

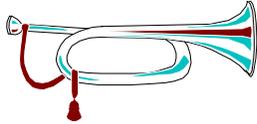


AMC COST BUSTERS BUGLE



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STRICOM and Simulation – Double the Savings

The Simulation Training and Instrumentation Command (STRICOM) has aggressively pursued and implemented cost saving initiatives that will provide for cost effective development, acquisition and operation and maintenance of training, simulation and instrumentation systems. In addition, a majority of STRICOM programs currently in development, will, when fielded, result in significant OPTEMPO savings as they provide less costly alternatives to live training and testing. These initiatives include improvements to STRICOM internal business processes, more economical implementation and consolidation of Contractor Logistics Support and Life Cycle Contractor Support, aggressive application of value engineering, implementation of acquisition reform initiatives, and development, acquisition and fielding of cost effective training, simulation and instrumentation systems.

Advanced Distributed Simulation Technology (ADST II) Program

The ADST II program is a primary performance vehicle for STRICOM in further developing simulation capabilities. The contract was structured to reduce acquisition and maintenance costs associated with the development of the synthetic environment under separate contract efforts. The indefinite quantity contract operates and develops simulation at four separate core DIS facilities – the Base Facility at Orlando, Florida; the Aviation Testbed at Fort Rucker, Alabama; the Mounted Warfare Testbed at Fort Knox, Kentucky; and the Land Warrior Testbed at Fort Benning, Georgia. All planning and coordination for the four locations are conducted from the central Orlando Base Facility, including providing centralized management, procurement, logistics, and library services, subcontracting, and technical efforts. This facility arrangement has reduced the operational costs at all locations and minimized the time delays and the entrance costs to participate in distributed simulation. The prime contractor (Lockheed Martin Information Services) and 70 subcontractors provide the expertise needed to operate and develop various simulation areas. All new projects are reviewed by the Systems Engineering Integration Team for leveraging opportunities with previous and ongoing efforts and the use of existing assets to minimize development costs.



Organization. The ADST II program uses an Integrated Project Team (IPT) where government

and contractor personnel work together to resolve problems and reduce roadblocks. Documented processes with emphasis on reuse minimize new development and are supported through an on-line library of simulation software and previous reports. ADST II has participated in the evaluation of various force structures, materiel development, and C4I improvements. ADST II offers the opportunity to access various simulations and simulators and the availability of experienced technical personnel without first requiring a significant investment in equipment or infrastructure. Our simulation assets and our experience provide the ability to evaluate various approaches to materiel, training, and combat development prior to acquisition. This use of Simulation and Modeling in Acquisition, Requirements, and Training (SMART) develops cost effective improvements for the Army.

Logistics. Through centralized logistics, STRICOM has reduced the amount of spares and efficiently manages government assets by moving equipment among the various sites. Centralized maintenance procedures allow for better use of manpower and avoid "sag and surge" workloads. The consolidated database identifies spares and equipment instantaneously, allowing ADST II to plan for the support of the program's delivery orders, react to emergency support situations, and rapidly respond to short suspenses. The centralized support creates a cost effective environment for small to medium sized efforts to leverage previous development.

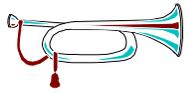
AC-130U Testbed Program. Under ADST II, the AC-130U program realized the efficiencies possible through working as an IPT with numerous government agencies and industrial contractors. A need existed to provide both crew training and engineering evaluation of potential combat and materiel advances within the available funding for a single device. The ADST IPT solution was a flexible environment suitable for performing crew training and containing enough tools and capabilities for engineering development, provided within the original budget and schedule.

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**FFTS Acquired
in Record Time!**

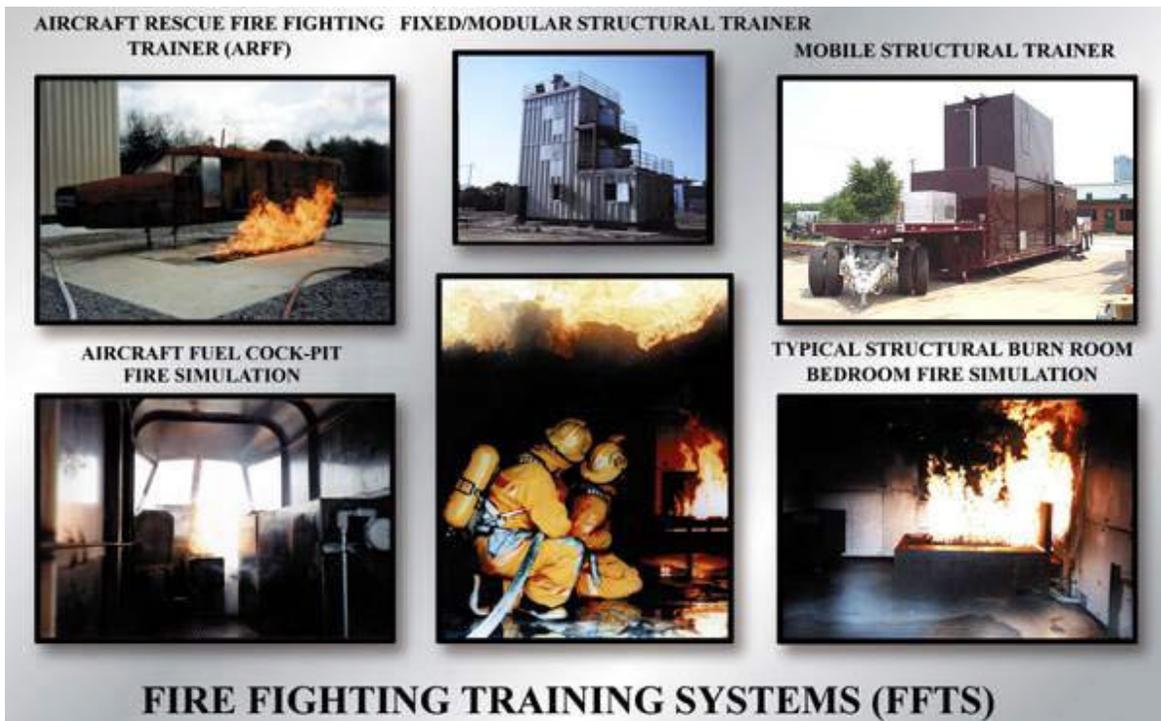
STRICOM planned and executed the Fire Fighting Training System (FFTS) program to meet a Congressional mandate to replace existing fossil-fueled fire fighting training sites with commercially available, gas-fueled, computer and programmable logic controlled FFTS at 19 initial US Army installations.

The FFTSs are state-of-the-art training systems that safely replicate flames, heat, and reduced visibility (using smoke obscuration) during residential, industrial, or aviation fire fighting training scenarios. The FFTSs integrate proven, commercially available fire fighting training technology

into structural (mobile and modular/fixed), or aircraft rescue and fire fighting (ARFF) training systems.

The FFTS contract was awarded in February 1997 as a competitive, Best Value effort fully using the commercial practices defined in the Federal Acquisition Regulation, Part 12. The FFTS IPT aggressively worked with the users/proponent from program inception in developing the operational requirements document (ORD) based on market research. From the knowledge gained of the commercial marketplace, Cost as An Independent Variable techniques were used to finalize the ORD.

The market research significantly contributed to timely proposal evaluations during source selections as it provided



insight to product characteristics, cost and other customers. The market research also allowed us to reduce the contract schedule from an anticipated 12 months to 8 months. The IPT streamlined the solicitation, limiting the entire Request for Proposal (RFP) to 17 pages. The RFP contained no reporting requirements, and the Statement of Work and Specification were only seven pages combined. The solicitation fully allowed the contractors to use their own processes and test procedures, thus, endorsing the initiative of commercial practices. The solicitation also allowed the contractor to use commercial manuals for the operation and maintenance of the system. The IPT use of electronic media is laudatory as the Commerce Business Daily announcement, the RFP, and offerors' comments were accomplished via on-line communication. The source selection was completed in record time, with award only 15 weeks after release of the solicitation. The contract was structured to allow the government maximum flexibility in the exercising of options. Unlike prior contracts in which options were tied to 12 month periods or fiscal years, the FFTS IPT structured their options in a not-to-exceed a four year period that provides us wide latitude in acquiring additional systems as funds become available.

The unique and innovative contractor/government partnering approach taken by the IPT has resulted in the implementation of several improvements to the trainers and/or additional capabilities without any increase to the trainer unit prices, as it would be the case with traditional engineering change proposals, for example:

- a no-cost added capability on the mobile trainers to connect to permanent/fixed propane and electrical supplies.
- a contractor initiated offer to provide a three-story modular/fixed structural trainer

in place of a two-story trainer for the same unit price.

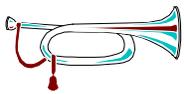
The FFTS IPT was fully empowered from its inception in accordance with the guidance contained in AMC-P 70-27, "Guidance for Integrated Product and Process Management." The team leader encouraged all IPT members to actively contribute to the decision making process. The team completed just-in-time (JIT) training at key program intervals including requirements definition, solicitation development, and source selection, which significantly contributed to an environment of openness and goal oriented success. Through an Overarching Integrated Product Team (OIPT), mid-level STRICOM managers mentored the team throughout the solicitation development and source selection process. In summary, this is a team that is empowered to fully implement acquisition reform.

The FFTS IPT has only five internal STRICOM and Naval Air Warfare Center Training Systems Division members, two of whom are on the IPT full-time. The team has maximized the use of consolidated trips and teleconferences to reduce travel expenses. The team developed an internal operating budget which is updated biweekly to reflect the latest expenditures. The first modular/fixed structural FFTS was fielded at Fort Monmouth, New Jersey, 30 October 1997. The first ARFF was fielded at Fort Belvoir, Virginia, 6 March 1998. The first mobile structural FFTS was fielded at Fort Lewis.

The FFTS IPT is the epitome of cohesive teamwork and acquisition reform striving toward the goal of reduced life cycle costs.

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Tank Weapons Gunnery Simulation System/Precision Gunnery System (TWGSS/PGS)



TWGSS/PGS Moves Aggressively to Reduce Total Ownership Cost

The Tank Weapons Gunnery Simulation System/Precision Gunnery System (TWGSS/PGS) is an appended, laser based, precision gunnery and tactical engagement simulation trainer. The TWGSS is the model integrated on all series of the Abrams tank to simulate the main gun (120mm or 105mm) and the coaxial machine gun (7.62mm). The PGS is integrated on all series of the Bradley Fighting Vehicle and the USMC Light Armored Vehicle to simulate the 25mm main gun, coaxial machine gun and TOW missile. The TWGSS/PGS allows on-vehicle precision gunnery without the expenditure of actual ammunition. Both TWGSS/PGS are fully integrated with the vehicle fire control system requiring the crewmember to perform gunnery functions (lead, super-elevation, lase) exactly as they would in combat. The TWGSS/PGS provide visual tracers, burst, and obscuration through the vehicle sights. All event data are recorded for display on a notebook computer for after action review.

The TWGSS/PGS provides a return on investment of less than 28 months in annual training ammunition savings. Current savings are calculated at \$13M per year for active duty tank battalions. Similar savings are achieved for Bradleys. The TWGSS/PGS began fielding in May 1995. There are currently more than 1000 systems fielded to US Army and Marine Corps locations throughout the world, including Bosnia & Kuwait. The total Army basis of issue (active and reserve) is 1191 TWGSS/1147 PGS. Total Marine Corps basis of issue (active and reserve) is 107 TWGSS/126 PGS. The TWGSS is also a foreign military sales item for the M1A2 tank.

The TWGSS/PGS IPT has implemented a number of other cost saving initiatives. Product acceptance is achieved via a certificate of conformance, saving \$250K in travel costs. In addition, the contractor benefits with greater shipping flexibility. The government also received management and shipment of GFE computers as consideration, saving \$13K in shipping costs.

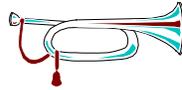
As a result of the documented superior performance of the TWGSS/PGS contractor, program risk was considered very low and the contract was converted from fixed price incentive to fixed price with monetary escalation. Included in the consideration the government received was the integration of the TWGSS on the M1A2 tank, saving PM Abrams \$3M.

The TWGSS/PGS team broke-out the procurement of the Training Data Retrieval System and the Controller Gun from the prime contractor saving \$4.5M in procurement cost.

Through analysis of repair data, the TWGSS/PGS team realized that some components were experiencing extremely low failure rates. Economic analysis determined that the monthly maintenance fee (paid to the support contractor to provide routine repair if the component ever failed) was not economically prudent. Monthly maintenance of selected items was terminated, saving \$100K in total ownership costs.

The TWGSS/PGS prime vendor contractor logistics support effort includes spare parts provided by the contractor, avoiding government investment in spares. In turn, spare parts obsolescence and re-procurement for component wear-out are also avoided. Total savings is over \$8M.

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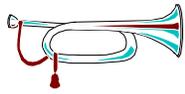


STRIAM Streamlines STRICOM

The STRICOM Acquisition Manual (STRIAM) is our strategic plan to implement Acquisition Reform, focusing on the project team and acquisition process to reduce acquisition time, labor, and thereby cost, significantly. The team's objective is to codify the overarching acquisition strategy as an aid to project directors in applying the many regulations and directives. The STRIAM presents a series of events and related products and leads the user to detailed guidance and available tools.

The STRIAM is designed to support the Command vision statement: "An efficient, relevant, and responsive organization that is the leading provider of simulation solutions for war fighting experimentation, testing, training, and related future operational battle space needs." Focusing on constructing a process consistent with all of the best intentions of Acquisition Reform and Acquisition Streamlining and concentrating on the Army's objectives of "Better, Faster, and Cheaper," this plan implements that as "Quality, Schedule, and Cost Consciousness." Thus, where the DoD 5000 series plays a role in our process, its application has been tailored significantly for our use. Similarly, where we had self-imposed roadblocks, the obstacles have been removed. A top-level document, it sets the stage for process action teams to begin working their way down to and improving supporting activities. All activities of the Command are focused on ensuring that the project team successfully and efficiently meets the customer's needs.

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SMART Concept Paper

As modern systems become more complex, the traditional linear life-cycle model of acquisition management has become too costly (in both time and money) and unresponsive. Although computer-based modeling and simulation (M&S) tools to improve the acquisition process have been used for years, the cost and complexity of these sophisticated tools were too great to be of practical use to Program Managers whose primary responsibility is developing and delivering new systems. Recent rapid improvements in M&S and in synthetic environments that can support the acquisition process and the fielding of the Close Combat Tactical Trainer (CCTT) have led the Army to examine the options for mandating a Simulation Based Acquisition approach now renamed Simulation and Modeling for Acquisition, Requirements, and Training (SMART).

STRICOM is working with the Office of the Assistant Secretary of the Army for Research, Development, and Acquisition on a concept to employ the tools of synthetic environments, originally developed for training, to facilitate the SMART process for the Future Scout Cavalry System (FSCS) and other acquisition programs. When properly incorporated into the program, SMART yields benefits that reduce risk in cost, schedule and performance by using CCTT to gain valuable warfighter insights during the acquisition process and concurrently evolve the simulation representation so that the backend training system is a product of the system acquisition process, not a follow-on. The concept for SMART does not propose to use CCTT to satisfy all the classical analyses, trade-offs

and engineering design evaluations. No single model or simulation is suitable for that. Providing a vehicle or simulation tool at the earliest stages of concept work allows a warfighter-in-the-loop, Combined Arms assessment of the proposed concept. As a system moves through the life cycle, from concept to prototype to actual system, repeated immersion of the design in a warfighting environment with warfighters in the loop will allow valuable insight into system capabilities, designs, limitations, and associated changes to tactics, techniques, and procedures. At the end of the development process, the Army ends up with a simulation tool that has evolved with the weapon system, and at this point, is a training system that fully represents the weapon system to be fielded.

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JIT Acquisition Training

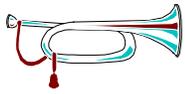


STRICOM has developed and implemented a just in time (JIT) training course that is presented to every acquisition IPT. Training is presented immediately prior to development of the solicitation, with additional training presented immediately prior to initiation of the Source Selection Evaluation process. This training has significantly reduced the review and rework time and effort associated with STRICOM Best Value procurements.

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CLS Contract Consolidation

STRICOM is the central manager for Life Cycle Contractor Support (LCCS) for all AMC supported Training Devices, Simulators and Simulations (TDSS). LCCS is defined as “The planned life cycle use of contractor to provide all logistics services necessary to keep the equipment operational.” Under the LCCS concept, logistics services include engineering services, configuration management, technical data management, supply, new equipment training, and all maintenance. This initial concept has been expanded to include, as required, such services as operators, instructors, role players, facilities management, and movement of devices to the user in the field or school.

LCCS of TDSS continues moving towards a turnkey operation. Examples are the Simulation Network (SIMNET) and the Area Weapons Scoring System (AWSS). In both cases the users are only required to schedule and attend training. With SIMNET, the contractor manages and maintains the building, conducts briefings and tours, operates and controls the exercise, maintains the equipment, and even provides the enemy. For AWSS, a mobile system, the contractor transports, sets up, operates scores, maintains, and stores the systems.

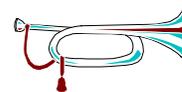
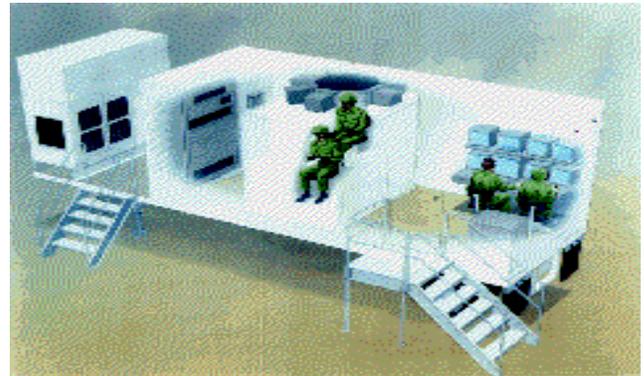
By consolidating LCCS contracts into “umbrella” contracts, STRICOM will support all TDSS worldwide and save the government millions of dollars. Examples include:

- Consolidating the Conduct of Fire Trainers (COFTs) LCCS contract, Armor Ground Forces Trainers (AGFTs) LCCS contract and the M1/M1A1 Tank Driver Trainer prime vendor CLS contract has

provided an annual savings of \$3M since contract award on 5 May 1995.

- The Platoon Gunnery Trainer (PGT) and the Advance Gunnery Training System (AGTS) which were separate and discrete procurements, have been transitioned from the prime vendor CLS contracts into the consolidated Gunnery Maintenance Trainer (GMT) LCCS contract. The PGT transition provided a \$829K annual savings, while the AGTS saved \$269K.

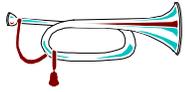
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AGTS Acceptance Testing Reengineered

The Armored Gun Training System (AGTS) contractual test program was completely reengineered to reflect the SIMTEST 2000 concept which focused on closer customer/contractor coordination through all phases to minimize cost and time for acceptance testing. The application of concurrent engineering to accomplish audits, Contractor Engineering Verification Tests, Vendor Acceptance Tests, etc., eliminated redundant testing and excessive test documentation. Approximately \$700K was saved to support other program requirements.

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STRICOM FY98 VE Goal Achieved

During the third quarter of FY98, STRICOM surpassed its value engineering (VE) goal of \$6M by 110%. Examples include:

Close Combat Tactical Trainer (CCTT) Tactical Air Control Party (TACP) Value Engineering Proposal (VEP). Combining the CCTT TACP workstation with the CCTT High Mobility Multi-purpose Wheeled Vehicle simulator and relocating the TACP radios within the existing CCTT Tactical Operations Center eliminated two 20" monitors, associated host processor graphics card, one TACP Image Generator, one TACP host computer, one workstation table, one joystick, and the software to control the ground vehicle control and dismount operation at the TACP. It also removed requirements for the TACP visual, dismounted, and ground vehicle control software functionality. Eliminating costs for the completion and testing of the TACP User Computer Interface software after Initial Operational Test and Evaluation (IOTE) will result in cost avoidances of \$1.9M in FY99.

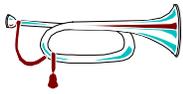
PATRIOT Omni-directional Training Aerial Tow Target (POTA-Tow) VEP. Presently, the PATRIOT Missile System shoots approximately 18 MQM-107s per year as part of live fire testing and training. Despite efforts to reduce the number of MQM-107s killed annually, approximately 9 MQM-107s are destroyed. The PM ITTS Targets Management Office POTA-Tow VEP initiative resulted in the development and procurement of a lower cost target to be

towed by the MQM-107 for use as a live-fire target for the PATRIOT Missile System. This prevents the destruction of the drone that was the originally intended target. Each drone costs \$260K. After development of the pulled target, the cost avoidance realized during the first two years is estimated at \$4.7M; implementation costs were estimated at \$300K.

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Simulated Area Weapons Effects/Multiple Integrated Laser Engagement System II (SAWE/MILES II) Vehicle Rechargeable Battery Assembly Value Engineering Change Proposal (VECP). The SAWE/MILES II Vehicle Detection Devices (VDD) subsystems are used for force on force tactical engagement simulator at the three Combat Training Centers (CTCs). To ensure round the clock vehicle vulnerability even when the vehicle is not running during CTC tactical training rotations, the VDD was equipped with an expensive, one-time use, disposable BA-5590 lithium-sulfide back-up battery. The Vehicle Rechargeable Battery Assembly VECP replaces the VDD BA-5590 with a rechargeable lead-acid battery and trickle charge assembly. The savings during the first full year after implementation are estimated at \$4.9M, with life cycle savings estimated to exceed \$100M. The VECP also provides intangible savings in terms of improved system availability.

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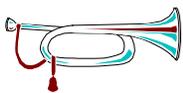


More Realistic Training, Cheaper!

The M113/BMP-2 Opposing Forces Surrogate Vehicle (OSV) is a representation of the Russian designed Boyevaya Mashina Pyekhoty-2 (BMP-2) Infantry Fighting Vehicle. This is a much needed, unique training vehicle slated to replace the currently employed visually modified Opposing Forces (OPFOR) M551 Sheridan Tank and unmodified M113 Armored Personnel Carrier surrogate vehicles at the Combat Training Centers.

The M113/BMP-2 OSV will provide a more realistic threat representation and enhanced training for mobility, night fighting and crew skills. The program will also significantly reduce operating and maintenance cost, with estimated support savings of \$153K per vehicle per year. The savings are so significant that each M113/BMP-2 OSV would completely return its initial investment in 3-4 years after fielding.

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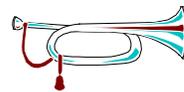
Real Training without Real Ammo

The Engagement Skills Trainer (EST) is a unit/institutional, indoor, multipurpose, multilane, small arms, crew-served and individual anti-tank training simulator. The EST will save current required ammunition resources, OPTEMPO travel time and cost to and from ranges, and other range resources, while simultaneously providing meaningful, effective training to dismounted soldiers.

Currently in source selection, the EST's modified, commercially available system

design will, when fully fielded, deliver benefits of approximately \$32M annually in M16A2 ammunition. By using the EST simulator to augment live fire training, the government will be able to capitalize on the ammunition savings without degradation to training. Ten other small arms weapons will also be simulated on the EST, adding to the above benefits. Initial fielding begins in FY99.

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CCTT Reduces OPTEMPO Costs

TRADOC has estimated an OPTEMPO reduction of approximately 60 mile per tank/Bradley as a result of training using the Close Combat Tactical Trainer (CCTT); the savings to be realized by each MACOM only after CCTT fielding. The FY98-03 POM guidance reflects this graduated OPTEMPO reduction. Possible additional reductions will be evaluated once actual experience is gained with the CCTT.

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