

H3 MILSIM USAGE IN THE 21ST CENTURY

Mike Price, REPSIM, Australia

Background

Military simulations today can play an important role in developing and preparing force structures, developing critical thinking skills in professional military personnel, supporting analysis and assessment of scenarios and influencing decision makers.

Modern warfare, the high end type, is now so lethal and infrequent, that many senior officers and decision makers have no personal experience of the detail associated with why a particular strategy or force may prevail, or not, in combat.

Integration of the modern battlespace by virtue of intelligence, surveillance and reconnaissance using sensors with capabilities largely unknown in detail to most senior officers when pitted against an adversary military capability and with the ability to mount deception, denial and evasion operations over a wide area and in a sophisticated manner are beyond the common bounds of the most basic military planning tool – the BOGSAT.

A bunch of guys sitting around and talking (BOGSAT) is generally acceptable for dealing with a bunch of irregulars in thongs and carrying AK-47s and improvised explosive devices (IEDs). But move up the combat spectrum and a BOGSAT will get your forces destroyed or made irrelevant quicker than you can recover from.

The defining characteristics of a BOGSAT in analysis and planning for high end warfare are ignorance, stupidity, arrogance, incompetence and denial (“I SAID”) and the real world outcome, short of massive intervention, is generally failure.

This is based upon the simple facts that the details of system performance, countermeasure weaknesses and terminal effectiveness of both own forces and enemy is not well understood by all (knowledge of physics, radar, sonar, sensors, kinetic effects, etc) – Ignorance. The range of high end capabilities (own forces and enemy) are unknown to all members of the BOGSAT against a common frame of reference - Stupidity. The military’s unending ability to make decisions based upon perception, judgment and experience irrelevant to the task at hand – Arrogance. All three preceding facts compound in an inability to attain the objective in the face of a determined enemy with the resources, skills and commitment to withstand any initial onslaught by resorting to reaction mode – Incompetence. The end of the process is usually two fold – change the objectives to meet the circumstances and proclaim any activity a success – Denial.

H3 MilSim

Using comprehensive advanced simulations like Harpoon 3 Professional can improve the veracity of many development and planning processes conducted by either military or civilian professionals, or both together as well as inform and educate others.

The first value that H3MILSIM brings to the activity is discipline. All entities in the simulation are defined according to well understood metrics, there is no magic, nor “I’m senior, and therefore I’m right” rubbish with respect to capabilities.

The second value H3MILSIM brings to the activity is transparency. Everybody sees and can appreciate, if not understand, the absolute and relative metrics applied to all the entities: be they ships, aircraft, weapons, sensors, or communications systems. Range, speed, capacity, altitude, etc are self

Advanced Gaming Systems Inc.

evident. The development of a common frame of reference is critical to an informed discussion and debate on further issues as they arise.

The third value H3MILSIM brings is comprehensive integration of all entities into the same scenario. Many simulations are restricted to particular environments or system types and the exclusion of other advanced systems, integrated in the real world, can lead to erroneous outcomes based upon the failure to include such systems at all or an incorrect assumption regarding their potential implications.

H3MILSIM was used and development funded by the Australian DoD to generate a viable check on BOGSAT activity. Over many years a range of activities and analysis were conducted to examine a topics of interest to planners and developers.

It was relatively straightforward to develop scenarios with the appropriate entities and conduct a two pronged campaign analysis using a symposium wargame (BOGSAT) and repeating the activity using H3MILSIM simulations. Additionally, parametric analysis was also usually conducted to gain a more mechanistic left and right of ark series of answers regarding possible weapon usage and attrition. H3MILSIM is quick and efficient.

It is interesting to note that the military preferred high end activity – large scale wargames are practically irrelevant to any useful or meaningful insight into modern high end warfare because of two major issues – lack of access to high end adversary systems and the risk of death and destruction from the usage of high end systems. Successful modern warfare has moved beyond the baseline of manoeuvre warfare to the realm of effects, precision and denial – nothing that scripted large scale wargames can emulate.

Some common themes emerged in running these types of activities over many years. Belief, bordering on faith, by military officers of the effectiveness of one's own weapons – nearly 100% probability of detecting, engaging and destroying the enemy with one shot when the empirical evidence suggested much less confidence in the system, let alone the technology and production. Never forget the system you are using was made by the supplier with the lowest acceptable price – not the best system.

Conversely, cultural bias underscored many general assumptions made during BOGSAT discussions regarding potential adversary operational performance. The lack of understanding of the automation of many high end technologies and systems raised a concern about the risk of wishful thinking replacing critical thinking in areas where the rapid closing of capability gaps makes for uncomfortable reading and planning choices.

However, the most important outcome from advanced simulations is the ability to easily illustrate and explain very sophisticated and complex interactions to decision makers, at all levels. Effective visualization is worth its weight in gold to busy politicians and their staff who rarely, if ever, have an adequate understanding of the detail needed to make informed decisions regarding major procurements and associated risk management. Shared vision and confidence in reasonable and representative simulation outcomes is the key to bringing people into a comfort zone they can work in.

It also is now a bulwark against institutional and intellectual denial by gatekeepers of the establishments and organizations that prosper from the maintenance of the status quo. The ubiquity of simulations for other stakeholders in the national decision making process such as think tanks, research organizations, universities, industry as well as the military can now significantly dilute the influence and power of these gatekeepers.

Value-Added

The most severe limitation affecting BOGSAT activity and scripted wargames is the single use aspect of such activity. This limits access to, and value of, such expensive activity because it is impossible to replicate practically the underlying assumptions, values and decisions associated with the actions taken by participants. Advanced simulations are capable of being not only being stored and

Advanced Gaming Systems Inc.

replayed as necessary but they now have many more modes to offer serious planners and analysts. They can be incrementally improved or varied as circumstances dictate, leading to the creation of scarce corporate knowledge sinks as well as invaluable training and doctrine resources.

For example, with H3MILSIM not only can the simulation be run as a defined activity against an artificial opponent (AI) at the strategic, operational and tactical levels concurrently but can also have multiplayer activity conducted. This enables Red and Blue to directly confront each other according to scripts, free play, or B-Tree analysis.

H3MILSIM can store and broadcast DIS compliant information regarding any scenario thus enabling it to support more limited military specific DIS compliant simulators. These can be networked as necessary.

However, and more importantly, the detail from such simulations can be used to create higher fidelity modeling environments to better understand the interactions and dependencies of systems and technologies being used. H3MILSIM can be directly ported to AGI's Satellite Tool Kit (STK) which is one of the world's premiere modeling environments, capable of measuring performance and energy with precision.

Additionally, H3MILSIM is designed in such a way that the database is independent of the simulation engine allowing many different databases with both classified and unclassified data to be used. Different performance aspects can be easily simulated such as an aircraft doing high speed and high altitude combat work compared to the same aircraft flying nap of the earth strike routes through mountainous terrain to avoid enemy detection and interdiction. This applies equally to weapons and other systems.