



DEPARTMENT OF THE ARMY
OFFICE OF THE ASSISTANT SECRETARY OF THE ARMY
ACQUISITION LOGISTICS AND TECHNOLOGY
103 ARMY PENTAGON
WASHINGTON DC 20310-0103



REPLY TO
ATTENTION OF

22 DEC 2003

Dr. Joseph Braddock
Chair, Army Science Board
2511 Jefferson Davis Highway, Suite 11500
Arlington, Virginia 22202

Dear Dr. Braddock:

I request the Army Science Board (ASB) continue its efforts to further study the challenges facing the Army in its effort to develop Future Combat Systems (FCS). Therefore, I request the ASB conduct a comprehensive study examining additional issues that were not covered in the Fiscal Year 2003 study. This study, "Critical Technologies and Capabilities for FCS in Urban Combat and Stabilization Operations", should address, but is not limited to, the Terms of Reference (TOR) described below. The ASB members and consultants appointed to this study should consider the TOR as guidelines and may expand the study to issues considered important to the study. Modifications to the TOR must be addressed with you.

The study focus should not merely be an examination of the "Materiel" portion of the Doctrine, Organizations, Training, Material, Leadership and Education, Personnel and Facilities (DOTMLPF) but rather an examination across the entire DOTMLPF. Furthermore, study findings should focus on key, top-level issues that take into consideration the program constructs and tenets that serve to set the programs apart from programs of the past, e.g. FCS is a new way of doing business using a systems of systems construct. Endstate is a study that will help answer the questions and offers constructive help to solve the Army's problems.

Background: The Army is embarking on the development of the FCS as the newest component of the Future Force. The Initial Operational Capability for this component will occur in 2010. Beyond this initial date for fielding "Increment 1 Baseline" FCS, there will be some combination of spiral upgrades and/or spiral development of follow on increments and fielding over the next decades.

Issues for the TOR:

a. Joint Military Operations in Urban Terrain (MOUT):

(1) Survey veterans of recent urban combat, stabilization and peace-keeping operations to identify DOTMLPF solutions that would improve the effectiveness of our dismounted forces.

(2) Evaluate technologies in use or development from the Army, Defense Advanced Research and Projects Agency, Special Operations Command, U.S. Marine Corps, Federal Bureau of Investigation, Central Intelligence Agency, Law Enforcement and the Israeli Defense Force as potential materiel solutions to these needs.

(3) Assess the costs, challenges, operational (including logistical) impacts, and benefits of fielding these solutions to our forces in theater in order to provide recommendations for Rapid Fielding Initiative, Advanced concept and Technology Demonstrators, rapid acquisition programs, or Non-Developmental Item/Commercial-off-the-shelf procurements.

b. Soldier Systems-Future Combat Systems Interface:

(1) Identify all known and forecasted Soldier Systems-FCS interface requirements, and assess where options may exist for either or both systems to designate the interface requirements.

(2) Weigh the advantages/disadvantages (impacts) of soldier interface definitions being driven by either Soldier Systems, Future Combat Systems or Joint Network Centric Information requirements/needs.

(3) Identify opportunities for modifying existing soldier interface definition parameters and suggest a process to ensure continuing consideration of inter-system trade-offs in future system design activities.

(4) Report on technologies to achieve a biometric or other verifiable signature standard that permits or denies soldier access (supported by soldier clearance level) to multi-level systems connected to FCS.

(5) Examine barriers and promising solutions to the difficult task of automating sensor and data fusion including automated target weapon pairing, augmented soldier-in-the-loop decision-making, and transforming disorganized data into knowledge.

c. Information: Sensor Fusion and Information Management:

(1) Examine alternative information management strategies and solutions to optimize sensor fusion and sensor to shooter responsiveness.

(2) Assess fusion advances needed to support knowledge-based forces.

(3) Determine the requirements for accuracy in sensors' self-location and self-orientation of sensors that will permit detection, discrimination, identification, determination of targetable location and correlation of raw sensing data in the presence of multiple targets.

(4) Identify the technologies available in the 2015-2020 timeframe that will lead to decision superiority.

(5) Address achieving and assuring software integrity across sensors, weapons, soldiers, and FCS platforms.

d. Test, Experimentation, Simulation and Fielding:

(1) Assess the FCS Test and Evaluation Master Plan, Modeling and Simulation Plan, and Experimentation Plan in terms of: (a) Size of the organization to be tested-can it be reduced in scale? (b) Is an incremental approach possible? (c) Mix of constructive, virtual and live simulation versus live testing; (d) prioritization of test and experiment objectives; (e) are there options for incorporating independent contractor test, demonstration and experimentation results? (f) timing of the test or experiment-is it achievable within the Transformation timeline? (g) metrics.

(2) Using the experience and conclusions drawn from the aforementioned assessment, suggest options for redefining the Army's future test and evaluation practices that bring them in alignment with the spirit and intent of the new Acquisition Policy and Joint Test/Experimentation. These practices should support equipping the force in the family of systems manner and exploiting spiral development opportunities.

e. Personnel, Learning and Leadership:

(1) Focus, prioritize and recommend research and development on Soldier knowledge, skills, and attributes to meet Army requirements for the Urban MOUT Warfare Soldier in the FCS.

(2) Review the Soldier Life Cycle to determine and recommend what is needed to improve Total Life Cycle System.

(3) Consider and include recommendations on better use of Manpower and Personnel Integration tools in the FCS.

(4) Address the parameters of the reach-back capability required by the Embedded Training Enabled Future Force

(5) Identify and analyze the impacts of unit manning approaches on training from individual soldier through Unit of Action levels.

(6) Examine the realm of possibilities for and the limitations on the provision of training support, on-demand, to an embedded training enabled force, taking into consideration emerging distributed and embedded training technologies.

(7) Examine new requirements on the training development and learning management processes generated by reach back strategies.

(8) Assess Impact of new future force training concept on the capability to support current and Stryker Brigade Combat Team forces' future training requirements and ways of integrating them into the Future Force training concept.

(9) Investigate advanced technologies including simulation for including embedded training, mission planning, and rehearsal capabilities in the Land Warrior/Objective Force Warrior systems.

The ASB should identify and provide the rationale for a list of the most challenging technological cases. It should seek solutions or, as a minimum, insights for solutions in both Department of Defense and commercial sectors. It should also identify and rationalize the possibilities resident in revolutionary technologies that would support FCS development even where these displace existing technologies.

Study Sponsorship: I will be the primary sponsor. I recommend you contact the following organizations and request they support your study as sponsors: U.S. Army Training and Doctrine Command, the U.S. Army Materiel Command, the Deputy Under Secretary of the Army, Operations Research, Objective Force Task Force, Office of the Deputy Chief of Staff, G-1 (ODCS, G-1); ODCS, G-3; ODCS, G-8; the Program Executive Office/Program Manager for FCS; and the PEO Soldier.

Study Duration: Complete and report out study results in July 2004.
Provide interim progress reports in February and May 2004.

Special Provisions: Conduct the study within the provisions of Public Law 92-463 (Federal Advisory Committee Act) and appropriate Department of Defense and Army Regulations. It is not anticipated that this inquiry will go into any of the "particular matters" within the meaning of Section 208, Title 18 of the United States Code.

Sincerely,



Claude M. Bolton, Jr.
Assistant Secretary of the Army
(Acquisition, Logistics and Technology)