



Integrated Unit Simulation System (IUSS)

General Description:

The IUSS is a constructive, force-on-force model for assessing the combat worth of systems and sub-systems for both individuals and small unit dismounted warfighters in high-resolution combat operations. The IUSS is PC-based software, coded in C++, which gives analysts a robust capability to model lethality, survivability and mobility, and the capability to model Military Operations in Urban Terrain (MOUT) environments, C4I, and sustainability.

Objectives:

To provide the tools needed to conduct integrated, multi-domain analysis that allows the complex relationships between soldiers, their equipment, and the battlefield environment to be explored. To support program managers in making informed decisions through the application of Simulation and Modeling for Acquisition, Requirements and Training (SMART) and Simulation-Based Acquisition (SBA) to reduce the overall acquisition time, avoid program costs, reduce program risk and to support development of better equipment.

Facts:

Within the US and the international Warrior Systems modeling communities, this software is acknowledged as being a highly capable tool able to support highly detailed research, development, and acquisition (RDA) analyses of individual warrior systems.

The conscientious use of IUSS can assist Project, Product, and Program Managers in making decisions on candidate systems, or subsystems, for further development. Analyses can be performed to support combat worth assessments of items and systems, technology down-selection, trade decisions, investment strategies, risk reduction strategies, focused test and evaluation and requirements validation.

The IUSS provides a capability to provide needed analysis where live fire or large-scale testing would be prohibitive. It has been used in a variety of analysis, to include: optimization of body armor configurations, analyzing alternative camouflage patterns and simulating operations in a chemical warfare agent environment. Further, environmental and psycho-physiological elements (such as heat stress, fatigue, load, hydration, dynamic weather and terrain, plus variable lighting conditions) can be modeled using IUSS.

Force structure, equipment distributions, combat threats, measures of performance and effectiveness, component system specifications, and scenario vignettes act as inputs to the analyses throughout the integrated materiel evaluation process. Analyzing data from simulations run with IUSS allows analysts to gain insight on how changes to tactical doctrine could improve soldiering tactics, techniques or procedures.

The latest iteration of the IUSS will enable the assessment of C4ISR technologies through the use of an "Intelligent Agent" architecture that is focused on the individual and small unit. These intelligent autonomous agents can sense and effect change on their environment, acting on their perceptions of current world "state" instead of "ground truth." This greatly enhances our ability to include important real world characterizations and the impacts of C4ISR technologies with the traditional foci of lethality, survivability and mobility.

Schedule:

From FY 03 to FY 04, upgrades to IUSS will focus on improved MOUT and human behavior representation to allow for more robust assessments of the combat worth of C4I technologies, sensors, displays, netted fires, and computer network systems.

Point of Contact:

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