

## Network Integration Evaluation (NIE)

In June and July 2011, the Army executed the Network Integration Evaluation (NIE) 11.2 at Fort Bliss, Texas, and White Sands Missile Range, New Mexico. The Army intends the NIE to be the first in a series of similar events to be conducted over the next several years. The purpose of the NIE is to provide a venue for operational testing of Army acquisition programs, with a particular focus on the integrated testing of programs related to tactical mission command networks. Additionally, the NIEs are intended to serve as a venue for evaluating emerging capabilities that are not formal acquisition programs.

The intended objective of the NIE to test and evaluate network components together in a combined event is sound. The NIE events should allow for a more comprehensive evaluation of an integrated mission command network instead of piecemeal evaluations of individual network components. In theory, NIEs offer the opportunity to reduce overall T&E costs by combining test events. Conducting NIEs two times a year creates an opportunity for “event-driven” operational testing as opposed to “schedule-driven” testing. For example, if a system was not developmentally ready to enter operational testing at one NIE

event, it would have additional opportunities to enter testing in a subsequent NIE.

The NIE 11.2 offered a first look at the Army’s NIE concept. This large-scale event employed a Brigade Combat Team as the test unit operating over a six-week period. During the NIE, four acquisition systems underwent Limited User Tests (LUT):

- Joint Tactical Radio System (JTRS) Handheld, Manpack, and Small Form Fit (HMS) – Manpack (MP) Radio
- Force XXI Battle Command Brigade and Below Joint Capability Requirement
- Spider XM7 Network Command Munition
- Network Integration Kit

Additionally, JTRS Ground Mobile Radio underwent a Customer Test during NIE 11.2, and the Army conducted evaluations of 25 additional systems in various stages of development. These systems, which the Army has termed “systems under evaluation” (SUEs), are not formal acquisition programs of record, but rather systems that may offer value for future development.

### NIE ASSESSMENT

**Test Design.** The Brigade Modernization Command in conjunction with the Army Test and Evaluation Command’s (ATEC) Operational Test Command developed realistic, well-designed operational scenarios for use during the NIE.

**Test Unit.** Having a dedicated test unit, 2nd Brigade, 1st Armored Division, stationed at Fort Bliss, Texas, makes the planning and execution of the complex NIE much easier and more effective than would otherwise be the case.

**Schedule-Driven Programs.** The Army remains schedule-driven. In NIE 11.2, the Army proceeded to the LUT for the JTRS HMS-MP even though the program did not complete planned developmental testing prior to the LUT. JTRS HMS-MP was not at an adequate level of maturity to benefit from operational testing, but the Army proceeded nevertheless. As a result, little new was learned about JTRS HMS-MP performance and unnecessary test costs were incurred. The JTRS Ground Mobile Radio LUT was downgraded to a Customer Test due to the program’s Nunn-McCurdy breach, and executed with poor results due to insufficient time to fix problems identified previously.

**Test Cost.** It is not evident that NIEs will reduce test costs. Reportedly, NIE 11.2 cost \$67 Million. By comparison, the Early Infantry Brigade Combat Team (E-IBCT) LUT 09, consisting of six individual systems and the E-IBCT LUT 10 with five systems, cost approximately \$10.3 Million and \$12.3 Million

respectively. Most operational tests do not require putting an entire brigade combat team in the field, as was the case in NIE 11.2. Much of the NIE 11.2 costs can be attributed to the 25 SUEs that the Army chose to assess at this venue in conjunction with the LUTs conducted for the programs of record. Whether the knowledge gained of the SUEs justified the NIE’s overall cost is unclear.

**Redundant Systems.** The NIE 11.2 would have benefited from clearly defined event objectives that would have served to focus the Army’s evaluation effort. The network established for NIE 11.2 contained a mixture of Modified Table of Organization and Equipment systems, Theater Provided Equipment, and developmental systems. Many of these systems provided redundant communications capabilities and it was not apparent what the structure of the baseline network was intended to be, nor was it apparent what network structure the Army was seeking to evaluate. The presence of these redundant communications systems altered the expected usage and mission profiles of the systems that were under test, complicating the evaluations.

**Too Many Systems.** The Army should be cautious about inserting too many untried, experimental systems into the NIEs. The 25 SUEs contained in the NIE 11.2 stressed the Army’s evaluation capacity. Too many systems in an event create problems with data collection, to include collecting useful reliability data, and instrumentation, detracting from the

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Army's capability to perform focused evaluations. Additionally, having too many systems in an event will exceed the test unit's capacity to integrate and train Soldiers on new devices. It also complicates evaluation by not establishing a clear baseline of network structure and performance from which to measure improvement.

**Mobile Operations.** Future NIEs should expand the range of operational scenarios to include mobile battalion and brigade operations. In the NIE 11.2, brigade and battalion tactical operations centers and company command posts operated from fixed sites and were dependent upon a fixed aerial tier of 100-foot towers and aerostats in order to establish network connectivity. In future events, the Army should place a greater emphasis on scenarios that require mission command-on-the-move and the establishment and maintenance of mobile, ad hoc networks. Both of these are desired Army network characteristics that have not been demonstrated to date.

**Threat Information Operations.** In NIE 11.2, the Army took some positive steps in integrating threat information operations,

such as electronic warfare and computer network operations, into operational testing. The Army should build upon these efforts, incorporate lessons learned, and ensure that future network operational testing contains a robust information operations opposing force.

**NIE Management.** The Army has established an NIE leadership and governance structure, which they call the TRIAD, consisting of a co-equal partnership between ATEC, Training and Doctrine Command, and the Army acquisition community. ATEC's participation in this structure raises concerns with the TRIAD's potential to compromise ATEC's mission to serve as the independent tester and evaluator for Army acquisition programs. There was at least the appearance during NIE 11.2 that agencies other than ATEC were making test design and execution decisions that ATEC should have been making. This problem could become significant in future events in which program of record systems are conducting Initial Operational Tests embedded in the NIE.