

Figure 1. ADSUDM Components and Concept of Operations



ACCELERATING THE DEVELOPMENT OF SMALL UNIT DECISION MAKING (ADSUDM)

Providing small unit leaders new opportunities to rehearse and improve decision making skills.

ADSUDM is a suite of innovative technologies that provide small unit leaders new opportunities to rehearse and improve decision making skills (see Figure 1 above). It is intended to support training and education and be a resource for operational units:

- A database and interface for observing, annotating, and assessing decision-making performance in live or simulated exercises.
- A flexible, web-based interface supporting synchronized exercise replay.
- An adaptive trainer that assesses student performance and provides embedded feedback and remediation.
- Software tools for instructors to rapidly generate relevant real-world terrains to support specific training needs.

ADSUDM features multiple integrated software components that collectively form the overall capability. Central to the architecture is a relational database that provides a persistent store of Marine performance data – DM-LMS.

The 36th Commandant's Planning Guidance prioritizes small unit decision making and simulation-based training: "We will focus on better leveraging modern immersive training and simulation technologies...and the development of...sound tactical and ethical decision making at the small unit level" (USMC, 2015).

The ONR ADSUDM program will support the development, training, and assessment of small unit decision-making (SUDM) skills with three technology areas:

1. Decision Making-Learning Management System (DM-LMS)
2. Simulated Tailored Training and Assessment (ST2A)
3. Digital Integrated Representation of Tactical Environment (DIRTE)



This data can be accessed and annotated to support a variety of activities to support accelerated decision making including streamlined after-action review, adaptive training, and performance analytics data for unit leaders. For instance, this database connects directly to the ADSUDM Spartan After Action Review (SPAAR) tool – a flexible, web-based interface supporting synchronized replay of a variety of live and simulated training exercises (see Figure 2).

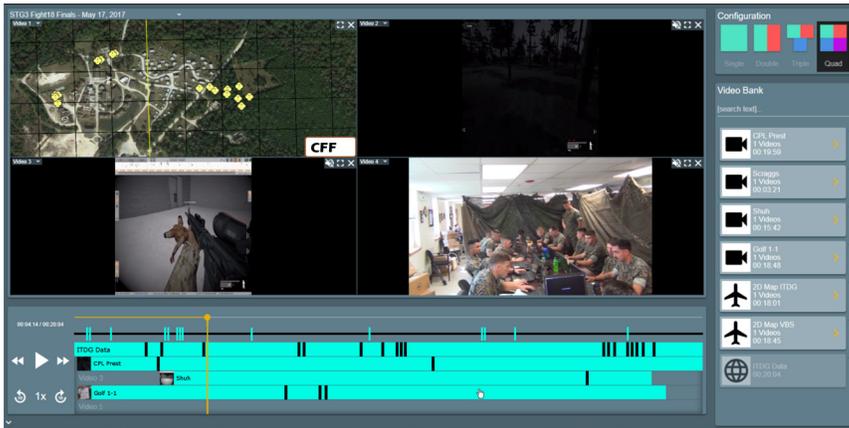


Figure 2. Spartan After Action Review (SPAAR) tool

The Adaptive Perceptual Cognitive Training System (APACTS) is a software-based adaptive trainer that monitors student performance – ST2A. It generates performance assessments that support feedback generation, analysis, future training recommendations and in-situ “micro-adaptation” where remediation content is dynamically modified to support student needs.

DIRTE provides a tool kit that enables Marine instructors to create real-world terrains to support small unit decision making training. The Synthetic Environment Terrain (SET) Tool enables Marine instructors to easily create geo-specific terrain databases from multiple data sources. These include both traditional terrain source data and photogrammetrically generated terrain data rapidly computed from imagery collected by low-cost quadcopters. Rapid Aerial PhoToGrammetric Reconstruction System (RAPTRS) software enables small units to easily plan and execute this terrain collection. The Interactive Tactical Decision Game (I-TDG), HoloLens Sandtable (see Figure 3), and Aerial Terrain Line of sight Analysis System (ATLAS) software facilitates scenario creation, training and visualization using the selected terrains.



Figure 3. HoloLens Sandtable Application

WHAT ADSUDM ACCOMPLISHES

The resultant system will ultimately enable schoolhouses, for the first time, to explicitly train and dynamically assess squad leader Key Performance Areas (KPA). It will enable training decision-making skills with targeted, individualized curricula tied to next-generation simulation-based training.

USMC RAPID CAPABILITIES OFFICE (RCO) SELECTION

In early 2017, ADSUDM software was selected by the newly established USMC Rapid Capabilities Office (RCO) as the central component of their first project. RCO deployed Tactical Decision Kits (TDKs) with ADSUDM software to all 24 USMC Infantry battalions in 2017. Feedback from both the TDK deployment and mini-systems provided to schoolhouses was incorporated into two subsequent TDK software releases. A TDK 2.0 release is planned for the end of 2018. ADSUDM is a Capable Manpower Pillar Future Naval Capability transitioning to PM TRASYS in early 2019.