

**Army Audit Agency
Audit Report: AA 01-128
Integrated System Control**

29 January 2001

**DEPARTMENT OF THE ARMY
U.S. ARMY AUDIT AGENCY
Office of the Deputy Auditor General
Acquisition and Materiel Management
3101 Park Center Drive
Alexandria, VA 22302-1596**

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Commander, U.S. Army Training and Doctrine Command Program Executive Officer for
Command, Control and Communications Systems

This is our report on the audit of Integrated System Control. We issued a related memorandum
report (AA 00-259) to the Program Executive Officer for Command, Control and
Communications Systems on 10 May 2000.

The official Army position and verbatim comments by command on the conclusions and
recommendations are in Annex C.

This report addresses recommendations in Objectives A and C to the Commander, U.S. Army
Training and Doctrine Command. It also addresses recommendations in Objective B to the
Program Executive Officer for Command, Control and Communications Systems.

I appreciate the courtesies and cooperation extended to us during the audit.

FOR THE DEPUTY AUDITOR GENERAL:

/Signed/
JOSEPH P. MIZZONI
Program Director
Acquisition, Research and Development

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INTRODUCTION

WHAT WE AUDITED

We audited the Integrated System Control program because of its vital importance to managing the command, control, and communications systems of the future digitized battlefield. We audited the validity of requirements for all configurations and the adequacy of the Army's approach for meeting user needs and fielding schedules. Additionally, we audited the adequacy of the program's strategy for keeping pace through spiral development with the modernization efforts of related digitized systems.

We concentrated our work in the Office of the Product Manager, Communications Management Systems, Fort Monmouth, and at the U.S. Army Signal Center and Fort Gordon.

BACKGROUND

Army Digitization Initiative

The Army plans to field over 100 new and improved battlefield systems through its "digitization" initiative to meet the warfighter's needs of the 21st century. The program we audited -- Integrated System Control -- is a key network management system and an integral part of the Army's digitization effort. Digitization is the Army's process for arming its force with advanced information technologies. The Army expects new technologies will allow troops to constantly monitor the locations of friendly and enemy forces. Thus, digitization will give soldiers the ability to efficiently apply the latest information technologies to acquire, exchange, and employ timely information through the battlefield. The Army also expects the use of digitization on the battlefield will increase the Army's survivability, lethality, and tempo of operations. The Army equipped its first digitized division with the Integrated System Control in November 2000 and plans to equip the first digitized corps by the end of FY 04.

The Deputy Chief of Staff for Operations and Plans announced in August 1997 that the 4th Infantry Division would be the first digitized division. Although the Army's overall digitization initiative involves many systems, in December 1999 the Deputy Chief of Staff stated that the digitization goal is to field 16 high-priority systems to 3 of the 4 brigades in the 4th Infantry Division. The Integrated System Control is one of these high-priority systems. In general, these systems are command, control and communications systems. Most of the critical systems will support decision making by commanders located in tactical operations centers at battalion, division, and corps levels.

Integrated System Control Program

As the Army's future network management system -- the Integrated System Control program -- will be critical to achieving the Army's goal of attaining information dominance of the battlefield. The advanced warfighting experiments leading up to the first digitized division demonstrated that network management was a major undertaking -- it was complex and took a long time. Integrated System Control performs very few new functions. Rather, the system automates

network management functions that are currently performed manually. The network management effort includes:

- Planning and laying out network by assigning Internet protocol addresses to the computer equipment in the field to gain access to the network.
- Initializing the network parameters into the hosts/network devices (for example, switches).
- Monitoring all network devices (for example, switches).
- Reconfiguring the network.

By capitalizing on advances in network management technology, the system provides:

- Flexible and user friendly planning and management capability.
- Seamless realtime network status reporting.
- Software commonality at all echelons.
- The ability to better support joint operations.

Today, the system has evolved into a two-tiered network management system.

Upper Tier. Integrated System Control (Versions 1 and 2) is the upper tier. It is responsible for monitoring and managing communications systems above brigade and providing high-level network management. The Program Executive Officer for Command, Control and Communications Systems granted approval for Versions 1 and 2 to enter into production in February 1999. Also, in support of the upper tier was the Integrated System Control (Version 3) configuration that the Combat Developer originally envisioned for the program. But DA didn't fund the program, and another program is currently satisfying the need for Version 3.

Lower Tier. The lower tier is now known as the Tactical Internet Manager -- formerly called Integrated System Control (Version 4). The Tactical Internet Manager is essentially network management software for brigade and below residing on ruggedized laptop computers. The Tactical Internet Manager will be responsible for network management of the tactical internet, tactical operation centers, and local area networks at brigade and below. The current acquisition schedule planned for the Tactical Internet Manager is a:

- Combined Milestone I and II decision (Program Definition and Risk Reduction/Engineering and Manufacturing Development) by September 2001.
- Milestone III decision (Production, Fielding and Development, and Operational Support) in third quarter FY 02.

RESULTS IN BRIEF

All configurations of the Integrated System Control had valid requirements, and the two systems currently comprising the program -- Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager -- should meet user needs and fielding schedule of the first digitized division. However, both systems face tremendous future challenges as the Army digitizes the

battlefield through a rapid pace of automation. The materiel developer should update program requirements, and U.S. Army Training and Doctrine Command should prepare Operational Requirements Documents (or DA-approved alternative documents) to allow the program to effectively meet future challenges. By preparing, approving, and periodically updating user requirements, the Army would be better equipped to effectively meet the users' needs. Further, updated requirements documents are needed to adequately support the future long-term funding required for these two key network management tools. These documents would also serve to clearly show the program's strategy for keeping pace through spiral development with the modernization efforts of related digitized systems.

In addition to the outdated requirements document, program risks stem from:

- Potentially large unfunded program requirements.
- Delays in preparing and approving critical program documents.
- Constraints on the number of management, control, and oversight personnel assigned to the program.

Funding shortfalls continue to cloud the future of this critical network management program. While the FYs 02-07 Program Objective Memorandum showed that the \$82.9 million in procurement funds requested for the Integrated System Control (Versions 1 and 2) would be programmed, ongoing negotiations of the production contract could result in up to \$20 million in additional unfunded requirements. Also, the Program Objective Memorandum included only about 54 percent (\$21.8 million of \$40.1 million) of the research and development funds requested and only about 53 percent (\$52.7 million of \$99.1 million) of the procurement funds requested for the Tactical Internet Manager.

Delays by the materiel developer in preparing and approving critical program documents are another challenge for the program. We believe these delays resulted from constraints on the number of management, control, and oversight personnel assigned to the program. Inadequate staffing and personnel turnover created formidable challenges for the program and contributed to the program not meeting all established goals and milestones. In FY 00 alone the Tactical Internet Manager program experienced a 100-percent turnover of personnel. While DA policy has imposed an overall 10-percent cap on management, control, and oversight personnel, this cap can be imposed at the oversight level (Program Executive Office level) providing for flexibility at the project or product level. More flexible implementation of this cap policy would allow Integrated System Control officials to more effectively accomplish their goals and help make sure key program documents such as the Life Cycle Cost Estimate, Test and Evaluation Master Plan, and New Equipment Training Plans are prepared timely.

RESPONSIBILITIES AND RESOURCES

The Director of Information Systems for Command, Control, Communications and Computers oversees the activities of Program Executive Officers and Product Managers who manage command, control, communications, and computer information systems acquisition programs.

The Office of the Deputy Chief of Staff for Operations and Plans is responsible for making sure digitization and network management tools such as the Integrated System Control are prioritized and funded consistent with the Army Chief of Staff's goals and timelines.

The Director of Integration (formerly known as the U.S. Army Digitization Office) is an arm of the Deputy Chief of Staff for Operations and Plans. The director oversees and coordinates the integration of Army battlefield digitization activities.

Training and Doctrine Command is responsible for determining the Army's warfighting requirements and redesigning the force to be knowledge based and modular in design. Command is the gatekeeper of the Army's requirement generation process and approves warfighting requirements for doctrine, training, leader development, organizations, materiel, and soldiers.

The U.S. Army Signal Center is a subordinate command of Training and Doctrine Command and is responsible for preparing requirements documents, such as the Required Operational Capability document and the Users Functional Description document in support of the Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager.

The Program Executive Officer, Command, Control and Communications Systems is responsible for providing guidance, direction, control, oversight, and support necessary to make sure systems are developed to minimize life-cycle costs, and fielded within cost, schedule, and performance baselines.

The Product Manager, Communications Management Systems is responsible for developing and acquiring the Integrated System Control and the Tactical Internet Manager. The Product Manager reports to the Project Manager, Warfighter Information Network -- Terrestrial. The Project Manager is responsible for acquiring, integrating, fielding, and supporting Warfighter information network terrestrial systems in accordance with DOD Acquisition Regulations. The Project Manager reports to the Program Executive Office for Command, Control and Communications Systems.

The Army set aside about \$3.2 billion of its FY 00 budget for digitization. The Director of Integration estimates the Army spends about \$3.0 to \$3.7 billion annually on digitization. This equates to about \$21 billion earmarked over the FYs 02-07 Program Objective Memorandum for digitizing the force.

At the time of our review, the Integrated System Control (Versions 1 and 2) program had about \$50.6 million in research and development funds and \$82.9 million in procurement funds programmed through FY 07.

The Tactical Internet Manager (formerly called Integrated System Control (Version 4)) had about \$21.8 million in research and development funds and \$52.7 million in procurement funds programmed through FY 07.

If Training and Doctrine Command and the Office of the Program Executive Officer for Command, Control and Communications Systems carry out the recommendations in this report,

there could be monetary benefits. However, at the time of the audit, we couldn't reasonably estimate those benefits.

OBJECTIVES, CONCLUSIONS, RECOMMENDATIONS, AND COMMENTS

A -- REQUIREMENTS

OBJECTIVE

Were there valid requirements for all configurations of Integrated System Control?

CONCLUSION

Yes, all current configurations of the Integrated System Control program had valid requirements. However, delays with the Warfighter Information Network-Tactical program means U.S. Army Training and Doctrine Command needs to update the requirements documents to adequately justify and support future funding for the:

- Integrated System Control (Versions 1 and 2).
- Tactical Internet Manager -- (formerly called Integrated System Control (Version 4)) programs.

DA didn't fund another configuration originally envisioned (Version 3 program), and the need is being satisfied through another program.

The Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager programs currently share a common November 1990 Required Operational Capability requirements document. This 1990 requirements document was essential for documenting the Army's initial network management requirements. But today it's outdated and inadequate to justify future funding required for these two critical network management systems.

The U.S. Army Signal Center recognized that the program's current requirements document was outdated. The center planned to use the Warfighter Information Network-Tactical programs Operational Requirements Document to both update the Integrated System Control requirements document and better define the Tactical Internet Manager's requirements. However, this strategy needs revision. Here's why:

- Current Army policy from the Office of the Deputy Chief of Staff for Operations and Plans instructs Training and Doctrine Command to update all Required Operational Capability documents (old format) to Operational Requirements Documents (new format) incorporating costs and interoperability as key performance parameters.
- A lack of clear requirements developed and documented in updated requirements documents for Integrated System Control (Versions 1 and 2) and Tactical Internet Manager

has caused the Office of the Deputy Chief of Staff for Operations and Plans to question funding requests for these two key network management systems.

- Milestones and development of the Warfighter Information Network-Tactical program are being significantly delayed, and the Integrated System Control (Versions 1 and 2) programs need to be extended.

- Training and Doctrine Command's initial plan was for developing the Integrated System Control (Versions 1 and 2) to end after FY 02. The Warfighter Information Network-Tactical effort would then assume responsibility for further development.

- At the time of our review, the Program Objective Memorandum didn't contain research and development funds for the Warfighter Information Network-Tactical program until FY 02, and the Army didn't project it to be fielded until FY 10. Thus, the Product Manager for Versions 1 and 2 will need to continue research and development through spiral development past FY 02.

- The Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager address different missions and concepts of operations requiring separate and distinct Operational Requirements Documents.

Our detailed discussion on these conditions starts on below. Our recommendations start on below.

BACKGROUND

The Integrated System Control program was initiated in November 1989 when Training and Doctrine Command approved an Operational and Organizational Plan. Subsequently, command refined its requirements and approved a Required Operational Capability document in November 1990.

Operational and Organizational Plan

The Operational and Organizational Plan identified the need for a battlefield-automated system to provide signal units with an improved capability to manage multiple tactical communications systems at each echelon from division through theater communications command. The system will allow signal forces to maximize the availability of communications and data distribution systems in support of combat commanders.

Key operational characteristics in the plan included:

- Facilitate network planning; automate system management, planning, system control, and engineering.
- Receive, store, retrieve, transmit, and print classified information.
- Communicate data between workstations and remote terminals using tactical communications systems.

Required Operational Capability Document

Training and Doctrine Command approved the Integrated System Control's Required Operational Capability document in November 1990. The document described the operational capabilities needed to satisfy a mission need described in the Operational and Organizational Plan approved 1 year earlier.

In general, the Integrated System Control program fills the void that existed for an automated battlefield system to give Signal units an improved capability for managing multiple tactical communications systems at each major echelon from the division through the Theater Signal Army. Since 1990, command has modified this requirements document twice.

- In May 1994, command added a requirement for the system to perform the planning, management, and execution of satellite communications resources.
- In September 1998, command significantly expanded requirements to include a need for network management at brigade and below.

DISCUSSION

In this section, we discuss these four areas:

- Warfighter Information Network-Tactical program.
- System funding.
- Mission and concept of operations.
- Army requirements document policy.
- Integrated System Control (Version 3).

Warfighter Information Network-Tactical Program

The planned strategy of using the Operational Requirements Document for the Warfighter Information Network-Tactical program isn't adequate to support future funding of the Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager. The tactical program will be the Army's future information network and eventually replace the Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager. The strategy of using the Warfighter programs Operational Requirements Document may have been valid at the time it was formulated. But we believe today it is no longer the best strategy because of delays in funding the development of the tactical program.

Prior Review

In an FY 99 U.S. Army Audit Agency Report: AA 99-372, Commentary on Network Managers for the Digitized Battlefield, we suggested the Signal Center work closely with the materiel developer to refine requirements for the Integrated System Control (Version 4) (now known as the Tactical Internet Manager). In response to this suggestion, the Signal Center replied that it planned to use the Operational Requirements Document for Warfighter Information Network-Tactical program to update the Integrated System Control and the Tactical Internet Manager's requirements. The Signal Center added that it believed the Integrated System Control (Version 4)

user functional description provided known, very detailed functional requirements. But the center said it would update the document, as operational requirements are further understood.

Warfighter Information Network-Tactical Program Delays

We believe delays with the Warfighter Information Network-Tactical program make the current strategy of using the Tactical programs requirements document no longer feasible. Training and Doctrine Command's Network Management Strategy document, approved in January 2000, called for development of the Integrated System Control (Versions 1 and 2) to end after FY 02. Command is reevaluating this network management strategy because the Program Objective Memorandum didn't contain research and development funding for the Warfighter Information Network-Tactical program until FY 02, and no procurement funding was programmed through FY 07. Additionally, the Army didn't plan to field the Tactical program until FY 10.

We believe that the delay in the Warfighter Information Network-Tactical program further necessitates separate, updated Operational Requirements Documents for the Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager programs. Because the Warfighter Information Network-Tactical program will not replace these programs for about 10 years, they will continue to require modernization through spiral development. Also, some key paragraphs (for example, Need/Threat; Initial Operational Capability -- currently stated as 1st Quarter FY 95; Operational Characteristics; and Milestone Schedules) of the current Required Operational Capability document haven't been updated since November 1990. Separate, updated Operational Requirements Documents are essential not only for clearly stating the key performance parameters of these systems but also for providing the documented support to justify and support funding ongoing modernization.

System Funding

The lack of clearly stated requirements has caused the Office of the Deputy Chief of Staff for Operations and Plans to question large portions of requested funding for these two key network management systems (Versions 1 and 2, and Tactical Internet Manager). In a memorandum of intent dated 16 May 2000 regarding the FYs 02-07 Program Objective Memorandum, the Assistant Deputy Chief of Staff for Operations, Force Development, stated the lack of clear requirements for the two systems would continue to hamper funding for further development. Unless clear requirements are developed and documented in an updated Operational Requirements Document, we believe funding shortfalls will continue to hinder the development and procurement of the Army's two key network management tools.

Current Funding Status

Although the funding status has recently improved somewhat, in the past these systems weren't adequately funded to meet the Army's aggressive goal of digitizing the battlefield.

In May 2000, the Army locked its FYs 02-07 Program Objective Memorandum -- its principal programming document. The document is submitted to the Office of the Secretary Defense as the Army's recommendations in the overall budget formulation process. The document showed that the \$82.9 million procurement funds requested for the Integrated System Control (Versions 1 and 2) would be programmed. However, the document indicated that only about 54 percent

(\$21.8 million of \$40.1 million) of the research and development, and about 53 percent (\$52.7 million of \$99.1 million) of the procurement funds were programmed for the Tactical Internet Manager in FYs 02-07.

Impact of Funding Shortfalls

Funding shortfalls could impact the Army's plans for digitizing the force. As we discussed previously in this report, the Army equipped its first digitized division with the Integrated System Control in November 2000 and planned to equip its first digitized corps by the end of FY 04. To this end we believe that Training and Doctrine Command should prepare updated requirements documents (or DA-approved alternative documents). This would help make sure the requirements for these two systems critical to the Army's digitization effort are adequately justified and funded to meet the tremendous challenges that the Army faces as it digitizes the battlefield.

Mission and Concept of Operations

Differences in the mission and concept of operations of Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager are another reason separate requirements documents are needed for the two systems. The Army initially established the Integrated System Control program to address a requirement for a battlefield automated system that would provide signal units an improved management capability. The units could use the system to manage multiple tactical communications systems at each echelon from division through theater communications command. However, today the program has evolved into a two-tiered network management system.

Upper Tier

The Integrated System Control (Versions 1 and 2) is the upper tier of the Army's planned network management system and is responsible for monitoring and managing communications systems above brigade and providing high-level network management. This upper tier system focuses primarily on the communications systems of the Wide Area Network and secondarily on data networking. Because this system focuses primarily on communications, the communications military occupational series 31 is primarily responsible for the system. The Integrated System Control (Versions 1 and 2) software resides on Common Hardware Software platforms in client server architecture. The server terminals are located in Standardized Integrated Command Post Shelters, and client terminals are located in the Standardized Integrated Command Post tent.

Lower Tier

The lower tier is now known as the Tactical Internet Manager (formerly called Integrated System Control (Version 4)). The Tactical Internet Manager will be responsible for network management of the tactical Internet, tactical operation centers, and local area networks at brigade and below. The Tactical Internet Manager is primarily a tool to manage automation systems in a router-based network using existing broadcast radio systems. Unlike the Integrated System Control (Versions 1 and 2), communications platforms are the secondary rather than the primary focus of the Tactical Internet Manager. Because this system focuses primarily on automation,

the tactical automation military occupational series 74B is primarily responsible for the system. The Tactical Internet Manager is essentially network management software for brigade and below residing on ruggedized laptop computers.

Army Requirements Document Policy

Current Army policy from the Office of the Deputy Chief of Staff for Operations and Plans instructs Training and Doctrine Command to update all Required Operational Capability documents to Operational Requirements Documents incorporating costs and interoperability as key performance parameters. The Deputy Chief of Staff for Operations and Plans issued a policy memorandum during February 2000 stating that all requirements documents in older formats are required to be updated to the new format.

The primary reasons cited for updating the documents are to:

- Incorporate interoperability key performance parameter and cost.
- Support currently funded programs or programs seeking funds in the Program Objective Memorandum.
- Standardize document formats to provide both the validation and approval authorities with efficient and consistent information to use in reviews, certifications, and decision deliberations.

The policy stated that all old formatted documents were to be deleted from their active files on 1 October 2000 unless an exception was granted for a temporary delay in converting.

Training and Doctrine Command Opinion

Responsible personnel from Training and Doctrine Command said that they were in favor of developing an Operational Requirements Document for the Tactical Internet Manager. However, instead of preparing an Operational Requirements Document for the Integrated System Control (Versions 1 and 2), they were planning to update the Area Common User System Modernization Plan for any future improvements that may be needed.

Army Audit Agency Opinion

Because the Modernization Plan hadn't been updated, we couldn't determine its suitability as a requirements document for Versions 1 and 2. However, the Deputy Chief of Staff for Operations and Plans said the Training and Doctrine Command approach wasn't adequate. We believe that funding for these systems will be at significant risk unless Training and Doctrine Command prepares Operational Requirements Documents for all versions of the Integrated System Control program. If command doesn't agree with this approach, it needs to get a written waiver from the Office of the Deputy Chief of Staff for Operations and Plans.

We discuss actions needed to make sure requirements for the Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager are properly justified in Recommendations A-1.

Integrated System Control (Version 3)

DA didn't fund the Integrated System Control (Version 3) configuration, and it is now part of another program. Therefore, Training and Doctrine Command should delete it from the User Functional Description document that was created to refine and amplify the program's requirements. Based on the November 1990 Required Operational Capability document, Training and Doctrine Command originally envisioned and included a Version 3 configuration of the Integrated System Control in the User Functional Description to meet the network management requirements above brigade. The Signal Center prepared the User Functional Description in November 1994 as a follow-on to the Operational Requirements Document to clarify and amplify system requirements.

Original Need

The Army envisioned the Version 3 configuration to be a nodal requirement used at Echelons above Corps. Training and Doctrine Command had identified a need to have some capability at the nodal level such as a laptop computer with monitoring and messaging capabilities. But it wasn't clear why there had to be a complete system. The Office of the Deputy Chief of Staff for Operations and Plans reviewed the requirement for Version 3. It concluded Version 3 wasn't the most cost-effective means to meet the Echelons above Corps nodal requirement and therefore didn't fund it.

Revised Need

The Signal Center revised the Version 3 requirement in December 1999. In a memorandum to the materiel developer, the center said that ongoing Area Common User System modernization downsizing objectives could satisfy the Version 3 requirements using a Single Shelter Switch, AN/TTC-56 network management capability. This memorandum essentially removed the Version 3 requirements from the Integrated System Control program. Because DA didn't fund the Integrated System Control (Version 3) configuration and the configuration is now part of the ongoing Area Common User System modernization, it should be deleted from the User Functional Description document used to refine the Integrated System Control program requirements.

We discuss actions needed to update the User Functional Description document in Recommendations A-2.

RECOMMENDATIONS AND COMMENTS

This section contains specific recommendations and a summary of command comments for each recommendation. The official Army position and verbatim command comments are in Annex C.

**For the Commander,
U.S. Army Training and Doctrine Command**

A-1 Recommendation: Prepare separate, updated Operational Requirements Documents for the Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager.

or

Provide written justification explaining why an Operational Requirements Document isn't necessary and obtain a written waiver from the Office of the Deputy Chief of Staff for Operations and Plans to use an alternative document for updating requirements.

Command Comments: Training and Doctrine Command agreed and originally said it had requested a waiver from the Deputy Chief of Staff for Operations and Plans from updating the requirements document; however, it wasn't granted. Command stated it was working on updated Operational Requirements Documents.

In subsequent command comments, Training and Doctrine Command stated it had drafted and staffed Operational Requirements Documents for the Integrated System Control and Tactical Internet Management System. Command expected the Operational Requirements Documents to be approved by 1 March 2001.

A-2 Recommendation: Delete the Integrated System Control (Version 3) configuration from the User Functional Description document used to refine the program's requirements.

Command Comments: Training and Doctrine Command agreed and originally said the User Functional Description document for the Integrated System Control would be updated during the Operational Requirements Document writing process.

In subsequent command comments, Training and Doctrine Command stated that the Integrated System Control Version 3 is not a requirement and will not be identified as such with the Operational Requirements Document. The User Functional Description is based on the Operational Requirements Document requirements and will be updated.

Official Army Position: The Office of the Deputy Chief of Staff for Operations and Plans reviewed the report and agreed with the audit results and recommendations.

B -- USER NEEDS

OBJECTIVE

Will the Integrated System Control meet user needs and fielding schedule?

CONCLUSION

The Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager programs should meet user needs and fielding schedule of the first digitized division. However, both programs face tremendous challenges and risk of not meeting user needs and fielding schedules of the future digitized battlefield. Here's why:

- Delays in the Integrated System Control (Versions 1 and 2) program, such as those relating to restructuring the production contract and preparing the New Equipment Training Plan could delay planned fielding to the user.

- Delays in preparing and approving key program documents for the Tactical Internet Manager, such as Life Cycle Cost Estimate and the Test and Evaluation Master Plan, could adversely impact that program's future funding, development, and fielding.
- Significant unfunded requirements exist for the Tactical Internet Manager program and potentially exist for the Integrated System Control (Versions 1 and 2) programs.
- Inadequate staffing and personnel turnover have contributed to both programs not meeting all established goals and milestones.

As a result of these challenges, the Army is at risk of not meeting user needs and fielding schedules of the future.

Our detailed discussion on these conditions starts below. Our recommendations start below.

BACKGROUND

Program Documents

To meet user needs adequately, the materiel developer (Product/Project Manager) on every program must develop various program documents such as Life Cycle Cost Estimates, Test and Evaluation Master Plans, and New Equipment Training Plans. Once prepared, the documents are reviewed by other responsible or affected activities and approved by the Program Executive Officer, Training and Doctrine Command and/or DA. However, the user reviews all key program documents to make sure their requirements are being met.

Funding

Adequate funding is another key ingredient for making sure user requirements are met. The materiel developer must estimate its funding requirements and submit them to the Office of the Deputy Chief of Staff for Operations and Plans for review and approval. Programmed funding is documented and tracked in the Army's Program Objective Memorandum. Without adequate funding, the materiel developer can't employ the necessary personnel to adequately manage the program or develop and acquire the equipment necessary to fully meet user needs.

DISCUSSION

In this section, we discuss these three areas:

- Integrated System Control (Versions 1 and 2).
- Tactical Internet Manager.
- Personnel and staffing.

Integrated System Control (Versions 1 and 2)

The Integrated System Control program (Versions 1 and 2) should meet user needs and the fielding schedule of the first digitized division but is at risk of not meeting user needs and fielding schedule of the future digitized battlefield. Although the goal of the program is to field a

total of 88 Versions 1 and 2 systems, the first digitized division required only one Integrated System Control (Version 1) in November 2000. The 124th Signal Battalion received one system in support of the first digitized division.

The long-term goal of the program, however, is to field all 88 systems (Versions 1 and 2) by August 2005. The program has overcome several barriers to meeting user needs since its inception. It has taken several steps to mitigate risk and meet the challenges of fielding all systems on schedule. Nevertheless, the program continues to face challenges putting it at risk of not meeting user needs and fielding schedules of the future. Challenges include:

- Restructuring the production contract.
- Overcoming funding shortfalls.
- Preparing key program documents timely, such as the New Equipment Training Plan.

These challenges could delay planned fielding to the user.

Restructuring the Production Contract

Restructuring the production contract has created a formidable challenge for the Versions 1 and 2 systems. To understand why, here is a brief history:

- Following the Milestone I/II decision in November 1991, U.S. Army Communications-Electronics Command competitively awarded an Integrated System Control development contract in September 1992. Under the basic contract the development contractor was responsible for integrating the government-furnished equipment hardware components, subsystems, and shelter systems into prototypes. The original development contractor produced six Version 1 systems (one prototype and five fieldable systems). The materiel developer used these systems for testing and training, and one was fielded to the first digitized division.
- In August 1998, command awarded a sole-source production contract, valued at about \$8.16 million, to the subcontractor of the original Integrated System Control development contractor to produce 48 downsized Communications System Control Element facilities.
- In December 1998, the contracting officer issued a contract stop workorder on the Communications System Control Element contract based on direction from program officials. The primary reason for the work stoppage was a configuration change from an S-250 shelter design to the Standard Integrated Command Post System based shelter.
- In February 1999 at the Integrated System Control (Versions 1 and 2) Milestone III review, the Program Executive Officer made the decision to merge the Communications System Control Element program with the Integrated System Control (Versions 1 and 2) program. The decision to merge the programs essentially resulted in a stop workorder being in effect for the Integrated System Control. It also resulted in the Communications System Control Element contractor becoming the sole-source prime contractor for the Integrated System Control program.

- In February 2000, command rescinded the stop workorder to allow the contractor to perform minimal tasks. However, the production contract continues to be delayed because of ongoing contract negotiations.
- Program officials now estimate that command should complete negotiations and award a production contract modification by 31 January 2001. However, if this January date slips further, delays in the production contract will continue to delay the ultimate fielding to the user.

Overcoming Funding Shortfalls

Another challenge the program must overcome is funding shortfalls. Although the FYs 02-07 Program Objective Memorandum contained all of the funds the program requested for the Integrated System Control (Versions 1 and 2), potential unfunded requirements are likely to result from ongoing negotiations of the production contract modification. Program officials planned to use about \$8 million remaining from the original Communications System Control Element production contract to fund the production of the remaining 82 Integrated System Control (Versions 1 and 2) systems. Officials believed the \$8 million would be adequate to fund the production and fielding of the remaining 82 systems. However, the contractor's cost proposal of about \$28.1 million was still about \$20 million over the \$8 million available funding. Program officials continued to believe, however, that by deleting option requirements they could reduce the cost proposal significantly.

From our analysis of the contractor's cost proposal, we think it is unlikely the program can identify sufficient nonessential options to reduce contract costs without degrading the system or losing essential requirements. Therefore, we believe the potential funding shortfall could adversely impact the program's ability to field enough systems to meet the users' needs. The Project Manager will need to identify the unfunded requirements and try to get the needed funding as part of the next Program Objective Memorandum update.

Preparing Key Program Documents

Delays in preparing a New Equipment Training Plan and awarding a contract modification to perform new equipment training could also delay or adversely impact planned fielding of the Integrated System Control (Versions 1 and 2) to the user. New equipment training, as part of Army Modernization Training, is intended to help commanders attain operational capability in the shortest possible time. To be effective, the Army should conduct this training as close as possible to the date that a unit is scheduled to receive new or improved equipment. Also, to achieve full materiel release, materiel developers must make provisions to accomplish new equipment training before or concurrent with fielding.

Although the Army will not finalize the fielding schedule for this system until Communications-Electronics Command completes negotiations with the contractor, the current goal of the program is to field a total of 88 systems by August 2005. Despite this planned fielding schedule, the New Equipment Training Plan for Integrated System Control (Versions 1 and 2) is just in the early stages of being completed. Additionally, program officials weren't close to awarding a contract for this training. Officials were planning to modify an existing contract with the original

development contractor to perform the new equipment training but hadn't yet prepared a statement of work. Without a statement of work, contracting personnel can't request a proposal or negotiate with the contractor to award a contract for new equipment training.

Tactical Internet Manager

The Tactical Internet Manager should meet user needs and fielding schedule of the first digitized division. However, this system is also at risk of not meeting user needs and fielding schedules of the future digitized battlefield. We believe this is primarily because of constraints on the number of management, control, and oversight personnel assigned to the program. These constraints have contributed to delays in preparing key program documents that have caused milestones to slip.

System Fielding

The materiel developer has met fielding plans for the first digitized division for the system, but future fielding and testing remains uncertain. The Army fielded 17 Tactical Internet Manager Systems to the first digitized division on 15 November 2000. Eleven additional systems will be fielded to the first digitized division by 31 December 2001. However, officials also informed us that their fielding schedule wasn't finished or approved. Software testing completed to date has been positive, but program officials informed us that the first digitized division would be the first good opportunity to demonstrate the Tactical Internet Manager's capability. Under spiral development, this strategy should result in the system meeting the user needs. Spiral development allows new unproven theories to be constantly offered with new technologies and to ultimately meet the needs of the user.

Milestones and Program Documents

Milestones have been slipping on the Tactical Internet Manager program. In January 2000, program officials informed us they planned to conduct a combined milestone I/II decision in March 2000. During our audit, however, officials deferred this decision several times and now estimate that they will not have the combined milestone I/II decision until 30 September 2001. Their current plan is to have their Milestone III decision (Production, Fielding and Development, and Operational Support) in third quarter FY 02. Milestones I/II slipped primarily because of delays in preparing and approving key program documents such as Life Cycle Cost Estimate and the Test and Evaluation Master Plan. These two documents are extremely critical to the successful execution of the program.

The Life Cycle Cost Estimate is essential to program execution because the materiel developer should use it to form the basis for the annual budget for the program. It shows the total cost to the government of the acquisition program over its full life, including costs for research, development, investment, facilities, operations, maintenance, environmental, and disposal. The Test and Evaluation Master Plan is also essential because it documents the overall structure and objectives of the test and evaluation program. The plan provides a framework within which to generate detailed test and evaluation plans. The plan also documents schedule and resource implications associated with the test and evaluation program. Both these documents are required for the planned milestone I/II decision and should be approved as expeditiously as possible.

Delays in preparing and approving these documents could ultimately impact Tactical Internet Manager future funding, development, and fielding.

System Funding

Funding shortages remain an important concern for the Tactical Internet and could impact its ability to meet user needs. As we previously discussed in Objective A, a lack of clear requirements has caused the Office of the Deputy Chief of Staff for Operations and Plans to question the future funding requirements for the Tactical Internet Manager. The FYs 02–07 Program Objective Memorandum contains only about 54 percent of the research and development funds requested and only about 53 percent of the procurement funds requested for the Tactical Internet Manager. The Army equipped its first digitized division with 17 Tactical Internet Manager systems in November 2000 and planned to equip its first digitized corps by the end of FY 04. To this end, we believe Training and Doctrine Command should prepare a separate requirements document for this system. Additionally, the program needs to expedite preparing key program documents such as the Life Cycle Cost Estimate and the Test and Evaluation Master Plan. These documents are also necessary to conduct an informed milestone decision review and successfully meet the program's challenges.

We discuss the actions needed to make sure key program documents are prepared timely and adequate funding is obtained for the Integrated System Control (Versions 1 and 2) and Tactical Internet Manager in Recommendations B-1 and B-2.

Personnel and Staffing

Inadequate staffing and personnel turnover have contributed to the Integrated System Control (Versions 1 and 2) and Tactical Internet Manager programs not meeting all established goals and milestones. In FY 00 alone the Tactical Internet Manager program experienced a 100-percent turnover of personnel. In addition, program officials are restricted in the number of management, control, and oversight personnel they can assign to the program. These restrictions are the result of a September 1998 policy memorandum from the Office of the Assistant Secretary of the Army (Acquisition, Logistics and Technology). The memorandum stated that management, control, and oversight levels for the Program Executive Office for Command, Control and Communications Systems will not exceed 10 percent of their approved funding.

We believe that the Program Executive Office implementation of the 10-percent cap policy might have disproportionately impacted these programs. In particular, the Tactical Internet Manager program seemed to be adversely impacted. It was funded for only \$2.7 million in FY 00 and therefore had only two or three support personnel assigned to it during the year. Programs such as the Tactical Internet Manager that haven't been fully funded or that are relatively early in the development process may be disproportionately affected by this 10-percent cap policy.

Program officials confirmed that their difficulty in preparing key program documentation was generally the result of these staffing restrictions and the high personnel turnover. We believe the Program Executive Office should reevaluate the staffing and personnel needs of the Integrated System Control (Versions 1 and 2) and Tactical Internet Manager programs and consider funding

or transferring additional personnel to work on these programs. The September 1998 DA policy memorandum, as well as AR 70-1 (Army Acquisition Policy) both allow for flexibility in implementing this 10-percent cap policy. Both documents state that this isn't a program restriction, but is to be implemented at the oversight level or Program Executive Office level.

We discuss the actions needed for obtaining adequate staffing and personnel in Recommendation B-3.

RECOMMENDATIONS AND COMMENTS

This section contains specific recommendations and a summary of command comments for each recommendation. The official Army position and verbatim command comments are in Annex C.

For the Program Executive Officer for Command, Control and Communications Systems

B-1 Recommendation: Prepare, coordinate, and approve all key program documentation as expeditiously as possible. Specifically, prepare and approve:

- For the Tactical Internet Manager the Life Cycle Cost Estimate and Test and Evaluation Master Plan.
- For the Integrated System Control (Versions 1 and 2) the New Equipment Training Plan and the statement of work for new equipment training.

Command Comments: The Office of the Program Executive Officer agreed and said documentation is being prepared for a milestone review In-Process Review for the Tactical Internet Manager. The materiel developer will complete the required documentation after Training and Doctrine Command completes the Operational Requirements Document. The Integrated System Control (Versions 1 and 2) New Equipment Training Plan is being updated to support upcoming fielding activities. The plan will be completed by late February 2001. The Statement of Work for fielding and training has been completed and sent to the contractor.

B-2 Recommendation: Reevaluate funding needed for the Tactical Internet Manager and Integrated System Control (Versions 1 and 2) after the Operational Requirements Documents or other DA-approved requirements document for the two systems are prepared (reference Requirements -- Objective A).

Command Comments: The Office of the Program Executive Officer agreed and said that the Signal Center, Fort Gordon is preparing the Operational Requirements Documents for the Tactical Internet Manager and Integrated System Control (Versions 1 and 2). Upon completion, an assessment will be made with respect to the cost of satisfying requirements with unfunded requirements. In the interim, the materiel developer presented its estimated unfunded requirements to DA on 9 November 2000. No action had been taken by DA to provide the necessary funds.

B-3 Recommendation: Determine the appropriate staffing levels and personnel needs of the Integrated System Control (Versions 1 and 2) and Tactical Internet Manager and, if needed, fund or transfer additional personnel to work on these systems.

Command Comments: The Office of the Program Executive Officer agreed and said that the FY 01 funding for the Tactical Internet Manager will result in an increase in staff support/personnel.

Official Army Position: The Office of the Director of Information Systems for Command, Control, Communications and Computers reviewed the report and agreed with the audit results and recommendations.

C -- MODERNIZATION STRATEGY

OBJECTIVE

Did the Integrated System Control have an adequate strategy to make sure it can keep pace through spiral development with modernization efforts of related digitized systems?

CONCLUSION

Yes, the Integrated System Control program had an adequate strategy for keeping pace through spiral development with the modernization efforts of related digitized systems. Responsible personnel had estimated resources needed for engineering changes and post-production software support. To modernize and keep pace with related digitized systems, these funds should be programmed and made available to pay for needed changes to the system's hardware and software. The Integrated System Control program will continue to face tremendous challenges because of the rapid pace of battlefield automation.

To successfully meet these challenges, responsible officials should document their strategy for keeping pace through spiral development with the modernization efforts of related digitized systems. They can successfully accomplish this by preparing and periodically updating separate Operational Requirements Documents for the Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager (reference Objective A) or an alternative DA-approved document. These documents should serve as the vehicle for documenting changing operational requirements, as well as the basis for managing the scope of a dynamic acquisition process. Additionally, the Operational Requirements Document will identify the factors that drive the timing of evolving requirements such as retirement of existing systems or the expected timing of a new threat.

Our detailed discussion on these conditions starts below. Our recommendation is below.

BACKGROUND

The conventional acquisition method is to use a direct, step-by-step schedule, driven by a strict requirements determination process. This approach is frequently slow and can take several years to yield a solution.

The spiral acquisition method is to continually apply developing technology to field the solution. Unlike requirements driven development, spiral development allows new theories to be constantly offered with new technologies. Through spiral development, the materiel developer makes sure these new technologies are verified, validated, and inserted into the development process. The basic premise of spiral development is that requirements continue to evolve as the Army develops new capabilities versus the more traditional approach of meeting a known deficiency.

As the Army moves to take advantage of new technologies and reduce cycle time through spiral development, the Operational Requirements Document serves a critical role in documenting successive operational requirements and managing the scope of the acquisition process. Further, the requirements document identifies the conditions that drive the timing of the requirements such as new technologies, retirement of existing systems, or the expected timing of a new threat.

DISCUSSION

In this section, we discuss two areas:

- Funding.
- Spiral development challenges.

Funding

Program officials estimated and programmed funds for engineering changes and post-production software support for the Integrated Systems Control (Versions 1 and 2) and Tactical Internet Manager. These efforts should allow them to keep pace with the modernization efforts of related digitized systems. Although a detailed breakout of funding data wasn't available for future years, budgeting documents showed that the Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager had programmed about \$2.4 million for engineering changes for FYs 00-01. Additionally, program officials had prepared a formal Life Cycle Cost Estimate showing that the materiel developer needed about \$30 million for post-production software support for the Integrated System Control (Versions 1 and 2) through FY 14.

At the time of our review, the materiel developer hadn't approved a formal Life Cycle Cost Estimate for the Tactical Internet Manager. Nonetheless, program officials had prepared an estimate showing that the Tactical Internet Manager program would need about \$6 million for engineering change proposals and about \$14 million for post-production software support from FYs 02-07. By requesting and obtaining these funds, program officials should be able to pay for potential changes to the system's hardware and software required to modernize the system and keep pace with the modernization efforts of related digitized systems.

Spiral Development Challenges

As the Army attempts to rapidly automate the battle-space, it is likely there will be major leaps in technology. Additional funding will be necessary to modernize systems to keep pace with these leaps in technology. This is the most compelling reason that we believe Training and Doctrine Command should prepare and continually update separate Operational Requirements Documents to document this modernization strategy for Integrated System Control (Versions 1 and 2) and

the Tactical Internet Manager. If Training and Doctrine Command opts to obtain a waiver from DA, it could use another DA-approved document as the vehicle for documenting successive operational requirements and strategies for keeping pace through spiral development with the modernization efforts of related digitized systems.

The Integrated System Control and Tactical Internet Manager programs face tremendous challenges to keep pace with the modernization efforts of numerous related digitized systems through spiral development. The Army uses the spiral development approach because it recognizes that information technology advances at a rapid pace and, if quickly exploited, provides ever-increasing capabilities. In today's technological environment, new and improved hardware and software products are continually being developed to improve processing speed and increase system efficiency and hardware storage capabilities. The spiral approach is to continually apply evolving technology to develop and field solutions.

Integrated System Control Challenges

Keeping pace with the number and complexity of digitized systems being modernized through spiral development creates great challenges for the Integrated System Control program. For example, Versions 1 and 2 will be required to interface with the Army Battle Command Systems and other digitized systems. The Army Battle Command System is the Army's component of the Global Command and Control System, and it provides the mechanism to receive and transmit information among the joint forces. This highly complex system will have several version drops throughout its life cycle. Further, the existing Required Operational Capability document requires Versions 1 and 2 to be capable of automated interfaces and interoperability with the following related systems:

- Forward Area Defense Command, Control, Communications, and Intelligence System.
- Maneuver Control System.
- Advanced Field Artillery Tactical Data System.
- All Source Analysis System.
- Control Service Support Control System.

Tactical Internet Manager Challenges

The Tactical Internet Manager program will also continually evolve through spiral development. Spiral development will require the program to provide Local Area Network management to maintain and monitor the Army Battle Command System connectivity and communications service in the Tactical Operation Centers. In addition, the Tactical Internet Manager will need to interoperate with numerous related systems such as the:

- Enhanced Position Location Reporting System.
- Single Channel Ground and Airborne Radio System.
- Land Warrior.
- Joint Tactical Radio System.

- Single Channel Anti-Jam Man-portable Terminal.
- Spitfire.
- Information System Control (Versions 1 and 2).

We discuss the actions needed for documenting requirements and strategies for keeping pace with modernization efforts in Recommendation C-1.

RECOMMENDATION AND COMMENTS

This section contains a specific recommendation and a summary of command comments for the recommendation. The official Army position and verbatim command comments are in Annex C.

For the Commander, U.S. Army Training and Doctrine Command

C-1 Recommendation: Document requirements and strategies for keeping pace with the modernization efforts of related digitized systems in separate Operational Requirements Documents for Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager document or in another DA-approved requirements document.

Command Comments: Training and Doctrine Command agreed and originally said that it was working with DA on a strategy to convert the Integrated System Control Required Operational Capability to an Operational Requirements Document, and this recommendation would be incorporated into this process.

In subsequent command comments, Training and Doctrine Command stated it was updating the Operational Requirements Documents for the Integrated System Control, Tactical Internet Management System, and Army Battle Command System to keep pace with modernization efforts, with a suspense date of 1 March 2001.

Official Army Position: The Office of the Deputy Chief of Staff for Operations and Plans reviewed the report and agreed with the audit results and recommendations.

D -- KEY MANAGEMENT CONTROLS

OBJECTIVE

Did Army regulations and policies governing project management include key management controls?

CONCLUSION

Yes, Army policy governing project management identifies key management controls.

DOD 5000.2-R (Mandatory Procedures for Major Defense Acquisition Programs) identifies key management controls as the milestone decision review. It requires that materiel developers evaluate these key management controls using the milestone decision review process. This comprehensive process provides both broad management principles and specific operating

procedures for documenting requirements and performing testing of materiel from concept exploration to fielding and operational support. This process is designed to make sure system requirements are valid and user needs are met.

AR 70-1 (Army Acquisition Policy) governs research, development, acquisition, and life-cycle management of Army materiel. This regulation is first in order of precedence for managing Army acquisition programs, following statutory requirements and DOD guidance. The regulation applies to major and nonmajor systems, as well as automated information systems.

There are no recommendations.

ANNEX A

AUDIT SCOPE AND METHODOLOGY

We performed the audit:

- From December 1999 through August 2000.
- At the activities listed in Annex B.
- According to generally accepted government auditing standards and included the tests of management controls that we considered necessary under the circumstances.

The audit covered transactions representing operations current at the time of the audit.

To answer the objectives, we:

- Reviewed applicable DOD and Army regulations, policies, and procedures.
- Reviewed key program documents such as the Required Operational Capability document, User Functional Description document, Test and Evaluation Master Plans, Life Cycle Cost Estimates, Modified Integrated Program Summary, System Training Plans, New Equipment Training Plans, system contracts, and statements of work.
- Observed portions of the Integrated System Control (Versions 1 and 2) limited user test at Fort Hood, Texas.
- Interviewed key personnel from:
 - Headquarters, Department of the Army.
 - Headquarters and subordinate commands of U.S. Army Training and Doctrine Command.
 - The Office of the Director of Integration.

- Headquarters and subordinate commands of U.S. Army Operational and Test Command.
- The Office of the Program Executive Officer for Command, Control and Communications Systems.
- U.S. Army Communications-Electronics Command.
- The Office of the Project Manager, Warfighter Information Network -- Terrestrial.
- The Office of the Product Manager, Communications Management Systems.

ANNEX B

ACTIVITIES INCLUDED IN THE AUDIT

Headquarters, Department of the Army, Office of the:

Director of Information Systems for Command, Control, Communications and Computers

Deputy Chief of Staff for Logistics

Deputy Chief of Staff for Operations and Plans

Program Executive Office for Command, Control and Communications Systems

Office of the Assistant Program Executive Officer

Office of the Project Manager, Warfighter Information Network -- Terrestrial

Office of the Product Manager, Communications Management Systems

U.S. Army Training and Doctrine Command

Headquarters, Office of the Deputy Chief of Staff for Combat Developments

U.S. Army Signal Center and Fort Gordon

U.S. Army Materiel Command

U.S. Army Communications-Electronics Command

U.S. Army Tank-automotive and Armaments Command

U.S. Army Test and Evaluation Command

U.S. Army Evaluation Center

ANNEX C

OFFICIAL ARMY POSITION/VERBATIM COMMENTS BY COMMAND



DEPARTMENT OF THE ARMY
OFFICE OF THE SECRETARY OF THE ARMY
107 ARMY PENTAGON
WASHINGTON DC 20310-0107
6 December 2000

Office, Director of Information
Systems for Command, Control,
Communications, & Computers

SAIS-PA

MEMORANDUM FOR Program Director, Acquisition, Research and Development, U.S.
Army Audit Agency

SUBJECT: Draft Audit Report "Audit of Integrated System Control" (Assignment Number AO-103C)

1. Reference memorandum, SAAG-AMA, 3 October 2000
2. The Directorate of Information Systems, Command, Control, Communications and Computers has reviewed the U.S. Army Audit Agency draft audit report for Integrated System Control and finds no issues with the contents. We fully support the key recommendations to develop two distinct Operational Requirements Documents to address Area Common User System management, and to support Tactical Internet and Local Area Network management. We understand that these efforts are currently under way.
3. The Point of Contact within DISC4 is Mr. Anthony E. Makara, DSN 224-0430, or commercial (703) 614-0430.


JAMES C. HYLTON
Brigadier General, GS
Director, Programs
and Architecture



REPLY TO
ATTENTION OF

DEPARTMENT OF THE ARMY
OFFICE OF THE DEPUTY CHIEF OF STAFF FOR OPERATIONS AND PLANS
400 ARMY PENTAGON
WASHINGTON, DC 20310-0400

DAMO-FDC

OCT 10 2000

MEMORANDUM FOR U.S. Army Audit Agency, Office of the Deputy Auditor, General
Acquisition and Force Management Audits, 3101 Park
Center Drive, Alexandria, VA 22303-1596

SUBJECT: Draft Report, Audit of Integrated System Control (Assignment Number A0-
103C)

1. Reference memorandum, U.S. Army Audit Agency, SAAG-AMA, 3 Oct 00, subject same as above.
2. The Office of the Deputy Chief of Staff for Operations and Plans (DCSOPS) has reviewed the subject draft report and concurs with the comments to the findings and recommendations made by PEO C3S and TRADOC. There are no listed items for DCSOPS action.
3. POC is MAJ Charles Gabrielson, DSN 223-2259 or CML (703) 693-2259.

Encl


DAVID C. TITUS
Colonel, GS
Chief, Command, Control
and Signal Division

ATIR (SAAG-AMA/29Aug00) (36-5c) 1st End Ms. Grady/DSN 680-3060
SUBJECT: Draft report "Audit of Integrated System Control" (Assignment
Number AO-103C)

Commander, U.S. Army Training and Doctrine Command, ATTN: ATIR,
Fort Monroe, VA 23651-5000 SEP 25 2000

FOR U.S. Army Audit Agency, Acquisition and Materiel Management
Audits, 3101 Park Center Drive, Alexandria, VA 22302-1596

TRADOC reply to subject draft report is at enclosure.

FOR THE COMMANDER:

2 Encl
wd encl 1
added 1 encl
encl 2 a.s.


FRANK W. SLAYTON
Chief, Office of Internal Review
and Audit Compliance

**U.S. ARMY TRAINING AND DOCTRINE COMMAND
OFFICIAL COMMAND REPLY TO USAAA DRAFT AUDIT REPORT
Audit of Integrated System Control**

A - REQUIREMENTS

OBJECTIVE. Were there valid requirements for all configurations of Integrated System Control?

CONCLUSION. Yes, all current configurations of the Integrated System Control program had valid requirements. However, delays with the Warfighter Information Network-Tactical program means the U.S. Army Training and Doctrine Command needs to update the requirements documents to adequately justify and support future funding for the:

- Integrated System Control (Versions 1 and 2).
- Tactical Internet Manager—(formerly called Integrated System Control (Version 4)) programs.

A-1 Recommendation: Prepare separate, updated Operational Requirements for the Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager.

Or

Provide written justification explaining why an Operational Requirements Document isn't necessary and obtain a written waiver from the Office of the Deputy Chief of Staff for Operations and Plans to use an alternative document for updating requirements.

* **Command Comments:** Concur. TRADOC had requested a waiver from DCSOPS to not update the ISYSCON ROC. It was not granted so TRADOC is now working on an updated ISYSCON ORD.

A-2 Recommendation: Delete the Integrated System Control (Version 3) configuration from the User Functional Description document used to refine the program's requirements.

* **Command Comments:** Concur. TRADOC is now working on an updated ISYSCON ORD. The UFD will be updated during the ORD writing process.

*[Auditor's Note: Subsequent to receipt of the command comments, command provided updated comments. These comments are shown on pages 22 and 23.]

**U.S. ARMY TRAINING AND DOCTRINE COMMAND
OFFICIAL COMMAND REPLY TO USAAA DRAFT AUDIT REPORT
Audit of Integrated System Control**

C - MODERNIZATION STRATEGY

Objective. Did the Integrated System Control have an adequate strategy to make sure it can keep pace through spiral development with modernization efforts of related digitized systems?

Conclusion. Yes, the Integrated System Control program had an adequate strategy for keeping pace through spiral development with the modernization efforts of related digitized systems. Responsible personnel had estimated resources needed for engineering changes and post-production software support. To modernize and keep pace with related digitized systems, these funds should be programmed and made available to pay for needed changes to the system's hardware and software. The Integrated System Control program will continue to face tremendous challenges because of the rapid pace of battlefield automation.

To successfully meet these challenges, responsible officials should document their strategy for keeping pace through spiral development with the modernization efforts of related digitized systems.

C-1 Recommendation: Document requirements and strategies for keeping pace with the modernization efforts of related digitized systems in separate operational requirements documents for Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager document or in another DA-approved requirements document.

*** Command Comments.** Concur. TRADOC is currently working with DA on a strategy to convert the ISVSCON ROC to an ORD, and this recommendation will be incorporated into this process.

*[Auditor's Note: Subsequent to receipt of the command comments, command provided updated comments. These comments are shown on page 37.]



DEPARTMENT OF THE ARMY
PROGRAM EXECUTIVE OFFICE
COMMAND, CONTROL AND COMMUNICATIONS SYSTEMS
FORT MONMOUTH, NEW JERSEY 07703-8401



20 SEP 2000

REPORT TO
AUTHORITY: AF

SFAE-C3S

MEMORANDUM FOR U.S. Army Audit Agency, Deputy Auditor General
Acquisition and Materiel Management, SAAG-AMA,
(ATTN: Mr. John Buck), 3101 Park Center Drive,
Alexandria, VA 22302-1546

SUBJECT: Draft Report "Audit of Integrated System Control" (Assignment Number AD-103C)

1. Reference memorandum, SAAG-AMA, 29 August 2000, SAB.
2. The Program Executive Office for Command Control and Communications Systems (PEO C3S) has reviewed the Draft Audit Report and Recommendations, SAB. Comments and concerns applicable to the general conclusions of the document, and the specific recommendations are (encl) in accordance with the standard AAA rebuttal format.
3. Mr. Kenneth F. Rothwell, SFAE-C3S-OPS, DSN 987-7400, is the point of contact for this action. Please contact him if you require additional information on this subject.

Encl


THOMAS J. PLAVCAN
Assistant to the PEO

CF:

Project Manager, Warfighter Information Network-Terrestrial,
ATTN: SFAE-C3S-WIN-T (LTC Colon/Messrs. Nuzziato/Riley),
Fort Monmouth, NJ 07703

PEO CS3 REPLY
AAA DRAFT REPORT
(AUDIT OF INTEGRATED SYSTEM CONTROL
ASSIGNMENT NO. AD-103C)

29 SEP 1987

AUDIT CONCLUSION OBJECTIVE B - USER NEEDS. The Integrated System Control (Versions 1 and 2) and the Tactical Internet Manager Programs should meet user needs and fielding schedule of the first digitized division. However, both programs face tremendous challenges and risk of not meeting user needs and fielding schedules of the future digitized battlefields.

ADDITIONAL FACTS. We have no additional facts to share at the present time.

RECOMMENDATIONS FOR PEO CS3

B-1 RECOMMENDATION: Prepare, coordinate and approve all key program documentation as expeditiously as possible. Specifically, prepare and approve.

- For the Tactical Internet Manager the Life Cycle Cost Estimate and the Test and Evaluation Master Plan
- For the Integrated System Control (Version 1 and 2) the New Equipment Training Plan and the Statement of Work for New Equipment Training.

**** PEO COMMENTS:** Concur. Documentation is being prepared for a milestone in Process Review for the Tactical Internet Manager. The ISYSCON V1/V2 New Equipment Training Plan is being updated to support upcoming fielding activities. The Statement of Work for fielding and training has been completed and sent to the contractor (GD-C3) who is preparing their proposal response.

B-2 RECOMMENDATION: Reevaluate funding needed for the Tactical Internet Manager and Integrated System Control (Versions 1 and 2) after the Operational Requirements Documents or other DA approved requirements documents for the two systems are prepared (reference Requirements Objective A).

**** PEO COMMENTS:** Concur. Currently, the Signal Center, Fort Gordon is preparing Operational Requirements Documents for the Tactical Internet Manager and the ISYSCON V1/V2. Upon completion, an assessment will be made with respect to the cost of satisfying requirements, with unfunded requirements identified accordingly to DA Deputy Chief of Staff for Operations.

****[Auditor's Note: Subsequent to receipt of the command comments, command provided updated target dates. These dates are shown on pages 31 and 32.]**

B-3 **RECOMMENDATION:** Determine the appropriate staffing levels and personnel needs of the Integrated System Control (Version 1 and 2) and Tactical Internet Manager and if needed fund or transfer additional personnel to work on these systems.

29 SEP 2008

PEO COMMENTS: Concur. With the arrival of the upcoming FY 01, funding for the Tactical Internet Manager in Research, Development, Test and Evaluation, and Other Procurement, Army appropriations will be received. As such, a program cost estimate has been prepared to address program cost for the fiscal year as well as personnel support costs. The result will be an increase in staff support/personnel.

ANNEX D

OTHERS RECEIVING COPIES OF THIS REPORT

Assistant Secretary of the Army (Financial Management and Comptroller)

Assistant Secretary of the Army (Acquisition, Logistics and Technology)

Director of Information Systems for Command, Control, Communications and Computers

The Inspector General

Deputy Under Secretary of the Army (Operations Research)

Chief of Public Affairs

Deputy Chief of Staff for Intelligence

Deputy Chief of Staff for Logistics

Deputy Chief of Staff for Operations and Plans

Deputy Chief of Staff for Personnel

Deputy Chief of Staff for Programs

Assistant Chief of Staff for Installation Management

Deputy Assistant Secretary of the Army for Procurement

Deputy Assistant Secretary of the Army for Budget

Director, Program Analysis and Evaluation

Commanders

U.S. Army Forces Command

U.S. Army Materiel Command

U.S. Army Medical Command

U.S. Total Army Personnel Command

U.S. Army Criminal Investigation Command

U.S. Army Intelligence and Security Command

U.S. Army Communications-Electronics Command

U.S. Army Tank-automotive and Armaments Command

U.S. Army Test and Evaluation Command

U.S. Army Signal Command

U.S. Army Evaluation Center

U.S. Army Electronic Proving Ground, Fort Huachuca

4th Infantry Division

U.S. Army Recruiting Command

U.S. Army Signal Center and Fort Gordon

U.S. Army Armor Center and Fort Knox

3d Military Police Group, U.S. Army Criminal Investigation Command

Commandant, U.S. Army Logistics Management College

Directors

Integration

Center for Army Lessons Learned

Army Science Board

Under Secretary of Defense (Comptroller)

Director, Defense Intelligence Agency

Auditor General, Air Force Audit Agency

ANNEX E

AUDIT TEAM

(Assignment Code A0-103C)

Operations Center

Faith Pruett

New Jersey Field Office

Richard Albietz

John Buck

John D'Arecca

Carl Sala

Paul Van Slooten

Kenneth Zabransky

Rock Island Field Office

Ronald Kolehmainen