combat Service Support
CSS ELEMENT: Transportation Supply Medical Personnel Maintenance (Circle one)
ECHELON: Unit Combat Trains C P UMCP BAS Field Trains FSB (Circle one)
PHASE: Plan Prepare Execute (Circle one)

Critical Tasks

1. Supply Ammo in theater of OPNS down to and including the ATP in the FSB.

. Tonnage capacity of ATP, ASP, CSA, TSA, terminal ops w/units w/moads TOEs.
- MHE (all types) reliability
  + Number of lifts/time
  + 5 tons lifted
  + Operational data
- Personnel utilization/requirements for each type operation
- Time required for each type OPN
- Equipment used for each type OPN

  Types of Operations
  1. Load/unload MILVAN
  2. Load/unload railroad car
  3. Load/unload trucks, PLS, HEMTT, etc.
  4. Configure CCL
  5. Rewarehouse
  6. RELOCATE

. Ammo tonnage consumption rates.
- By unit type
- By ammo type
- by type operation

. Damage to terrain caused by rough terrain container crane and its impact on other supporting MHE and ammo carriers to accomplish the mission.

AVIATION LOGISTICS SCHOOL

ISSUES

1. Aviation unit mobility. Is it handled efficiently?

2. Aviation unit organization and equipment (TOE) problems.

3. Aviation unit maintenance effectiveness.

4. Aviation logistics an applied to all battlefield operations.

5. Corrosion control - identify, correct by performing.

6. BDAR/BDR - identify and correct.

7. AVIN support - logistical problems associated with same.

8. Unit mobility.

9. Unit maintenance effectiveness.

10. Aviations issues are training issues, individual performance issue, not equipment, not supply. It is extremely difficult for our (aviation) training problems to be "systematized; issues stated are not broken down into operant behaviors. Individual training deficiencies are all but impossible to catalog into a standard format.

NAME:
BOS: Combat Service Support
CSS ELEMENT: Transportation Supply Medical Personnel Maintenance (Circle one)
ECHELON: Unit Combat Trains C P UMCP BAS Field Trains FSB (Circle one)
PHASE: Plan Prepare Execute (Circle one)

Critical Tasks --Performance--

1. Unit Mobility.
    a. Capability to move.
    b. Loading
        1. Load Plan - Is site preparation at new sight accomplished?
        2. Get vehicles
        3. Hook up/move
            a. By aircraft
            b. By wheels
        4. Locate POL enroute
        5. Deploy - unload - set up maintenance text
            a. Defensive positions
            b. Living quarters
            c. Hygenic situation - H20 etc.
            d. Feeding
        6. Set up maintenance operations
2. Unit Maintenance Effectiveness.

MEDICAL SCHOOL

ISSUES

1. Medical planning.

2. Casualty evacuation.

3. Combat lifesaver program.

4. Collect "real world" disease and non-battle injury (DNBI) information. The attached form provides the information required.

5. WIA/KIA/DOW/DNBI data.

6. Medical logistics.

7. Treatment of chemically contaminated patients.

8. Health service support communications.

9. Medical regulating.

NAME:
BOS: Combat Service Support
CSS ELEMENT: Transportation Supply (Medical) Personnel Maintenance (Circle one)
ECHELON: Unit Combat Trains C P UMCP (BAS) Field Trains (FSB) (Circle one)
PHASE: (Plan) Prepare Execute (Circle one)

Critical Tasks

1. Medical Planning.

Was the medical plan integrated in the Bn/Bde operation order?

Did the Medical Plan contain the following:

a. Current proposed location of the FSB Medical Company and Battalion Aid Station.
b. Location of the ambulance exchange points.
c. Casualty collection points.
d. Arromedical landing sites as applicable.
e. Location of medical personnel in mounted and dismounted operations.
f. Call signs for the maneuver battalion, the FSB Medical Company, and evacuation assets.

Did the plan include the use of non-medical vehicles for evacuation?

Did the medical plan include support for units with no organic medical support?

Did face to face coordination take place between the maneuver battalions platoon leader and the FSB Medical Company Commander?

Was the platoon leader involved in the battalion planning process?

Did the plan include provisions for treatment, evacuation, and hospitalization.

Did the plan include medical Class VIII supply?

TRANSPORTATION SCHOOL

ISSUES

1. Assess the methodology utilized in the distribution and movement of equipment and personnel in a theater of operations.

2. Assess the impact of reducing the number of vehicles in the tank/mechanized infantry battalion support platoon in continuous combat operations.

3. Assess the ability of the Transportation Motor Transport Company organic to the Main Support Battalion/Supply and Transport Battalion, Division Support Command to provide sustained support to the division on a continuous basis for combat theater operations.

4. Adequacy of staffing in the Division Transportation Office to accomplish doctrinal missions on a continuous basis for combat theater operations.

5. Assess the use of International Standardization Organization and American National Standards Institute containers for unit deployment by surface transportation.

6. Evaluate the effectiveness of the documentation, loading and discharge procedures implemented when units and equipment are deployed by ocean and air transportation.

7. Assess the adequacy of deployment doctrine to provide guidance to deploying units in preparing equipment for movement to overseas theater.

8. Assess deploying units capability to plan for and execute loading unit wheel and track vehicles on railcars.

9. Establish operations for a mechanized infantry/tank task force.

10. Support the task force.

11. Capability to provide Heavy Equipment Transporter (HET) support to the Unit Maintenance Collection Point (UMCP).

NAME:
BOS: Combat Service Support
CSS ELEMENT: Transportation Supply Medical Personnel Maintenance (Circle one)
ECHELON: Unit Combat Trains C P UMCP BAS Field Trains FSB (Circle one)
PHASE: Plan Prepare Execute (Circle one)

Critical Tasks

1. Establish operations for a mechanized infantry/Tank task force.

   a. Control support platoon operations.

   b. Operate in urbanized terrain (MOUT)

   c. Report vehicle/operator status.

   d. Perform operator maintenance on wheeled vehicle.

   e. Forecast vehicle availability.

   f. Coordinate organizational maintenance support.

   g. Dispatch vehicles.

   h. Report vehicle accidents.

   i. Operate in field trains.

   j. Establish a sleep plan.

   k. Provide cover and concealment in field trains.

   l. Establish the field kitchen.

   m. Request, receive and store rations.

   n. Control basic loads.

   o. Obtain supplies.

   p. Establish ammunition prestock.

   q. Request, receive and store ammunition.

   r. Care for chemical agent casualties.

   s. React to loss of key member of platoon headquarters.

APPENDIX B

Organizations Collecting CSS Data

ARI

ARI-CTC CSS ARCHIVE

TYPES OF DATA SOURCES:

- Take Home Package (THP)
  - Battalion Task Force (Armor, Mech)
  - Forward Support Battalion (FSB)
  - Brigade
- After Action Review (AAR)
  - BN TF CSS AAR (Mission)
  - FSB (Mission & Final)
- Digital Database
  - Mission Databases

ARI-CTC CSS ARCHIVE

NATURE OF CSS DATA

TAKE HOME PACKAGE

- By BOS
  Mission:
  - Summary Execution
  - Lessons Learned
  Trends/Recommendations

- Narrative description of improvements and decrements in TF performance over time.

ARI-CTC CSS ARCHIVE

NATURE OF CSS DATA

AFTER ACTION REVIEW

- Content
  - Discussion of Issues
  - Summary Statistics Charts
  - Key Issues Charts

- Identify and highlight events critical to the mission outcome.

- Use participatory method vs. lecture for generating an improved course of action to follow for subsequent missions.

ARI-CTC CSS ARCHIVE

NATURE OF CSS DATA

DIGITAL DATABASE

- Availability of Major Weapons Systems (Tank, TOW, BFV, M113, 155mm Howitzer, 4.2 Mortar)
- Operational Readiness Rate for Selected Weapons Systems (Tank, TOW, etc.)
- Ammunition Consumption Rates for Major Weapons Systems (Class Demand)
- Major Weapon System Losses (Replacements Required)
- Personnel Losses - KIA WIA (Casualty Replacements)

SYNOPSIS OF A CSS AAR
21 FEB 90

INTRODUCTION

SOLICITATION BY CSS OC OF SUSTAIN/IMPROVE ISSUES

KEY ISSUES (CHART)

DISCUSSION OF ISSUES WITH OVERLAYS AND VIDEOS

CSS GRAPHIC CONTROL MEASURES (CHART)

MORE DISCUSSION OF ISSUES

CASUALTY EVACUATION (CHART)

TRAIAGE (CHART)

DISCUSSION OF ABV

COMBAT POWER (% OF FMC VEHICLES) (CHART)

CLASS IX REQUISITIONS (CHART)

CLASS I (CHART)

CLASS III (CHART)

CLASS V (CHART) (IN TWO PARTS)

REPORTS (CHART)

COMMON TASKS (CHART)

KEY ISSUES (CHART) (RPT OF BEGINNING)

SAFETY (CHART)

END OF AAR

REPLAY OF ALL ABV CHARTS (5-10 SECS EACH WITHOUT AUDIO)

END OF TAPE

B-8

CASUALTY EVAC

	COE-	+1	+2	+3	+4	+5	+6
H	0	3	4	8			
K	0	-	-	4			
H	0	1	3	5			
K	0	1	3	2			
H	0	5	11	10	5		
K	0	-	-	9	-	9	
H	0	-	-	16			
K	0	-	-	2	-	5	

HELICOPTER ATTACK 27 SEP

PERSONNEL STABILIZED
AT JUMP AID = 22

PERSONNEL EVACUATED
TO COMBAT TRAINS BY
COMPANY MEDICS PRIOR
TO CHANGE OF MISSION = 3

COMBAT POWER

[illegible]	24	25	26	27
		PERCENTAGE OF FMC		
60	100	94	94	[illegible]
113	100	95	95	92
ITV	100	100	86	86

B-11

B-12

B-13

CLASS III

	25	26	27
C BR	Y	Y	Y
D BR	Y	Y	Y
B HECB	Y	Y	Y
C HECB	Y	Y	Y
SCI	Y	Y	Y
BDB	Y	Y	Y
HORT	N	N	Y
ENG	N	Y	Y
BT	Y	Y	Y

CLASS V

UNIT	HE	WP	ILL	20MM	SIG	M2	5	5
MORT	15	7	11	–	–	110		1
MDM	–	–	–	2000	5	–		1

-CROSS LEVELING

-ROUNDS PER WEAPON

(AS OF 271730 AUG 88)

B-15

CLASS V

UNIT	105	TOK	DGK	SBK	50	7	62	5	5
C INF	21	—	3	300	152		90		3
D INF	29	—	2	233	178		140		2
M MECH	20	—	2	78	156		198		2
C MECH	27	13	2	250	58		90		1
SCT	—	—	6	—	110		—		1
EXC	—	—	3	—	103		—		1
DOKC	43	9	—	—	187		90		1

[AS OF 271730 AUG 88]

AMSAA

PURPOSE OF BRIEFING

- TO PROVIDE INFORMATION ON THE FIELD EXERCISE DATA COLLECTION PROGRAM
- TO DISCUSS THE APPLICATION OF THE DATA

PRIMARY PURPOSE OF FEDC

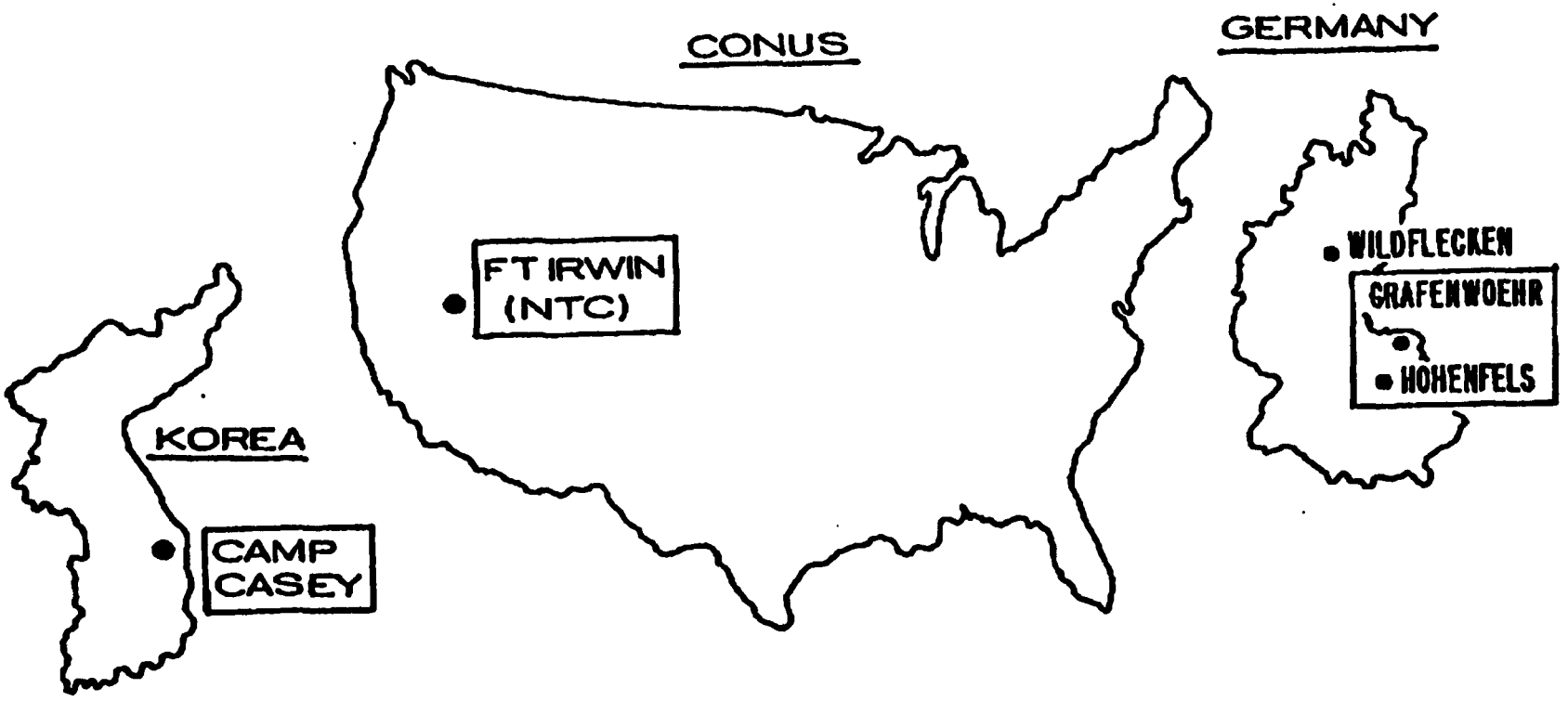
- TO ESTABLISH AND MAINTAIN A DATA BASE ON PART REPLACEMENT RATES DURING USAGE IN INTENSIVE FIELD TRAINING EXERCISES

- PROGRAM WAS INITIATED IN USAREUR IN 1982 EXPANDED TO THE NTC IN 1984, KOREA 1985, FT STEWART AND FT HOOD 1989

- DATA COLLECTORS ARE CIVILIAN CONTRACTORS (VINNELL CORPORATION)

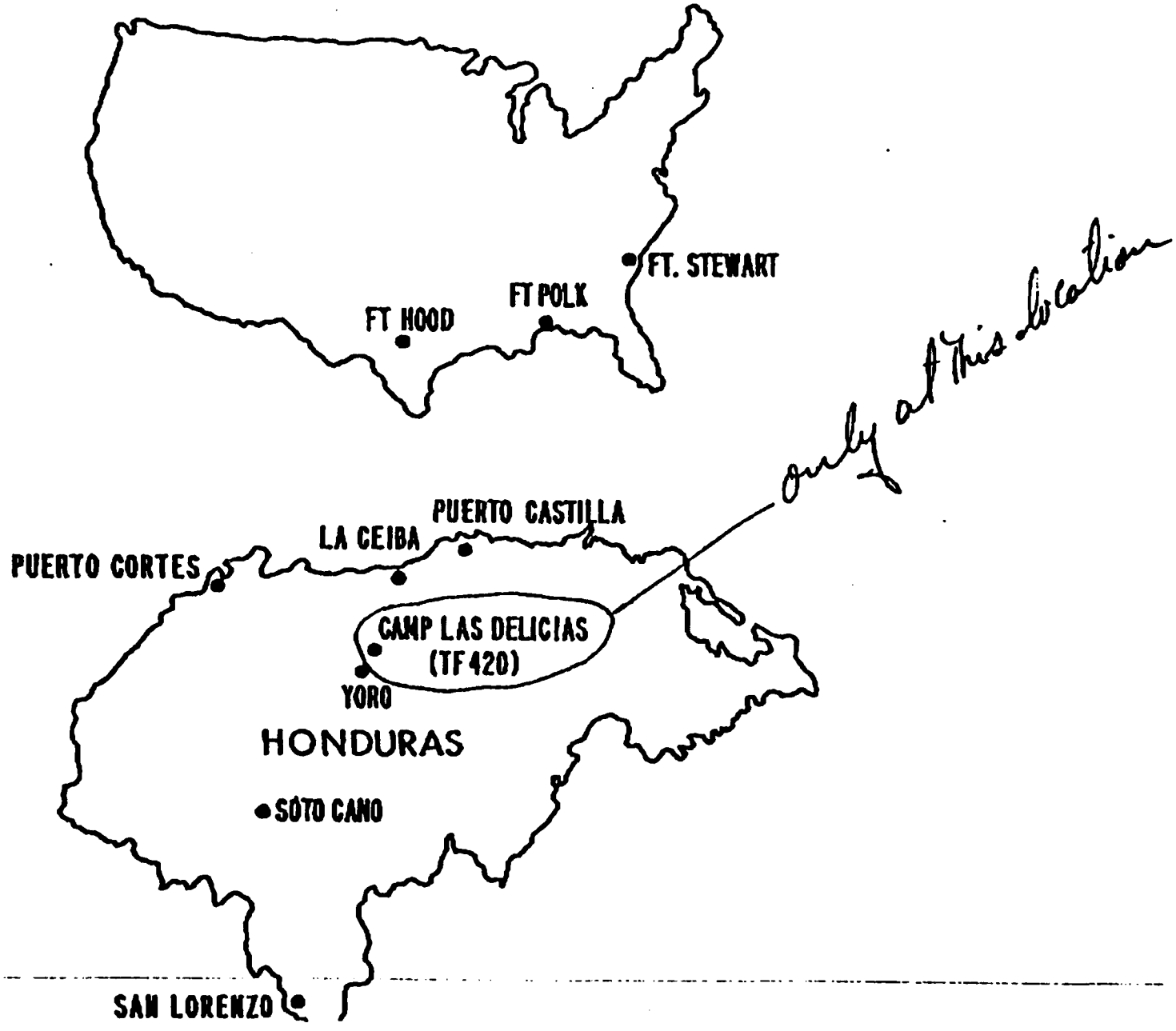
FIELD EXERCISE DATA COLLECTION PROGRAM

PERMANMENT LOCATIONS



FIELD EXERCISE DATA COLLECTION PROGRAM

TEMPORARY LOCATIONS



FEDC IS

A JOINT EFFORT BETWEEN AMC, FORSCOM, USAREUR, EUSA/ROK TO COLLECT USAGE AND CONSUMPTION DATA REGARDING

- REPAIR PARTS
- MAINTENANCE MANHOURS/MOS
- POL
- AMMO

FEDC IS NOT

- AN INSPECTION
- AN EVALUATION
- AN UNWARRANTED INTRUSION ON UNIT'S PRIVACY DATA IS COLLECTED WITH NO INTERFERENCE TO MANEUVER ELEMENT

DATA COLLECTION PROCEDURES

- PRE-EXERCISE ACTIVITIES:

  BRIEF CHAIN OF COMMAND AND UNIT MAINTENANCE/SUPPLY PERSONNEL

  CONDUCT INITIAL INVENTORY AT HOME STATION OR AT ISSUE SITE

  PRE-EXERCISE MAINTENANCE DATA COLLECTION

- EXERCISE MAINTENANCE DATA COLLECTION:

  REVIEW UNIT MAINTENANCE/SUPPLY RECORDS

  CONDUCT DISCUSSIONS WITH UNIT PERSONNEL

DATA COLLECTION PROCEDURES

- POST-EXERCISE ACTIVITIES
  - CONDUCT POST-EXERCISE MAINTENANCE
    - DATA COLLECTION, FINAL INVENTORY
    - AT HOME STATION/TURN-IN SITE
  - EXIT VISIT WITH UNIT PERSONNEL
  - REVISIT FOR UPDATE ON DEFERRED ACTIONS
  - PUBLISH UNIT FEEDBACK REPORT

FEDC DATA ELEMENTS

- END ITEM USAGE (MILES, HOURS, ROUNDS
- PARTS USAGE
- MANHOURS AND MOS
- MAINTENANCE ACTIONS

REPORTABLE ACTIONS

- CREW/OPERATOR ACTIONS REQUIRING PART REPLACEMENTS
- ALL ORGANIZATIONAL ACTIONS
- ALL SUPPORT ACTIONS
- POL USAGE
- AMMO CONSUMPTION

MAN-HOURS

- DIRECT PRODUCTIVE TIME
  - PREPARATION
  - MALFUNCTION VERIFICATION
  - FAULT LOCATION/ISOLATION
  - DISASSEMBLY
  - REPAIR
  - REASSEMBLY
  - FINAL CHECK

PART SOURCES

- SHOP STOCK
- QSS
- SSSC
- PLL
- ASL
- RX
- CANNIBALIZATION POINT

FEDC RECURRING REPORTS

- SITE SUMMARY REPORT (ANNUALLY)

  CONTENT:

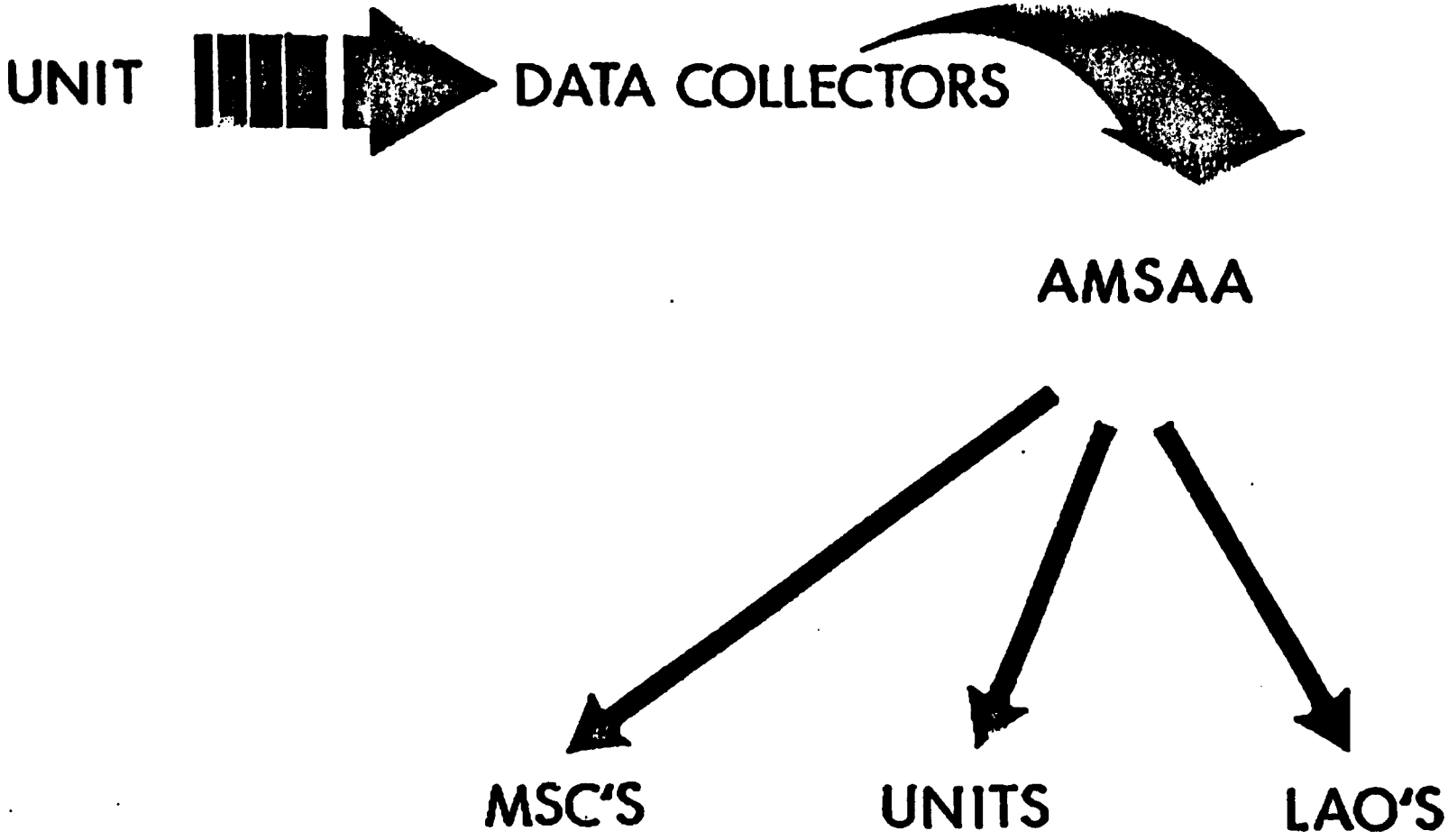
  ITEM USAGE AND AGE, MANHOURS, SPARE PARTS DEMAND/COST/SOURCE, COST PER USAGE, POL, UNIT FTX PLANNING FACTORS, AND MAINTENANCE ACTIONS

- UNIT FEEDBACK REPORT (30 DAYS AFTER EXERCISE)

  CONTENT:

  FTX SUMMARY/ANALYSIS, COMPARISON OF UNIT TO LIKE UNITS. IDENTIFICATION OF TOP TEN PARTS PER END ITEM

DATA FLOW



DATA APPLICATION

USE IN:

- COMBAT ASL/PLL COMPUTATIONS
- MPL COMPUTATIONS
- MANPOWER STUDIES
- LOGISTIC/READINESS STUDIES
- TACTICAL VEHICLE USEFUL LIFE PROGRAM
- POL CONSUMPTION STUDIES
- OPERATIONAL AND SUPPORT COST STUDIES (O&S)

APPENDIX C

Combat Service Support Data Collection System Guide for Developing Critical Tasks, Subtasks, and Measures of Performance

COMBAT SERVICE SUPPORT DATA COLLECTION SYSTEM
GUIDE FOR DEVELOPING CRITICAL TASKS, SUB-TASKS,
AND MEASURES OF PERFORMANCE

INSTRUCTIONS: This form provides guidance for developing the CSS Data Collection System. This system will provide a means for measuring battlefield training processes and events essential to successful combat mission outcome. The CSS data collection system is defined by critical tasks supporting major Army issues. Individual data elements provide the "indicator" of how information on the task can be collected and used for analysis. Thus the data element must be observable and measurable.

In developing this CSS data collection system, you are asked to identify critical issues for your organization. For each issue, identify supporting critical tasks and sub-tasks, and measures of performance for those tasks. These variables are defined and discussed below.

DEFINITIONS:

CRITICAL TASK

Critical Tasks are those tasks that directly support the issue at hand. Critical tasks are combat or tactical tasks which are the essential "high-payoff" individual, leader, and collective tasks. These tasks must be performed to insure mission success.

SUB-TASK

Sub-tasks apply to all areas that logically fall under a task heading. Sub-tasks are those tasks that support primary critical tasks.

MEASURE OF PERFORMANCE (MOP)

Data elements that allow judgment to be made about whether a critical task has been accomplished. A measure of performance should be observable and quantifiable.

For a given issue, the tasks and MOPs will be derived from Army Training and Evaluation Program (ARTEP)/Mission Training Plan (MTP), Field Manuals (FM), Training Manuals (TM), and Training and Evaluation Outline (T&EO). Some of the ARTEPs/MTPs do not identify all critical tasks, nor are MOP (standards)

always written in specific, clear, and observable terms and, therefore, require further development and refinement for the purpose of collecting unit training data.

The following characteristics should be applied when developing the data collection system; critical tasks and MOP should be:

- Observable events/behaviors
- Action statements vs. questions
  (Question: Did units do emergency destruction on equipment?
  Action Task Statement: Perform emergency destruction of equipment.
- Specific
- Clear, sensible, and relevant to Doctrine, Training, Organization, Materiel, and Leadership (DTOML)
- Free of undefined terms, e.g. adequate, satisfactory, sufficient, appropriate, suitable
- Concise

The quality of data collected will be determined by how well-defined critical tasks and data elements (MOP) are written. The data collection system essentially provides a checklist used to structure and guide unit training observations based on critical tasks and task elements. The tasks and sub-tasks serve as the checklist title; the elements (MOP) become the step-by-step procedures that are evaluated to determine task performance and ultimately address the primary issue.

Defining major issues, critical tasks which support the issue, and finally developing measures of performance is a process that requires reviewing, re-examining, and re-writing several times. Each time the review and revision sequence is repeated, the resulting task list and MOP becomes more specific and accurate--which makes for better measurement, better data, and better analysis of unit performance.

Consider the following as an abbreviated Example:

Issue: Medical Plan is not integrated in the Task Force Operations Order

Critical Task:

1. Medical platoon leader provides input to PAR 4 of OPORD
   a. Medical platoon leader identifies the following:
      1) Current and proposed location of the FSB, medical company, and Battalion Aid Station
      2) Location of the ambulance exchange points
      3) Casualty Collection Points
      4) Location of medical personnel in mounted and dismounted operations
      5) Call signs for the maneuver battalion, the FSB, medical company, and evacuation assets

MOP — 5 data elements

Critical Task:

2. Medical platoon leader coordinates with the TF S3 for medical support requirements.
   a. TF S3 provides Medical platoon leader with the following:
      1) Location of supported units
      2) Coordinates location of Battalion Aid Station
      3) Coordinates location for Casualty Collection Points

MOP — 3 data elements

//

CHECK EACH ASPECT APPROPRIATE TO THIS ISSUE.

DTOML ☐ DOC ☐ ORG ☐ TRNG ☐ MAT ☐ LDRSHP

BATTLE PHASE ☐ PLAN ☐ PREP ☐ EXEC ☐ CONT TASK

ECHELON(S) ☐ TA ☐ CORPS ☐ DIV ☐ BDE ☐ BN ☐ CO

IF BN: ☐ UNIT ☐ UMCP ☐ BAS ☐ JUMP AID ☐ COMBAT TRAINS CMD POST
☐ FIELD TRAINS

IF BDE (FSB): ☐ MED CO ☐ TRNSP CO ☐ SUPPLY CO ☐ MAINT CO

CSS ELEMENT: ☐ MEDICAL ☐ MAINT ☐ TRANSP ☐ SUPPLY ☐ PERSONNEL

AFFECTED CSS ELEMENT(S): ☐ MEDICAL ☐ MAINT ☐ TRANSP ☐ SUPPLY ☐ PERSONNEL

SUSTAINMENT FUNCTION:
☐ MANNING ☐ ARM ☐ FUEL ☐ FIX ☐ TRANS ☐ PROTECT

THEATER UNIQUE: ☐ YES ☐ NO IF YES: ☐ EUR ☐ SEASIA ☐ C/S AM ☐ CONTINGENCY

//

CHECK EACH BOX WHICH IS APPROPRIATE MEDIUM TO OBSERVE/ASSESS ISSUE

APPROPRIATE CTC ☐ NTC ☐ JRTC ☐ CMTC ☐ BCTP ☐ CTC NOT APPROPRIATE

TYPE ROTATION ☐ HVY ☐ HVY/LT ☐ LT ☐ LT/HVY

TYPE EXERCISE (TRADOC Support to Exercise Program) ☐ CPX ☐ FTX ☐ CFX ☐ OTHER _____ - - -Specify Type