



Integrated Process Team (IPT)
Reconnaissance and Security (R&S)
Capabilities-Based Assessment (CBA)
Functional Solution Analysis (FSA) Report

Department of the Army

United States Army Maneuver Center of Excellence
Ft. Benning, GA 31905

5 July 2016

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REPLY TO
ATTENTION OF

ATFC-DM

DEPARTMENT OF THE ARMY
HEADQUARTERS UNITED STATES ARMY TRAINING AND DOCTRINE COMMAND
ARMY CAPABILITIES INTEGRATION CENTER
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05 JUL 2016

MEMORANDUM FOR Mr. Donald M. Sando, Deputy to the Commanding General,
Maneuver Center of Excellence, 1 Karker Street, Fort Benning, VA 31905-5000


SUBJECT: Approval of the Reconnaissance and Security Capabilities Based
Assessment Functional Solutions Analysis

1. References:

- a. TRADOC Capabilities Based Assessment (CBA) Guide v3, 10 May 2010.
- b. Chairman Joint Chiefs of Staff Instruction, (DOD CBA Guide), 3710.01H, 10 January 2012.
2. The Army Capabilities Integration Center approves the Reconnaissance and Security (R&S) Functional Solutions Analysis (FSA) and Executive Summary.
3. The FSA captures recommended solutions or promotes current solution development necessary to eliminate or reduce where practical the 66 capability gaps identified in the R&S FSA.
4. The R&S CBA FSA will serve as a synchronization tool for use within TRADOC for doctrine, organization, training, materiel, leadership and education, personnel and facilities development or actions relate to R&S operations (scout squad to BCT cavalry squadron) or the support of sustainment to those formations.
5. Point of contact for this action is Mr. Eaton, DSN 501-5575, (757) 501-5575, james.p.eaton.civ@mail.mil.

2 Encls

1. R&S FSA
2. R&S FSA EXSUM


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Overview

The Functional Solution Analysis (FSA) Executive Summary is a stand-alone document that provides a summary of the FSA process and identifies 160 solution approaches recommended for implementation across the Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, Facilities, and Policy (DOTMLPF+Po) domains to mitigate the 66 capability gaps brought forward from the Functional Needs Analysis (FNA) phase of the Reconnaissance and Security Capabilities Based Assessment (R&S CBA). The R&S CBA Integrated Process Team (IPT) recommends Army Capabilities Integration Center (ARCIC) leadership:

- Approve the R&S CBA FSA as a synchronization tool for use within TRADOC for DOTMLPF development whose actions relate to R&S operations (scout squad to BCT cavalry squadron) or the support or sustainment to those formations.
- Determine an Initial Capabilities Document (ICD) for an R&S capability is not required at this time as a follow-on step to this FSA as materiel solution approaches are being developed by the Centers of Excellence (CoEs) through other requirements documents.
- Determine a DOTMLPF Integrated Change Recommendation is not required as identified DOTMLPF solutions will be pursued through appropriate CoE lines of effort.

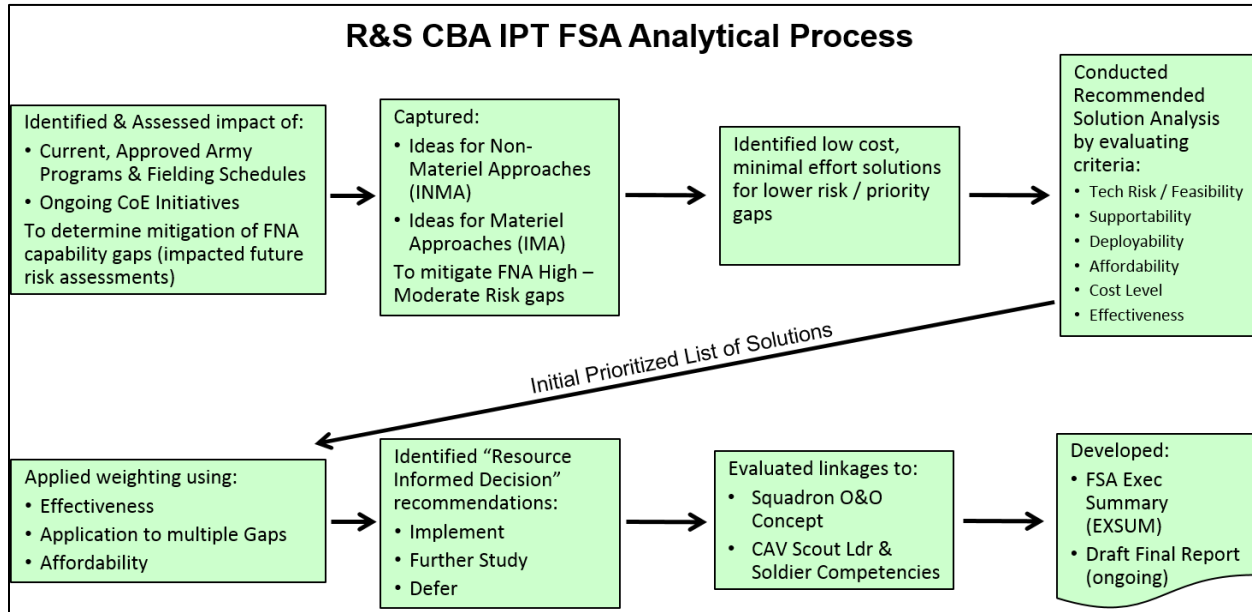
The United States (U.S.) Army Maneuver Center of Excellence (MCoE) sponsored the R&S CBA. The R&S CBA identifies required capabilities, capability gaps and recommends non-materiel and materiel approaches to address these gaps. Inputs to the R&S CBA include the approved *Army Capstone Concept (ACC)*, 15 Dec 2012; *Army Operating Concept (AOC)* 2016-2028, 19 Aug 2010; *Army Functional Concept for Movement & Maneuver*, 2016-2028, 13 Oct 2010; U.S. Army ADP 3-0 *Unified Land Operations*, Oct 2011; FM 3-90-2 *Reconnaissance, Security, and Tactical Enabling Tasks Volume 2*, Mar 2013; FM 3-20.96 *Reconnaissance and Cavalry Squadron*, Mar 2010; FM 3-20.971 *Reconnaissance and Cavalry Troop*, Aug 2009; ATP 3-20.98 *Reconnaissance Platoon*, Apr 2013; TC 3-20.96 *Reconnaissance and Cavalry Squadron Collective Task Publication*, May 2012; TC 3-20.97 *Reconnaissance Troop Collective Task Publication*, Feb 2013; TC 3-90.98 *Reconnaissance Platoon Collective Task Publication*, Jul 2013; joint concepts; Army concepts; and future force operational and organizational plans. The essential military problem being examined by the R&S CBA Integrated Process Team (IPT) is:

Ensure future A/S/I BCT Cavalry organizations at the brigade and below (cavalry squadrons, troops, and scout platoons and sections and maneuver battalion scout platoons and sections): Enable success in Unified Land Operations (ULO) through the conduct of continuous reconnaissance and security over wide and / or noncontiguous areas to develop the situation rapidly, answer priority information requirements (PIR), and secure the protected force.

The R&S CBA follows the Joint Capabilities Integration and Development System analytical process outlined in the *U.S. Army Training and Doctrine Command (TRADOC) CBA Guide, Version 3.1*. The R&S FSA is the third step of the CBA process, preceded by the Functional Area Analysis (FAA) and the Functional Needs Analysis (FNA). The primary purpose of the R&S FSA is to identify and prioritize DOTMLPF+Po solution approaches to mitigate capability gaps that could impede the future force from achieving R&S mission success.

The R&S CBA Integrated Process Team (IPT) consisted of stakeholders that were subject matter expert representatives from TRADOC Centers of Excellence including Maneuver,

Aviation, Fires, Maneuver Support, Sustainment, Mission Command, Intelligence, Cyber, AMEDD and Special Operations CoE. From within the MCoE, participants represented the primary DOTMLPF leads, Armor and Infantry Schools, and included liaison officers from Space and Missile Defense Command and ARCIC.



FSA Analytical Process

The R&S CBA IPT a conducted a series of distributed workshops and multiple action officer and Colonel/O-6 staffing reviews of the existing, planned or recommended DOTMLPF solution approaches applicable to MCoE and nine other CoEs.

- Identified & assessed impact of Current & Planned Programs to mitigation of capability gaps
- Captured Ideas for Non-Materiel (DOTLPP+Po) Approaches (INMA) and Ideas for Materiel Approaches (IMA) to mitigate or eliminate the capability gaps that presented moderate to very high risk to cavalry and / or scout formations
- Identified low cost, minimal effort solutions for lower priority capability gaps
- Conducted Recommended Solutions Analysis (RSA) to develop an initial prioritized list of solutions based on criteria evaluation of technical risk / feasibility, supportability, deployability, affordability, cost level and effectiveness (gap mitigation)
- Applied weighting to solution priorities based on effectiveness, applicability to multiple gaps and affordability
- Identified “resource informed decision” recommendations based on current fiscally-constrained budget environment – Implement, Further Study or Defer

During the identification of ideas for non-materiel and materiel solutions and the subsequent recommended solutions analysis (RSA) to produce the prioritized solutions by DOTMmPLF+Po domain, the R&S CBA IPT considered the analysis and recommendations on potential solutions from the Squad CBA, Attack the Network (AtN), Cavalry Squadron Operational and

Organizational (O&O) Concept, and Cavalry Scout Leader & Soldier (formerly Scout of the Future) Competencies development efforts. Action officers representing these efforts participated in R&S CBA Workgroups by providing potential solutions and/or reviewed the R&S CBA RSA products to ensure synchronization of common solutions and provide metrics assessment input as the proponent / lead for specific solutions.

This process resulted in 160 solution approaches recommended for implementation across the DOTmMLPF+Po (Policy) domains. There are 33 Doctrinal (D), 14 Organizational (O), 29 Training (T), 26 “small m” (m), 35 “Big M” (M), 9 Leadership & Education (L), 5 Personnel (P), and 9 Policy (Po) solutions across all CoE proponents. The main body of this report summarizes the MCoE high and moderate priority solutions recommended for implementation. Other CoE high – moderate priority solution approaches, low priority solution approaches, and those recommended as Further Study or Defer are listed in Appendices D - F. Appendix G provides a list of the 66 prioritized capability gaps and aligned solution approaches.

The following chart provides a summary of the 160 DOTmMLPF+Po solutions by warfighting function / Center of Excellence proponenty for development and implementation to mitigate or resolve scout and cavalry organization and/or Army-wide capability gaps forwarded from the R&S CBA FNA. The MCoE is the primary proponent for 34 recommended solutions. The other 126 recommended solutions are under the primary proponenty of TRADOC CoEs as depicted below.

CoE	D	O	T	“small m”	M	L	P	F	Po
ACoE	1		1	3	4				
Cyber CoE / SMDC	2	2	3	4	3				
FCoE			3		3				
ICoE	3		3		2				
MCoE	1	7	4	3	12	3	3		1
MCCoE	12	1	9	14	1	4	2		4
MSCoE	8		3		9	2			
SOCoe	4								3
SCoE	2	4	3	2	1				1

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1.1 – Organization of the Functional Solution Analysis (FSA)

This *Reconnaissance and Security (R&S) Functional Solution Analysis (FSA) Final Report* is organized into a main body and appendices. The main body provides the FSA background, process, and an overview of the FSA results. The appendices provide the detailed results of the FSA.

1.2 – Background

U.S. Army Field Manual (FM) 3-20.96, *Reconnaissance and Cavalry Squadron*, March 2010, states that “Reconnaissance units are an integral – and vital – part of the Army’s modular force.” The Cavalry Squadron (and its subordinate Cavalry Troops, Scout Platoons and Sections) of the Armored Brigade Combat Team (ABCT), Infantry Brigade Combat Team (IBCT), and Stryker Brigade Combat Team (SBCT) is designed to provide accurate, timely, and relevant combat information in complex, dynamic operational environments (OE). This information, in turn, enables the BCT commander to make rapid, well-informed decisions. The Cavalry Squadron is essential to successful Army and Joint operations by:

- Providing a significant dismounted and mounted reconnaissance force
- Enabling the BCT commander to decisively employ his maneuver battalions and joint fires and to choose the times and places for engagement to his advantage
- Maximizing security of the BCT by providing timely, accurate, and relevant combat information; helping the BCT commander achieve advantages over an enemy or adversary in terms of reaction time and maneuver space.

Current Assessment. Cavalry Squadrons and Troops and Scout Platoons provide the Army a core capability, developed and honed through years of training and leader development, to conduct 24 hour air-ground reconnaissance and security operations. Maneuver battalions are not organized and equipped, and their leaders and Soldiers lack the experience and training to conduct reconnaissance and security operations to answer the BCT commander’s PIR in all environments. Cavalry and Scout organizations provide Brigade and Battalion commanders enhanced situational awareness in order to make timely decisions ahead of the enemy decision cycle to preserve the force and ensure successful combat operations. Our Cavalry organizations are capable of executing independent and combined arms operations, developing the situation through forceful reconnaissance within organizational limitations, and operating in close proximity with civilian populations. However, over a decade of contingency operations focused on counter-insurgency and stability operations have degraded skills and experience levels across the Army in offensive and defensive operations. The Functional Needs Analysis identified gaps in the capabilities of Cavalry and Scout organizations based on more than 10 years of COIN operations, changes in the operational environment, and emerging concepts. The FSA identifies DOTMLPF-P solution approaches that will mitigate the identified capability gaps from the FNA. These approaches assist in ensuring our Cavalry and Scout organizations are properly organized, trained, and prepared to employ enhanced and emerging multi-dimensional capabilities, such areas as technical surveillance sensors, Space, Cyber, communications and human intelligence.

Genesis of the Reconnaissance and Security CBA. TRADOC has never conducted an assessment encompassing the three formations' (Infantry, Armored and Stryker BCT) battalion scout platoons and cavalry squadrons. Beginning in 2006, reports, analysis, lessons learned, unit visits and other collaborative activities identified issues compelling the initiation of a reconnaissance and security related capability based assessment. Various related efforts over the last several years, generally looking at a particular BCT formation, have identified a series of diverse gaps related to the conduct of reconnaissance and security operations. For example, the Movement & Maneuver CBA identified the following gap: "Maneuver brigades lack sufficient capability to collect, process, and analyze the surveillance and reconnaissance gathered by the individual Soldier. The ABCT Operational Assessment (OA) documents two reconnaissance and security gaps: 1) "The ABCT R&S assets lack sufficient survivability, protected mobility, and firepower to fight and survive to collect information or to conduct assigned tactical missions IOT inform the Commander during Decisive Action." and 2) "The ABCT lacks the organic capability to simultaneously conduct manned and unmanned, reconnaissance and security operations to provide stand-off distances that reduces loss of Soldiers or combat platforms in all environments." The IBCT Capability Portfolio Review (CPR) identifies "enabling effective air-ground combined arms Reconnaissance & Security" as part of its #1 Warfighting Capacity critical capability gap. The TCM-SBCT documents two reconnaissance gaps in their current SBCT capability gap list: 1) "The Stryker ICV-Scout lacks the capability to provide scouts (Infantry & Scouts) the ability to conduct mounted long range observation/surveillance. This missing capability significantly reduces their visual stand-off and greatly increases their exposure to battlefield threats." and 2) "IAW FM 3-20.98, the SBCT Cavalry scout platoons are insufficiently manned and equipped to simultaneously conduct their core reconnaissance and surveillance task such as mounted route reconnaissance operations. The lack of both dismounts and vehicles in the current platoon design reduces their ability to cover assigned sectors/areas with the density prescribed in Reconnaissance and Security doctrine." While the current "6x36" Scout Platoon Force Design Updates (FDUs) for the ABCT and SBCT mitigates some of these current gaps, no single effort has taken a comprehensive look at reconnaissance and security operations across the three BCT formations from the Cavalry Squadron down through its subordinate Cavalry Troops, Scout Platoons and Sections, to include attachments/enablers both internal and external to the BCT.

To accurately identify BCT Cavalry and scout required capabilities, determine gaps and recommend non-materiel or materiel approaches to address those gaps, the U.S. Army Maneuver Center of Excellence sponsored the Reconnaissance Capabilities Based Assessment (CBA). A CBA is a structured, three-phased, rigorous analytical process consisting of an FAA, FNA and FSA. This report details the scope, conduct and findings of the *Reconnaissance FNA* as the second step in conduct of the overall Reconnaissance CBA. The FNA provides the framework to identify, analyze and assess potential solutions in the follow-on FSA. Inputs to the *Reconnaissance FNA* include: The approved Army Capstone Concept (ACC), 15 Dec 2012; Army Operating Concept (AOC) 2016-2028, 19 Aug 2010; Army Functional Concept for Movement & Maneuver Functional Concept, 2016-2028, 13 Oct 2010; U.S. Army ADP 3-0 Unified Land Operations, Oct 2011; FM 3-90-2 Reconnaissance, Security, and Tactical Enabling Tasks Volume 2, Mar 2013; FM 3-20.96 Reconnaissance and Cavalry Squadron, Mar 2010; FM 3-20.971 Reconnaissance and Cavalry Troop, Aug 2009; ATP 3-20.98 Reconnaissance Platoon, Apr 2013; TC 3-20.96 Reconnaissance and Cavalry Squadron Collective Task Publication, May 2012; TC 3-20.97 Reconnaissance Troop Collective Task Publication, Feb 2013; TC 3-90.98 Reconnaissance Platoon Collective Task Publication, Jul 2013; joint concepts; Army concepts; and future force operational and organizational plans. These sources

provide the operational/tactical objectives, context and environment within which the BCT Cavalry and scout organizations must operate in the future.

1.3 – Points of Contact

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2.1 – Purpose

The Reconnaissance and Security (R&S) Functional Solutions Analysis (FSA) identifies and develops Doctrine, Organization, Training, Materiel, Leadership and Education, Personnel, and Facilities plus Policy (DOTMLPF+Po) solution approaches to address capability gaps developed during the Functional Needs Analysis (FNA). MCoE high – moderate priority solution approaches recommended for implementation are summarized in paragraphs 4.1 Ideas for Non-Materiel Approaches and 5.1 Ideas for Materiel Approaches. Appendices D-F outline the other CoE's high – moderate recommended solution approaches, low priority solution approaches, and those determined to require Further Study or to Defer until additional resources are available. Appendix G provides a list of the 66 prioritized capability gaps and aligned solution approaches.

2.2 – Scope and Military Problem

The R&S CBA will focus on the tactical execution of mounted and dismounted reconnaissance (conducted or enabled by: aviation, engineer, CBRN, intelligence, SOF, and Joint enablers) and security (screen, wide area security, and local security) by the Armored / Infantry / Stryker (A/I/S) Brigade Combat Team (BCT), across the four echelons within the BCT: Scout Squad, Scout Platoon, Cavalry Troop and Cavalry Squadron. The R&S CBA will support and inform other Maneuver Center of Excellence (MCoE) reconnaissance and security related initiatives such as the Cavalry Scout Leader and Soldier Competencies working group and Attack the Network (AtN) analysis. The R&S CBA addressed Unified Land Operations (ULO) and used current reconnaissance and security doctrine and the M&M concept to identify required capabilities and associated capability gaps.

The military problem developed for the Reconnaissance CBA was derived from *The U.S. Army Capstone Concept*, 19 December 2012, *The U.S. Army Operating Concept, 2016-2028*, 19 August 2010, and *The United States Army Functional Concept for Movement and Maneuver, 2016-2028*, 13 October 2010. The Reconnaissance CBA military problem is stated as:

Ensure future A/S/I BCT Cavalry organizations at the brigade and below (cavalry squadrons, troops, and sections and maneuver battalion scout platoons and sections): Enable success in Unified Land Operations through the conduct of continuous reconnaissance and security over wide and / or noncontiguous areas to develop the situation rapidly, answer priority information requirements (PIR), and secure the protected force.

2.3 – Assumptions

During the FSA phase, the R&S IPT continued the assumption HQDA would approve and apply the three BCT Cavalry Squadron Standard Scout Platoon (SSP) Force Design Updates (FDUs) – modifying TOEs / MTOEs to reflect six reconnaissance platforms and 36 Scouts “6x36”.

2.4 – FSA Goal and Objectives

The goal of the R&S FSA is to identify DOTMLPF+Po solution approaches that provide the joint warfighter with reconnaissance and security capabilities needed to develop the situation, answer priority information requirements (PIR), provide early warning, and protect the forces to be secured to maximize opportunities to seize, retain, and exploit the initiative. The intended outcome includes the identification of relevant DOTMLPF+Po solutions under development, already in place, and those not yet applied to all scout and cavalry formations to mitigate or close identified capability gaps and reduce unnecessary force redundancies. The R&S FSA process met the following objectives:

- Identify solution approaches / ideas across the DOTMLPF+Po domains to mitigate or eliminate the capability gaps that presented moderate to very high risk to cavalry and / or scout formations.
- Identify low cost, minimal effort solutions for lower priority capability gaps.
- Develop an initial prioritized list of solutions based on technical risk / feasibility, supportability, deployability, affordability, cost level and implications to other DOTMLPF+Po domains.
- Weigh solution priorities based on effectiveness, applicability to multiple gaps and affordability.
- Develop “resource informed decision” recommendations based on current fiscally-constrained budget environment.
- Coordinate and synchronize solution developments across TRADOC CoEs to enable or support R&S capabilities.

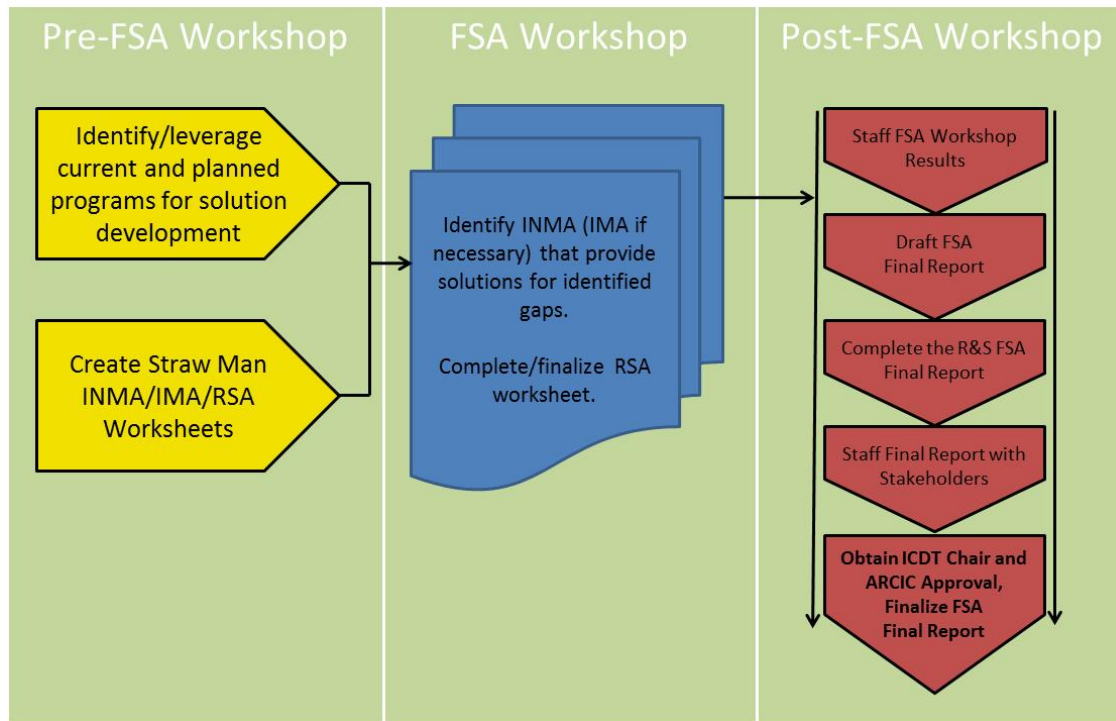
3.1 – Methodology and Analytical Approach

3.1.1 – Overview. This R&S CBA study methodology supports the building of the FSA output, including identification of ideas for non-materiel and materiel solution approaches across DOTMLPF+Po domains and the prioritization of these solutions during the Recommended Solutions Analysis (RSA).

The IPT conducted a series of virtual workshops using the collaboration tool Defense Connect Online. The main goal of the workshops was to identify ideas for non-materiel solutions (DOTMmLPF+Po), and as a last resort, materiel solutions to mitigate or eliminate the capability gaps that presented moderate to very high risk to Cavalry and / or scout formations. In addition, the IPT identified low cost, minimal effort solutions for lower priority capability gaps. Once the draft set of ideas for non-materiel and materiel solutions was completed, IPT participants then assessed technical risk (for “Big M” materiel solutions), feasibility (for DOTmLPF+Po) and supportability, deployability, affordability, cost level and DOTMLPF+Po implications for each solution. Where practical the IPT sought to identify solutions that would address multiple capability gaps. Then the IPT further prioritized the solutions by weighing solution the priorities based on the criteria of effectiveness (impact to closing the capability gap), applicability to multiple gaps, and affordability. The IPT conducted multiple action officer and Colonel/O-6 staffing reviews of the identified solutions, adding or removing solutions based on current program status or new solution ideas, resulting in 160 solutions recommended for implementation across DOTMmLPF+Po (Policy). There are 33 Doctrinal (D), 14 Organizational

(O), 29 Training (T), 26 “small m” (m), 35 “Big M” (M), 9 Leadership & Education (L), 5 Personnel (P), and 9 Policy (Po) solutions across all CoE proponents.

The figure below depicts the FSA methodology process beginning with Pre-FSA workshop work, conduct of the FSA workshop and concluding with Post-FSA workshop analysis.



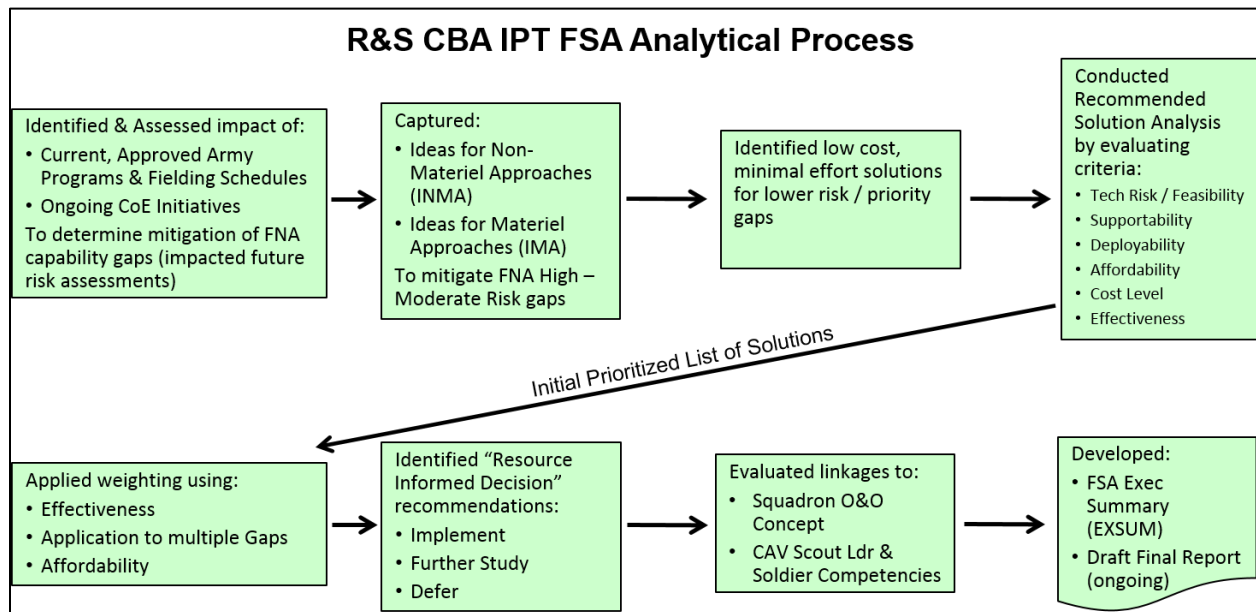
3.1.2 – Pre-FSA Workshop. The R&S CBA IPT and project team executed two major tasks prior to the FSA workshop:

- a) Identify/Leverage Current and Planned Programs for Solution Development. To establish a valid baseline for analyzing solution approaches, the project team conducted the following tasks: (1) researched applicable Force Design Update (FDU) solutions, (2) examined current programed solutions and (3) examined potential actions, programs and systems from other CoEs that support or potentially impact reconnaissance and security operations. The current/planned programs reviewed by the IPT included:
 - Nett Warrior
 - Force 21 Battle Command Brigade and Below (FBCB2) / Blue Force Tracker (BFT)
 - Command Post of the Future (CPOF)
 - Joint Battle Command – Platform (JBC-P) and JBP-C Handheld (HH)
 - Warfighter Information Network – Tactical (WIN-T) Increment 2 for the network
 - Close Access Target Reconnaissance (CATR)
 - Joint Light Tactical Vehicle (JLTV)
 - Bradley Engineering Change Proposal (ECP) Signature Management
 - Long Range Advanced Scout Surveillance System (LRAS3)
 - One System Remote Video Terminal (OSRVT) down to troop level
 - Joint Fires Observer (JFO) training at Ft. Sill, OK

- Lightweight Laser Designator Rangefinder LLDR-2H & Joint Effects Targeting System (JETS) providing the necessary TLE for precision fires for dismounted role
- Combat Training Center (CTC) Decisive Action Training Environment (DATE) training rotations
- Adding route reconnaissance training to ABOLC, ARC, CLC
- Advanced Situational Awareness Training (ASAT)
- Digital Master Gunner Course

- b) Create Draft INMA/IMA/RSA Worksheets. Based on the results of task A, the R&S IPT analyzed the FNA capability gap statements and compared them to the *U.S. Training and Doctrine Command (TRADOC) Capability Needs Analysis (CNA)*, and other Army CBAs (M&M, Fires, Intelligence, Mission Command, Sustainment, Protection, and Training and Education (T&E)) to develop a draft list of potential solution approaches to close or mitigate the R&S capability gaps. These solution approaches were placed into three worksheets: (1) Ideas for non-materiel Approach (INMA), (2) Ideas for Materiel Approach (IMA) and (3) Recommended Solution Approach (RSA). The INMA worksheet contained solution approaches categorized under one of the DOTLPF-P domains: The IMA worksheet contained solution approaches for gaps left unsolved after assessing the closure impact of non-materiel approaches. The RSA worksheet contained a cumulative list of the solution approaches, providing a consolidated and prioritized summary of the INMA and IMA.

4.1.3 – Conduct of FNA Workshop. Following the preparation described above, the R&S CBA IPT conducted multiple, distributed FSA workshops and action officer reviews with participation by SMEs from TRADOC CoEs and various reconnaissance and security communities of practice (CoP). Conduct of these workshops followed the analytical process shown and described in the chart below.



- Identified & assessed impact of Current & Planned Programs to mitigation of capability gaps.
- Captured Ideas for Non-Materiel (DOTLPF+Po) Approaches (INMA) and Ideas for Materiel Approaches (IMA) to mitigate or eliminate the capability gaps that presented moderate to very high risk to cavalry and / or scout formations.
- Identified low cost, minimal effort solutions for lower priority capability gaps.
- Conducted Recommended Solutions Analysis (RSA) to develop an initial prioritized list of solutions based on criteria evaluation of (rating scales for each of these criterion are listed in the RSA Worksheet in section 6.1):
 - Technical Risk (for Materiel approaches): The risk that arises from activities related to technology, design, engineering, manufacturing and the critical technical processes of test, production and logistics.
 - Feasibility: Applying subject matter expertise to discriminate good ideas from bad ideas. Is technical feasibility and schedule within the parameters of operational needs?
 - Supportability: Measures the impact of a change on the current means to support such a capability.
 - Deployability: Rapidly deployable, employable and sustainable throughout the global battle space regardless of anti-access, or area-denial environments.
 - Affordability: Rough order of magnitude (ROM) costs associated with similar approaches, but perhaps under different conditions or performance standards consistent with the new RCs.
 - Cost level: ROM costs (in dollars) for solution approach based on a five year development plan (FYDP) estimate.
 - Effectiveness: Impact on gap; level of gap mitigation
- Applied weighting to solution priorities based on effectiveness (X3), applicability to multiple gaps (X2.5) and affordability (X2).
- Identified “resource informed decision” recommendations based on current fiscally-constrained budget environment:
 - Implement - Begin execution immediately.
 - Further Study - Continue to assess solution development through concept studies, technological research, experimentation, etc.
 - Defer - Delay until resource/budget environment supports execution (most of these are organizational additions requiring personnel bill payers).

4.1.4 Post-FSA Workshop. Upon completion of the FSA workshop, the project team staffed workshop results to the IPT leadership for additional review and validation within each supporting command and consolidated all results and findings into this report. During this staffing, the IPT leadership provided feedback concerning the updated status of current programs, solution approaches being pursued by the various CoEs, and reassessments on solution approaches to mitigate / resolve R&S CBA FNA capability gaps. This staffing resulted in the identification of new solution approaches, deletion of solution approaches, reassessment of priority ratings, and development of “resource informed decision” recommendations. Once approved by the IPT Chair, Mr. Donald Sando, this report will be published as a synchronization tool for use within TRADOC for DOTMLPF development whose actions relate to R&S operations (scout squad to BCT cavalry squadron) or the support or sustainment to those formations.

4.1 – Ideas for Non-Materiel Approach (INMA)

The following charts summarize the MCoE-proponent Ideas for Non-Materiel Approaches (INMA) high to moderate priority solutions recommended for implementation organized by DOTLPP+Po domain. The charts provide a solution number for tracking (for example D1), RSA assessed priority (High or Moderate), short solution description, and the approved FNA capability gaps mitigated by the solution. Appendices D - F outline other CoE's high – moderate recommended solution approaches, low priority solution approaches, and those determined to require Further Study or Defer until additional resources are available.

4.1.1 MCoE-proponent Recommended Doctrine (D) Solutions: The overall R&S CBA FSA recommendation for MCoE doctrine integration is to conduct a series of collaborative Operational and Organizational (O&O) Concept Transition Working Groups between TCM-Recon, DOTD and Office of Chief of Armor (OCA) to synchronize efforts to support implementation of the various O&O Concepts.

a. The working groups will identify information that is either:

- Ready for implementation in current leader development activities, or
- Conceptual in nature, valid for continued experimentation, but with potential for future implementation.

b. The working group leadership will present recommendations for approval to the Chief of Armor during regularly scheduled updates throughout MCoE standard DOTMLPF development processes. The resulting goal is to ensure doctrine, training and leader development solutions support operational force requirements while achieving or meeting:

- Recon & Security Capabilities Based Assessment Required Capabilities
- TRADOC Army Warfighting Challenges
- Doctrine 2015 Objectives
- Army Human Dimension Strategy Required Capabilities

Doctrine Recommended Solutions	Gaps Mitigated
D1 High: Conduct a series of "O&O Concept into Doctrine Working Groups" based on the following concepts as they become approved: - Cavalry Squadron O&O - Cavalry Troop O&O - Tank, MGS/ATGM, MPF Company - HHT O&O - Scout Platoon O&O - Cavalry Scout Leader & Soldier Competencies Concept / Implementation Plan	1 - R&S in coordination w / Avn (employment of unmanned sensor systems, both air & ground) - H 3 - Integrate UAS & Ground Sensors (employment of unmanned sensor systems, both air & ground) - H 13 - Conduct simultaneous dismounted Recon/local security tasks (dismounted scout squad ops) - H 16 - ID enemy hidden w/i civilian population (combat tracking, AtN, human terrain) - M 17 - Capability to collect info on civilian population (AtN) - M 21 - SA while dismounted and away from their vehicle/platform (application of Mission Command on the Move & BLOS / OTH Communications) - M 54 - BLOS to over the horizon communications (application of Mission Command on the Move & BLOS / OTH Communications) - H 25 - Provide organic indirect fires to all units over dispersed areas (troop & platoon fire support planning; application of R&S Lethality Linkage TTP) - H 38 - Ability to physically track enemy using signature & recent activity (combat tracking) - H 65 - Coordinate, synch, configure, assemble & execute movement & distro of supplies including by aerial resupply (sustainment TTP) - M 93 - Supporting, facilitating or continuing ops initiated by SOF or OGA / NGO elements or vice versa (integration of non-organic enabling units / assets) - M 108 - Reconnaissance and security expertise (Cav Scout Ldr & Soldier Competencies - indiv & collective tasks) - H 110 - Reconnaissance and Security in Depth (Employment of Squadron 3x3 force design) - H

4.1.2 MCoE-proponent Recommended Organizational (O) Solutions: The overall R&S CBA FSA recommendation is to implement organizational solutions presented in the Squadron O&O and supporting concepts, and endorse Cavalry Scout Leader and Soldier (formerly known as Scout of the Future) Competencies and the follow-on implementation plan as a means of informing force design actions. The chart below summarizes MCoE proponent organizational solutions and the capability gaps mitigated. Other force design initiatives supporting O&O Concepts may be designed during organizational development activities.

Organization Recommended Solutions	Gaps Mitigated
O2 High: Support standardization of squadron & scout platoon TOEs across BCTs at each echelon for communications, optics, weapons and other equipment (passive AD, camouflage)	8 – Self-defense against enemy aircraft & unmanned aerial vehicles - ExH 9 - Detect and ID airborne & ground contamination - ExH 13 - Conduct simultaneous dismounted Recon/local security tasks - H 15 - ID enemy while moving mounted - H 34 - Ability to remain undetected - H 36 - Ability to simultaneously employ vehicle mounted wpn sys and long range sight - H 54 - BLOS to over the horizon communications - H 85 - Simultaneously communicate to/from dismounted OP; local security; and dismounted patrol (Voice/Data) - M

Organization Recommended Solutions	Gaps Mitigated
O19 High: Develop proposal and coordinate with other CoEs to consolidate collection assets within Squadrons (MICO, CBRN Recce) reflected in Cavalry Squadron O&O Concept	108 - Reconnaissance and security expertise - H
O30 High: Support on-going efforts to identify and redistribute BFVs necessary to implement the ABCT CAB Standard Scout Platoon	90 - ABCT CAB Scouts (HMMWV/BFV) can't conduct all movement tech. - H
O11 Moderate: Standardize Raven BOI across formations (Trp/Plt)	1 - R&S in coordination w / Avn - H 3 - Integrate UAS & Ground Sensors - H
O12 Moderate: Consider increasing Raven OSRVT BOIP to field to Cav Troop Scout Platoons to view Troop Raven video feeds (initial BOIP limited to Troops by available funding)	3 - Integrate UAS & Ground Sensors - H
O25 Moderate: Support Army Emerging Growth Initiative & TAA Process to increase Troop Mortar Sections to Troop Mortar Platoons reflected in Cavalry Squadron O&O Concept	25 - Provide organic indirect fires to all units over dispersed areas - H
O27 Moderate: Support Army Emerging Growth Initiative & TAA Process to implement squadron structure of three troops x three platoons reflected in Cavalry Squadron O&O Concept	110 - Reconnaissance and Security in Depth - H

4.1.3 MCoE-proponent Recommended Training (T) Solutions: The overall R&S CBA FSA recommendation for MCoE training integration is to conduct a series of collaborative Operational and Organizational (O&O) Concept Transition Working Groups between TCM-Recon, DOTD and Office of Chief of Armor (OCA) to synchronize efforts to support implementation of the various O&O Concepts. The chart below summarizes MCoE proponent training solutions and the Capability Gaps mitigated.

Training Recommended Solutions	Gaps Mitigated
<p>T1 High: During unit & CTC visits, collect data and lessons learned to determine sufficiency / proficiency which may include:</p> <ul style="list-style-type: none"> - unit employment of small arms in self-defense against enemy a/c & UAS - training with attachments & support elements at home station - home station training on unmanned sensors systems/equipment for operators and development of unit SOPs - training at home station involving Unified Action Partners (UAP) and their direct participation in the operations process to develop a better understanding of UAPs, develop SOPs and develop techniques for information sharing (TCM-Recon Initiative) 	<p>8 - Self-defense against enemy aircraft and unmanned aerial vehicles - ExH 108 - Reconnaissance and security expertise - H 3 - Integrate UAS & Ground Sensors - H 78 - Conduct the Operations Process with Unified Action Partners - M</p>
<p>T43 High: Continue process of task analysis and task development, POI Reviews & Task Selection Boards, and identify resourcing requirements to train Cavalry Scout Leader & Soldier (formerly SotF) Competencies</p>	<p>13 - Conduct simultaneous dismounted Recon/local security tasks - H 16 - ID enemy hidden w/i civilian population - M 17 - Capability to collect info on civilian population - M 21 - SA while dismounted and away from their vehicle/platform - M 38 - Ability to physically track enemy using signature & recent activity - H 108 - Reconnaissance and security expertise - H</p>
<p>T11 Moderate: Review sufficiency of air-ground ops integration in virtual/constructive training simulators/simulations</p>	<p>1 - R&S in coordination w / Avn - H</p>
<p>T36 Moderate: Review CATS to ensure versatility & maintain proficiency in key maneuver & gunnery events</p>	<p>108 - Reconnaissance and security expertise - H</p>

4.1.4 MCoE-proponent Recommended Leadership & Education (L) Solutions: The overall R&S CBA FSA recommendation for MCoE leader development integration is to conduct a series of collaborative Operational and Organizational (O&O) Concept Transition Working Groups between TCM-Recon, DOTD and Office of Chief of Armor (OCA) to synchronize efforts to support implementation of the various O&O Concepts. The chart below summarizes MCoE proponent leader development solutions and the Capability Gaps mitigated.

Leader Recommended Solutions	Gaps Mitigated
<p>L3 High: Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include:</p> <ul style="list-style-type: none"> - planning for CBRN operations - Cdr's role in determining PIR & S3's role in planning collection ops ICW the S2, and understanding Collection assets capabilities - R&S doctrine - enabling asset (CBRN, EN, SOF, etc.) capabilities & methods of employment - unmanned sensors employment for R&S ops - AtN operational approach in training and education scenarios - capabilities and requirements of working with UAP - echelonment of sustainment assets <p>(Ongoing POI Review Boards' Initiatives)</p>	<p>9 - Detect and ID airborne & ground contamination - ExH 52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning - H 39 - Coordinate, plan, execute, & resource info collections assets - M 43 - Capability to rapidly eval reporting and info collection activities - H 108 - Reconnaissance and security expertise - H 93 - Supporting, facilitating or continuing operations initiated by SOF or OGA / NGO elements (or vice-versa) - M 3 - Integrate UAS & Ground Sensors - H 16 - ID enemy hidden w/i civilian population - M 17 - Capability to collect info on civilian population - M 78 - Conduct the Operations Process with Unified Action Partners - M 63 - Positioning, establishing and organizing sustainment forces at the troop and squadron level - M</p>
<p>L13 High: Based on O&O Concepts and Cavalry Scout Leader & Soldier Competencies, review sufficiency of coverage in MPCC to potentially include:</p> <ul style="list-style-type: none"> - R&S fundamentals & essential elements of R&S ops - Cdr's role in determining PIR & S3's role in planning collection ops ICW the S2, and understanding Collection assets capabilities - emphasis from the CDR on demolitions training for Scouts and ensuring adequate resources (ranges, time, munitions) <p>(DOT & TCM-Recon Action)</p>	<p>108 - Reconnaissance and security expertise - H 28 - Ability to plan & execute demolitions w/o engineer support - M</p>
<p>L6 Moderate: Continue to assess sufficiency of current training to reinforce adaptive / critical thinking processes in leadership and operations and troop leading process instruction (DOTD Initiative)</p>	<p>44 - Knowledge of threat doctrine, tactics and proficiency to analyze and fuse collected info - H</p>

4.1.5 MCoE-proponent Recommended Personnel (P) Solutions: The R&S CBA FSA informs the development of the implementation plan for Cavalry Scout Leader and Soldier Competencies addressing core R&S knowledge, skills and attributes, ASI competencies and augmenting capabilities. The chart below summarizes current MCoE-proponent Personnel recommended solutions. Other solutions may be developed during related personnel development activities.

Personnel Recommended Solutions	Gaps Mitigated
P3 High: Continue review of TOEs to ensure RSLC/ARC/CLC ASI coded key leader positions (TRP CDR, 1SG, PL & PSG) are documented	108 - Reconnaissance and security expertise - H
P4 High: Continue to review Command Select Lists (CSL) criteria for R&S unit commands (OCCA Lead)	108 - Reconnaissance and security expertise - H
P5 High: Based on outcome of Cavalry Scout Leader & Soldier Competencies Working Group, develop additional ASIs / PDSIs related to identified ASI competencies, which may include Scout Sniper, EN Recon, OTH-BLOS Comms, Adv Med Treatment, Combat Tracking, R&S LL, & CATR	3 - Integrate UAS & Ground Sensors - H 12 - Ability to evaluate and classify routes - M 13 - Conduct simultaneous dismounted Recon/local security tasks - H 16 - ID enemy hidden w/i civilian population - M 25 - Provide organic indirect fires to all units over dispersed areas - H 38 - Ability to physically track enemy using signature & recent activity - H 51 - Rapidly construct and recover situational obstacles - M 54 - BLOS to over the horizon communications - H 108 - Reconnaissance and security expertise - H

4.1.6 MCoE-proponent Recommended Facilities (F) Solutions: none recommended.

4.1.7 MCoE-proponent Recommended Policy (Po) Solutions: The R&S CBA FSA recommends development and coordination with Human Resources Command (HRC) new / updated policies to support implementation and tracking of Cavalry Scout Leader and Soldier Competencies, which may include tracking and managing ASIs and R&S command selection criteria. This recommended solution is aligned with the Cavalry Squadron O&O Concept Organizing Principles to conduct reconnaissance and security missions consistent with the fundamentals of reconnaissance and security.

Policy Recommended Solutions	Gaps Mitigated
Po9 High: Based on outcome of Cavalry Scout Leader & Soldier Competencies Working Group, develop and coordinate with Human Resources Command (HRC) new / updated policies to support implementation and tracking of Cavalry Scout Leader & Soldier Competencies	108 - Reconnaissance and security expertise - H

5.1 – Ideas for Materiel Approach

The following charts summarize the MCoE-proponent Ideas for Materiel Approaches (IMA) high to moderate priority solutions recommended for implementation organized by “Big M” and “small m” domains. The charts provide a solution number for tracking (for example M1), RSA assessed priority (High or Moderate), short solution description, and the approved FNA capability gaps mitigated by the solution. Other CoE's high – moderate recommended materiel solution approaches, low priority solution approaches, and those determined to require Further Study or Defer until additional resources are available are outlined in Appendices D - F.

“Big M” materiel solutions relate to current materiel initiatives of existing science and technology, or research and development activities, and “small m” solutions affect basis of issue documents, or recommend modifications to existing systems.

5.1.1 MCoE-proponent Recommended “Big M” (M) Materiel Solutions: Using the Cavalry Squadron O&O as a focusing document, the R&S CBA FSA continues to inform or support MCoE CDID materiel development through reviews of current and planned SRD and MRD actions / initiatives to assist in ensuring sufficiency of CDID materiel requirements processes to support Cavalry / Scout required capabilities. The chart below summarizes current MCoE-proponent recommended “Big M” solutions.

Big M Recommended Solutions	Gaps Mitigated
M1 High: Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (MRD CDID Initiative)	1 - R&S in coordination w / Avn - H 3 - Integrate UAS & Ground Sensors - H 4 - All terrain vehicle capable of Avn transport (IBCT) - ExH 11 - Off-road and cross-country mobility - ExH 13 - Conduct simultaneous dismounted Recon/local security tasks - H 15 - ID enemy while moving mounted - H 33 - Ability to carry 6 Soldier scout sqd w/ 2 Soldier enabling cap (IBCT) - H 34 - Ability to remain undetected - H 36 - Ability to simultaneously employ vehicle mounted wpn sys and long range sight (SBCT & IBCT) - H
M6 High: Continue development and field Lethal Miniature Aerial Munitions System (LMAMS) to CAV Troops (SRD CDID Initiative)	3 - Integrate UAS & Ground Sensors - H 8 – Self-defense against enemy aircraft and unmanned aerial vehicles - ExH 25 - Provide organic indirect fires to all units over dispersed areas - H
M24 High: Continue development and field a Networked Expendable Sensor Technology (NEST) capability (SRD CDID Initiative)	3 - Integrate UAS & Ground Sensors - H 9 - Detect and ID airborne & ground contamination - ExH 13 - Conduct simultaneous dismounted Recon/local security tasks - H 16 - ID enemy hidden w/i civilian population - M 21 - SA while dismounted and away from their vehicle/platform - M 37 - Ability to ID concealed/covered enemy elements - M 38 - Ability to physically track enemy using signature & recent activity - H

Big M Recommended Solutions	Gaps Mitigated
M39 High Develop echelonment of Small Unmanned Aerial Systems (SUAS) from squad/platoon (Micro- & Soldier-borne) to squadron (Small UAS, Raven-like capability)	3 - Integrate UAS & Ground Sensors 37 - Ability to ID concealed/covered enemy elements 38 - Ability to physically track enemy using signature & recent activity
M52 High: Continue research and development of an elevated, integrated mounted sensor package with rapid deployability/recovery and use on the move capability (MRD & TCM-SBCT Initiative)	13 - Conduct simultaneous dismounted Recon/local security tasks - H 15 - ID enemy while moving mounted - H 37 - Ability to ID concealed/covered enemy elements - M 38 - Ability to physically track enemy using signature & recent activity - H
M57 High: Complete fielding of DVH (Double "V" Hull) Stryker (funding currently available for 4 of 9 SBCTs) (TCM-SBCT Lead)	112 - Capability to survive high threat blast warhead devices - H
M59 High: Continue research and development of a Re-configurable Integrated weapons Pedestal (RIWP) (TCM-IBCT Initiative)	111 - protection while manning vehicle-mounted crew-served weapons, or while operating heads-out-of-the-hatch - H
M63 High: Continue concept development with a goal of materiel development for man pack/mounted Ground Surveillance Radar (GSR) to scout platoons as part of an integrated sensor strategy (MRD & TCM-Recon Initiative)	13 – Conduct simultaneous dismounted Recon/local security tasks – H 37 – Ability to ID concealed/covered enemy elements – M 38 – Ability to physically track enemy using signature & recent activity – H
M64 High: Continue development & field a hand-held EOIR system for dismounted operations as part of an integrated sensor strategy (MRD Lead)	13 – Conduct simultaneous dismounted Recon/local security tasks – H 37 – Ability to ID concealed/covered enemy elements – M 38 – Ability to physically track enemy using signature & recent activity – H
M65 High: Continue concept development for networked lethality, such as a Squad Mission Equipment Transport (SMET) capability to remotely launch shoulder-fired weapon systems (SRD Initiative)	25 – Provide organic indirect fires to all units over dispersed areas – H
M56 Moderate: Continue research & development of more capable and advanced mortar systems to provide increased range, mobility, survivability, and lethality (SRD Initiative)	25 – Provide organic indirect fires to all units over dispersed areas – H
M66 Moderate: Develop ABCT Squadron FDU to place TACP (USAF HMMWV) in an armored, tracked vehicle, initially M113 transitioning to AMPV	6 – Plan, coordinate & execute JAAT – M

5.1.2 MCoE-proponent Recommended “small m” (M) Materiel Solutions: The R&S CBA FSA continues to inform requirements and implementation of survivability & lethality required capabilities enabling Scouts to conduct forceful reconnaissance, defeat enemy reconnaissance elements, and operate in close proximity to the enemy IAW the Cavalry Squadron O&O Concept. The chart below summarizes current MCoE-proponent “small m” recommended solutions.

Small m Recommended Solutions	Gaps Mitigated
m13 High: Continue development of an integrated weapons & optics capability providing a head-out-of-the-hatch option (TCM-IBCT & TCM-SBCT Initiatives)	20 – Provide internal direct fire overwatch (SBCT) – M 36 – Ability to simultaneously employ vehicle mounted wpn sys and long range sight (SBCT & IBCT) – H
m25 Moderate: Up-gun Stryker Reconnaissance Vehicles to 30mm cannon weapon system (TCM-SBCT Initiative)	20 – Provide internal direct fire overwatch (SBCT) – M
m44 Moderate: Continue development of Silent Watch capability of 6-12 hours for BFV & future scout vehicles during hours of darkness to reduce audible & thermal signatures during R&S ops (programmed Bradley ECP)	34 - Ability to remain undetected - H

6.1 – Solution Approach Prioritization – Recommended Solutions Analysis (RSA) Worksheet

The R&S CBA IPT- developed Recommended Solutions Analysis (RSA) worksheet, in the embedded file below, provides the list of INMA and IMA solution approaches, their initial prioritization based CoE and R&S CoP SME input based on criteria evaluation, and the weighted voting as described in section 3.1 Methodology and Analytical Approach.



RSA

Worksheet_2015-05

Following the last O-6 level staffing with the CoEs in May 2015, several MCoE-proponent solutions were revised, deleted or consolidated in conjunction with the now approved Cavalry Squadron O&O and the emerging Cavalry Scout Leader & Soldier Competencies (formerly Scout of the Future) Concept. This FSA also incorporates several new solutions based on senior maneuver leadership guidance, which include:

- T43 - Continue process of task analysis and task development, POI Reviews & Task Selection Boards, and identify resourcing requirements to train Cavalry Scout Leader & Soldier (formerly SotF) Competencies
- m47 - Support PM-TUAS efforts to upgrade SUAS controller TOGA (Tactical Open Government Architecture) to enable SUAS controller to see Shadow TUAS video, providing OSRVV-like feed

- M63 - Continue concept development with a goal of materiel development for man pack/mounted Ground Surveillance Radar (GSR) to scout platoons as part of an integrated sensor strategy (MRD & TCM-Recon Initiative)
- M64 - Continue development & field a hand-held EOIR system for dismounted operations as part of an integrated sensor strategy (MRD Lead)
- M65 - Continue concept development for networked lethality, such as a Squad Mission Equipment Transport (SMET) capability to remotely launch shoulder-fired weapon systems (SRD Initiative)
- P5 - Based on outcome of Cavalry Scout Leader & Soldier Competencies Working Group, develop additional ASIs / PDSIs related to identified ASI competencies, which may include Scout Sniper, EN Recon, OTH-BLOS Comms, Adv Med Treatment, Combat Tracking, R&S LL, & CATR
- Po9 - Based on outcome of Cavalry Scout Leader & Soldier Competencies Working Group, develop and coordinate with Human Resources Command (HRC) new / updated policies to support implementation and tracking of Cavalry Scout Leader & Soldier (formerly SotF) Competencies

7.1 – Conclusions and Recommendations

The R&S CBA IPT recommends the ARCIC leadership accept the following actions:

- 1) Approve the R&S CBA FSA as a synchronization tool for use within TRADOC for DOTMLPF development whose actions relate to R&S operations (scout squad to BCT cavalry squadron) or the support or sustainment to those formations
- 2) Determine an Initial Capabilities Document (ICD) for an R&S capability is not required at this time as a follow-on step to this FSA as materiel solution approaches are being developed by the Centers of Excellence (CoEs) through other requirements documents.
- 3) Determine a DOTMLPF Integrated Change Recommendation is not required as identified DOTMLPF solutions will be pursued through appropriate CoE lines of effort.

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Appendix A – References

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Appendix B – Acronyms

Acronym	Definition
A2NE	Army Aerial Network Extension
ACoE	Aviation Center of Excellence
ALC	Advanced Leader Course
ASI	Additional Skill Identifier
AtN	Attack the Network
BFV	Bradley Fighting Vehicle
BLOS	Beyond Line of Sight
BOIP	Basis of Issue Plan
CBA	Capabilities Based Assessment
CBRN	Chemical, Biological, Radiological & Nuclear
CCoE	Cyber Center of Excellence
CF	Conventional Force
COP	Common Operating Picture
COTS	Commercial Off-The Shelf
CP	Command Post
CPOF	Command Post of the Future
CTC	Combat Training Center
CTCP	Combat Trains Command Post
EA	Electronic Attack
ECP	Engineering Change Proposal
EMIB	Expeditionary Military Intelligence Brigade
ETAC	Enlisted Terminal Attack Controller
EW	Electronic Warfare
FAA	Functional Area Analysis
FCoE	Fires Center of Excellence
FET	Female Engagement Team
FIST	Fire Support Team
FNA	Functional Needs Analysis
FORSCOM	Forces Command
FSA	Functional Solutions Analysis
FSC	Forward Support Company
FVL	Future Vertical Lift
GOTS	Government Off-The Shelf
GPS	Global Positioning System
GSR	Ground Surveillance Radar
GVIS	Global Visual Information System
HUNINT	Human Intelligence
ICoE	Intelligence Center of Excellence
IED	Improvised Explosive Device
IO	Information Operations
IPT	Integrated Process Team
JAAT	Joint Air Attack Team
JFO	Joint Forward Observer
KM	Knowledge Management
LMAMS	Lethal Miniature Aerial Munition System
LNO	Liaison Officer
LRV	Light Reconnaissance Vehicle
MCCC	Maneuver Captains Career Course
MCoE	Maneuver Center of Excellence
MCCoE	Mission Command Center of Excellence

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Acronym	Definition
MCOTM	Mission Command on the Move
MI	Military Intelligence
MICO	Military Intelligence Company
MPCC	Maneuver Pre-Command Course
MSCoE	Maneuver Support Center of Excellence
MTOE	Modified Table of Equipment
NEST	Networked Expendable Sensor Technology
NGO	Non-Governmental Organization
NLOS	Non-Line of Sight
OB	Order of Battle
ODA	Other Defense Agency
OGA	Other Government Agency
OSRVT	One System Remote Video Terminal
OTH	Over The Horizon
PDSI	Project Development Skill Identifier
PFED	Pocket-sized Forward Entry Device
PME	Professional Military Education
PNT	Position, Navigation and Timing
POI	Program of Instruction
POR	Program of Record
ROM	Refuel on the Move
R&S	Reconnaissance and Security
SA	Situational Awareness
SCoE	Sustainment Center of Excellence
SFE	Space Force Enhancement
SLC	Senior Leader Course
SOCoE	Special Operations Center of Excellence
SOF	Special Operations Forces
SRW	Soldier Radio Waveform
S&T	Science and Technology
SUAS	Small Unmanned Aerial System
TACP	Tactical Air Control Party
TOE	Table of Equipment
TPE	Theater Provided Equipment
TSP	Training Support Package
TTP	Tactics, Techniques and Procedures
UAP	Unified Action Partner
UAS	Unmanned Aerial System
WfF	Warfighting Function
WMD	Weapons of Mass Destruction

Appendix C – R&S CBA IPT Members

The following table lists the R&S CBA IPT members.

IPT Member	Position/Office	Command/Organization
Mr. Donald Sando	Chair / Deputy to the Commanding General	Maneuver Center of Excellence (MCoE)
Mr. John Miller	Acting Dir, TCM-ABCT/Recon	MCoE
LTC Darrell O'Steen	Team Chief, TCM-Recon	MCoE
Mr. Peter Rose	Deputy TCM-Recon	MCoE
Mr. Andy Fowler	Senior Analyst/MCCoE LNO, TCM-Recon	MCoE
Mr. Dave Hinzman	Doctrine & Training Integrator, TCM-Recon	MCoE
Mr. Mike Dunn	Materiel & Organizational Integrator, TCM-Recon	MCoE
Mr. Wayne Cason	CATR SME/19D, TCM-Recon	MCoE
Dr. Jay Brimstin	Director, DOTD	MCoE
COL Marty Barr	Chief, Doctrine, DOTD	MCoE
MAJ Nathan Palisca	Chief, Doctrine, Cav Branch, DOTD	MCoE
Mr. Steve King	Doctrine, Cav Branch, DOTD	MCoE
SFC Kenneth Gowins	Doctrine, Cav Branch, DOTD	MCoE
Mr. Chris Jaques	Chief, Individual and Systems Training Division (ISTD) DOTD	MCoE
Mr. James Pinckney	Chief, Task Development Branch, ITSD, DOTD	MCoE
Mr. Starr Berenbroick	Training, DOTD	MCoE
Mr. Willie Cunningham	Training, DOTD	MCoE
Mr. George DeSario	Office of the Chief, Armor (OCA)	MCoE
SGM Michael Quiban	Office of the Chief, Armor (OCA)	MCoE
SFC David Neuzil	Office of the Chief, Armor (OCA)	MCoE
Mr. Gary Fox	Office of the Chief, Infantry (OCI)	MCoE
MAJ Francisco Lopez	U.S. Army Armor School (USAARMS)	MCoE
Dr. Robert Cameron	Armor Historian	MCoE
LTC James Hayes	316 th Cavalry Brigade	MCoE
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Appendix D – Other Centers of Excellence (CoEs) Recommended Solutions

This appendix provides the R&S CBA FSA high and moderate priority solutions recommended for implementation by TRADOC CoEs supporting or sustaining R&S operations. During the conduct of the R&S CBA, the CoE participants identified the following solutions appropriate for their DOTMLPF development. The recommended solutions are presented to assist with cross-COE DOTMLPF synchronization, and are based on the R&S CBA Functional Area Analysis (FAA) and Functional Needs Analysis (FNA). These recommendations are based on the last FSA O-6 staffing in May 2015 timeframe, and provide a starting point for continued coordination of ongoing and emerging efforts to support or sustain R&S operations.

D.1 Aviation Center of Excellence (ACoE) DOTMLPF+Po Initiatives:

Doctrine Recommended Solutions	Gaps Mitigated
D44 Moderate Continue development and publish TTP on Manned/Unmanned teaming between AH-64 & Shadow	109 - Aerial reconnaissance and security support
Training Recommended Solutions	Gaps Mitigated
T9 High Assess sufficiency of Home Station / CTC training to improve coordination in exchanges between Squadron, BCT BAE and aviation units, and recommend to CTC OPSGRPs & BCT Commanders adding more realistic training, scenarios and training objectives where applicable	1 - R&S in coordination w / Avn 2 - Coordinate / exchange info w/ Avn
"small m" Materiel Recommended Solutions	Gaps Mitigated
m47 High Support PM-TUAS efforts to upgrade SUAS controller TOGA (Tactical Open Government Architecture) to enable SUAS controller to see Shadow TUAS video, providing OSRVV-like feed	3 - Integrate UAS & Ground Sensors
m20 Moderate Continue development of and field a lighter OSRVV variant	3 - Integrate UAS & Ground Sensors
m39 Moderate Continue development of modifications to rotary-wing aircraft to enable AH-64 & Shadow teaming	109 - Aerial reconnaissance and security support
"Big M" Materiel Recommended Solutions	Gaps Mitigated
M2 High Continue development of Future Vertical Lift (FVL) next generation aircraft	4 - All terrain vehicle capable of Avn transport (IBCT) 65 - Coordinate, synch, configure, assemble & execute movement & distro of supplies including by aerial resupply 109 - Aerial reconnaissance and security support
M8 High Continue developments to employ Apache w/ Fire Control Radar (FCR) and Software Mod (prox fused) AGM-114L missile w/frag sleeve in C-UAS role	8 – Self-defense against enemy aircraft and unmanned aerial vehicles

ACoE DOTMLPF+Po Initiatives continued:

"Big M" Materiel Recommended Solutions	Gaps Mitigated
M3 Moderate As interim solutions to FVL, conduct upgrades of: o CH-47F to Block II o Apache & Blackhawk aircraft with Improved Turbine Engine Program (ITEP) o Chinook with Future Affordable Turbine Engine Program (FATE)	4 - All terrain vehicle capable of Avn transport (IBCT)
M7 Moderate Continue developments to employ Apache 30mm airburst round in C-UAS role	8 – Self-defense against enemy aircraft and unmanned aerial vehicles

D.2 Cyber Center of Excellence (CCoE) DOTMLPF+Po Initiatives:

Doctrine Recommended Solutions	Gaps Mitigated
D17 Moderate Develop TTPs for air-ground communications - aircraft talking to PLT LDR through SINCGARS; SRW to squad/section on the ground	2 - Coordinate / exchange info w/ Avn
D38 Moderate Continue integration of Electronic Warfare (EW) into appropriate Army Techniques Publications (ATP)	80 - Describe, plan, integrate, continuously assess and depict CEM activities
Organization Recommended Solutions	Gaps Mitigated
O28 High Review sufficiency of expertise in S6 section to install/operate/maintain specialized long range communications; pursue Cavalry Scout Leader Soldier Competencies including communications oriented ASI	54 - BLOS to over the horizon communications
O23 Moderate Review sufficiency of and consider increase BOIP for NLOS communications down to PLT level	54 - BLOS to over the horizon communications
Training Recommended Solutions	Gaps Mitigated
T40 High Formalize requirement for pre-deployment training on specialized long range communications non-MTOE equipment	54 - BLOS to over the horizon communications

CCoE DOTMLPF+Po Initiatives continued:

"small m" Materiel Recommended Solutions	Gaps Mitigated
m8 Moderate Explore COTS and GOTS communications solutions to link the Squadron CTCP located at the Squadron Combat Trains with the Main CP	82 - The CTCP lacks the ability to send and receive info using digital MC Systems if not co-located
m32 Moderate Continue development of Low Observable Communications Antenna Solutions	84 - Send and receive information that is not detectable on the electromagnetic spectrum
m43 Moderate Standardize AN/PSC-5 and follow-on BOIP for Scout PLs & PSGs, Troop CDR & XO/CP	54 - BLOS to over the horizon communications
m46 Moderate Continue procurement & fielding of HMS (Handheld Manpack Small Form Fit) Manpack	84 - Send and receive information that is not detectable on the electromagnetic spectrum
"Big M" Materiel Recommended Solutions	Gaps Mitigated
M38 High Continue development and testing of an Army Aerial Network Extension (A2NE) capability	2 - Coordinate / exchange info w/ Avn 54 - BLOS to over the horizon communications 66 - Sustainment assets lack sufficient mobility, survivability, connectivity, and sustainability 82 - The CTCP lacks the ability to send and receive info using digital MC Systems if not co-located
M41 Moderate Continue development of an Assured Position, Navigation & Timing (PNT) capability	87 - Identify friendly position navigation and timing (PNT) support requirements 88 - Ensuring friendly position, navigation and timing (PNT) support 89 - Identify and report when GPS receivers are degraded
M54 Moderate Continue development and field as Theater Provided Equipment (TPE) the Global Visual Information System (GVIS) to provide geospatial information directly from the satellite to the Warfighter on the ground	54 - BLOS to over the horizon communications

D.3 Fires Center of Excellence (FCoE) DOTMLPF+Po Initiatives:

Training Recommended Solutions	Gaps Mitigated
T2 High Develop training support packages for EW / Electronic Attack support coordination with Joint assets, and assess proficiency at CTCs	8 – Self-defense against enemy aircraft and unmanned aerial vehicles
T26 Moderate Assess the requirement for additional JFO training for FIST teams - for dispersed ops when TACP cannot see the target	6 - Plan, coordinate & execute JAAT
T27 Moderate Assess the requirement for ETAC training and certification for Army FIST personnel, for example the Joint Fire Control Course at Nellis AFB, available to Army personnel	6 - Plan, coordinate & execute JAAT
“Big M” Materiel Recommended Solutions	Gaps Mitigated
M10 High Continue development and field PFED (Pocket-sized Forward Entry Device) Inc 2 with MaFIA software - provides an interface for digital call-for-fire messages; provides small unit leader & FO ability to quickly generate CAT 1 precision coordinates for accurate, timely & predictable fires using organic effects; passes the air picture from the BCT ADAM / BAE cell down to subordinate elements in a networked environment	1 - R&S in coordination w / Avn 6 - Plan, coordinate & execute JAAT 8 – Self-defense against enemy aircraft and unmanned aerial vehicles 25 - Provide organic indirect fires to all units over dispersed areas
M9 Moderate Continue development of an Army ground-air Electronic Attack capability, such as High Energy Laser Mobile Demonstrator (HEL-MD)	8 – Self-defense against enemy aircraft and unmanned aerial vehicles
M15 Moderate Continue development & test Infrared Search & Track (IRST) for Counter UAS; provides ability to detect, track, and recognize small UAVs & dismounts via ground-based passive IRST surveillance incorporated in a mast or 360 LSA-DVE sensor system for vehicles	8 – Self-defense against enemy aircraft and unmanned aerial vehicles

D.4 Intelligence Center of Excellence (ICoE) DOTMLPF+Po Initiatives:

Doctrine Recommended Solutions	Gaps Mitigated
D8 High Develop TTP for maneuver units to employ task organized direct support MI elements from the BCT MICO and E-MIB	16 - ID enemy hidden w/i civilian population 52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning
D20 Moderate Develop library of country-like specific threat doctrine & tactics & equipment available to use in train-up for CTC	44 - Knowledge of threat doctrine, tactics and proficiency to analyze and fuse collected info 88 - Ensuring friendly position, navigation and timing (PNT) support
D33 Moderate Retain TTPs for employment of Female Engagement Teams (FETs)	17 - Capability to collect info on civilian population
Training Recommended Solutions	Gaps Mitigated
T14 Moderate Assess and update Battle Staff training courses and supporting simulations to improve the training of planning for, employment of and re-tasking of collection assets	39 - Coordinate, plan, execute, & resource info collections assets 43 - Capability to rapidly eval reporting and info collection activities
Training Recommended Solutions	Gaps Mitigated
T15 Moderate Assess and update training simulations that reinforce adaptive thinking while applying analysis against a hybrid threat variants - learning enemy OB & tactics	44 - Knowledge of threat doctrine, tactics and proficiency to analyze and fuse collected info
T29 Moderate Retain POIs and resource training for FETs, other cultural awareness training and Intel Foundry training programs	17 - Capability to collect info on civilian population
"Big M" Materiel Recommended Solutions	Gaps Mitigated
M42 Moderate Develop simulations to fully replicate MI asset employment (Shadow, Prophet, HUMINT, JSTARS) to facilitate planning & evaluating collection ops	39 - Coordinate, plan, execute, & resource info collections assets 43 - Capability to rapidly eval reporting and info collection activities
M43 Moderate Develop KM automated tool to segregate incoming reports based on key terms in PIR/IR	43 - Capability to rapidly eval reporting and info collection activities

D.5 Mission Command Center of Excellence (MCCoE) DOTMLPF+Po Initiatives:

Doctrine Recommended Solutions	Gaps Mitigated
D14 High Integrate KM into all doctrine through revision/changes to Doctrinal Publications	75 - Create, organize, apply, and transfer req. knowledge from and across all WfF to execute the opns process and exercise MC
D22 High Develop Information Operations (IO) TTP for Staff Planners and Integrate IO Doctrine into Training at All Levels	77 - Degraded Mission Command procedures 81 - Inform friendly foreign audiences & influence threat
D35 High Develop Unified Exploitation Doctrinal Publications (ATP 3-90.15 Site Exploitation)	16 - ID enemy hidden w/i civilian population
D5 Moderate Develop TTPs for integration of Unified Action Partners (UAPs) using LNOs, face to face meetings, cell phone communications, etc.	42 - MC systems interoperability with Unified Action Partners (UAP)
D15 Moderate Develop and publish a KM White Paper that Supports the Army Functional Concept for Mission Command	75 - Create, organize, apply, and transfer req. knowledge from and across all WfF to execute the opns process and exercise MC
D16 Moderate Include changes to doctrine discussing planning considerations & TTPs for establishing LNO teams	72 - Establish liaison with adjacent units, the higher headquarters, or Unified Action Partners during the conduct of decisive action
D21 Moderate Develop TTP publication on how to conduct non-digital MC (increase use of FM nets/FBCB2 messaging and verbal passing of information, RFIs and orders; distribute info on CDs/paper copies with couriers)	77 - Degraded Mission Command procedures
D23 Moderate Develop overarching and WfF-specific doctrine on operating in a denied or degraded network environment	77 - Degraded Mission Command procedures
D24 Moderate Develop TTPs for operating systems in a disconnected environment	77 - Degraded Mission Command procedures
D25 Moderate Develop TTPs for prioritizing / limiting digital traffic	77 - Degraded Mission Command procedures
D26 Moderate Modify concepts to include operations in a Space Force Enhancement (SFE) denied or degraded environment	77 - Degraded Mission Command procedures
D36 Moderate Develop Doctrinal Publications (ADRP) for MCOTM Process	68 - Mission Command while on the move
Organization Recommended Solutions	Gaps Mitigated
O15 Moderate Retain 09L (Interpreters) Program	17 - Capability to collect info on civilian population 78 - Conduct the Operations Process with Unified Action Partners

MCCoE DOTMLPF+Po Initiatives continued:

Training Recommended Solutions	Gaps Mitigated
T7 Moderate Develop procedures for Squadron-level use of TMC Client (CPOF) workstations at garrison / home-Station	76 - Lack interoperable MC systems to facilitate the dissemination of the COP and execution info
T16 Moderate Incorporate Information Operations (IO) into all Army CAPSTONE Training / Generating Force LD&E	81 - Inform friendly foreign audiences & influence threat
T17 Moderate Conduct a Knowledge Management Training and Leadership and Education Analysis	77 - Degraded Mission Command procedures
T18 Moderate Develop a Comprehensive KM Training Strategy	77 - Degraded Mission Command procedures
T19 Moderate Recommend incorporation or increased emphasis of Non-digital Mission Command Procedures in training products	68 - Mission Command while on the move 77 - Degraded Mission Command procedures
T20 Moderate Recommend training products place an increased emphasis on training system operators to operate MC systems in a disconnected environment at home station & CTCs	77 - Degraded Mission Command procedures
T22 Moderate Develop and administer the Tactical Inform and Influence Activities Course (TIIAC) to improve IO employment and assessment capability at Brigade, Battalion, Company	81 - Inform friendly foreign audiences & influence threat
T23 Moderate Develop and field the Inform and Influence Trainer	81 - Inform friendly foreign audiences & influence threat
T24 Moderate Recommend training products and leaders place an increased emphasis on training (at home station & CTCs) coordination tasks between the Squadron CP and the BCT ADAM/BAE to de-conflict airspace for Shadow	39 - Coordinate, plan, execute, & resource info collections assets

MCCoE DOTMLPF+Po Initiatives continued:

"small m" Materiel Recommended Solutions	Gaps Mitigated
m4 Moderate Develop, build and transition Tactical Army Cross Domain Information Sharing (TACDIS)	21 - SA while dismounted and away from their vehicle/platform 42 - MC systems interoperability with Unified Action Partners (UAP) 76 - Lack interoperable MC systems to facilitate the dissemination of the COP and execution info
m9 Moderate Continue development of QUick Evaluation of Emerging Standards and Technologies (QUEST) to develop networking software designed for military environments	68 - Mission Command while on the move 76 - Lack interoperable MC systems to facilitate the dissemination of the COP and execution info
m11 Moderate Institutionalize Asymmetric Threat & Tactical Analysis Casebook (ATTAC) Software	75 - Create, organize, apply, and transfer req. knowledge from and across all WfF to execute the opns process and exercise MC
m12 Moderate Develop Warfighter Integrated Navigation System (WINS)	21 - SA while dismounted and away from their vehicle/platform
m15 Moderate Continue development and field MFLTS (Machine Foreign Language Translation System) to Squadrons	78 - Conduct the Operations Process with Unified Action Partners 81 - Inform friendly foreign audiences & influence threat
m19 Moderate Recommend units maintain a supply of material (acetate, markers, map boards, etc.) for Non-Digital Mission Command Procedures	77 - Degraded Mission Command procedures
m26 Moderate Provide increased network capacity at Company Level	21 - SA while dismounted and away from their vehicle/platform 68 - Mission Command while on the move
m27 Moderate Develop Proactive Decision Services (PDS)	68 - Mission Command while on the move
m28 Moderate Develop Unmanned Systems C2 for Operations in Urban Terrain (USCOUT)	68 - Mission Command while on the move
m29 Moderate Develop Intelligent Soldier Power Management	21 - SA while dismounted and away from their vehicle/platform 68 - Mission Command while on the move
m30 Moderate Develop Squad Focused System of Sensors, Analytics, and Processing Tools to deliver intel based situational awareness to the tactical edge as part of the Actionable Intelligence Technology Enabled Capability Demonstration (TECD)	21 - SA while dismounted and away from their vehicle/platform

MCCoE DOTMLPF+Po Initiatives continued:

"small m" Materiel Recommended Solutions	Gaps Mitigated
m31 Moderate Develop DCGS-A Standard Cloud (DSC) Cloud Computing Platform designed and implemented to process large volumes of structured/unstructured Intelligence data	68 - Mission Command while on the move
m33 Moderate Develop, design and integrate a Multi Access Cellular Extension (MACE)	68 - Mission Command while on the move
m34 Moderate Mature, integrate and transition Future Advanced SATCOM Terminal (FAST)	68 - Mission Command while on the move
"Big M" Materiel Recommended Solutions	Gaps Mitigated
M32 High Continue development of Common Operational Environment (COE) for MC systems interoperability	21 - SA while dismounted and away from their vehicle/platform 42 - MC systems interoperability with Unified Action Partners (UAP) 75 - Create, organize, apply, and transfer req. knowledge from and across all WfF to execute the opns process and exercise MC 76 - Lack interoperable MC systems to facilitate the dissemination of the COP and execution info 95 - Exchange COP info at the scout sec/plt and SOF Team level 105 - Coordination between Tactical Calvary units and SOF ODAs
Leader Recommended Solutions	Gaps Mitigated
L7 Moderate Coordinate implementation of TMC Client and FBCB2 instruction across all COE's Captain's Career Course	77 - Degraded Mission Command procedures
L8 Moderate Assess and implement where required the incorporation Space Force Enhancement (SFE) denied / degraded environment into PME at all levels	77 - Degraded Mission Command procedures
L12 Moderate Assess, develop, modify and coordinate implementation of POIs that include training uninterrupted mission command tasks	68 - Mission Command while on the move
L17 Moderate Assess and implement where required the incorporation of Information Operations (IO) education into PME	81 - Inform foreign audiences & influence threat

MCCoE DOTMLPF+Po Initiatives continued:

Personnel Recommended Solutions	Gaps Mitigated
P2 High Develop KM ASI and assign ASI to select staff members at Squadron level	68 - Mission Command while on the move 75 - Create, organize, apply, and transfer req. knowledge from and across all WfF to execute the opns process and exercise MC 77 - Degraded Mission Command procedures
P1 Moderate Establish a KM Career Field for Officers, Enlisted Soldiers, and DA Civilians	68 - Mission Command while on the move 75 - Create, organize, apply, and transfer req. knowledge from and across all WfF to execute the opns process and exercise MC
Policy Recommended Solutions	Gaps Mitigated
Po3 Moderate Change policy to maintain national map production capabilities	77 - Degraded Mission Command procedures
Po4 Moderate Change policy to require training in Space Force Enhancement (SFE) denied/degraded conditions	77 - Degraded Mission Command procedures
Po6 Moderate Develop policy on operator responsibilities to install/operate/maintain Mission Command Automated Systems	68 - Mission Command while on the move
Po7 Moderate Recommend TRADOC designates a single integrating agency for the development of mission command systems. As individual proponents develop mission command systems the integrating agency ensures that the key performance parameters of mission command systems meet requirements to interoperate with Army internal mission command systems and UAP systems.	42 - MC systems interoperability with Unified Action Partners (UAP) 76 - Lack interoperable MC systems to facilitate the dissemination of the COP and execution info

D.6 Maneuver Support Center of Excellence (MSCoE) DOTMLPF+Po Initiatives:

Doctrine Recommended Solutions	Gaps Mitigated
D4 High Assess sufficiency of doctrinal pubs in terms of addressing CBRN risks/environment	9 - Detect and ID airborne & ground contamination 52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning
D6 High Develop TTP for reach-back to civilian WMD organizations & personnel for expertise	52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning 104 - Secure WMD sites w/o specialized equip to detect and limit CBRN hazards and tech from leaving the site area
D7 High Assess and update doctrinal pubs with examples of WMD/CBRN type facilities	52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning
D39 High Publish & distribute to maneuver leaders TTP on reach back capability to US Army Corps of Engineers for assistance on bridge classification	12 - Ability to evaluate and classify routes
D40 High Assess sufficiency of and develop as required TTP for the squadron to obtain expertise from BEB for engineer planning	51 - Rapidly construct and recover situational obstacles
D2 Moderate Develop TTP in support of R&S missions to employ TF ODIN-like imagery and automated change detection capabilities migrating to AEB	50 - Detect & ID hazards, such as mines and IEDs, from stand-off
D3 Moderate Develop TTP to disseminate and apply info from Site Exploitation (Unified Exploitation) to identify IED sites/production activities	50 - Detect & ID hazards, such as mines and IEDs, from stand-off
D48 Moderate Assess sufficiency of and develop as required TTP to task organize Cavalry Squadron with additional CBRN assets attached/OPCON to the BCT	104 - Secure WMD sites w/o specialized equip to detect and limit CBRN hazards and tech from leaving the site area
Training Recommended Solutions	Gaps Mitigated
T3 High Assess sufficiency of and develop as required training products with focus on training with CBRN assets at home station	9 - Detect and ID airborne & ground contamination 52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning
T4 High Assess sufficiency of CBRN familiarity training and scenarios in CTC rotations, and recommend to CTC OPSGRPs & BCT Commanders adding more realistic training, scenarios and training objectives where applicable	9 - Detect and ID airborne & ground contamination 52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning
T30 High Assess sufficiency of and develop TSPs to support Squadron and BEB Engineers cross-training on demolitions; BEB provide expertise to CAV Squadron to support training events	28 - Ability to plan & execute demolitions w/o engineer support

MSCoE DOTMLPF+Po Initiatives continued:

"Big M" Materiel Recommended Solutions	Gaps Mitigated
M51 High Continue with procurement process for SPYDER mine system	51 - Rapidly construct and recover situational obstacles
M11 Moderate Continue development and field Handheld Standoff IED Detection System (HSTIDS) as replacement to AN/PSS-14 PIP (Rev 6)	50 - Detect & ID hazards, such as mines and IEDs, from stand-off
M12 Moderate Continue development and field Explosive Hazard Reduction Team Kit (EHRT)	50 - Detect & ID hazards, such as mines and IEDs, from stand-off
M19 Moderate Continue development and field Advanced Ground Penetrating Radar (Husky Mounted Detection System – HMDS); adds non-metallic, low-metallic, and trigger mechanism detection as well as deep-buried metallic detection & marking capabilities to Husky's current metallic-only detection and marking capability; also provides semi-autonomous control of the Husky, enabling standoff detection and marking.	50 - Detect & ID hazards, such as mines and IEDs, from stand-off
M25 Moderate Field objective CBRN payloads for Shadow & Gray Eagle	9 - Detect and ID airborne & ground contamination
M27 Moderate Continue development and field Next Generation Chemical Detector (NGCD)	9 - Detect and ID airborne & ground contamination
M28 Moderate Continue development and field Tactical Biological Detector (TACBIO II)	9 - Detect and ID airborne & ground contamination
M47 Moderate Continue process to establish PSST (Aerostat with cameras) as a POR and TPE, basis of issue down to Co/Trp size CP as a protection WFF solution, not maneuver	16 - ID enemy hidden w/i civilian population
M49 Moderate Continue research and development of a software application for calculating measurements; accessing known engineer data on bridges	12 - Ability to evaluate and classify routes

MSCoE DOTMLPF+Po Initiatives continued:

Leader Recommended Solutions	Gaps Mitigated
L1 High Assess and promote as required increased leader participation in CBRN Warfighting Forum	9 - Detect and ID airborne & ground contamination 52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning
L2 Moderate Assess sufficiency of training opportunities for Squadron CBRN personnel to attend MSCoE specialized courses; identify other DOTMLPF solutions (ASIs, collective task reviews) that formalize training and expertise requirements	9 - Detect and ID airborne & ground contamination 52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning

D.7 Space & Missile Defense Command (SMDC) DOTMLPF+Po Initiatives:

Training Recommended Solutions	Gaps Mitigated
T12 High Assess sufficiency of Space & CEMA training at CoEs - part of approved Army Space Training Strategy and identify low cost methods of emphasis	80 - Describe, plan, integrate, continuously assess and depict CEM activities 87 - Identify friendly position navigation and timing (PNT) support requirements 88 - Ensuring friendly position, navigation and timing (PNT) support 89 - Identify and report when GPS receivers are degraded
T13 High Assess sufficiency of and develop as required space support at BCT and below training support packages	80 - Describe, plan, integrate, continuously assess and depict CEM activities 87 - Identify friendly position navigation and timing (PNT) support requirements 88 - Ensuring friendly position, navigation and timing (PNT) support 89 - Identify and report when GPS receivers are degraded

D.8 Special Operations Center of Excellence (SOCoE) DOTMLPF+Po Initiatives:

Doctrine Recommended Solutions	Gaps Mitigated
D27 High Assess and co-develop as required with MCoE TTPs to exchange information via automated or manual means to support the physical linkup between Conventional Forces & SOF units (Ranger Handbook provides a basis)	95 - Exchange COP info at the scout sec/plt and SOF Team level 105 - Coordination between Tactical Calvary units and SOF ODAs
D29 High Assess and co-develop as required with MCoE TTPs for mission/battle handover with SOF/OGA/NGO elements	93 - Supporting, facilitating or continuing operations initiated by SOF or OGA / NGO elements (or vice-versa) 94 - Supporting SOF rearward passage of lines

SOCoe DOTMLPF+Po Initiatives:

Doctrine Recommended Solutions	Gaps Mitigated
D41 High Assess and develop as required TTP which facilitate the transfer of lessons learned from regionally aligned SF Groups with conventional regionally aligned BDEs	55 - Standard procedures for operating with specialized organizations (SOF) 57 - Assess, identify and coordinate detailed infrastructure requirements
D42 Moderate Assess and develop as required TTP on standard procedures for operating with specialized organizations based on the JCET model (Joint Combined Exchange Training) under regional alignment	55 - Standard procedures for operating with specialized organizations (SOF)
Policy Recommended Solutions	Gaps Mitigated
Po10 High Assess and develop as required policy which facilitate the transfer of lessons learned from regionally aligned SF Groups with conventional regionally aligned BDEs	55 - Standard procedures for operating with specialized organizations (SOF) 57 - Assess, identify and coordinate detailed infrastructure requirements
Po11 High SOCoe in conjunction with FORSCOM assess and formalize as required relationships between regionally aligned conventional forces and SF Groups	55 - Standard procedures for operating with specialized organizations (SOF)
Po12 High SOCoe in conjunction with FORSCOM assess and establish policy to promote increased ARSOF forces (SF/CA/PSYOPS) participation in CTC rotations/Warfighter Exercises (MCTP); include events in the scenario to coordinate with conventional forces, provide intel and conduct linkups, etc.	93 - Supporting, facilitating or continuing operations initiated by SOF or OGA / NGO elements (or vice-versa) 94 - Supporting SOF rearward passage of lines

D.9 Sustainment Center of Excellence (SCoE) DOTMLPF+Po Initiatives:

Doctrine Recommended Solutions	Gaps Mitigated
D10 High Assess and co-develop with MCoE as required TTPs on locating CTCF	82 - The CTCF lacks the ability to send and receive info using digital MC Systems if not co-located
D9 Moderate Assess and co-develop with MCoE as required TTPs to echelon FSC Maintenance Support	64 - Establish maintenance in depth (ABCT & SBCT)
Organization Recommended Solutions	Gaps Mitigated
O6 Moderate Assess armor kits and communications resourcing for LOGPAC vehicles	66 - Sustainment assets lack sufficient mobility, survivability, connectivity, and sustainability
O10 Moderate Add HTARS Kit To Squadron FSC TOE	59 - Conduct refuel on the move

SCoE DOTMLPF+Po Initiatives continued:

Organization Recommended Solutions	Gaps Mitigated
O17 Moderate Develop ASI for aviation rearm & refuel certifications within FSC TOE	10 - Support Avn – rearm & refuel a/c with FSC fuelers
O22 Moderate Coordinate with MCoE TCM-Recon for the conduct of a Sustainment Rock Drill to evaluate Cavalry Squadron FSC mechanic support	64 - Establish maintenance in depth
Training Recommended Solutions	Gaps Mitigated
T10 Moderate Assess and co-develop with MCoE as necessary ROM TSPs for the Cavalry Squadron for use at HS/CTC	59 - Conduct refuel on the move
T28 Moderate Assess and co-develop with MCoE as necessary sling load / load configuration TSPs for Squadron FSC resupply ops	65 - Coordinate, synch, configure, assemble & execute movement & distro of supplies including by aerial resupply
T33 Moderate Assess and co-develop as required training/certifications for FSC personnel to refuel supporting rotary-wing aircraft	10 - Support Avn – refuel a/c with FSC fuelers
“small m” Materiel Recommended Solutions	Gaps Mitigated
m6 Moderate Assess and develop requirements for the Installation of CROWS on key LOGPAC vehicles	66 - Sustainment assets lack sufficient mobility, survivability, connectivity, and sustainability
m38 Moderate Field test/quality control kits to Squadron FSC to support the refueling of rotary-wing aircraft	10 - Support Avn – rearm & refuel a/c with FSC fuelers
“Big M” Materiel Recommended Solutions	Gaps Mitigated
M36 Moderate Pursue a program of record (POR) for the Stryker Recovery Vehicle	61 - Lack sufficient recovery and evacuation capacity (ABCT & SBCT)
Policy Recommended Solutions	Gaps Mitigated
Po2 Moderate Change policy to operationalize MARC to account for how Squadrons actually execute R&S operations and echelon sustainment capabilities; execute a ROCK Drill to determine required number of sustainment assets	64 - Establish maintenance in depth

Appendix E – Low Priority Solutions

This appendix provides a summary of the low priority solutions recommended for implementation based on the evaluation in the Recommended Solutions Analysis (RSA) worksheet. (Note: there are other low priority solutions, however, the R&S IPT recommended them as Further Study or Defer – see appendix below)

Solution ID	CoE Proponent	Solution Description	Gaps Mitigated
O31	MCoE	Ensure BOIPs for hand-held radios provide sufficient comms to support dismounted ops from Platoon to Squad/Team level without pulling vehicle radios to create manpack radios	85 - Simultaneously communicate to/from dismounted OP; local security; and dismounted patrol (Voice/Data)
m21	CCoE	Increase capability of Joint Battle Command - Platform (JBC-P) to include full motion video	3 - Integrate UAS & Ground Sensors
m37	MCCoE	Develop a Terrestrial Layer Network Capability	21 - SA while dismounted and away from their vehicle/platform
M29	MCoE	Develop a robotic IED defeat system such as the Dismounted Maneuver & Soldier Load, Squad Support Robot (advanced DSAT) - has an off-road unmanned CIED capability with Iron Scrape & APOBS Launching Device	50 - Detect & ID hazards, such as mines and IEDs, from stand-off
M45	MCCoE	Add Public Address (PA) to the Transportable Tactical Command Communications (T2C2)	81 - Inform foreign audiences & influence threat
M46	ACoE	Develop and field Cargo UAS (Unmanned Aerial System) such as the K-MAX Unmanned Multi-Mission Helicopter	65 - Coordinate, synch, configure, assemble & execute movement & distro of supplies including by aerial resupply
Po8	CCoE	Designate & resource select Expeditionary Signal BNs to install/operate/maintain or issue and support TPE-like long range comms to meet top-down driven or bottom-up requested ONS (example SOF 112th Sig BDE)	54 - BLOS to over the horizon communications

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Appendix F – Solutions Recommended as Further Study or Defer

F.1 Further Study

Based on the R&S IPT's "resource informed decision" recommendations, the table below provides a listing of solutions recommended as Further Study - continue to assess the potential solution development through concept studies, technological research, experimentation, etc.

Solution ID	CoE Proponent	Initial Priority	Solution Description	Potential Gaps Mitigated
O7	SCoE	Low	Consider creating general support maintenance companies with BFV/Abrams/Stryker Mechanics	64 - Establish maintenance in depth
O13	SOCoe	High	Consider creating SOF cells at CoEs to further interdependence - coordinate, synchronize & integrate DOTMLPF development	93 - Supporting, facilitating or continuing operations initiated by SOF or OGA / NGO elements (or vice-versa 94 - Supporting SOF rearward passage of lines
O14	SCoE	Mod	Consider adding Materiel Handling Equipment to the Squadron FSC to support rearming rotary wing aircraft - requires further coordination with ACoE & SCoE	10 - Support Avn – rearm & refuel a/c with FSC fuelers 65 - Coordinate, synch, configure, assemble & execute movement & distro of supplies including by aerial resupply
m16	CCoE	Mod	Research the ability to flip a switch to move from one wave form to another for both radio and a/c antenna; and remotely fill the a/c and switch from one wave form to another	2 - Coordinate / exchange info w/ Avn
m22	CCoE	High	Develop and field a replacement system for field phones & wire	84 - Send and receive information that is not detectable on the electromagnetic spectrum
m40	MCoE	Mod	Conduct research, design & testing on 60mm mortar system mounted on scout vehicle platforms	25 - Provide organic indirect fires to all units over dispersed areas
M14	MSCoE	Low	Develop new geospatial capabilities for prediction, detection and identification of hazards (IEDs, mines and other obstacles);part of "Layered Approach to Improved Situational Understanding"	50 - Detect & ID hazards, such as mines and IEDs, from stand-off

F.1 Further Study continued:

Solution ID	CoE Proponent	Initial Priority	Solution Description	Potential Gaps Mitigated
M16	MSCoE	Low	Continue research in a Cognitive Counter Improvised Explosive Device Signature System	50 - Detect & ID hazards, such as mines and IEDs, from stand-off
M22	MSCoE	Low	Continue development of Engineer Puma Reconnaissance Payload (EPRP) (formerly PUMA RASE) - improved camera for Puma which provides real time, high resolution imagery	50 - Detect & ID hazards, such as mines and IEDs, from stand-off
M23	MSCoE	Low	Continue research on Molecular Imprinted Polymers to detect IEDs	50 - Detect & ID hazards, such as mines and IEDs, from stand-off
M34	MSCoE	High	Conduct research on developing a digital tool to aid ground elements in identification of potential WMD sites/facilities	52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning
M40	CCoE	Mod	Evolve squadron and below network architecture to facilitate supporting to supported communications interoperability, voice and data, permitting enabling forces like Aviation to seamlessly enter/exit networks in the operational area.	2 - Coordinate / exchange info w/ Avn
M44	CCoE	Low	Conduct S&T research to develop a small device to emit directional beam, low energy signature for communications from the OP back to vehicle	84 - Send and receive information that is not detectable on the electromagnetic spectrum
M50	MSCoE	Mod	Continue research and development of a Remote & Standoff Assessment capability on infrastructure to support early entry ops	12 - Ability to evaluate and classify routes
M55	FCoE	Mod	Develop and field organic/unit level, vehicle-mounted radars capable of threat UAS detection	8 – Self-defense against enemy aircraft and unmanned aerial vehicles
M60	MCoE	Mod	Research and develop Mounted Platform Hostile Fire Location (HFL)	37 - Ability to ID concealed/covered enemy elements 111 - protection while manning vehicle-mounted crew-served weapons, or while operating heads-out-of-the-hatch

F.1 Further Study continued:

Solution ID	CoE Proponent	Initial Priority	Solution Description	Potential Gaps Mitigated
M61	MCoE	Mod	Research and develop Vehicle Pre-Shot Anti-Sensor	37 - Ability to ID concealed/covered enemy elements 111 - protection while manning vehicle-mounted crew-served weapons, or while operating heads-out-of-the-hatch
M62	MCoE	Mod	Research and develop Coded Spot Tracker (CST) Day/Night Pointer	37 - Ability to ID concealed/covered enemy elements
Po1	SOCoe	High	Support SOF-CF interdependence by providing conventional forces expertise to SOF funded missions; FORSOM participation in USSOCOM Ops Conference	93 - Supporting, facilitating or continuing operations initiated by SOF or OGA / NGO elements (or vice-versa 94 - Supporting SOF rearward passage of lines

F.2 Defer

Based on the R&S IPT's "resource informed decision" recommendations, the table below provides a listing of solutions recommended as Defer - delay consideration until resource/budget environment supports execution.

Solution ID	CoE Proponent	Initial Priority	Solution Description	Potential Gaps Mitigated
O1	FCoE	Mod	Consider additional SHORAD structure for the squadron: organic ADA Platoon (Avenger/IFPC)	8 – Self-defense against enemy aircraft and unmanned aerial vehicles
O3	MSCoE	Mod	Consider increasing CBRN recon assets within BCT & expertise on Squadron staff	9 - Detect and ID airborne & ground contamination 52 - Recognize, ID, characterize, and validate WMD or CBRN sites & activities w/o earlier warning
O4	SCoE	Low	Consider adding at least a fifth M88/crew for the ABCT CAV Squadron	61 - Lack sufficient recovery and evacuation capacity
O9	MCoE	Mod	Consider increasing Squadron TOE to include dedicated LNOs	72 - Establish liaison with adjacent units, the higher headquarters, or Unified Action Partners during the conduct of decisive action
O18	MCoE	High	Develop a proposal to establish R&S Cell in the BCT staff	108 - Reconnaissance and security expertise
O24	ACoE	Mod	Develop and coordinate proposal to add an Air CAV Troop to Squadrons	109 - Aerial reconnaissance and security support
O26	FCoE	Mod	Explore adding another firing battery to Fires BN to provide additional long range fires available to the Squadron	25 - Provide organic indirect fires to all units over dispersed areas
T35	MCoE	Mod	Resource & conduct pre-CTC home station collective training on R&S specific missions / events involving both Squadron & BCT staffs	108 - Reconnaissance and security expertise
M37	CCoE	Mod	Fund WIN-T INC 3 Comms Payload	2 - Coordinate / exchange info w/ Avn 54 - BLOS to over the horizon communications 66 - Sustainment assets lack sufficient mobility, survivability, connectivity, and sustainability

Appendix G – Prioritized Capability Gaps with Aligned Solution Approaches

This appendix lists the 66 ARCIC-approved capability gaps in priority order with their associated DOTMmLPF+Po solution approaches. (In the charts below, solution priorities are color-coded with their Solution ID – red is high, yellow is moderate, and green is low priority)

Extremely High Risk Gaps: loss of ability [for the assessed unit] to accomplish the mission ... (per TRADOC CBA Guide)

Gap: IBCT scout squads, sections, and platoons, and cavalry troops and squadrons lack adequate air mobility to enable transport by Army Aviation or transport and air drop by Joint aircraft with associated equipment (including vehicles), when conducting air assault and airborne operations. (Gap Ref #4) (Air-Ground operations, Tactical & Platform Mobility)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
M1	MCoE	Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (MRD CDID Initiative)	Implement
M2	ACoE	Continue development of Future Vertical Lift (FVL) next generation aircraft	Implement
M3	ACoE	As interim solutions to FVL, conduct upgrades of: <ul style="list-style-type: none"> o CH-47F to Block II o Apache & Blackhawk aircraft with Improved Turbine Engine Program (ITEP) o Chinook with Future Affordable Turbine Engine Program (FATE) 	Implement

Gap: Scout squads, sections, and platoons, and cavalry troops and squadrons lack the ability to provide self-defense against enemy manned and unmanned aircraft in all conditions during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #8) (Air-Ground Operations, Fires, Decentralized Combined Arms)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O1	FCoE	Consider additional SHORAD structure for the squadron: organic ADA Platoon (Avenger/IFPC)	Defer
O2	MCoE	Support standardization of squadron & scout platoon TOEs across BCTs at each echelon for communications, optics, weapons and other equipment (passive AD, camouflage)	Implement
T1	MCoE	During unit & CTC visits, collect data and lessons learned to determine sufficiency / proficiency which may include unit employment of small arms in self-defense against enemy a/c & UAS	Implement
T2	FCoE	Develop training support packages for EW / Electronic Attack support coordination with Joint assets, and assess proficiency at CTCs	Implement
M6	MCoE	Continue development and field Lethal Miniature Aerial Munitions System (LMAMS) to CAV Troops; provides secondary C-UAS capability (SRD CDID Initiative)	Implement
M7	ACoE	Continue developments to employ Apache 30mm airburst round in C-UAS role	Implement
M8	ACoE	Continue developments to employ Apache w/ Fire Control Radar (FCR) and Software Mod (prox fused) AGM-114L missile w/frag sleeve in C-UAS role	Implement
M9	FCoE	Continue development of an Army ground-air Electronic Attack capability, such as High Energy Laser Mobile Demonstrator (HEL-MD)	Implement
M10	FCoE	Continue development and field PFED (Pocket-sized Forward Entry Device) Inc 2 with MaFIA software - passes the air picture from the BCT ADAM / BAE cell down to subordinate elements in a networked environment	Implement
M15	FCoE	Continue development & test Infrared Search & Track (IRST) for Counter UAS; provides ability to detect, track, and recognize small UAVs & dismounts via ground-based passive IRST surveillance incorporated in a mast or 360 LSA-DVE sensor system for vehicles	Implement
M55	FCoE	Develop and field organic/unit level, vehicle-mounted radars capable of threat UAS detection	Further Study

Gap: IBCT scout sections and platoons and cavalry troops lack sufficient off-road and cross-country mobility for all primary reconnaissance vehicles to execute the range of reconnaissance and security tasks in all types of terrain. (Gap Ref #11)
(Reconnaissance, Security, Tactical & Platform Mobility, Survivability)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
M1	MCoE	Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (MRD CDID Initiative)	Implement

Gap: Scout squads, sections, and platoons, and cavalry troops and squadrons lack the ability to detect and identify hazards, such as mines and IEDs, from stand-off distances, to reduce Soldier and vehicle losses during all operations. (Gap Ref #50) (Engineer)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D2	MSCoE	Develop TTP in support of R&S missions to employ TF ODIN-like imagery and automated change detection capabilities migrating to AEB	Implement
D3	MSCoE	Develop TTP to disseminate and apply info from Site Exploitation (Unified Exploitation) to identify IED sites/production activities	Implement
M11	MSCoE	Continue development and field Handheld Standoff IED Detection System (HSTIDS) as replacement to AN/PSS-14 PIP (Rev 6)	Implement
M12	MSCoE	Continue development and field Explosive Hazard Reduction Team Kit (EHRT)	Implement
M14	MSCoE	Develop new geospatial capabilities for prediction, detection and identification of hazards (IEDs, mines and other obstacles);part of "Layered Approach to Improved Situational Understanding"	Further Study
M16	MSCoE	Continue research in a Cognitive Counter Improvised Explosive Device Signature System	Further Study
M19	MSCoE	Continue development and field Advanced Ground Penetrating Radar (Husky Mounted Detection System – HMDS)	Implement
M22	MSCoE	Continue development of Engineer Puma Reconnaissance Payload (EPRP) (formerly PUMA RASE)	Further Study
M23	MSCoE	Continue research on Molecular Imprinted Polymers to detect IEDs	Further Study
M29	MCoE	Develop a robotic IED defeat system such as the Dismounted Maneuver & Soldier Load, Squad Support Robot (advanced DSAT) - has an off-road unmanned CIED capability with Iron Scrape & APOBS Launching Device	Implement

Gap: Scout squads, sections, and platoons, and cavalry troops and squadrons lack ability to identify and secure WMD sites without specialized equipment to detect CBRN hazards. Scout squads, sections, and platoons, and Cavalry troops and squadrons lack the ability to secure WMD sites and identify materials to prevent technology from leaving the site area. (Gap Ref #104) (CBRN & WMD)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D6	MSCoE	Develop TTP for reach-back to civilian WMD organizations & personnel for expertise	Implement
D48	MSCoE	Assess sufficiency of and develop as required TTP to task organize Cavalry Squadron with additional CBRN assets attached/OPCON to the BCT	Implement

Gap: Scout squads, sections, and platoons, and cavalry troops and squadrons lack the ability to detect and identify chemical (to include toxic industrial chemicals and toxic industrial materials), biological, radiological, and nuclear hazards remotely or at standoff distances increasing the risk of exposure to unwarned and unprotected forces and slowing the tempo of operations. (Gap Ref #9) (Air-Ground Operations, Decentralized Combined Arms, CBRN & WMD)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D4	MSCoE	Assess sufficiency of doctrinal pubs in terms of addressing CBRN risks/environment	Implement
O3	MSCoE	Consider increasing CBRN recon assets within BCT & expertise on Squadron staff	Defer
T3	MSCoE	Assess sufficiency of and develop as required training products with focus on training with CBRN assets at home station	Implement
T4	MSCoE	Assess sufficiency of CBRN familiarity training and scenarios in CTC rotations, and recommend to CTC OPSGRPs & BCT Commanders adding more realistic training, scenarios and training objectives where applicable	Implement
L1	MSCoE	Assess and promote as required increased leader participation in CBRN Warfighting Forum	Implement
L2	MSCoE	Assess sufficiency of training opportunities for Squadron CBRN personnel to attend MSCoE specialized courses; identify other DOTMLPF solutions (ASIs, collective task reviews) that formalize training and expertise requirements	Implement

Gap #9 continued:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include planning for CBRN operations	Implement
M24	MCoE	Continue development and field a Networked Expendable Sensor Technology (NEST) capability (includes CBRN hazard detection) (SRD CDID Initiative)	Implement
M25	MSCoE	Field objective CBRN payloads for Shadow & Gray Eagle	Implement
M27	MSCoE	Continue development and field Next Generation Chemical Detector (NGCD)	Implement
M28	MSCoE	Continue development and field Tactical Biological Detector (TACBIO II)	Implement

High Risk Gaps: significant degradation of mission [for the assessed unit] capabilities in terms of the required mission standard, inability to accomplish all parts of the mission or inability to complete the mission to standard... (per TRADOC CBA Guide)

Gap: ABCT and SBCT cavalry troops and squadrons lack sufficient recovery and evacuation capacity (ABCT) / capability (SBCT) to maintain high tempo operations; this adversely impacts platoon and troop reconnaissance and security missions. (Gap Ref #61) (Sustainment)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O4	SCoE	Consider adding at least a fifth M88/crew for the ABCT CAV Squadron	Defer
M36	SCoE	Pursue a program of record (POR) for the Stryker Recovery Vehicle	Implement

Gap: ABCT CAB scout sections (Up armored HMMWV and BFV) lack the ability to conduct all movement techniques, especially both successive and alternate bounding, and provide effective direct fire overwatch against heavy and medium armored enemy forces. (Gap Ref #90) (Reconnaissance, Tactical & Platform Mobility)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O30	MCoE	Support on-going efforts to identify and redistribute BFVs necessary to implement the ABCT CAB Standard Scout Platoon	Implement

Gap: Scout squads, sections, and platoons, and cavalry troops and squadrons lack the ability to recognize, identify, characterize, and validate the range of WMD or CBRN sites and activities that it may encounter without earlier warning creating the risk of not reporting, securing and bypassing critical enemy capabilities. (Gap Ref #52) (CBRN & WMD)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D4	MSCoE	Assess sufficiency of doctrinal pubs in terms of addressing CBRN risks/environment	Implement
D6	MSCoE	Develop TTP for reach-back to civilian WMD organizations & personnel for expertise	Implement
D7	MSCoE	Assess and update doctrinal pubs with examples of WMD/CBRN type facilities	Implement
D8	ICoE	Develop TTP for maneuver units to employ task organized direct support MI elements from the BCT MICO and E-MIB	Implement
O3	MSCoE	Consider increasing CBRN recon assets within BCT & expertise on Squadron staff	Defer
T3	MSCoE	Assess sufficiency of and develop as required training products with focus on training with CBRN assets at home station	Implement
T4	MSCoE	Assess sufficiency of CBRN familiarity training and scenarios in CTC rotations, and recommend to CTC OPSGRPs & BCT Commanders adding more realistic training, scenarios and training objectives where applicable	Implement
L1	MSCoE	Assess and promote as required increased leader participation in CBRN Warfighting Forum	Implement
L2	MSCoE	Assess sufficiency of training opportunities for Squadron CBRN personnel to attend MSCoE specialized courses; identify other DOTMLPF solutions (ASIs, collective task reviews) that formalize training and expertise requirements	Implement

Gap #52 continued:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include planning for CBRN operations	Implement
M34	MSCoE	Conduct research on developing a digital tool to aid ground elements in identification of potential WMD sites/facilities	Further Study

Gap: Cavalry squadrons lack integrated and interoperable Network Management capabilities and schema to manage, monitor, control, and balance network demands, potentially disrupting critical data and voice communications needed to conduct full spectrum operations. (Gap Ref #83) (Communications)

Draft Solutions:

During the conduct of the FSA, the R&S CBA IPT discovered WIN-T Increment 2 provides a management tool – a current planned & programmed capability which closes this gap.

Gap: SBCT and IBCT Scout sections and platoons lack the ability to identify enemy forces while moving cross-country during the conduct of mounted reconnaissance. (Gap Ref #15) (Reconnaissance, Tactical & Platform Mobility)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O2	MCoE	Support standardization of squadron & scout platoon TOEs across BCTs at each echelon for communications, optics, weapons and other equipment (passive AD, camouflage)	Implement
M1	MCoE	Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (req for stabilized sensor suite) (MRD CDID Initiative)	Implement
M52	MCoE	Continue research and development of an elevated, integrated mounted sensor package with rapid deployability/recovery and use on the move capability (MRD & TCM-SBCT Initiative)	Implement

Gap: IBCT wheeled scout vehicles lack the ability to carry a six-Soldier scout squad and a one-Soldier enabling capability per vehicle. (Gap Ref #33) (Tactical & Platform Mobility)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
M1	MCoE	Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (req for six personnel) (MRD CDID Initiative)	Implement

Gap: The Cavalry Squadron CTCP lacks the ability to send and receive information using digital Mission Command Systems when not co-located with the Squadron Main CP or the FSC CP. (Gap Ref #82) (Sustainment, Communications) **High Risk**

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D10	SCoE	Assess and co-develop with MCoE as required TTPs on locating CTCP	Implement
m8	CCoE	Explore COTS and GOTS communications solutions to link the Squadron CTCP located at the Squadron Combat Trains with the Main CP	Implement
M38	CCoE	Continue development and testing of an Army Aerial Network Extension (A2NE) capability	Implement

Gap: Scout squads, sections and platoons lack the ability to physically track enemy elements by identifying signatures and evidence of recent activity. (Gap Ref #38) (Reconnaissance)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
T43	MCoE	Continue process of task analysis and task development, POI Reviews & Task Selection Boards, and identify resourcing requirements to train Cavalry Scout Leader & Soldier (formerly SotF) Competencies	Implement
M24	MCoE	Continue development and field a Networked Expendable Sensor Technology (NEST) capability (SRD CDID Initiative)	Implement

Gap #38 continued:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
M39	MCoE	Develop echelonment of Small Unmanned Aerial Systems (SUAS) from squad/platoon (Micro- & Soldier-borne) to squadron (Small UAS, Raven-like capability)	Implement
M52	MCoE	Continue research and development of an elevated, integrated mounted sensor package with rapid deployability/recovery and use on the move capability (MRD & TCM-SBCT Initiative)	Implement
M63	MCoE	Continue concept development with a goal of materiel development for man pack/mounted Ground Surveillance Radar (GSR) to scout platoons as part of an integrated sensor strategy (MRD & TCM-Recon Initiative)	Implement
M64	MCoE	Continue development & field a hand-held EOIR system for dismounted operations as part of an integrated sensor strategy (MRD Lead)	Implement

Gap: Scout platoons, cavalry troops and squadrons lack interoperable Mission Command systems to facilitate the dissemination of the COP and execution information, impacting platoon and troop reconnaissance and security operations. (Gap Ref #76) (Mission Command)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
T7	MCCoE	Develop procedures for Squadron-level use of TMC Client (CPOF) workstations at garrison / home-Station	Implement
m4	MCCoE	Develop, build and transition Tactical Army Cross Domain Information Sharing (TACDIS)	Implement
m9	MCCoE	Continue development of QUick Evaluation of Emerging Standards and Technologies (QUEST) to develop networking software designed for military environments	Implement
M32	MCCoE	Continue development of Common Operational Environment (COE) for MC systems interoperability	Implement
Po7	MCCoE	Recommend TRADOC designates a single integrating agency for the development of mission command systems. As individual proponents develop mission command systems the integrating agency ensures that the key performance parameters of mission command systems meet requirements to interoperate with Army internal mission command systems and UAP systems.	Implement

Gap: Cavalry troops and squadrons lack the proficiency to effectively create, organize, apply, and transfer required knowledge, from and across all WfF to execute the operations process (plan, prepare, execute, and assess) and exercise mission command, during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #75) (Mission Command)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D14	MCCoE	Integrate KM into all doctrine through revision/changes to Doctrinal Publications	Implement
D15	MCCoE	Develop and publish a KM White Paper that Supports the Army Functional Concept for Mission Command	Implement
m11	MCCoE	Institutionalize Asymmetric Threat & Tactical Analysis Casebook (ATTAC) Software	Implement
M32	MCCoE	Continue development of Common Operational Environment (COE) for MC systems interoperability	Implement
P1	MCCoE	Establish a KM Career Field for Officers, Enlisted Soldiers, and DA Civilians	Implement
P2	MCCoE	Develop KM ASI and assign ASI to select staff members at Squadron level	Implement

Gap: IBCT and SBCT wheeled vehicle mounted scouts lack the ability to simultaneously employ their vehicle mounted weapon system and their primary long range acquisition sight to identify and engage targets. (Gap Ref #36) (Survivability)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O2	MCoE	Support standardization of squadron & scout platoon TOEs across BCTs at each echelon for communications, optics, weapons and other equipment (passive AD, camouflage)	Implement
m13	MCoE	Continue development of an integrated weapons & optics capability providing a head-out-of-the-hatch option (TCM-IBCT & TCM-SBCT Initiatives)	Implement
M1	MCoE	Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (req to integrate sensor suite & fire control system)(MRD CDID Initiative)	Implement

Gap: Cavalry squadrons lack the ability to establish liaison with adjacent units, the higher headquarters, or Unified Action Partners during the conduct of decisive action. (Gap Ref #72) (Engagement, Mission Command)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D16	MCCoE	Include changes to doctrine discussing planning considerations & TTPs for establishing LNO teams	Implement
O9	MCoE	Consider increasing Squadron TOE to include dedicated LNOs	Defer

Gap: Scout platoons and cavalry troops and squadrons lack adequate capability to conduct reconnaissance and security operations in coordination with aviation (manned / unmanned) elements in Unified Land Operations. (Gap Ref #1) (Air Ground Operations)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
O11	MCoE	Standardize Raven BOI across formations (Trp/Plt)	Implement
T9	ACoE	Assess sufficiency of Home Station / CTC training to improve coordination in exchanges between Squadron, BCT BAE and aviation units, and recommend to CTC OPSGRPs & BCT Commanders adding more realistic training, scenarios and training objectives where applicable	Implement
T11	MCoE	Review sufficiency of air-ground ops integration in virtual/constructive training simulators/simulations	Implement
M1	MCoE	Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (req to pull feeds from manned/unmanned aircraft) (MRD CDID Initiative)	Implement
M10	FCoE	Continue development and field PFED (Pocket-sized Forward Entry Device) Inc 2 with MaFIA software - Small UAS command/control, recon & aerial image intel; receive & visualize alerts from automated ground or aerial sensors; SUAS video over DDL	Implement

Gap: Cavalry squadrons lack proficiency in assessing enemy capabilities and planning and executing countermeasures to ensure friendly position, navigation and timing support. (Gap Ref #88) (Communications)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D20	ICoE	Develop library of country-like specific threat doctrine & tactics & equipment available to use in train-up for CTC	Implement
T12	SMDC	Assess sufficiency of Space & CEMA training at CoEs - part of approved Army Space Training Strategy and identify low cost methods of emphasis	Implement
T13	SMDC	Assess sufficiency of and develop as required space support at BCT and below training support packages	Implement
m18	ICoE	Develop tool to create assessment of previously unknown enemy, build database and share with others	Further Study
M41	CCoE	Continue development of an Assured Position, Navigation & Timing (PNT) capability	Implement

Gap: Cavalry troops and squadrons, in a dispersed environment, lack the capability to rapidly evaluate reporting and information collection activities in order to determine with a high degree of accuracy enemy activity and adjust the collection plan as necessary, during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #43) (Intelligence)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
T14	ICoE	Assess and update Battle Staff training courses and supporting simulations to improve the training of planning for, employment of and re-tasking of collection assets	Implement
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include the Cdr's role in determining PIR & S3's role in planning collection ops ICW the S2, and understanding Collection assets capabilities	Implement
M42	ICoE	Develop simulations to fully replicate MI asset employment (Shadow, Prophet, HUMINT, JSTARS) to facilitate planning & evaluating collection ops	Implement
M43	ICoE	Develop KM automated tool to segregate incoming reports based on key terms in PIR/IR	Implement

Gap: Cavalry troops and squadrons, in a dispersed environment, lack sufficient knowledge of threat doctrine, tactics and capabilities and proficiency to analyze and fuse collected information to support the commander's decision making process, during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #44) (Intelligence)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D20	ICoE	Develop library of country-like specific threat doctrine & tactics & equipment available to use in train-up for CTC	Implement
T15	ICoE	Assess and update training simulations that reinforce adaptive thinking while applying analysis against a hybrid threat variants - learning enemy OB & tactics	Implement
L6	MCoE	Continue to assess sufficiency of current training to reinforce adaptive / critical thinking processes in leadership and operations and troop leading process instruction (DOTD Initiative)	Implement

Gap: Scout platoons and cavalry troops and squadrons are limited, as are all maneuver units, in their ability to plan, prepare, execute and assess operations using non-digital Mission Command procedures when the digital Mission Command System is degraded or unavailable. (Gap Ref #77) (Mission Command)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D21	MCCoE	Develop TTP publication on how to conduct non-digital MC (increase use of FM nets/FBCB2 messaging and verbal passing of information, RFIs and orders; distribute info on CDs/paper copies with couriers)	Implement
D22	MCCoE	Develop Information Operations (IO) TTP for Staff Planners and Integrate IO Doctrine into Training at All Levels	Implement
D23	MCCoE	Develop overarching and WfF-specific doctrine on operating in a denied or degraded network environment	Implement
D24	MCCoE	Develop TTPs for operating systems in a disconnected environment	Implement
D25	MCCoE	Develop TTPs for prioritizing / limiting digital traffic	Implement
D26	MCCoE	Modify concepts to include operations in a Space Force Enhancement (SFE) denied or degraded environment	Implement

Gap #77 continued:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
T17	MCCoE	Conduct a Knowledge Management Training and Leadership and Education Analysis	Implement
T18	MCCoE	Develop a Comprehensive KM Training Strategy	Implement
T19	MCCoE	Recommend incorporation or increased emphasis of Non-digital Mission Command Procedures in training products	Implement
T20	MCCoE	Recommend training products place an increased emphasis on training system operators to operate MC systems in a disconnected environment at home station & CTCs	Implement
m19	MCCoE	Recommend units maintain a supply of material (acetate, markers, map boards, etc.) for Non-Digital Mission Command Procedures	Implement
L7	MCCoE	Coordinate implementation of TMC Client and FBCB2 instruction across all COE's Captain's Career Course	Implement
L8	MCCoE	Assess and implement where required the incorporation Space Force Enhancement (SFE) denied / degraded environment into PME at all levels	Implement
P2	MCCoE	Develop KM ASI and assign ASI to select staff members at Squadron level	Implement
Po3	MCCoE	Change policy to maintain national map production capabilities	Implement
Po4	MCCoE	Change policy to require training in Space Force Enhancement (SFE) denied/degraded conditions	Implement

Gap: Scout squads, sections and platoons lack the ability to remain undetected from enemy reconnaissance forces due to platform signatures while conducting mounted stationary operations and/or mounted tactical movement. (Gap Ref #34) (Survivability)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O2	MCoE	Support standardization of squadron & scout platoon TOEs across BCTs at each echelon for communications, optics, weapons and other equipment (passive AD, camouflage)	Implement
m44	MCoE	Continue development of Silent Watch capability of 6-12 hours for BFV & future scout vehicles during hours of darkness to reduce audible & thermal signatures during R&S ops (programmed Bradley ECP)	Implement
M1	MCoE	Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (low profile due to req for internal CH-47 transport) (MRD CDID Initiative)	Implement

Gap: Scout squads, sections and platoons, and Cavalry troops and squadrons lack the proficiency to identify and report when GPS receivers are being jammed, experiencing interference, or operating degraded. (Gap Ref #89) (Communications)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
T12	SMDC	Assess sufficiency of Space & CEMA training at CoEs - part of approved Army Space Training Strategy and identify low cost methods of emphasis	Implement
T13	SMDC	Assess sufficiency of and develop as required space support at BCT and below training support packages	Implement
M41	CCoE	Continue development of an Assured Position, Navigation & Timing (PNT) capability	Implement

Operationally Assessed High Priority Gaps: After risk assessment completed, staffing process resulted in raising or lowering gap priorities

Gap: IBCT Infantry Battalion scout sections and platoons lack the ability to conduct simultaneous dismounted reconnaissance and/or local security tasks. (Gap Ref #13) (Reconnaissance, Security, Tactical & Platform Mobility, Survivability)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
O2	MCoE	Support standardization of squadron & scout platoon TOEs across BCTs at each echelon for communications, optics, weapons and other equipment (passive AD, camouflage)	Implement
T13	MCoE	Continue process of task analysis and task development, POI Reviews & Task Selection Boards, and identify resourcing requirements to train Cavalry Scout Leader & Soldier (formerly SotF) Competencies	Implement
M1	MCoE	Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (req for 360 local SA) (MRD CDID Initiative)	Implement
M24	MCoE	Continue development and field a Networked Expendable Sensor Technology (NEST) capability (mitigate dead space coverage for local security) (SRD CDID Initiative)	Implement

Gap #13 continued:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
M52	MCoE	Continue research and development of an elevated, integrated mounted sensor package with rapid deployability/recovery and use on the move capability (MRD & TCM-SBCT Initiative)	Implement
M63	MCoE	Continue concept development with a goal of materiel development for man pack/mounted Ground Surveillance Radar (GSR) to scout platoons as part of an integrated sensor strategy (MRD & TCM-Recon Initiative)	Implement
M64	MCoE	Continue development & field a hand-held EOIR system for dismounted operations as part of an integrated sensor strategy (MRD Lead)	Implement

Gap: Scout squads, sections and platoons and cavalry troops and squadrons lack the ability to integrate UAS and ground sensors and feeds in support of reconnaissance and security operations during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #3)
(Air Ground Operations, Reconnaissance, Security)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
O12	MCoE	Consider increasing Raven OSRVT BOIP to field to Cav Troop Scout Platoons to view Troop Raven video feeds (initial BOIP limited to Troops by available funding)	Implement
T1	MCoE	During unit & CTC visits, collect data and lessons learned to determine sufficiency / proficiency which may include home station training on unmanned sensors systems/equipment for operators and development of unit SOPs	Implement
m20	ACoE	Continue development of and field a lighter OSRVT variant	Implement
m21	CCoE	Increase capability of Joint Battle Command - Platform (JBC-P) to include full motion video	Implement
M1	MCoE	Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (req to pull feeds from manned/unmanned aircraft) (MRD CDID Initiative)	Implement
M6	MCoE	Continue development and field Lethal Miniature Aerial Munitions System (LMAMS) to CAV Troops (not designed for ISR but can provide SA on way to target) (SRD CDID Initiative)	Implement

Gap #3 continued:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
M24	MCoE	Continue development and field a Networked Expendable Sensor Technology (NEST) capability (uses Nett Warrior, CPOF, BFT/FBCB2; PLT LDR has hand-held device to receive feeds from sensor; use UAS to relay feeds as backup to the network) (SRD CDID Initiative)	Implement
M39	MCoE	Develop echelonment of Small Unmanned Aerial Systems (SUAS) from squad/platoon (Micro- & Soldier-borne) to squadron (Small UAS, Raven-like capability)	Implement
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include unmanned sensors employment for R&S ops	Implement

Gap: Cavalry squadrons lack automated mission command systems interoperability to meet operational requirements with Unified Action Partners. (Gap Ref #42)
(Engagement, Mission Command)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D5	MCCoE	Develop TTPs for integration of Unified Action Partners (UAPs) using LNOs, face to face meetings, cell phone communications, etc.	Implement
m4	MCCoE	Develop, build and transition Tactical Army Cross Domain Information Sharing (TACDIS)	Implement
M32	MCCoE	Continue development of Common Operational Environment (COE) for MC systems interoperability	Implement
Po7	MCCoE	Recommend TRADOC designate a single integrating agency for the development of mission command systems. As individual proponents develop mission command systems the integrating agency ensures that the key performance parameters of mission command systems meet requirements to interoperate with Army internal mission command systems and UAP systems.	Implement

Gap: Cavalry / scout leaders and / or staffs (scout squads, sections, and platoons, and cavalry troops and squadrons) lack sufficient expertise to plan for and employ reconnaissance and security capabilities and enablers during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #108) (Reconnaissance, Security)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
O18	MCoE	Develop a proposal to establish R&S Cell in the BCT staff	Defer
O19	MCoE	Develop proposal and coordinate with other CoEs to consolidate collection assets within Squadrons (MICO, CBRN Recce) reflected in Cavalry Squadron O&O Concept	Implement
T35	MCoE	Resource & conduct pre-CTC home station collective training on R&S specific missions / events involving both Squadron & BCT staffs	Defer
T36	MCoE	Review CATS to ensure versatility & maintain proficiency in key maneuver & gunnery events	Implement
T43	MCoE	Continue process of task analysis and task development, POI Reviews & Task Selection Boards, and identify resourcing requirements to train Cavalry Scout Leader & Soldier (formerly SotF) Competencies	Implement
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include R&S doctrine	Implement
L13	MCoE	Based on O&O Concepts and Cavalry Scout Leader & Soldier Competencies, review sufficiency of coverage in MPCC to potentially include R&S fundamentals & essential elements of R&S ops	Implement
P3	MCoE	Continue review of TOEs to ensure RSLC/ARC/CLC ASI coded key leader positions (TRP CDR, 1SG, PL & PSG) are documented	Implement
P4	MCoE	Continue to review Command Select Lists (CSL) criteria for R&S unit commands (OCA Lead)	Implement
P5	MCoE	Based on outcome of Cavalry Scout Leader & Soldier Competencies Working Group, develop additional ASIs / PDSIs related to identified ASI competencies, which may include Scout Sniper, EN Recon, OTH-BLOS Comms, Adv Med Treatment, Combat Tracking, R&S LL, & CATR	Implement
Po9	MCoE	Based on outcome of Cavalry Scout Leader & Soldier Competencies Working Group, develop and coordinate with Human Resources Command (HRC) new / updated policies to support implementation and tracking of Cavalry Scout Leader & Soldier Competencies, which may include tracking and managing ASIs and R&S command selection criteria.	Implement

Gap: Soldiers in cavalry squadrons, and SBCT and IBCT scout platoons lack adequate protection while manning vehicle-mounted crew-served weapons, or while operating heads-out-of-the-hatch. (Gap Ref #111) (Survivability)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
M59	MCoE	Continue research and development of a Re-configurable Integrated weapons Pedestal (RIWP) (TCM-IBCT Initiative)	Implement
M60	MCoE	Research and develop Mounted Platform Hostile Fire Location (HFL)	Further Study
M61	MCoE	Research and develop Vehicle Pre-Shot Anti-Sensor	Further Study

Gap: As with most Army vehicles, cavalry squadrons and battalion scout platoons lack the capability to survive high threat blast warhead devices in ULO (IEDs and other under-vehicle threats as seen in current and emerging theaters of operation). (Gap Ref #112) (Survivability)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
M1	MCoE	Continue development and field Light Reconnaissance Vehicle (LRV) for IBCT CAV Squadrons (provides add-on armor capability – scalable, modular) (MRD CDID Initiative)	Implement
M57	MCoE	Complete fielding of DVH (Double "V" Hull) Stryker (funding currently available for 4 of 9 SBCTs) (TCM-SBCT Lead)	Implement

Gap: Scout squads, sections and platoons and cavalry troops and squadrons lack sufficient long range communication systems and proficiency in the on-hand long range communication systems to effectively communicate over extended distances to support dispersed operations in all types of terrain in support of ULO. (Gap Ref #54) (Reconnaissance, Security, Special Operations, Communications)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement

Gap #54 continued:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O2	MCoE	Support standardization of squadron & scout platoon TOEs across BCTs at each echelon for communications, optics, weapons and other equipment (passive AD, camouflage)	Implement
O23	CCoE	Review sufficiency of and consider increase BOIP for NLOS communications down to PLT level	Implement
O28	CCoE	Review sufficiency of expertise in S6 section to install/operate/maintain specialized long range communications; pursue Cavalry Scout Leader Soldier Competencies including communications oriented ASI	Implement
T40	CCoE	Formalize requirement for pre-deployment training on specialized long range communications non-MTOE equipment	Implement
m43	CCoE	Standardize AN/PSC-5 and follow-on BOIP for Scout PLs & PSGs, Troop CDR & XO/CP	Implement
M37	CCoE	Fund WIN-T INC 3 Comms Payload	Defer
M38	CCoE	Continue development and testing of an Army Aerial Network Extension (A2NE) capability	Implement
M54	CCoE	Continue development and field as Theater Provided Equipment (TPE) the Global Visual Information System (GVIS) to provide geospatial information directly from the satellite to the Warfighter on the ground	Implement
P5	MCoE	Based on outcome of Cavalry Scout Leader & Soldier Competencies Working Group, develop additional ASIs / PDSIs related to identified ASI competencies, which may include Scout Sniper, EN Recon, OTH-BLOS Comms, Adv Med Treatment, Combat Tracking, R&S LL, & CATR	Implement
Po8	CCoE	Designate & resource select Expeditionary Signal BNs to install/operate/maintain or issue and support TPE-like long range comms to meet top-down driven or bottom-up requested ONS (example SOF 112th Sig BDE)	Implement

Gap: Scout squads, sections and platoons and cavalry troops and squadrons lack adequate support providing aerial reconnaissance and security in all expected environmental conditions including extreme, and over extended distances during joint and combined arms air-ground operations which limits the ability to collect and develop actionable combat information and provide early warning, reaction time and maneuver space in support of ground maneuver. (Gap Ref #109) (Air Ground Operations, Reconnaissance, Security)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D44	ACoE	Continue development and publish TTP on Manned/Unmanned teaming between AH-64 & Shadow	Implement

Gap #109 continued:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O24	ACoE	Develop and coordinate proposal to add an Air CAV Troop to Squadrons	Defer
m39	ACoE	Continue development of modifications to rotary-wing aircraft to enable AH-64 & Shadow teaming	Implement
M2	ACoE	Continue development of Future Vertical Lift (FVL) next generation aircraft	Implement

Gap: Cavalry troops lack the ability to provide organic indirect fire support to widely dispersed scout squads and sections. (Gap Ref #25) (Security, Tactical & Platform Mobility, Fires)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
O25	MCoE	Support Army Emerging Growth Initiative & TAA Process to increase Troop Mortar Sections to Troop Mortar Platoons reflected in Cavalry Squadron O&O Concept	Implement
O26	FCoE	Explore adding another firing battery to Fires BN to provide additional long range fires available to the Squadron	Defer
m40	MCoE	Conduct research, design & testing on 60mm mortar system mounted on scout vehicle platforms	Further Study
M6	MCoE	Continue development and field Lethal Miniature Aerial Munitions System (LMAMS) to CAV Troops (SRD CDID Initiative)	Implement
M10	FCoE	Continue development and field PFED (Pocket-sized Forward Entry Device) Inc 2 with MaFIA software - provides an interface for digital call-for-fire messages; provides small unit leader & FO ability to quickly generate CAT 1 precision coordinates for accurate, timely & predictable fires using organic effects	Implement
M56	MCoE	Continue research & development of more capable and advanced mortar systems to provide increased range, mobility, survivability, and lethality (SRD Initiative)	Implement
M65	MCoE	Continue concept development for networked lethality, such as a Squad Mission Equipment Transport (SMET) capability to remotely launch shoulder-fired weapon systems (SRD Initiative)	Implement

Gap: Cavalry squadrons lack ability to support Army aviation operations using squadron sustainment capabilities. (Gap Ref #10) (Air Ground Operations, Sustainment)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O14	SCoE	Consider adding Materiel Handling Equipment to the Squadron FSC to support rearming rotary wing aircraft - requires further coordination with ACoE & SCoE	Further Study
O17	SCoE	Develop ASI for aviation rearm & refuel certifications within FSC TOE	Implement
T33	SCoE	Assess and co-develop as required training/certifications for FSC personnel to refuel supporting rotary-wing aircraft	Implement
m38	SCoE	Field test/quality control kits to Squadron FSC to support the refueling of rotary-wing aircraft	Implement

Gap: Cavalry troops and squadrons lack the capacity to conduct reconnaissance and security operations in depth. (Note: This gap is intended to inform the requirement for a 3 troop x 3 platoon x 36-scout solution which can be made available for implementation if or when future resourcing improves). (Gap Ref # 110) (Reconnaissance, Security)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
O27	MCoE	Support Army Emerging Growth Initiative & TAA Process to implement squadron structure of three troops x three platoons reflected in Cavalry Squadron O&O Concept	Implement

Moderate Risk Priority Gaps: expected degraded mission capabilities [for the assessed unit] in terms of the required mission standard and will result in reduced mission capability ... (per TRADOC CBA Guide)

Gap: Brigade Support Battalions (BSBs) including subordinate Forward Support Companies (FSCs) supporting ABCT and SBCT cavalry squadrons lack the capability to establish maintenance in-depth and provide reinforcing maintenance to repair maneuver unit pacing items (combat vehicles) and maintain the tempo of operations. (Gap Ref #64) (Sustainment)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D9	SCoE	Assess and co-develop with MCoE as required TTPs to echelon FSC Maintenance Support	Implement
O7	SCoE	Consider creating general support maintenance companies with BFV/Abrams/Stryker Mechanics	Further Study
O22	SCoE	Coordinate with MCoE TCM-Recon for the conduct of a Sustainment Rock Drill to evaluate Cavalry Squadron FSC mechanic support	Implement
Po2	SCoE	Change policy to operationalize MARC to account for how Squadrons actually execute R&S operations and echelon sustainment capabilities; execute a ROCK Drill to determine required number of sustainment assets	Implement

Gap: Cavalry troop and squadron sustainment assets lack sufficient mobility, survivability, connectivity, and sustainability to immediately follow combat forces through all terrain to sustain combat. (Gap Ref #66) (Sustainment)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O6	SCoE	Assess armor kits and communications resourcing for LOGPAC vehicles	Implement
m6	SCoE	Assess and develop requirements for the Installation of CROWS on key LOGPAC vehicles	Implement
M37	CCoE	Fund WIN-T INC 3 Comms Payload	Defer
M38	CCoE	Continue development and testing of an Army Aerial Network Extension (A2NE) capability	Implement

Gap: Conventional units and SOF elements lack adequate proficiency and capability to routinely conduct or support link up via interoperable communications, and establish physical contact with each other. In particular, this impacts scout squads, sections and platoons and cavalry troops and squadrons during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #105) (Engagement)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D27	SOCoe	Assess and co-develop as required with MCoE TTPs to exchange information via automated or manual means to support the physical linkup between Conventional Forces & SOF units (Ranger Handbook provides a basis)	Implement
M32		Continue development of Common Operational Environment (COE) for MC systems interoperability	Implement

Gap: Cavalry troops and squadrons lack proficiency in supporting, facilitating or continuing operations initiated by SOF or OGA / NGO elements (and vice versa) during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #93) (Engagement)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
D29	SOCoe	Assess and co-develop as required with MCoE TTPs for mission/battle handover with SOF/OGA/NGO elements	Implement
O13	SOCoe	Consider creating SOF cells at CoEs to further interdependence - coordinate, synchronize & integrate DOTMLPF development	Further Study
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include enabling asset (CBRN, EN, SOF, etc.) capabilities & methods of employment	Implement
Po1	SOCoe	Support SOF-CF interdependence by providing conventional forces expertise to SOF funded missions; FORSOM participation in USSOCOM Ops Conference	Further Study
Po12	SOCoe	SOCoe in conjunction with FORSCOM assess and establish policy to promote increased ARSOF forces (SF/CA/PSYOPS) participation in CTC rotations/Warfighter Exercises (MCTP); include events in the scenario to coordinate with conventional forces, provide intel and conduct linkups, etc.	Implement

Gap: Scout squads, sections and platoons lack the technical means and proficiency in exchanging COP information at the scout section / scout platoon and SOF Team level. (Gap Ref #95) (Engagement)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D27	SOCoe	Assess and co-develop as required with MCoE TTPs to exchange information via automated or manual means to support the physical linkup between Conventional Forces & SOF units (Ranger Handbook provides a basis)	Implement
M32		Continue development of Common Operational Environment (COE) for MC systems interoperability	Implement

Gap: Scout squads, sections and platoons and Cavalry troops and squadrons lack the ability to establish and maintain a communications means to send and receive information that is not detectable on the electromagnetic spectrum. These formations no longer can maintain radio listening silence by communicating over wire because wire-based communications devices no longer exist on unit MTOEs. This includes communicating from dismounted OPs to vehicles, and wire communication nets at platoon, troop and Squadron level. Command posts employ tactical WiFi networks which are vulnerable to enemy detection. (Gap Ref #84) (Communications)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
m22	CCoE	Develop and field a replacement system for field phones & wire	Further Study
m32	CCoE	Continue development of Low Observable Communications Antenna Solutions	Implement
m46	CCoE	Continue procurement & fielding of HMS (Handheld Manpack Small Form Fit) Manpack	Implement
M44	CCoE	Conduct S&T research to develop a small device to emit directional beam, low energy signature for communications from the OP back to vehicle	Further Study

Gap: As with all maneuver units, cavalry troops and squadrons lack proficiency in supporting SOF rearward passage of lines. (Gap Ref #94) (Engagement)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D29	SOCoe	Assess and co-develop as required with MCoE TTPs for mission/battle handover with SOF/OGA/NGO elements	Implement
O13	SOCoe	Consider creating SOF cells at CoEs to further interdependence - coordinate, synchronize & integrate DOTMLPF development	Further Study
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include enabling asset (CBRN, EN, SOF, etc.) capabilities & methods of employment	Implement
Po1	SOCoe	Support SOF-CF interdependence by providing conventional forces expertise to SOF funded missions; FORSOM participation in USSOCOM Ops Conference	Further Study
Po12	SOCoe	SOCoe in conjunction with FORSCOM assess and establish policy to promote increased ARSOF forces (SF/CA/PSYOPS) participation in CTC rotations/Warfighter Exercises (MCTP); include events in the scenario to coordinate with conventional forces, provide intel and conduct linkups, etc.	Implement

Gap: In stability operations, cavalry troops and squadrons lack the ability to inform friendly foreign audiences and influence foreign friendly, neutral and adversary audiences. (Gap Ref #81) (Engagement, Mission Command)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D22	MCCoe	Develop Information Operations (IO) TTP for Staff Planners and Integrate IO Doctrine into Training at All Levels	Implement
T16	MCCoe	Incorporate Information Operations (IO) into all Army CAPSTONE Training / Generating Force LD&E	Implement
T22	MCCoe	Develop and administer the Tactical Inform and Influence Activities Course (TIIAC) to improve IO employment and assessment capability at Brigade, Battalion, Company	Implement
T23	MCCoe	Develop and field the Inform and Influence Trainer	Implement
m15	MCCoe	Continue development and field MFLTS (Machine Foreign Language Translation System) to Squadrons	Implement

Gap #81 continued:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
M45	MCCoE	Add Public Address (PA) to the Transportable Tactical Command Communications (T2C2)	Implement
L17	MCCoE	Assess and implement where required the incorporation of Information Operations (IO) education into PME	Implement

Gap: Cavalry squadrons lack proficiency at coordinating, planning, executing, and resourcing information collections assets in a stability, offense, or defense environment, especially when assets must be re-tasked rapidly. (Gap Ref #39) (Intelligence)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
T14	ICoE	Assess and update Battle Staff training courses and supporting simulations to improve the training of planning for, employment of and re-tasking of collection assets	Implement
T24	MCCoE	Recommend training products and leaders place an increased emphasis on training (at home station & CTCs) coordination tasks between the Squadron CP and the BCT ADAM/BAE to de-conflict airspace for Shadow	Implement
M42	ICoE	Develop simulations to fully replicate MI asset employment (Shadow, Prophet, HUMINT, JSTARS) to facilitate planning & evaluating collection ops	Implement
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include the Cdr's role in determining PIR & S3's role in planning collection ops ICW the S2, and understanding Collection assets capabilities	Implement

Gap: Cavalry troops and squadrons lack proficiency in positioning, establishing and organizing sustainment forces during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #63) (Sustainment)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include the echelonment of sustainment assets	Implement

Gap: Cavalry squadrons lack the proficiency to plan, coordinate and execute JAAT missions in support of reconnaissance and security operations. (Gap Ref #6) (Air Ground Operations)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
T26	FCoE	Assess the requirement for additional JFO training for FIST teams - for dispersed ops when TACP cannot see the target	Implement
T27	FCoE	Assess the requirement for ETAC training and certification for Army FIST personnel, for example the Joint Fire Control Course at Nellis AFB, available to Army personnel	Implement
m24	MCoE	Develop ABCT Squadron FDU to place TACP (USAF HMMWV) in an armored, tracked vehicle, initially M113 transitioning to AMPV	Implement
M10	FCoE	Continue development and field PFED (Pocket-sized Forward Entry Device) Inc 2 with MaFIA software	Implement
M66	MCoE	Develop ABCT Squadron FDU to place TACP (USAF HMMWV) in an armored, tracked vehicle, initially M113 transitioning to AMPV	Implement

Gap: SBCT scout sections and platoons lack adequate capability to provide internal direct fire overwatch and / or disengage from peer threat forces while executing mounted reconnaissance and security operations during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #20) (Reconnaissance, Security, Survivability)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
m13	MCoE	Continue development of an integrated weapons & optics capability providing a head-out-of-the-hatch option (TCM-IBCT & TCM-SBCT Initiatives)	Implement
m25	MCoE	Up-gun Stryker Reconnaissance Vehicles to 30mm cannon weapon system (TCM-SBCT Initiative)	Implement

Gap: Cavalry troops and squadrons, including their supporting FCSs and BSBs, lack proficiency in coordinating, synchronizing, configuring, assembling, and executing the movement and distribution of supplies, to include aerial resupply, throughout the unit's AO during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. There is a documented similar trend across all maneuver formations. (Gap Ref #65) (Sustainment)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
O14	SCoE	Consider adding Materiel Handling Equipment to the Squadron FSC to support rearming rotary wing aircraft - requires further coordination with ACoE & SCoE	Further Study
T28	SCoE	Assess and co-develop with MCoE as necessary sling load / load configuration TSPs for Squadron FSC resupply ops	Implement
M2	ACoE	Continue development of Future Vertical Lift (FVL) next generation aircraft	Implement
M46	ACoE	Develop and field Cargo UAS (Unmanned Aerial System) such as the K-MAX Unmanned Multi-Mission Helicopter	Implement

Gap: As with all maneuver units, scout squads, sections and platoons and cavalry troops and squadrons lack the ability to identify all enemy forces concealed within the civilian population. (Gap Ref #16) (Reconnaissance, Tactical & Platform Mobility)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
D8	ICoE	Develop TTP for maneuver units to employ task organized direct support MI elements from the BCT MICO and E-MIB	Implement
D35	MCCoE	Develop Unified Exploitation Doctrinal Publications (ATP 3-90.15 Site Exploitation)	Implement
T43	MCoE	Continue process of task analysis and task development, POI Reviews & Task Selection Boards, and identify resourcing requirements to train Cavalry Scout Leader & Soldier (formerly SotF) Competencies	Implement
M24	MCoE	Continue development and field a Networked Expendable Sensor Technology (NEST) capability (ability to use in an urban environment) (SRD CDID Initiative)	Implement
M47	MSCoE	Continue process to establish PSST (Aerostat with cameras) as a POR and TPE, basis of issue down to Co/Trp size CP as a protection WFF solution, not maneuver	Implement
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include incorporating the AtN operational approach in training and education scenarios	Implement

Gap: As with all maneuver units, scout squads, sections and platoons and cavalry troops and squadrons lack the proficiency and sufficient capability to collect information on the civilian population during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #17) (Reconnaissance, Tactical & Platform Mobility, Engineer)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
D33	ICoE	Retain TTPs for employment of Female Engagement Teams (FETs)	Implement

Gap #17 continued:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O15	MCCoE	Retain 09L (Interpreters) Program	Implement
T29	ICoE	Retain POIs and resource training for FETs, other cultural awareness training and Intel Foundry training programs	Implement
T43	MCoE	Continue process of task analysis and task development, POI Reviews & Task Selection Boards, and identify resourcing requirements to train Cavalry Scout Leader & Soldier (formerly SotF) Competencies	Implement
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include incorporating the AtN operational approach in training and education scenarios	Implement

Gap: When conducting reconnaissance operations or moving security operations, scout squads, sections and platoons and cavalry troops and squadrons lack adequate capability to identify concealed and / or covered enemy elements. (Gap Ref #37) (Survivability)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
M24	MCoE	Continue development and field a Networked Expendable Sensor Technology (NEST) capability (SRD CDID Initiative)	Implement
M39	MCoE	Develop echelonment of Small Unmanned Aerial Systems (SUAS) from squad/platoon (Micro- & Soldier-borne) to squadron (Small UAS, Raven-like capability)	Implement
M52	MCoE	Continue research and development of an elevated, integrated mounted sensor package with rapid deployability/recovery and use on the move capability (MRD & TCM-SBCT Initiative)	Implement
M60	MCoE	Research and develop Mounted Platform Hostile Fire Location (HFL)	Further Study
M61	MCoE	Research and develop Vehicle Pre-Shot Anti-Sensor	Further Study
M62	MCoE	Research and develop Coded Spot Tracker (CST) Day/Night Pointer	Further Study
M63	MCoE	Continue concept development with a goal of materiel development for man pack/mounted Ground Surveillance Radar (GSR) to scout platoons as part of an integrated sensor strategy (MRD & TCM-Recon Initiative)	
M64	MCoE	Continue development & field a hand-held EOIR system for dismounted operations as part of an integrated sensor strategy (MRD Lead)	Implement

Gap: Cavalry troops and squadrons lack the ability to continuously execute mission command facilitated by Mission Command System capabilities while on the move, away from the command post, or enroute to a mission area. (Gap Ref #68) (Mission Command, Communications)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D36	MCCoE	Develop Doctrinal Publications (ADRP) for MCOTM Process	Implement
T19	MCCoE	Recommend incorporation or increased emphasis of Non-digital Mission Command Procedures in training products	Implement
m9	MCCoE	Continue development of QUick Evaluation of Emerging Standards and Technologies (QUEST) to develop networking software designed for military environments	Implement
m26	MCCoE	Provide increased network capacity at Company Level	Implement
m27	MCCoE	Develop Proactive Decision Services (PDS)	Implement
m28	MCCoE	Develop Unmanned Systems C2 for Operations in Urban Terrain (USCOUT)	Implement
m29	MCCoE	Develop Intelligent Soldier Power Management	Implement
m31	MCCoE	Develop DCGS-A Standard Cloud (DSC) Cloud Computing Platform designed and implemented to process large volumes of structured/unstructured Intelligence data	Implement
m33	MCCoE	Develop, design and integrate a Multi Access Cellular Extension (MACE)	Implement
m34	MCCoE	Mature, integrate and transition Future Advanced SATCOM Terminal (FAST)	Implement
M32		Continue development of Common Operational Environment (COE) for MC systems interoperability	Implement
L12	MCCoE	Assess, develop, modify and coordinate implementation of POIs that include training uninterrupted mission command tasks	Implement
P1	MCCoE	Establish a KM Career Field for Officers, Enlisted Soldiers, and DA Civilians	Implement
P2	MCCoE	Develop KM ASI and assign ASI to select staff members at Squadron level	Implement
Po6	MCCoE	Develop policy on operator responsibilities to install/operate/maintain Mission Command Automated Systems	Implement

Gap: Scout squads, sections and platoons lack the ability to plan and execute demolitions in support of reconnaissance and security operations without engineer support. (Gap Ref #28) (Security, Engineer)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
T30	MSCoE	Assess sufficiency of and develop TSPs to support Squadron and BEB Engineers cross-training on demolitions; BEB provide expertise to CAV Squadron to support training events	Implement
L13	MCoE	Based on O&O Concepts and Cavalry Scout Leader & Soldier Competencies, review sufficiency of coverage in MPCC to potentially include emphasis from the CDR on demolitions training for Scouts and ensuring adequate resources (ranges, time, munitions)	Implement

Gap: Cavalry troops and squadrons are limited in their ability to conduct the Operations Process (plan, prepare, execute and assess) with Unified Action Partners. (Gap Ref #78) (Engagement, Mission Command)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O15	MCCoE	Retain 09L (Interpreters) Program	Implement
T1	MCoE	During unit & CTC visits, collect data and lessons learned to determine sufficiency / proficiency which may include training at home station involving Unified Action Partners (UAP) and their direct participation in the operations process to develop a better understanding of UAPs, develop SOPs and develop techniques for information sharing	Implement
m15	MCCoE	Continue development and field MFLTS (Machine Foreign Language Translation System) to Squadrons	Implement
L3	MCoE	Conduct a series of "O&O Concept / Cavalry Scout Leader & Soldier Competencies into Leader Dev Working Groups"; review sufficiency of current training in MCCC, ALC & SLC to potentially include capabilities and requirements of working with UAP	Implement

Gap: Cavalry squadrons have limited ability to describe, plan, integrate, continuously assess and depict Cyber Electromagnetic Activities. (Gap Ref #80) (Mission Command)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D38	CCoE	Continue integration of Electronic Warfare (EW) into appropriate Army Techniques Publications (ATP)	Implement
T12	SMDC	Assess sufficiency of Space & CEMA training at CoEs - part of approved Army Space Training Strategy and identify low cost methods of emphasis	Implement
T13	SMDC	Assess sufficiency of and develop as required space support at BCT and below training support packages	Implement

Gap: Cavalry squadrons lack the proficiency to identify friendly position navigation and timing support requirements, to include enhanced coverage requirements for systems and precision-guided weapons. (Gap Ref #87) (Communications)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
T12	SMDC	Assess sufficiency of Space & CEMA training at CoEs - part of approved Army Space Training Strategy and identify low cost methods of emphasis	Implement
T13	SMDC	Assess sufficiency of and develop as required space support at BCT and below training support packages	Implement
M41	CCoE	Continue development of an Assured Position, Navigation & Timing (PNT) capability	Implement

Gap: Scout squads, sections and platoons and cavalry troops and squadrons lack the ability to conduct reconnaissance and security operations in a subterranean environment. (Gap Ref #107) (Reconnaissance, Security, Communications)

Draft Solutions: * Solutions TBD by Subterranean CBA

Operationally Assessed Moderate Priority Gaps: After risk assessment completed, staffing process resulted in raising or lowering gap priorities

Gap: Scout platoons and cavalry troops and squadrons lack the ability to conduct coordination and exchange information with supporting Army aviation aircraft using voice and digital communications during the conduct of reconnaissance and security operations. (Gap Ref #2) (Air Ground Operations, Fires, Communications)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D17	CCoE	Develop TTPs for air-ground communications - aircraft talking to PLT LDR through SINCGARS; SRW to squad/section on the ground	Implement
T9	ACoE	Assess sufficiency of Home Station / CTC training to improve coordination in exchanges between Squadron, BCT BAE and aviation units, and recommend to CTC OPSGRPs & BCT Commanders adding more realistic training, scenarios and training objectives where applicable	Implement
m16	CCoE	Research the ability to flip a switch to move from one wave form to another for both radio and a/c antenna; and remotely fill the a/c and switch from one wave form to another	Further Study
M37	CCoE	Fund WIN-T INC 3 Comms Payload	Defer
M38	CCoE	Continue development and testing of an Army Aerial Network Extension (A2NE) capability	Implement
M40	CCoE	Evolve squadron and below network architecture to facilitate supporting to supported communications interoperability, voice and data, permitting enabling forces like Aviation to seamlessly enter/exit networks in the operational area	Further Study

Gap: As with maneuver battalions, cavalry squadrons lack the capability to conduct a refuel on the move. (Gap Ref #59) (Sustainment)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O10	SCoE	Add HTARS Kit To Squadron FSC TOE	Implement
T10	SCoE	Assess and co-develop with MCoE as necessary ROM TSPs for the Cavalry Squadron for use at HS/CTC	Implement

Gap: Scout squads, sections and platoons lack adequate capability to achieve and maintain situational awareness while dismounted and away from their vehicle/platform. (Gap Ref #21) (Reconnaissance, Security, Survivability, Communications)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D1	MCoE	Conduct a series of "O&O Concept into Doctrine Working Groups"	Implement
T43	MCoE	Continue process of task analysis and task development, POI Reviews & Task Selection Boards, and identify resourcing requirements to train Cavalry Scout Leader & Soldier (formerly SotF) Competencies	Implement
m4	MCCoE	Develop, build and transition Tactical Army Cross Domain Information Sharing (TACDIS)	Implement
m12	MCCoE	Develop Warfighter Integrated Navigation System (WINS)	Implement
m26	MCCoE	Provide increased network capacity at Company Level	Implement
m29	MCCoE	Develop Intelligent Soldier Power Management	Implement
m30	MCCoE	Develop Squad Focused System of Sensors, Analytics, and Processing Tools to deliver intel based situational awareness to the tactical edge as part of the Actionable Intelligence Technology Enabled Capability Demonstration (TECD)	Implement
m37	MCCoE	Develop a Terrestrial Layer Network Capability	Implement
M24	MCoE	Continue development and field a Networked Expendable Sensor Technology (NEST) capability (send feeds to NettWarrior) (SRD CDID Initiative)	Implement
M32	MCCoE	Continue development of Common Operational Environment (COE) for MC systems interoperability	Implement

Gap: Scout platoons and cavalry troops and squadrons lack the ability to rapidly construct and recover situational obstacles during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #51) (Engineer)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D40	MSCoE	Assess sufficiency of and develop as required TTP for the squadron to obtain expertise from BEB for engineer planning	Implement
M51	MSCoE	Continue with procurement process for SPYDER mine system	Implement
P5	MCoE	Based on outcome of Cavalry Scout Leader & Soldier Competencies Working Group, develop additional ASIs / PDSIs related to identified ASI competencies, which may include Scout Sniper, EN Recon, OTH-BLOS Comms, Adv Med Treatment, Combat Tracking, R&S LL, & CATR	Implement

Gap: ABCT and IBCT scout squads, sections, and platoons lack the ability to simultaneously communicate to/from dismounted OP; local security; and dismounted patrol. (Voice/Data) (Gap Ref # 85) (Communications)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
O2	MCoE	Support standardization of squadron & scout platoon TOEs across BCTs at each echelon for communications, optics, weapons and other equipment (passive AD, camouflage)	Implement
O31	MCoE	Ensure BOIPs for hand-held radios provide sufficient comms to support dismounted ops from Platoon to Squad/Team level without pulling vehicle radios to create manpack radios	Implement

Gap: Scout squads, sections and platoons and cavalry troops lack the ability to evaluate and classify routes to include all bridges, defiles, overpasses, underpasses, and culverts along a route during a route reconnaissance during the conduct of Decisive Action, particularly in offensive and defensive operations against an adversary with near peer capabilities. (Gap Ref #12) (Reconnaissance)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D39	MSCoE	Publish & distribute to maneuver leaders TTP on reach back capability to US Army Corps of Engineers for assistance on bridge classification	Implement
M49	MSCoE	Continue research and development of a software application for calculating measurements; accessing known engineer data on bridges	Implement
M50	MSCoE	Continue research and development of a Remote & Standoff Assessment capability on infrastructure to support early entry ops	Further Study
P5	MCoE	Based on outcome of Cavalry Scout Leader & Soldier Competencies Working Group, develop additional ASIs / PDSIs related to identified ASI competencies, which may include Scout Sniper, EN Recon, OTH-BLOS Comms, Adv Med Treatment, Combat Tracking, R&S LL, & CATR	Implement

Gap: Cavalry troops and squadrons lack the standardized SOPs, checklists and expertise to assess, identify and coordinate detailed infrastructure requirements. (Gap Ref #57) (Engagement)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D41	SOCoe	Assess and develop as required TTP which facilitate the transfer of lessons learned from regionally aligned SF Groups with conventional regionally aligned BDEs	Implement
Po10	SOCoe	Assess and develop as required policy which facilitate the transfer of lessons learned from regionally aligned SF Groups with conventional regionally aligned BDEs	Implement

Gap: Cavalry troops and squadrons lack the expertise to assist in the development of SOPs for specialized organizations. (Gap Ref #55) (Engagement)

Draft Solutions:

Solution ID / Priority	CoE Proponent	Solution Description	Resource Informed Decision
D41	SOCoe	Assess and develop as required TTP which facilitate the transfer of lessons learned from regionally aligned SF Groups with conventional regionally aligned BDEs	Implement
D42	SOCoe	Assess and develop as required TTP on standard procedures for operating with specialized organizations based on the JCET model (Joint Combined Exchange Training) under regional alignment	Implement
Po10	SOCoe	Assess and develop as required policy which facilitate the transfer of lessons learned from regionally aligned SF Groups with conventional regionally aligned BDEs	Implement
Po11	SOCoe	SOCoe in conjunction with FORSCOM assess and formalize as required relationships between regionally aligned conventional forces and SF Groups	Implement